Nemo File Format Specification

Version 2.26

Revision 2.26
Last Edited February 2016

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1 CHANGE HISTORY

New to 2.26

- Added support for Sevana AQuA voice quality algorithm. (AQUL)
- Added support for LTE bands 32, 45, 65, 66, and 67.

2 INTRODUCTION

You should read the following chapters carefully before you start analyzing your measurement files.

This document is a description of the Anite Finland Ltd?s open non-proprietary ASCII file format. All Nemo tools produce this type of measurement files and the files can be viewed and analyzed using various methods or tools; e.g., Nemo Outdoor playback functions, Nemo Analyze, or a text editor.

The file format description includes events and event-related parameters for all network technologies that can be measured with the Nemo tools.

2.1 HOW TO READ THIS DOCUMENT

This document is organized in such a manner that it is easy to locate specific events and parameters. From the **Table of Contents**, you will find all events organized in specific groups; e.g., Handover/Handoff events, GPRS Related events, and Call events. All events and event parameters are listed in the **Index** table. The events are also categorized according to different technologies. In other words, if you are looking for all CDMA events, go to the Index (at the end of this document) and find the keyword CDMA events. Under that keyword are listed all CDMA related events and the page where that event can be found.

All events and their parameters are presented in table format.

5.1.2 INCOMING CALL (CAI)

Heading →

Event ID	CAI
Cellular systems	All
Mode	Voice call, data call
Recorded	Idle
	Recorded when setup message has arrived from the network. Setup is used instead of paging request, because the information of the call type (voice or data; voice is only acceptable here) is first available in the setup messaging.
Nemo Tools	Nemo Outdoor, Nemo Indoor

Event Info table →

Parameters

Parameters table →

Name	Type	Description
Call type	Integer	Call type 1 = Voice call 2 = Markov call (CDMA) 3 = Data call 4 = Fax call 7 = Video call 8 = POC call
#MTC	Integer	Number of mobile terminated calls during session The ordinal number of the calls terminated during a measurement session
Number	String	Calling number Phone number from which the call is originated.

Example:
CAI +32.123456 +64.654321 55 1234 1 8 99 12:13:14.156 **1 23 12345678**

The **Heading** displays the event name and event ID. In measurement files, the events are marked with the event ID only.

The **Event Info** table presents general information of this event; for example, the cellular system where this event may occur and the Nemo tools which produce this event. All the events produced by Nemo tools are listed in this document with the respective parameters.

The following information is given for each event:

- **Event ID**
- **Cellular systems**: refers to the networks in which the event is used.
- **Recorded**: describes the state in which the event is recorded. For voice calls the alternatives are idle and call active. For circuit switched data calls the alternatives are idle, call active, and data transfer. For PS data calls (GPRS) the alternatives are idle, attach, packet active, and data transfer. For GSM the state is idle if the phone is on a control channel and call active if the phone is on a traffic channel. The diagram below describes the different recording states and the events that initiate the state transitions.
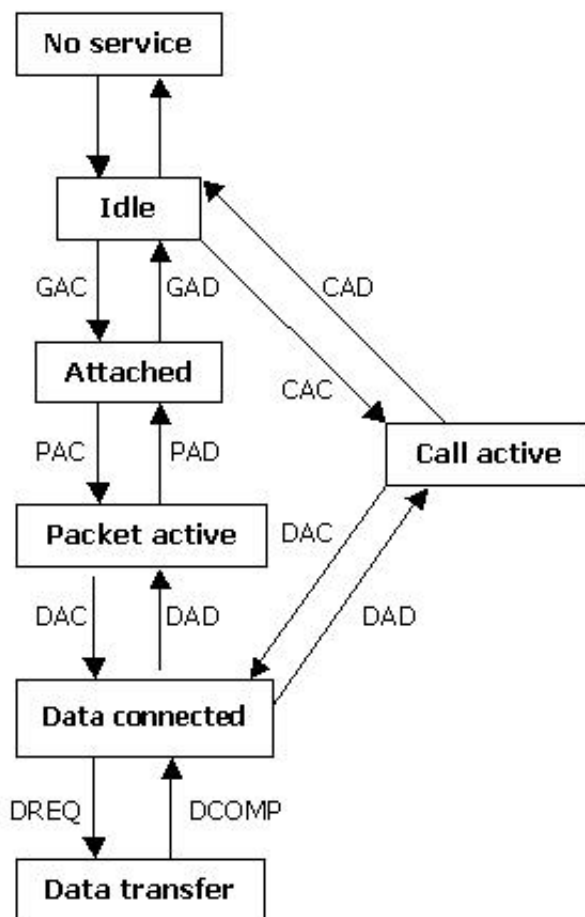
- **Nemo Tools**: refers to the Nemo tools that produce the event.

The following information is given for all parameters:

- **Name** defines the short parameter name displayed, for example, in Nemo Outdoor windows.
- **Type**: defines the parameter type. The alternatives are integer, string, hex(adecimal data), and float.
- **Description** of the parameter and possible limits and alternatives. On the first line of this field is stated the long parameter name. This name is used when selecting parameters to be displayed in the Nemo Outdoor windows.
  Only the event specific parameters are listed here. However, each event also has the time and location information. But to save space, the time and location parameters are explained only once in chapter 3.3 Event Structure. The event specific parameters are marked with bold type in the event examples.

The **Parameters table** lists all the parameters that belong to this specific event. The number of parameters differs from one event to another: while one event may have only one parameter, another event may have as many as ten. Furthermore, the same parameter can appear in several events. For each parameter are displayed the parameter name, type, and a description of the parameter. If the parameter has been shaded, it means that this parameter is repeated. In other words, there may appear several of these parameters in one event.

Finally, an example of how the event might look like in the actual measurement file is given. For example, this is how you would interpret the example above:

LLCSM,12:13:14.156,,**1,1,"UI-CMD","PACCH","01C00B"**

The first two parameters after the event ID are common to all events. For more information on these common events, see chapter 3.3 Event Structure.

- LLCSM = event ID; i.e., this is a LLC layer signaling event.
- 12:13:14:156 = time in the following format [Hour]:[Min]:[Sec].[thousands of seconds]
- Empty parameter = Number of context IDs is zero since LLC signaling event does not use context IDs.

The events that come after the time are event specific parameters. Only these parameters are explained in the Parameters table after each event. In the examples, the event specific parameters are marked with **bold** type to distinguish them from the common parameters.

- 1 = Measured system (GSM)
- 1 = Message direction (uplink)
- UI-CMD = LLC message name
- PACCH = Sub channel name
- 01C00B = Content of the LLC message

3 DESCRIPTION OF THE FILE FORMAT

An event is an ASCII string that has an unspecified length. All events are separated from each other with the ?new line? character. Different fields in each event are separated from each other by the comma character. If a value is not available (n/a), the value is omitted from the ASCII string and the omission indicated by two consecutive commas. This document describes the initial set of events and their parameters. However, new events or event parameters can be added to the file format later on.

[event ID],[time],[number of context IDs],[context ID1],[context ID2],...,[event parameters]

Example:

[event ID]	[time]	[number of context IDs]	[id1]	[event parameters]
CAA,	01:11:46.120,	1,	30,	1,1,"1234567"

3.1 EVENT ID

The event ID is unique identifier for each measurement event. The event ID defines the meaning for context IDs and for the parameters. An event ID is an string of characters without double quotes.

3.2 TIME

Time is presented in the following format:

[Hour]:[Min]:[Sec].[thousands of seconds]

3.3 CONTEXT IDS

Contexts are used in identifying measurement events written during simultaneous ?sessions?. For example, when there are two simultaneous data transfers, both data transfers use a different context ID value. Context ID values are unique only within the scope of each context ID type contained in a single measurement file, i.e. different context ID types can use the same value. In each measurement event there can be an arbitrary number of context IDs for different purposes. The event definition specifies the meaning of each context ID. If a measurement event does not contain any context IDs, number of context IDs is omitted and the omission indicated by two consecutive commas. Note also that the context ID number defines the number of context IDs in a particular measurement event, i.e. the context ID number does not refer to the number of simultaneously active ?sessions?. The context information is presented in the following format:

[number of context IDs],[id1],[id2],[id3],...

Since the idea of context IDs is quite complex, some common usage examples are provided below. In each example, irrelevant event parameters are expressed using three dots. As timestamp information is not relevant either, the text 'timestamp' is used in place of the timestamp.

Example 1

PAA,timestamp,1,100,...

The PAA measurement event starts a new packet session (in 3GPP systems this is the same as PDP context). The event contains only one context ID value, the value 100. The PAA measurement event specification defines

that the first and the only context ID is the same as Packet session context ID. Other measurement events can use the Packet session context ID value 100 to refer to this particular packet session.

Example 2

PAC,timestamp,1,100,...

The PAC measurement event is written when a packet session is connected. The event contains only one context ID value, the value 100. Based on the event specification, the type of the context ID is Packet session context ID, i.e. the same as with the PAA measurement event. This packet session connection is intended to be paired with the PAA measurement event in Example 1. If there are multiple simultaneous packet session attempts, the context ID value indicates which of the packet sessions is connected.

Example 3

DAA,timestamp,3,150,100,,...

The DAA measurement event is written for each data connection attempt, e.g. when FTP logon is started. The measurement event contains three context ID values, the values 150, 100, and n/a. Based on the event specification, the first context ID is Data connection context ID. As with the PAA measurement event, other measurement events can use the Data connection context ID value 150 to refer to this particular data connection.

The type of the second context ID is packet session context ID with the context ID value 100. Again, this context ID refers to the packet session started in Example 1. The type of the last context ID is Call context ID without context ID value. The DAA measurement event does not refer to any circuit-switched data as there is no context ID value. This behaviour is normal and due to a situation where the event is already associated with some packet session. Data connection can established using either a packet connection or a circuit-switched connection, but not both. Thus, only one of the context IDs can have a valid value.

Example 4

MSGA,timestamp,1,100,1,1,...

The MSGA measurement event is used in indicating SMS or MMS message sending. The event contains only one context ID value, the value 100. As the MSGA event specification defines two different context types, the use of the parameter Message type is necessary for deducting the correct context type. In this particular example, the Message type value is 1 (=SMS message), reflecting the fact that the event contains an SMS context ID.

Note also that even though the SMS context ID value is 100, i.e. the same as the Packet session context ID in the PAA measurement event in Example 1, these two are not related in any way as they differ in their context type. Within the scope of a single measurement file, the context ID values are unique only within each context type.

3.4 EVENT PARAMETERS

An event specifies what parameters or values are presented in each specific case. The parameter field should stay unchanged but new parameters can be added such that backward compatibility is maintained. In practice this means that new parameters can be added to the end of the measurement event or to the middle of the measurement event if event structure supports that kind of additions and normally Number of Parameters -field indicates that.

Example:

Old event   CAA,[time],,[cellular system],[call type],[phone number]

New event CAA,[time],,[cellular system],[call type],[phone number],[new parameter]

Parameter can have one of the following types:

Type	Syntax
Integer	Contains only characters ?-0123456789?, e.g. 593.
Float	Contains always one dot and characters ?-.0123456789?, e.g. -30.63.
String	UTF8 string surrounded by double quotes, e.g. "Good measurement!".

4 MEASUREMENT FILE NAMING

Measurement files are named in following format:

[filename].[device ID].nmf

Filename is defined by user or auto-generated by measurement tool.

Device ID is used to separate simultaneous measurement files when multiple devices are used simultaneously.

5 EVENTS

Antenna gain (#AG)

Event ID	#AG
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
AG	Float	Antenna gain Signal gain achieved by using an external antenna attached to a mobile phone. Value is obtained from the antenna specifications. Unit: dBi

BTS filename (#BF)

Event ID	#BF
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
BTS file	String	BTS filename File containing base station location information. The file extension is NBF.

Cell whitelist (#CELLWHITELIST)

Event ID	#CELLWHITELIST
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
BTS whitelist	String	BTS whitelist filename File containing a list of whitelisted base stations.

Conversion info (#CI)

Event ID	#CI
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Converter name	String	Converter name
Converter version	String	Converter version
Converted file	String	Converted filename

Cable loss (#CL)

Event ID	#CL
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
CL	Float	Cable loss Signal loss due to the antenna cable when using external antenna attached to a mobile phone. Value is obtained from the cable specifications. Unit: dBm

Device label (#DL)

Event ID	#DL
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Device label	String	Device label Short textual description of the device. For example, this could contain information about the usage of the device.

Device name (#DN)

Event ID	#DN
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q, Nemo Server

Parameters

Name	Type	Description
Device name	String	Device name Describes the type of mobile phone used in measurements.

Device system (#DS)

Event ID	#DS
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q, Nemo Server

Parameters

Name	Type	Description
Number of supported systems	Integer	Number of supported systems
Supported systems	Integer	Supported systems Supported systems. Depends on the measurement tool and device capabilities. With fixed-line measurement tools, it is also possible to use PSTN and ISDN values. 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO 20 = WLAN 21 = GAN WLAN 25 = WiMAX 50 = NMT 51 = AMPS 52 = NAMPS 53 = DAMPS 54 = ETACS 55 = iDEN 60 = PSTN 61 = ISDN 65 = DVB-H

Device type (#DT)

Event ID	#DT
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Device type	Integer	Device type 1 = Phone 2 = Scanner

Device configuration (#DC)

Event ID	#DC
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log the static device configuration, e.g. supported down converters or front ends etc.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Device configuration	String	Device configuration At the moment this is only used to define supported down converters with FSR1 scanner.

EVRC info (#EVRC)

Event ID	#EVRC
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
EVRC status	Integer	EVRC status 0 = Off 1 = On

File format (#FF)

Event ID	#FF
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q, Nemo Server

Parameters

Name	Type	Description
File format version	String	File format version

Floorplan information (#FLOORPLAN)

Event ID	#FLOORPLAN
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Floorplan file name	String	Floorplan file name

Floorplan coordinate system	Integer	Floorplan coordinate system
		1 = GPS
		2 = Metric
		3 = UTM
		    Universal Transverse Mercator coordinates. See more
		    http://en.wikipedia.org/wiki/Universal_Transverse_Mercator_coordinate_system.

iBwave file name	String	iBwave file name
Venue name	String	Venue name Venue or address of the building.
Building name	String	Building name
Floor name	String	Floor name

Equipment identity (#EI)

Event ID	#EI
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Device identity	String	Device identity This value is unique for each piece of equipment. For GSM and UMTS systems this is the same as IMEI (International Mobile Equipment Identity).

Handler version (#HV)

Event ID	#HV
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Handler version	String	Handler version Defines the handler version that was used when generating the file.

Device hardware version (#HW)

Event ID	#HW
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q, Nemo Server

Parameters

Name	Type	Description
Hardware version	String	Hardware version
Manufacturer	String	Manufacturer
Model	String	Model

Measurement ID (#ID)

Event ID	#ID
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Measurement ID	String	Measurement ID The identification tag is generated by using Microsoft Windows GUID functions. It is used to identify all simultaneously generated measurement files made by one measurement tool.

Server information (#SERVER)

Event ID	#SERVER
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Server HW type	Integer	Server hardware type 1 = Invex I 2 = Invex II

Parameters for Invex

Name	Type	Description
Invex Host	String	Invex host address

Invex Connector	Integer	Invex device connector
		1 = USB 1
		2 = USB 2
		3 = USB 3
		    Only with Invex II.
		4 = USB 4
		    Only with Invex II.
		5 = USB 5
		    Only with Invex II.
		6 = USB 6
		    Only with Invex II.

Server hardware information (#SERVERHW)

Event ID	#SERVERHW
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Server HW type	Integer	Server hardware type 0 = Outdoor 1 = Invex I 2 = Invex II

Parameters for Outdoor

Name	Type	Description
Invex HIM model	String	Invex handset isolation module model
Invex HIM HW	String	Invex handset isolation module hardware version
Invex HIM SW	String	Invex handset isolation module serial number
Invex HIM SW	String	Invex handset isolation module software version
Invex HIM device ID	String	Invex handset isolation module device ID
Invex CPU model	String	Invex CPU model

Parameters for Invex

Name	Type	Description
Invex UIC model	String	Invex UIC model
Invex UIC HW	String	Invex UIC hardware version
Invex UIC SN	String	Invex UIC serial number
Invex UIC SW	String	Invex UIC software version
Invex BP model	String	Invex backplane model
Invex BP HW	String	Invex backplane hardware version
Invex BP SW	String	Invex backplane serial number
Invex BP SW	String	Invex backplane software version
Invex HIM model	String	Invex handset isolation module model
Invex HIM HW	String	Invex handset isolation module hardware version
Invex HIM SW	String	Invex handset isolation module serial number
Invex HIM SW	String	Invex handset isolation module software version
Invex HIM device ID	String	Invex handset isolation module device ID
Invex CPU model	String	Invex CPU model
Invex chassis number	Integer	Invex chassis number
Invex slot number	Integer	Invex slot number

License information (#LICENSE)

Event ID	#LICENSE
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log license information.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
License type	Integer	License type 1 = HASP

Parameters for HASP

Name	Type	Description
License serial number	String	License serial number
License expiration date	String	License expiration date Date in format dd.mm.yyyy, where dd is the day of the month, mm is the month of the year and yyyy is the year. Empty string when expiration date is not defined.
TS expiration date	String	Technical support expiration date Date in format dd.mm.yyyy, where dd is the day of the month, mm is the month of the year and yyyy is the year. Empty string when expiration date is not defined.

License region information (#LICENSEREGION)

Event ID	#LICENSEREGION
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log license region information.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
#Countries	Integer	Number of countries
#Params/Country	Integer	Number of parameters per country
MCC	Integer	Mobile country code See ITU-T recommendation E.212. Range: 0 – 999
#Operators	Integer	Number of operators
#Params/Operator	Integer	Number of parameters per operator
MNC/SID	Integer	MNC/SID This is MNC for 3GPP systems and SID for 3GPP2 systems. Range: 0 – 32767

Map filename (#MF)

Event ID	#MF
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Map file	String	Map filename Defines the map file used during measurement.

Measurement label (#ML)

Event ID	#ML
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Measurement label	String	Measurement label Short textual description of the measurement.

NMR information (#NMR)

Event ID	#NMR
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
NMR version	String	NMR version
NMR features	String	NMR features This is list of supported NMR features, e.g. 'FTP,HTTP,VQ'.

Network name (#NN)

Event ID	#NN
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Network name	String	Network name Specifies the name of the measured network, given by the user in the configuration file.

Packet capture state (#PC)

Event ID	#PC
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Packet capture state	Integer	Packet capture state Defines if packet capturing is enabled or disabled. Log file is stored in the same directory as the measurement file and the log file name is the same as the measurement file with the appendix '.pcap'. For example measurement.nemo -> measurement.nemo.pcap. 0 = Disabled 1 = Enabled

Product information (#PRODUCT)

Event ID	#PRODUCT
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q, Nemo Server

Parameters

Name	Type	Description
Product name	String	Product name
Product version	String	Product version

Operating system information (#OS)

Event ID	#OS
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log information about running operating system.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Operating system	String	Operating system The operating system name and the version.

Subscriber identity (#SI)

Event ID	#SI
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Subscriber identity	String	Subscriber identity This value is unique for each user. For GSM, UMTS, and LTE systems this is the same as IMSI (International Mobile Subscriber Identity).

Subscriber phone number (#SP)

Event ID	#SP
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q, Nemo Server

Parameters

Name	Type	Description
Subscriber phone number	String	Subscriber phone number Same as phone number of the caller for originated calls.

Device software version (#SW)

Event ID	#SW
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Device software version	String	Device software version

Test script (#TS)

Event ID	#TS
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Test script file	String	Test script filename Defines the test script that was used during measurements.

Gap to UTC (#UT)

Event ID	#UT
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
UTC to local	Integer	UTC to local time difference Defines the time difference in minutes from UTC time to local time. This is the same as the timezone but it is adjusted by daylight saving. Unit: minute
UTC to timestamp	Integer	UTC to timestamp time difference Defines the time difference in minutes from UTC time to event timestamps. Unit: minute

Unit ID (#UNITID)

Event ID	#UNITID
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Unit ID	String	Unit ID Unique identifier for the measurement unit.

Voice quality version (#VQ)

Event ID	#VQ
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to log static measurement settings.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Server

Parameters

Name	Type	Description
VQ type	Integer	Voice quality type Defines what kind of voice quality hardware is used for the voice quality measurements. 0 = Disabled 1 = EVOQ 2 = Soundcard based 3 = Psytechnics PSM 4 = Fixed line 5 = Invex 6 = Nemo media router
VQ version	String	Voice quality version Defines the voice quality hardware version.
VQ device	String	Voice quality device With sound card based voice quality tests, the parameter contains the name of the driver and the number of the channel.

Kodiak info (#KODIAK)

Event ID	#KODIAK
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q, Nemo Server

Parameters

Name	Type	Description
Type	Integer	Type 1 = Kodiak

Parameters for Kodiak

Name	Type	Description
Kodiak version	String	Kodiak version

Start measurement (#START)

Event ID	#START
Cellular systems	All
Record state	Start of the measurement
Description	Recorded at the beginning of the measurement file to indicate the start of the measurement, i.e. the point after which events with measurement information are recorded.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q, Nemo Server

Parameters

Name	Type	Description
Date	String	Date Date in format dd.mm.yyyy, where dd is the day of the month, mm is the month of the year and yyyy is the year.

Stop measurement (#STOP)

Event ID	#STOP
Cellular systems	All
Record state	End of the measurement
Description	Recorded at the end of the measurement file to indicate the end of the measurement, i.e. the point after which events with measurement information are no longer recorded.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q, Nemo Server

Parameters

Name	Type	Description
Date	String	Date Date in format dd.mm.yyyy, where dd is the day of the month, mm is the month of the year and yyyy is the year.

Hash code (#HASH)

Event ID	#HASH
Cellular systems	All
Record state	End of the measurement
Description	Recorded at the end of the measurement (after #STOP measurement event). Contains the hash code that is calculated over the measurement.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q, Nemo Server

Parameters

Name	Type	Description
HASH code type	Integer	HASH code type Defines the type of checksum used for the measurement. 1 = MD5

Parameters for MD5

Name	Type	Description
HASH	String (hex)	HASH code Contains MD5 (Message-Digest algorithm 5) hash code calculated over the measurement in hex format. More information about MD5 can be found in http://en.wikipedia.org/wiki/Md5.

Call attempt (CAA)

Event ID	CAA
Cellular systems	All
Record state	Idle state
Description	Recorded for an originated call when the user has pressed the SEND key. If the point in time when the SEND key was pressed is not known, the point in time when the setup signaling message is sent to the network is used. In case of incoming calls, the point in time when the network received the setup message is used. Setup is used instead of paging request, because information on the call type (voice or data; voice is only acceptable here) is first available in setup messaging. The CAA measurement event begins the call attempt state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Call context ID	Context	Call context ID
Measured sys.	Integer	Measured system For the incoming call this is the system where the call indication was received. For example for LTE CSFB call the logged system is LTE since the first indication about the incoming call was received in LTE even though the CAA measurement event is logged during GSM/UMTS when the SETUP L3 signaling message was received. 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO 20 = WLAN 21 = GAN WLAN 25 = WiMAX 50 = NMT 51 = AMPS 52 = NAMPS 53 = DAMPS 54 = ETACS 55 = iDEN 60 = PSTN 61 = ISDN 65 = DVB-H
Call type	Integer	Call type Sometimes the exact call type is not known when SEND key is pressed and in these cases the value of this parameter is either voice (1) or video call (7). The actual established call type is logged to the CAC measurement event. 1 = Voice call 2 = Markov call 3 = Data call 4 = Fax call 5 = Dial-up based data call 6 = Loopback call (CDMA)

		7 = Video call
		8 = Push-to-talk
		9 = Push-to-talk between mobiles (TETRA)
		10 = VoIP
		11 = Skype
		12 = QChat
		13 = Kodiak
		14 = LTE IMS voice
		15 = iDEN push-to-talk
		16 = LTE IMS video
		    It is possible to have IMS video call with voice only. In these cases the call type is still IMS video and video codec parameter in the VOIPI measurement event defines the existence of the video.
		17 = WLAN IMS voice
		18 = WLAN IMS video
		    It is possible to have IMS video call with voice only. In these cases the call type is still IMS video and video codec parameter in the VOIPI measurement event defines the existence of the video.

Call direction	Integer	Call direction
		1 = Originated call
		    The test system makes the call to the other end.
		2 = Terminated call
		    The test system receives the call from the other end.

Phone number	String	Phone number This is always the remote identity. For originated calls, this is the phone number where the calls are made to and for terminated calls this is the number from which the call is made from. For the VoIP calls the SIP URI format is used.
Own phone number	String	Own phone number This is always the own identity. For originated calls this is the phone number of the caller and for incoming calls this is the own phone number. For the VoIP calls the SIP URI format is used. Currently this parameter is only implemented for the VoIP calls.
Call timeout	Integer	Call timeout The timeout value from call attempt (CAA) to the dedicated channel allocation (CAC 1). If call has not been established during this time the CAF measurement event is recorded. Unit: ms
Unique ID	String	Unique ID This parameter is unique for each call, even between measurement files, and it can be used in post-prosessing to match orginated and terminated calls. The value of the parameter is meaningless and it should only be used for the matching.
CAA time correction	Integer	CAA time correction In some cases the CAA measurement event is logged later than the real call attempt. For example, for incoming calls, the CAA measurement event is logged when the SETUP signaling message is received and not to the paging request. This parameter defines the time difference between the first indication about a call and the CAA measurement event. Currently it has only been implemented for incoming voice and video calls. Unit: ms

Call connect success (CAC)

Event ID	CAC
Cellular systems	All
Record state	Call attempt state
Description	Recorded in different stages of call establishment. This measurement event begins the call connection state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Call context ID	Context	Call context ID
Measured sys.	Integer	Measured system 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO 20 = WLAN 21 = GAN WLAN 25 = WiMAX 50 = NMT 51 = AMPS 52 = NAMPS 53 = DAMPS 54 = ETACS 55 = iDEN 60 = PSTN 61 = ISDN 65 = DVB-H
Call type	Integer	Call type 1 = Voice call 2 = Markov call 3 = Data call 4 = Fax call 5 = Dial-up based data call 6 = Loopback call (CDMA) 7 = Video call 8 = Push-to-talk 9 = Push-to-talk between mobiles (TETRA) 10 = VoIP 11 = Skype 12 = QChat 13 = Kodiak 14 = LTE IMS voice 15 = iDEN push-to-talk 16 = LTE IMS video It is possible to have IMS video call with voice only. In these cases the call type is still IMS video and video codec parameter in the VOIPI measurement event defines the existence of the video. 17 = WLAN IMS voice 18 = WLAN IMS video

		It is possible to have IMS video call with voice only. In these cases the call type is still IMS video and video codec parameter in the VOIPI measurement event defines the existence of the video.
Call connection status	Integer	Call connection status With UMTS the traffic channel state is reported after DCH radio bearer is allocated. 1 = Traffic channel allocated 2 = Alerting 3 = Connected 4 = Dial-up connection established
#Parameters	Integer	Number of system specific parameters

Parameters for GSM

Name	Type	Description
TSL	Integer	Timeslot number In case of HSCSD data test call, used timeslots are listed in a DCHI event. Range: 0 – 7

Parameters for TETRA

Name	Type	Description
TSL	Integer	Timeslot number Range: 1 – 4

Call failed (CAF)

Event ID	CAF
Cellular systems	All
Record state	Call attempt state
Description	Recorded when there is a timeout or a call release before dedicated radio resource allocation for the call. Recorded on timeout after CAA event when no service available. The CAF measurement event ends call attempt state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Call context ID	Context	Call context ID
Measured sys.	Integer	Measured system 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO 20 = WLAN 21 = GAN WLAN 25 = WiMAX 50 = NMT 51 = AMPS 52 = NAMPS 53 = DAMPS 54 = ETACS 55 = iDEN 60 = PSTN 61 = ISDN 65 = DVB-H
Call type	Integer	Call type 1 = Voice call 2 = Markov call 3 = Data call 4 = Fax call 5 = Dial-up based data call 6 = Loopback call (CDMA) 7 = Video call 8 = Push-to-talk 9 = Push-to-talk between mobiles (TETRA) 10 = VoIP 11 = Skype 12 = QChat 13 = Kodiak 14 = LTE IMS voice 15 = iDEN push-to-talk 16 = LTE IMS video It is possible to have IMS video call with voice only. In these cases the call type is still IMS video and video codec parameter in the VOIPI measurement event defines the existence of the video.

		17 = WLAN IMS voice
		18 = WLAN IMS video
		It is possible to have IMS video call with voice only. In these cases the call type is still IMS video and video codec parameter in the VOIPI measurement event defines the existence of the video.
CS fail. status	Integer	CS call attempt failure status
		1 = Timeout before connection
		Recorded for other than GSM and UMTS systems when call has failed after timeout. With the Nemo Handy this is also recorded when call attempt is aborted after timeout in the call script.
		2 = Call was released before connection
		The caller or the network releases the call attempt before the connection is received. Normally this happens when CM_SERVICE_ABORT layer 3 message is sent or CM_SERVICE_REJECT layer 3 message is received.
		3 = Service not available
		Recorded for call failure when mobile is not in service.
		4 = Incoming call rejected
		Recorded when B party rejects the call. Realization of this is the disconnect signaling message received from the network with CC cause value 16 (user disconnect).
		5 = Test system failure
		The call is considered as a test system failure when any call associated signaling (etc. cm service request, immediate assignment, setup, etc.) is not received after the call attempt command has been sent to the mobile. Another reason for this failure cause is when the called phone number is blacklisted or delayed based on country specific telecommunication regulations. Also this failure cause is recorded if called phone number differs in the setup signaling message from the one defined by user to the user interface.
		6 = SDCCH blocking
		Recorded for GSM when call fails because SDCCH channel cannot be allocated.
		7 = TCH blocking
		Recorded for GSM when call fails because TCH channel cannot be allocated.
		8 = RRC connection failed
		Recorded for UMTS when RRC connection cannot be established for the call.
		9 = Radio bearer setup failed
		Recorded for UMTS when radio bearer configuration fails or when there is no attempt to allocate radio bearer after RRC connection is established.
		10 = SDCCH release
		Recorded for GSM when network releases the SDCCH channel before TCH assignment attempt.
		11 = SDCCH drop
		Recorded for GSM when call drops after SDCCH assignment, the SETUP signaling message is received, and before TCH is assigned.
		12 = TCH assignment failure
		Recorded for GSM when TCH assignment fails.
		13 = Incoming call not received
		Recorded when the incoming call was expected but not received. To be able to log this status code the measurement system must have knowledge about the incoming call.
		14 = User busy
		Recorded when B party is busy and cannot answer. Realization of this is the disconnect signaling message

		received from the network with CC cause value 17 (user busy). 20 = PPP error Recorded for circuit-switched data call when PPP layer (MS Windows RAS) has failed to establish PPP connection to the dial-up server. The cause value contains returned RAS error value.

Parameters for non-VoIP GSM, UMTS FDD, UMTS TD-SCDMA, and GAN WLAN

Name	Type	Description
CS disc. cause	Integer	CS call disconnect cause If call is dropped due to a dial-up connection error (status code 20), the value is an OS RAS cause. Otherwise CC cause code. 1 = Unassigned (unallocated number) 3 = No route to destination 6 = Channel unacceptable 8 = Operator determined barring 16 = Normal clearing 17 = User busy 18 = No user responding 19 = User alerting, no answer 21 = Call rejected 22 = Number changed 25 = Pre-emption 26 = Non selected user clearing 27 = Destination out of order 28 = Invalid number format (incomplete number) 29 = Facility rejected 30 = Response to STATUS ENQUIRY 31 = Normal, unspecified 34 = No circuit/channel available 38 = Network out of order 41 = Temporary failure 42 = Switching equipment congestion 43 = Access information discarded 44 = Requested circuit/Channel not available 47 = Resources unavailable, unspecified 49 = Quality of service unavailable 50 = Requested facility not subscribed 55 = Incoming calls barred within the CUG 57 = Bearer capability not authorized 58 = Bearer capability not presently available 63 = Sevice or option not available, unspecified 65 = Bearer service not implemented 68 = ACM equal to or greater than ACMmax 69 = Requested facility not implemented 70 = Only restricted digital information bearer capability is available 79 = Service or option not implemented, unspecified 81 = Invalid transaction indentifier value 87 = User not member of CUG 88 = Incompatible destination 91 = Invalid transit network selection 95 = Semantically incorrect message 96 = Invalid mandatory information 97 = Message type not non-existent 98 = Message type not compatible with protocol state 99 = Information element non existent or not implemented 100 = Conditional IE error 101 = Message not compatible with protocol state 102 = Recovery on timer expiry 111 = Protocol error, unspecified 127 = Interworking, unspecified

600 = An operation is pending.
601 = An invalid port handle was detected.
602 = The specified port is already open.
603 = The caller's buffer is too small.
604 = Incorrect information was specified.
605 = The port information cannot be set.
606 = The specified port is not connected.
607 = An invalid event was detected.
608 = A device was specified that does not exist.
609 = A device type was specified that does not exist.
610 = An invalid buffer was specified.
611 = A route was specified that is not available.
612 = A route was specified that is not allocated.
613 = An invalid compression was specified.
614 = There were insufficient buffers available.
615 = The specified port was not found.
616 = An asynchronous request is pending.
617 = The modem (or other connecting device) is already disconnecting.
618 = The specified port is not open.
619 = The specified port is not connected.
620 = No endpoints could be determined.
621 = The system could not open the phone book file.
622 = The system could not load the phone book file.
623 = The system could not find the phone book entry for this connection.
624 = The system could not update the phone book file.
625 = The system found invalid information in the phone book file.
626 = A string could not be loaded.
627 = A key could not be found.
628 = The connection was closed.
629 = The connection was closed by the remote computer.
630 = The modem (or other connecting device) was disconnected due to hardware failure.
631 = The user disconnected the modem (or other connecting device).
632 = An incorrect structure size was detected.
633 = The modem (or other connecting device) is already in use or is not configured properly.
634 = Your computer could not be registered on the remote network.
635 = There was an unknown error.
636 = The device attached to the port is not the one expected.
637 = A string was detected that could not be converted.
638 = The request has timed out.
639 = No asynchronous net is available.
640 = An error has occurred involving NetBIOS.
641 = The server cannot allocate NetBIOS resources needed to support the client.
642 = One of your computer's NetBIOS names is already registered on the remote network.
643 = A network adapter at the server failed.
644 = You will not receive network message popups.
645 = There was an internal authentication error.
646 = The account is not permitted to log on at this time of day.
647 = The account is disabled.
648 = The password for this account has expired.
649 = The account does not have permission to dial in.
650 = The remote access server is not responding.
651 = The modem (or other connecting device) has reported an error.
652 = There was an unrecognized response from the modem (or other connecting device).
653 = A macro required by the modem (or other connecting

device) was not found in the device.INF file.
654 = A command or response in the device.INF file section refers to an undefined macro.
655 = The macro was not found in the device.INF file section.
656 = The macro in the device.INF file section contains an undefined macro.
657 = The device.INF file could not be opened.
658 = The device name in the device.INF or media.INI file is too long.
659 = The media.INI file refers to an unknown device name.
660 = The device.INF file contains no responses for the command.
661 = The device.INF file is missing a command.
662 = There was an attempt to set a macro not listed in device.INF file section.
663 = The media.INI file refers to an unknown device type.
664 = The system has run out of memory.
665 = The modem (or other connecting device) is not properly configured.
666 = The modem (or other connecting device) is not functioning.
667 = The system was unable to read the media.INI file.
668 = The connection was terminated.
669 = The usage parameter in the media.INI file is invalid.
670 = The system was unable to read the section name from the media.INI file.
671 = The system was unable to read the device type from the media.INI file.
672 = The system was unable to read the device name from the media.INI file.
673 = The system was unable to read the usage from the media.INI file.
674 = The system was unable to read the maximum connection BPS rate from the media.INI file.
675 = The system was unable to read the maximum carrier connection speed from the media.INI file.
676 = The phone line is busy.
677 = A person answered instead of a modem (or other connecting device).
678 = There was no answer.
679 = The system could not detect the carrier.
680 = There was no dial tone.
681 = The modem (or other connecting device) reported a general error.
682 = There was an error in writing the section name.
683 = There was an error in writing the device type.
684 = There was an error in writing the device name.
685 = There was an error in writing the maximum connection speed.
686 = There was an error in writing the maximum carrier speed.
687 = There was an error in writing the usage.
688 = There was an error in writing the default-off.
689 = There was an error in reading the default-off.
690 = ERROR_EMPTY_INI_FILE
691 = Access was denied because the username and/or password was invalid on the domain.
692 = There was a hardware failure in the modem (or other connecting device).
693 = ERROR_NOT_BINARY_MACRO
694 = ERROR_DCB_NOT_FOUND
695 = The state machines are not started.
696 = The state machines are already started.
697 = The response looping did not complete.
698 = A response keyname in the device.INF file is not in the

expected format.
699 = The modem (or other connecting device) response caused a buffer overflow.
700 = The expanded command in the device.INF file is too long.
701 = The modem moved to a connection speed not supported by the COM driver.
702 = Device response received when none expected.
703 = The connection needs information from you, but the application does not allow user interaction.
704 = The callback number is invalid.
705 = The authorization state is invalid.
706 = ERROR_WRITING_INITBPS
707 = There was an error related to the X.25 protocol.
708 = The account has expired.
709 = There was an error changing the password on the domain. The password might have been too short or might have matched a previously used password.
710 = Serial overrun errors were detected while communicating with the modem.
711 = The Remote Access Service Manager could not start. Additional information is provided in the event log.
712 = The two-way port is initializing. Wait a few seconds and redial.
713 = No active ISDN lines are available.
714 = No ISDN channels are available to make the call.
715 = Too many errors occurred because of poor phone line quality.
716 = The Remote Access Service IP configuration is unusable.
717 = No IP addresses are available in the static pool of Remote Access Service IP addresses.
718 = The connection timed out waiting for a valid response from the remote computer.
719 = The connection was terminated by the remote computer.
720 = The connection attempt failed because your computer and the remote computer could not agree on PPP control protocols.
721 = The remote computer is not responding.
722 = Invalid data was received from the remote computer. This data was ignored.
723 = The phone number, including prefix and suffix, is too long.
724 = The IPX protocol cannot dial out on the modem (or other connecting device) because this computer is not configured for dialing out (it is an IPX router).
725 = The IPX protocol cannot dial in on the modem (or other connecting device) because this computer is not configured for dialing in (the IPX router is not installed).
726 = The IPX protocol cannot be used for dialing out on more than one modem (or other connecting device) at a time.
727 = Cannot access TCPCFG.DLL.
728 = The system cannot find an IP adapter.
729 = SLIP cannot be used unless the IP protocol is installed.
730 = Computer registration is not complete.
731 = The protocol is not configured.
732 = Your computer and the remote computer could not agree on PPP control protocols.
733 = Your computer and the remote computer could not agree on PPP control protocols.
734 = The PPP link control protocol was terminated.
735 = The requested address was rejected by the server.
736 = The remote computer terminated the control protocol.
737 = Loopback was detected.
738 = The server did not assign an address.

739 = The authentication protocol required by the remote server cannot use the stored password. Redial, entering the password explicitly.
740 = An invalid dialing rule was detected.
741 = The local computer does not support the required data encryption type.
742 = The remote computer does not support the required data encryption type.
743 = The remote computer requires data encryption.
744 = The system cannot use the IPX network number assigned by the remote computer. Additional information is provided in the event log.
745 = ERROR_INVALID_SMM
746 = ERROR_SMM_UNINITIALIZED
747 = ERROR_NO_MAC_FOR_PORT
748 = ERROR_SMM_TIMEOUT
749 = ERROR_BAD_PHONE_NUMBER
750 = ERROR_WRONG_MODULE
751 = The callback number contains an invalid character. Only the following 18 characters are allowed: 0 to 9, T, P, W, (,), -, @, and space.
752 = A syntax error was encountered while processing a script.
753 = The connection could not be disconnected because it was created by the multi-protocol router.
754 = The system could not find the multi-link bundle.
755 = The system cannot perform automated dial because this connection has a custom dialer specified.
756 = This connection is already being dialed.
757 = Remote Access Services could not be started automatically. Additional information is provided in the event log.
758 = Internet Connection Sharing is already enabled on the connection.
759 = An error occurred while the existing Internet Connection Sharing settings were being changed.
760 = An error occurred while routing capabilities were being enabled.
761 = An error occurred while Internet Connection Sharing was being enabled for the connection.
762 = An error occurred while the local network was being configured for sharing.
763 = Internet Connection Sharing cannot be enabled. There is more than one LAN connection other than the connection to be shared.
764 = No smart card reader is installed.
765 = Internet Connection Sharing cannot be enabled. A LAN connection is already configured with the IP address that is required for automatic IP addressing.
766 = A certificate could not be found. Connections that use the L2TP protocol over IPSec require the installation of a machine certificate, also known as a computer certificate.
767 = Internet Connection Sharing cannot be enabled. The LAN connection selected as the private network has more than one IP address configured. Please reconfigure the LAN connection with a single IP address before enabling Internet Connection Sharing.
768 = The connection attempt failed because of failure to encrypt data.
769 = The specified destination is not reachable.
770 = The remote computer rejected the connection attempt.
771 = The connection attempt failed because the network is busy.
772 = The remote computer's network hardware is incompatible with the type of call requested.

		773 = The connection attempt failed because the destination number has changed. 774 = The connection attempt failed because of a temporary failure. Try connecting again. 775 = The call was blocked by the remote computer. 776 = The call could not be connected because the remote computer has invoked the Do Not Disturb feature. 777 = The connection attempt failed because the modem (or other connecting device) on the remote computer is out of order. 778 = It was not possible to verify the identity of the server. 779 = To dial out using this connection you must use a smart card. 780 = An attempted function is not valid for this connection. 781 = The encryption attempt failed because no valid certificate was found. 782 = Connection Sharing (NAT) is currently installed as a routing protocol, and must be removed before enabling Internet Connection Sharing. 783 = Internet Connection Sharing cannot be enabled. The LAN connection selected as the private network is either not present, or is disconnected from the network. Please ensure that the LAN adapter is connected before enabling Internet Connection Sharing. 784 = You cannot dial using this connection at logon time, because it is configured to use a user name different than the one on the smart card. If you want to use it at logon time, you must configure it to use the user name on the smart card. 785 = You cannot dial using this connection at logon time, because it is not configured to use a smart card. If you want to use it at logon time, you must edit the properties of this connection so that it uses a smart card. 786 = The L2TP connection attempt failed because there is no valid machine certificate on your computer for security authentication. 787 = The L2TP connection attempt failed because the security layer could not authenticate the remote computer. 788 = The L2TP connection attempt failed because the security layer could not negotiate compatible parameters with the remote computer. 789 = The L2TP connection attempt failed because the security layer encountered a processing error during initial negotiations with the remote computer. 790 = The L2TP connection attempt failed because certificate validation on the remote computer failed. 791 = The L2TP connection attempt failed because security policy for the connection was not found. 792 = The L2TP connection attempt failed because security negotiation timed out. 793 = The L2TP connection attempt failed because an error occurred while negotiating security. 794 = The Framed Protocol RADIUS attribute for this user is not PPP. 795 = The Tunnel Type RADIUS attribute for this user is not correct. 796 = The Service Type RADIUS attribute for this user is neither Framed nor Callback Framed. 797 = The connection failed because the modem (or other connecting device) was not found. Please make sure that the modem or other connecting device is installed. 798 = A certificate could not be found that can be used with this Extensible Authentication Protocol. 799 = Not available

Parameters for non-VoIP TETRA

Name	Type	Description
CS disc. cause	Integer	CS call disconnect cause 0 = Cause not defined or unknown 1 = User requested disconnect 2 = Called party busy 3 = Called party not reachable 4 = Called party does not support encryption 5 = Congestion in infrastructure 6 = Not allowed traffic case 7 = Incompatible traffic case 8 = Requested service not available 9 = Pre-emptive use of resource 10 = Invalid call identifier 11 = Call rejected by the called party 12 = No idle CC entity 13 = Expiry of timer 14 = SwMI requested disconnection 15 = Acknowledged service not completed

Parameters for non-VoIP cdmaOne, CDMA 1x, and EVDO

Name	Type	Description
CS disc. cause	Integer	CS call disconnect cause 0 = Phone is offline 20 = Phone is CDMA-locked until power cycle 　　　CDMA only. 21 = Phone has no service 22 = Call has ended abnormally 　　　CDMA only. 23 = Received intercept from BS 　　　Origination and CDMA only. 24 = Received reorder from BS 　　　Origination and CDMA only. 25 = Received release from BS 26 = Received release from BS 　　　SO reject, CDMA only. 27 = Received incoming call from BS 28 = Received alert stop from BS 　　　Incoming and CDMA only. 29 = Client ended call 30 = Received end activation 　　　OTASP call and CDMA only. 31 = MC aborted origination/conversation 　　　CDMA only. 32 = Maximum access probes transmitted 　　　CDMA only. 33 = Persistence test failure 　　　JCDMA and CDMA only. 34 = R-UIM not present 35 = Access attempt already in progress 36 = Access failure for reason other than the above 37 = Received retry order 　　　Origination IS-2000 and CDMA only. 38 = Concurrent service not supported by BS 39 = No response received from BS 40 = Call rejected by BS 　　　CDMA only. 41 = Concurrent services requested not compatible 　　　CDMA only. 42 = Access is blocked by BS 　　　CDMA only.

| | | 43 = Corresponds to CM_CALL_ORIG_ ERR_ ALREADY_IN_TC
44 = Call is ending due to emergency call that is flashed over this call
    CDMA only.
45 = CM is ending GPS call in favor of a user call
46 = CM is ending SMS call in favor of a user call
47 = CM is ending data call in favor of an emergency call
48 = Call rejected because of redirection or handoff |

Parameters for iDEN

Name	Type	Description
CS cause	Integer	Call failure cause 0 = FNE Denies Request 1 = Target Acknowledges Alert 2 = Target Does Not Acknowledge Alert 3 = User Cancelled 4 = Radio Time-out 5 = Radio Denies Request 6 = Normal Termination 7 = Channel Failed 8 = System Busy 9 = Access Failed 10 = Target Not Responding 11 = Target Non-Existent 12 = Unanswered Call

Parameters for VoIP

Name	Type	Description
SIP cause	Integer	SIP cause 100 = Trying Extended search being performed may take a significant time so a forking proxy must send a 100 Trying response. 180 = Ringing 181 = Call is being forwarded 182 = Queued 183 = Session progress 199 = Early dialog terminated 200 = OK 202 = Accepted The request has been understood but cannot be processed. 204 = No notification 300 = Multiple choices 301 = Moved permanently 302 = Moved temporarily 305 = Use proxy 380 = Alternative service 400 = Bad request 401 = Unauthorized Used only by registrars or user agents. Proxies should use proxy authorization 407. 402 = Payment required 403 = Forbidden 404 = Not found User not found. 405 = Method not allowed 406 = Not acceptable 407 = Proxy authentication required 408 = Request timeout (could not find the user in time) 409 = Conflict

		410 = Gone
		The user existed once, but is not available here any more.
		411 = Length required
		412 = Conditional request failed
		413 = Request entity too large
		414 = Request-URI too long
		415 = Unsupported media type
		416 = Unsupported URI scheme
		417 = Unknown resource priority
		420 = Bad extension
		Bad SIP protocol extension used, not understood by the server.
		421 = Extension required
		422 = Session interval too small
		423 = Interval too brief
		424 = Bad location information
		428 = Use identity header
		429 = Provide referrer identity
		430 = Flow failed
		433 = Anonymity disallowed
		436 = Bad identity-info
		437 = Unsupported certificate
		438 = Invalid identity header
		439 = First hop lacks outbound support
		470 = Consent needed
		480 = Temporarily unavailable
		481 = Call/transaction does not exist
		482 = Loop detected
		483 = Too many hops
		484 = Address incomplete
		485 = Ambiguous
		486 = Busy here
		487 = Request terminated
		488 = Not acceptable here
		489 = Bad event
		491 = Request pending
		493 = Undecipherable
		Could not decrypt S/MIME body part.
		494 = Security agreement required
		500 = Server internal error
		501 = Not implemented
		502 = Bad gateway
		503 = Service unavailable
		504 = Server time-out
		505 = Version not supported
		513 = Message too large
		580 = Precondition failure
		600 = Busy everywhere
		603 = Decline
		604 = Does not exist anywhere
		606 = Not acceptable

Parameters for Skype

Name	Type	Description
Skype cause	Integer	Skype cause Currently this is always n/a.

Parameters for QChat

Name	Type	Description
QChat cause	Integer	QChat cause 1 = Unsupported

2 = No targets available
3 = No reply
4 = All targets reject
5 = Unknown user
6 = Invalid conference ID
7 = Invalid address
8 = Unknown call
9 = Network delay/timeout
10 = No privilege
11 = Vocoder incompatible
12 = Version not supported
13 = No resources available
14 = Invalid opcode
15 = Bad syntax
16 = Unexpected message
17 = Busy
18 = Call not running
19 = No targets registered
20 = Not a member
21 = Limits exceeded
22 = Insufficient resources for QoS
23 = Foreign dispatch targets
24 = No call type capability
25 = Alert successful
26 = System error
27 = Already a member
28 = Talk group permission denied
29 = No multicast resources
30 = Insufficient bandwidth
100 = Hangtime timer expired on the MCU
101 = No participants
   All the participants have left the call.
102 = Server Abort
103 = Unresponsive
   The server has not been receiving responses from the client.
104 = Originator advanced termination
   The originator has chosen to tear down the call.

Parameters for Kodiak

Name	Type	Description
Kodiak cause	Integer	Kodiak cause 1001 = ACK missing 1101 = ACK failure 1102 = UI input missing 1103 = UI not ready 1104 = API request not expected/applicable

Parameters for IMS-based calls

Name	Type	Description
VoLTE cause	Integer	VoLTE cause 100 = Trying Extended search being performed may take a significant time so a forking proxy must send a 100 Trying response. 180 = Ringing 181 = Call is being forwarded 182 = Queued 183 = Session progress 199 = Early dialog terminated 200 = OK

202 = Accepted
    The request has been understood but cannot be
    processed.
204 = No notification
300 = Multiple choices
301 = Moved permanently
302 = Moved temporarily
305 = Use proxy
380 = Alternative service
400 = Bad request
401 = Unauthorized
    Used only by registrars or user agents. Proxies should use
    proxy authorization 407.
402 = Payment required
403 = Forbidden
404 = Not found
    User not found.
405 = Method not allowed
406 = Not acceptable
407 = Proxy authentication required
408 = Request timeout (could not find the user in time)
409 = Conflict
410 = Gone
    The user existed once, but is not available here any more.
411 = Length required
412 = Conditional request failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Unsupported URI scheme
417 = Unknown resource priority
420 = Bad extension
    Bad SIP protocol extension used, not understood by the
    server.
421 = Extension required
422 = Session interval too small
423 = Interval too brief
424 = Bad location information
428 = Use identity header
429 = Provide referrer identity
430 = Flow failed
433 = Anonymity disallowed
436 = Bad identity-info
437 = Unsupported certificate
438 = Invalid identity header
439 = First hop lacks outbound support
470 = Consent needed
480 = Temporarily unavailable
481 = Call/transaction does not exist
482 = Loop detected
483 = Too many hops
484 = Address incomplete
485 = Ambiguous
486 = Busy here
487 = Request terminated
488 = Not acceptable here
489 = Bad event
491 = Request pending
493 = Undecipherable
    Could not decrypt S/MIME body part.
494 = Security agreement required
500 = Server internal error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable

		504 = Server time-out 505 = Version not supported 513 = Message too large 580 = Precondition failure 600 = Busy everywhere 603 = Decline 604 = Does not exist anywhere 606 = Not acceptable

Parameters for iDEN push-to-talk

Name	Type	Description
CS cause	Integer	Call failure cause 0 = FNE Denies Request 1 = Target Acknowledges Alert 2 = Target Does Not Acknowledge Alert 3 = User Cancelled 4 = Radio Time-out 5 = Radio Denies Request 6 = Normal Termination 7 = Channel Failed 8 = System Busy 9 = Access Failed 10 = Target Not Responding 11 = Target Non-Existent 12 = Unanswered Call

Call disconnect (CAD)

Event ID	CAD
Cellular systems	All
Record state	Call connection state
Description	Recorded when call has ended and upper layer (call control layer with GSM and UMTS) signaling has released the call. The CAD measurement event ends call connection state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Call context ID	Context	Call context ID
Measured sys.	Integer	Measured system 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO 20 = WLAN 21 = GAN WLAN 25 = WiMAX 50 = NMT 51 = AMPS 52 = NAMPS 53 = DAMPS 54 = ETACS 55 = iDEN 60 = PSTN 61 = ISDN 65 = DVB-H
Call type	Integer	Call type 1 = Voice call 2 = Markov call 3 = Data call 4 = Fax call 5 = Dial-up based data call 6 = Loopback call (CDMA) 7 = Video call 8 = Push-to-talk 9 = Push-to-talk between mobiles (TETRA) 10 = VoIP 11 = Skype 12 = QChat 13 = Kodiak 14 = LTE IMS voice 15 = iDEN push-to-talk 16 = LTE IMS video 　　　It is possible to have IMS video call with voice only. In these cases the call type is still IMS video and video codec parameter in the VOIPI measurement event defines the existence of the video.

		17 = WLAN IMS voice
		18 = WLAN IMS video
		It is possible to have IMS video call with voice only. In these cases the call type is still IMS video and video codec parameter in the VOIPI measurement event defines the existence of the video.
CS disc. status	Integer	CS call disconnect status
		1 = Normal disconnect
		Recorded when the call does NOT end abnormally, i.e. the call is assumed to end successfully. Occurs when the user requests call disconnection or the B party terminates the voice call.
		2 = Dropped call
		This status value is used when there is no better description for the dropped call.
		3 = Dropped out of service
		Recorded when the call is terminated because of missing service.
		4 = Dropped during handover/handoff/hard handover
		5 = Test system failure
		Currently this status value is never logged but it would be used when an abnormal call ending was caused by the measurement tool.
		6 = Timeout
		Logged when the call timeout happens between the dedicated channel allocation (CAC 1) and alerting (CAC 2).
		11 = Voice quality synchronization lost
		The call was terminated because voice quality synchronization could not be achieved or it was lost.
		12 = TCH assignment failure
		Recorded for GSM when TCH channel assignment fails. Typically this occurs when the late assignment configuration is used or when the terminal's attempt to send ASSIGNMENT COMPLETE signaling message to the network fails.
		13 = Early release
		The received call was terminated normally before the predefined call duration was reached. Early release is not logged if user terminates the call.
		14 = User busy
		Recorded when B party is busy and cannot answer. Realization of this is the disconnect signaling message received from the network with CC cause value 17 (user busy).
		20 = PPP error
		The call was terminated because of RAS failure. The RAS error value is stored in the cause value parameter.

Parameters for non-VoIP GSM, UMTS FDD, UMTS TD-SCDMA, and GAN WLAN

Name	Type	Description
CS disc. cause	Integer	CS call disconnect cause
		If call is dropped due to a dial-up connection error (status code 20), the value is an OS RAS cause. Otherwise CC cause code.
		1 = Unassigned (unallocated number)
		3 = No route to destination
		6 = Channel unacceptable
		8 = Operator determined barring
		16 = Normal clearing
		17 = User busy
		18 = No user responding
		19 = User alerting, no answer

21 = Call rejected
22 = Number changed
25 = Pre-emption
26 = Non selected user clearing
27 = Destination out of order
28 = Invalid number format (incomplete number)
29 = Facility rejected
30 = Response to STATUS ENQUIRY
31 = Normal, unspecified
34 = No circuit/channel available
38 = Network out of order
41 = Temporary failure
42 = Switching equipment congestion
43 = Access information discarded
44 = Requested circuit/Channel not available
47 = Resources unavailable, unspecified
49 = Quality of service unavailable
50 = Requested facility not subscribed
55 = Incoming calls barred within the CUG
57 = Bearer capability not authorized
58 = Bearer capability not presently available
63 = Sevice or option not available, unspecified
65 = Bearer service not implemented
68 = ACM equal to or greater than ACMmax
69 = Requested facility not implemented
70 = Only restricted digital information bearer capability is
available
79 = Service or option not implemented, unspecified
81 = Invalid transaction indentifier value
87 = User not member of CUG
88 = Incompatible destination
91 = Invalid transit network selection
95 = Semantically incorrect message
96 = Invalid mandatory information
97 = Message type not non-existent
98 = Message type not compatible with protocol state
99 = Information element non existent or not implemented
100 = Conditional IE error
101 = Message not compatible with protocol state
102 = Recovery on timer expiry
111 = Protocol error, unspecified
127 = Interworking, unspecified
600 = An operation is pending.
601 = An invalid port handle was detected.
602 = The specified port is already open.
603 = The caller's buffer is too small.
604 = Incorrect information was specified.
605 = The port information cannot be set.
606 = The specified port is not connected.
607 = An invalid event was detected.
608 = A device was specified that does not exist.
609 = A device type was specified that does not exist.
610 = An invalid buffer was specified.
611 = A route was specified that is not available.
612 = A route was specified that is not allocated.
613 = An invalid compression was specified.
614 = There were insufficient buffers available.
615 = The specified port was not found.
616 = An asynchronous request is pending.
617 = The modem (or other connecting device) is already
disconnecting.
618 = The specified port is not open.
619 = The specified port is not connected.
620 = No endpoints could be determined.
621 = The system could not open the phone book file.

622 = The system could not load the phone book file.
623 = The system could not find the phone book entry for this connection.
624 = The system could not update the phone book file.
625 = The system found invalid information in the phone book file.
626 = A string could not be loaded.
627 = A key could not be found.
628 = The connection was closed.
629 = The connection was closed by the remote computer.
630 = The modem (or other connecting device) was disconnected due to hardware failure.
631 = The user disconnected the modem (or other connecting device).
632 = An incorrect structure size was detected.
633 = The modem (or other connecting device) is already in use or is not configured properly.
634 = Your computer could not be registered on the remote network.
635 = There was an unknown error.
636 = The device attached to the port is not the one expected.
637 = A string was detected that could not be converted.
638 = The request has timed out.
639 = No asynchronous net is available.
640 = An error has occurred involving NetBIOS.
641 = The server cannot allocate NetBIOS resources needed to support the client.
642 = One of your computer's NetBIOS names is already registered on the remote network.
643 = A network adapter at the server failed.
644 = You will not receive network message popups.
645 = There was an internal authentication error.
646 = The account is not permitted to log on at this time of day.
647 = The account is disabled.
648 = The password for this account has expired.
649 = The account does not have permission to dial in.
650 = The remote access server is not responding.
651 = The modem (or other connecting device) has reported an error.
652 = There was an unrecognized response from the modem (or other connecting device).
653 = A macro required by the modem (or other connecting device) was not found in the device.INF file.
654 = A command or response in the device.INF file section refers to an undefined macro.
655 = The macro was not found in the device.INF file section.
656 = The macro in the device.INF file section contains an undefined macro.
657 = The device.INF file could not be opened.
658 = The device name in the device.INF or media.INI file is too long.
659 = The media.INI file refers to an unknown device name.
660 = The device.INF file contains no responses for the command.
661 = The device.INF file is missing a command.
662 = There was an attempt to set a macro not listed in device.INF file section.
663 = The media.INI file refers to an unknown device type.
664 = The system has run out of memory.
665 = The modem (or other connecting device) is not properly configured.
666 = The modem (or other connecting device) is not functioning.
667 = The system was unable to read the media.INI file.
668 = The connection was terminated.

669 = The usage parameter in the media.INI file is invalid.
670 = The system was unable to read the section name from the media.INI file.
671 = The system was unable to read the device type from the media.INI file.
672 = The system was unable to read the device name from the media.INI file.
673 = The system was unable to read the usage from the media.INI file.
674 = The system was unable to read the maximum connection BPS rate from the media.INI file.
675 = The system was unable to read the maximum carrier connection speed from the media.INI file.
676 = The phone line is busy.
677 = A person answered instead of a modem (or other connecting device).
678 = There was no answer.
679 = The system could not detect the carrier.
680 = There was no dial tone.
681 = The modem (or other connecting device) reported a general error.
682 = There was an error in writing the section name.
683 = There was an error in writing the device type.
684 = There was an error in writing the device name.
685 = There was an error in writing the maximum connection speed.
686 = There was an error in writing the maximum carrier speed.
687 = There was an error in writing the usage.
688 = There was an error in writing the default-off.
689 = There was an error in reading the default-off.
690 = ERROR_EMPTY_INI_FILE
691 = Access was denied because the username and/or password was invalid on the domain.
692 = There was a hardware failure in the modem (or other connecting device).
693 = ERROR_NOT_BINARY_MACRO
694 = ERROR_DCB_NOT_FOUND
695 = The state machines are not started.
696 = The state machines are already started.
697 = The response looping did not complete.
698 = A response keyname in the device.INF file is not in the expected format.
699 = The modem (or other connecting device) response caused a buffer overflow.
700 = The expanded command in the device.INF file is too long.
701 = The modem moved to a connection speed not supported by the COM driver.
702 = Device response received when none expected.
703 = The connection needs information from you, but the application does not allow user interaction.
704 = The callback number is invalid.
705 = The authorization state is invalid.
706 = ERROR_WRITING_INITBPS
707 = There was an error related to the X.25 protocol.
708 = The account has expired.
709 = There was an error changing the password on the domain. The password might have been too short or might have matched a previously used password.
710 = Serial overrun errors were detected while communicating with the modem.
711 = The Remote Access Service Manager could not start. Additional information is provided in the event log.
712 = The two-way port is initializing. Wait a few seconds and

redial.
713 = No active ISDN lines are available.
714 = No ISDN channels are available to make the call.
715 = Too many errors occurred because of poor phone line quality.
716 = The Remote Access Service IP configuration is unusable.
717 = No IP addresses are available in the static pool of Remote Access Service IP addresses.
718 = The connection timed out waiting for a valid response from the remote computer.
719 = The connection was terminated by the remote computer.
720 = The connection attempt failed because your computer and the remote computer could not agree on PPP control protocols.
721 = The remote computer is not responding.
722 = Invalid data was received from the remote computer. This data was ignored.
723 = The phone number, including prefix and suffix, is too long.
724 = The IPX protocol cannot dial out on the modem (or other connecting device) because this computer is not configured for dialing out (it is an IPX router).
725 = The IPX protocol cannot dial in on the modem (or other connecting device) because this computer is not configured for dialing in (the IPX router is not installed).
726 = The IPX protocol cannot be used for dialing out on more than one modem (or other connecting device) at a time.
727 = Cannot access TCPCFG.DLL.
728 = The system cannot find an IP adapter.
729 = SLIP cannot be used unless the IP protocol is installed.
730 = Computer registration is not complete.
731 = The protocol is not configured.
732 = Your computer and the remote computer could not agree on PPP control protocols.
733 = Your computer and the remote computer could not agree on PPP control protocols.
734 = The PPP link control protocol was terminated.
735 = The requested address was rejected by the server.
736 = The remote computer terminated the control protocol.
737 = Loopback was detected.
738 = The server did not assign an address.
739 = The authentication protocol required by the remote server cannot use the stored password. Redial, entering the password explicitly.
740 = An invalid dialing rule was detected.
741 = The local computer does not support the required data encryption type.
742 = The remote computer does not support the required data encryption type.
743 = The remote computer requires data encryption.
744 = The system cannot use the IPX network number assigned by the remote computer. Additional information is provided in the event log.
745 = ERROR_INVALID_SMM
746 = ERROR_SMM_UNINITIALIZED
747 = ERROR_NO_MAC_FOR_PORT
748 = ERROR_SMM_TIMEOUT
749 = ERROR_BAD_PHONE_NUMBER
750 = ERROR_WRONG_MODULE
751 = The callback number contains an invalid character. Only the following 18 characters are allowed: 0 to 9, T, P, W, (,), -, @, and space.
752 = A syntax error was encountered while processing a script.

753 = The connection could not be disconnected because it was created by the multi-protocol router.

754 = The system could not find the multi-link bundle.

755 = The system cannot perform automated dial because this connection has a custom dialer specified.

756 = This connection is already being dialed.

757 = Remote Access Services could not be started automatically. Additional information is provided in the event log.

758 = Internet Connection Sharing is already enabled on the connection.

759 = An error occurred while the existing Internet Connection Sharing settings were being changed.

760 = An error occurred while routing capabilities were being enabled.

761 = An error occurred while Internet Connection Sharing was being enabled for the connection.

762 = An error occurred while the local network was being configured for sharing.

763 = Internet Connection Sharing cannot be enabled. There is more than one LAN connection other than the connection to be shared.

764 = No smart card reader is installed.

765 = Internet Connection Sharing cannot be enabled. A LAN connection is already configured with the IP address that is required for automatic IP addressing.

766 = A certificate could not be found. Connections that use the L2TP protocol over IPSec require the installation of a machine certificate, also known as a computer certificate.

767 = Internet Connection Sharing cannot be enabled. The LAN connection selected as the private network has more than one IP address configured. Please reconfigure the LAN connection with a single IP address before enabling Internet Connection Sharing.

768 = The connection attempt failed because of failure to encrypt data.

769 = The specified destination is not reachable.

770 = The remote computer rejected the connection attempt.

771 = The connection attempt failed because the network is busy.

772 = The remote computer's network hardware is incompatible with the type of call requested.

773 = The connection attempt failed because the destination number has changed.

774 = The connection attempt failed because of a temporary failure. Try connecting again.

775 = The call was blocked by the remote computer.

776 = The call could not be connected because the remote computer has invoked the Do Not Disturb feature.

777 = The connection attempt failed because the modem (or other connecting device) on the remote computer is out of order.

778 = It was not possible to verify the identity of the server.

779 = To dial out using this connection you must use a smart card.

780 = An attempted function is not valid for this connection.

781 = The encryption attempt failed because no valid certificate was found.

782 = Connection Sharing (NAT) is currently installed as a routing protocol, and must be removed before enabling Internet Connection Sharing.

783 = Internet Connection Sharing cannot be enabled. The LAN connection selected as the private network is either not present, or is disconnected from the network. Please ensure that the LAN adapter is connected before enabling Internet

| | | Connection Sharing.
784 = You cannot dial using this connection at logon time, because it is configured to use a user name different than the one on the smart card. If you want to use it at logon time, you must configure it to use the user name on the smart card.
785 = You cannot dial using this connection at logon time, because it is not configured to use a smart card. If you want to use it at logon time, you must edit the properties of this connection so that it uses a smart card.
786 = The L2TP connection attempt failed because there is no valid machine certificate on your computer for security authentication.
787 = The L2TP connection attempt failed because the security layer could not authenticate the remote computer.
788 = The L2TP connection attempt failed because the security layer could not negotiate compatible parameters with the remote computer.
789 = The L2TP connection attempt failed because the security layer encountered a processing error during initial negotiations with the remote computer.
790 = The L2TP connection attempt failed because certificate validation on the remote computer failed.
791 = The L2TP connection attempt failed because security policy for the connection was not found.
792 = The L2TP connection attempt failed because security negotiation timed out.
793 = The L2TP connection attempt failed because an error occurred while negotiating security.
794 = The Framed Protocol RADIUS attribute for this user is not PPP.
795 = The Tunnel Type RADIUS attribute for this user is not correct.
796 = The Service Type RADIUS attribute for this user is neither Framed nor Callback Framed.
797 = The connection failed because the modem (or other connecting device) was not found. Please make sure that the modem or other connecting device is installed.
798 = A certificate could not be found that can be used with this Extensible Authentication Protocol.
799 = Not available |

Parameters for non-VoIP TETRA

Name	Type	Description
CS disc. cause	Integer	CS call disconnect cause 0 = Cause not defined or unknown 1 = User requested disconnect 2 = Called party busy 3 = Called party not reachable 4 = Called party does not support encryption 5 = Congestion in infrastructure 6 = Not allowed traffic case 7 = Incompatible traffic case 8 = Requested service not available 9 = Pre-emptive use of resource 10 = Invalid call identifier 11 = Call rejected by the called party 12 = No idle CC entity 13 = Expiry of timer 14 = SwMI requested disconnection 15 = Acknowledged service not completed

Parameters for non-VoIP cdmaOne, CDMA 1x, and EVDO

Name	Type	Description
CS disc. cause	Integer	CS call disconnect cause 0 = Phone is offline 20 = Phone is CDMA-locked until power cycle CDMA only. 21 = Phone has no service 22 = Call has ended abnormally CDMA only. 23 = Received intercept from BS Origination and CDMA only. 24 = Received reorder from BS Origination and CDMA only. 25 = Received release from BS 26 = Received release from BS SO reject, CDMA only. 27 = Received incoming call from BS 28 = Received alert stop from BS Incoming and CDMA only. 29 = Client ended call 30 = Received end activation OTASP call and CDMA only. 31 = MC aborted origination/conversation CDMA only. 32 = Maximum access probes transmitted CDMA only. 33 = Persistence test failure JCDMA and CDMA only. 34 = R-UIM not present 35 = Access attempt already in progress 36 = Access failure for reason other than the above 37 = Received retry order Origination IS-2000 and CDMA only. 38 = Concurrent service not supported by BS 39 = No response received from BS 40 = Call rejected by BS CDMA only. 41 = Concurrent services requested not compatible CDMA only. 42 = Access is blocked by BS CDMA only. 43 = Corresponds to CM_CALL_ORIG_ ERR_ ALREADY_IN_TC 44 = Call is ending due to emergency call that is flashed over this call CDMA only. 45 = CM is ending GPS call in favor of a user call 46 = CM is ending SMS call in favor of a user call 47 = CM is ending data call in favor of an emergency call 48 = Call rejected because of redirection or handoff

Parameters for iDEN

Name	Type	Description
CS cause	Integer	Call failure cause 0 = FNE Denies Request 1 = Target Acknowledges Alert 2 = Target Does Not Acknowledge Alert 3 = User Cancelled 4 = Radio Time-out 5 = Radio Denies Request 6 = Normal Termination 7 = Channel Failed 8 = System Busy

		9 = Access Failed 10 = Target Not Responding 11 = Target Non-Existent 12 = Unanswered Call

Parameters for VoIP

Name	Type	Description

SIP cause	Integer	SIP cause
		100 = Trying
		   Extended search being performed may take a significant
		   time so a forking proxy must send a 100 Trying response.
		180 = Ringing
		181 = Call is being forwarded
		182 = Queued
		183 = Session progress
		199 = Early dialog terminated
		200 = OK
		202 = Accepted
		   The request has been understood but cannot be
		   processed.
		204 = No notification
		300 = Multiple choices
		301 = Moved permanently
		302 = Moved temporarily
		305 = Use proxy
		380 = Alternative service
		400 = Bad request
		401 = Unauthorized
		   Used only by registrars or user agents. Proxies should use
		   proxy authorization 407.
		402 = Payment required
		403 = Forbidden
		404 = Not found
		   User not found.
		405 = Method not allowed
		406 = Not acceptable
		407 = Proxy authentication required
		408 = Request timeout (could not find the user in time)
		409 = Conflict
		410 = Gone
		   The user existed once, but is not available here any more.
		411 = Length required
		412 = Conditional request failed
		413 = Request entity too large
		414 = Request-URI too long
		415 = Unsupported media type
		416 = Unsupported URI scheme
		417 = Unknown resource priority
		420 = Bad extension
		   Bad SIP protocol extension used, not understood by the
		   server.
		421 = Extension required
		422 = Session interval too small
		423 = Interval too brief
		424 = Bad location information
		428 = Use identity header
		429 = Provide referrer identity
		430 = Flow failed
		433 = Anonymity disallowed
		436 = Bad identity-info
		437 = Unsupported certificate
		438 = Invalid identity header
		439 = First hop lacks outbound support

		470 = Consent needed
		480 = Temporarily unavailable
		481 = Call/transaction does not exist
		482 = Loop detected
		483 = Too many hops
		484 = Address incomplete
		485 = Ambiguous
		486 = Busy here
		487 = Request terminated
		488 = Not acceptable here
		489 = Bad event
		491 = Request pending
		493 = Undecipherable Could not decrypt S/MIME body part.
		494 = Security agreement required
		500 = Server internal error
		501 = Not implemented
		502 = Bad gateway
		503 = Service unavailable
		504 = Server time-out
		505 = Version not supported
		513 = Message too large
		580 = Precondition failure
		600 = Busy everywhere
		603 = Decline
		604 = Does not exist anywhere
		606 = Not acceptable

Parameters for Skype

Name	Type	Description
Skype cause	Integer	Skype cause Currently this is always n/a.

Parameters for QChat

Name	Type	Description
QChat cause	Integer	QChat cause 1 = Unsupported 2 = No targets available 3 = No reply 4 = All targets reject 5 = Unknown user 6 = Invalid conference ID 7 = Invalid address 8 = Unknown call 9 = Network delay/timeout 10 = No privilege 11 = Vocoder incompatible 12 = Version not supported 13 = No resources available 14 = Invalid opcode 15 = Bad syntax 16 = Unexpected message 17 = Busy 18 = Call not running 19 = No targets registered 20 = Not a member 21 = Limits exceeded 22 = Insufficient resources for QoS 23 = Foreign dispatch targets 24 = No call type capability 25 = Alert successful

26 = System error
27 = Already a member
28 = Talk group permission denied
29 = No multicast resources
30 = Insufficient bandwidth
100 = Hangtime timer expired on the MCU
101 = No participants
    All the participants have left the call.
102 = Server Abort
103 = Unresponsive
    The server has not been receiving responses from the
    client.
104 = Originator advanced termination
    The originator has chosen to tear down the call.

Parameters for Kodiak

Name	Type	Description
Kodiak cause	Integer	Kodiak cause 1001 = ACK missing 1101 = ACK failure 1102 = UI input missing 1103 = UI not ready 1104 = API request not expected/applicable

Parameters for IMS-based calls

Name	Type	Description
VoLTE cause	Integer	VoLTE cause 100 = Trying Extended search being performed may take a significant time so a forking proxy must send a 100 Trying response. 180 = Ringing 181 = Call is being forwarded 182 = Queued 183 = Session progress 199 = Early dialog terminated 200 = OK 202 = Accepted The request has been understood but cannot be processed. 204 = No notification 300 = Multiple choices 301 = Moved permanently 302 = Moved temporarily 305 = Use proxy 380 = Alternative service 400 = Bad request 401 = Unauthorized Used only by registrars or user agents. Proxies should use proxy authorization 407. 402 = Payment required 403 = Forbidden 404 = Not found User not found. 405 = Method not allowed 406 = Not acceptable 407 = Proxy authentication required 408 = Request timeout (could not find the user in time) 409 = Conflict 410 = Gone The user existed once, but is not available here any more.

411 = Length required
412 = Conditional request failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Unsupported URI scheme
417 = Unknown resource priority
420 = Bad extension
    Bad SIP protocol extension used, not understood by the
    server.
421 = Extension required
422 = Session interval too small
423 = Interval too brief
424 = Bad location information
428 = Use identity header
429 = Provide referrer identity
430 = Flow failed
433 = Anonymity disallowed
436 = Bad identity-info
437 = Unsupported certificate
438 = Invalid identity header
439 = First hop lacks outbound support
470 = Consent needed
480 = Temporarily unavailable
481 = Call/transaction does not exist
482 = Loop detected
483 = Too many hops
484 = Address incomplete
485 = Ambiguous
486 = Busy here
487 = Request terminated
488 = Not acceptable here
489 = Bad event
491 = Request pending
493 = Undecipherable
    Could not decrypt S/MIME body part.
494 = Security agreement required
500 = Server internal error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Server time-out
505 = Version not supported
513 = Message too large
580 = Precondition failure
600 = Busy everywhere
603 = Decline
604 = Does not exist anywhere
606 = Not acceptable

Parameters for iDEN push-to-talk

Name	Type	Description
CS cause	Integer	Call failure cause 0 = FNE Denies Request 1 = Target Acknowledges Alert 2 = Target Does Not Acknowledge Alert 3 = User Cancelled 4 = Radio Time-out 5 = Radio Denies Request 6 = Normal Termination 7 = Channel Failed 8 = System Busy 9 = Access Failed

		10 = Target Not Responding 11 = Target Non-Existent 12 = Unanswered Call

Call modification indication (CALLMODI)

Event ID	CALLMODI
Cellular systems	All
Record state	Call connection state
Description	Recorded when call type is modified
Tools	Nemo Outdoor,Nemo Handy

Parameters

Name	Type	Description
Call context ID	Context	Call context ID
Call modification type	Integer	Call modification type 101 = LTE IMS voice -> GSM voice 102 = LTE IMS voice -> UMTS voice 103 = LTE IMS voice -> CDMA voice 110 = LTE IMS voice -> LTE IMS video 130 = LTE IMS voice -> WLAN IMS voice 140 = LTE IMS voice -> WLAN IMS video 201 = LTE IMS video -> GSM voice 202 = LTE IMS video -> UMTS voice 203 = LTE IMS video -> CDMA voice 210 = LTE IMS video -> LTE IMS voice 230 = LTE IMS video -> WLAN IMS voice 240 = LTE IMS video -> WLAN IMS video 310 = WLAN IMS voice -> LTE IMS voice 320 = WLAN IMS voice -> LTE IMS video 340 = WLAN IMS voice -> WLAN IMS video 410 = WLAN IMS video -> LTE IMS voice 420 = WLAN IMS video -> LTE IMS video 430 = WLAN IMS video -> WLAN IMS voice
Call modification result	Integer	Call modification result 1 = Success 2 = Rejected 3 = Failed 4 = Timeout

VoIP information (VOIPI)

Event ID	VOIPI
Cellular systems	All
Record state	Call connection state
Description	Recorded when VoIP information changes.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Call context ID	Context	Call context ID
VoIP type	Integer	VoIP type 1 = VoIP 3 = IMS voice 4 = IMS video
#Params	Integer	Number of type specific parameters.

Parameters for VoIP

Name	Type	Description
VoIP codec	String	VoIP codec Currently used VoIP codec that can change during the VoIP call.

Parameters for IMS calls

Name	Type	Description
VoIP codec	String	VoIP codec Currently used VoIP codec that can change during the VoIP call.
SIP handshake time	Integer	SIP handshake time Time from SIP INVITE to 100 Trying message. Minimum value: 0 Unit: ms
VoIP video codec	String	VoIP video codec Currently used VoIP video codec that can change during the VoIP call. The parameter is empty for audio only IMS video calls.

Voice channel information (VCHI)

Event ID	VCHI
Cellular systems	TETRA,GSM,UMTS FDD,LTE FDD,LTE TDD,cdmaOne,CDMA 1x,EVDO,iDEN
Record state	Call connection state
Description	Recorded when voice call configuration or state changes.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Call context ID	Context	Call context ID
Measured sys.	Integer	Measured system 1 = GSM 2 = TETRA 5 = UMTS FDD 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO

Parameters for TETRA

Name	Type	Description
PTT state	Integer	Push-to-talk state 1 = Idle 2 = Receiving 3 = Preparing to transmit 4 = Transmitting
PTT comm. type	Integer	Push-to-talk communication type 0 = Point-to-point 1 = Point-to-multipoint 2 = Point-to-multipoint acknowledged 3 = Broadcast
PTT user identity	String	Push-to-talk user identity

System specific parameters

Name	Type	Description
#System parameters	Integer	Number of system specific parameters Currently this is always 0. The previous TETRA parameters are not counted for this.

Call type specific parameters.

Name	Type	Description
Call type	Integer	Call type 8 = Push-to-talk 12 = QChat 13 = Kodiak 15 = iDEN push-to-talk

#Call type parameters	Integer	Number of call type specific parameters

Parameters for push-to-talk

Name	Type	Description
PTT state	Integer	Push-to-talk state 1 = Idle 2 = Receiving 3 = Preparing to transmit 4 = Transmitting

Parameters for QChat

Name	Type	Description
PTT state	Integer	Push-to-talk state 1 = Idle 2 = Receiving 3 = Preparing to transmit 4 = Transmitting

Parameters for Kodiak

Name	Type	Description
PTT state	Integer	Push-to-talk state 1 = Idle 2 = Receiving 3 = Preparing to transmit 4 = Transmitting

Parameters for iDEN push-to-talk

Name	Type	Description
PTT state	Integer	Push-to-talk state 1 = Idle 2 = Receiving 3 = Preparing to transmit 4 = Transmitting

Call re-establishment (CARE)

Event ID	CARE
Cellular systems	GSM,UMTS FDD,UMTS TD-SCDMA
Record state	Call state
Description	Recorded when call re-establishment fails or is completed. This measurement event is not recorded if no clear indication of call re-establishment attempt is received. This requires CM Re-establishment Request L3 signaling message with GSM and Cell Update RRC signaling message with UMTS FDD. Also note that only one measurement event is written per radio link failure even when multiple separate re-establishment attempts have been performed to different cells.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Call context ID	Context	Call context ID
Measured sys.	Integer	Measured system 1 = GSM 5 = UMTS FDD 6 = UMTS TD-SCDMA

Parameters for GSM, UMTS FDD, and UMTS TD-SCDMA

Name	Type	Description
Re-est status	Integer	CS call re-establishment status 1 = Re-establishment succeeded 2 = Re-establishment failed
Re-est duration	Integer	CS call re-establishment duration This is the time that expires between a radio link failure and the moment when the call is active again. For failed call re-establishments this information is not available. Unit: ms

Data connection attempt (DAA)

Event ID	DAA
Cellular systems	All
Record state	Data call connection and packet active state
Description	Recorded when data connection is attempted to the server. For TCP based protocols, this is recorded when socket connection is attempted. For UDP protocols, when the first UDP packet is sent. The measurement event begins the data connection attempt state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous

Parameters

Name	Type	Description
Data connection context ID	Context	Data connection context ID
Packet session context ID	Context	Packet session context ID
Call context ID	Context	Call context ID
Application protocol	Integer	Application protocol 0 = Nemo protocol using modem connection 1 = Nemo protocol using TCP 2 = Nemo protocol using UDP 3 = FTP 4 = HTTP 5 = SMTP 6 = POP3 7 = MMS 8 = WAP 1.0 9 = Streaming 10 = WAP 2.0 11 = HTTP browsing 12 = ICMP ping 13 = IPerf over TCP 14 = IPerf over UDP 15 = Trace route 16 = SFTP 17 = IMAP 18 = Facebook 19 = Twitter 20 = Instagram 21 = LinkedIn 22 = PEVQ-S 23 = Dropbox
Host address	String	Data transfer host address Connection address. With MMS this is the MMS service center address.
Host port	Integer	Data transfer host port IP port.
Connection timeout	Integer	Data transfer connection timeout The timeout value from data connection attempt (DAA) to the data connection (DAC). If the data connection has not been established during this time the DAF measurement event is recorded. Unit: ms
Security protocol	Integer	Data transfer security protocol 0 = None 1 = SSL

		2 = SSH
Authentication scheme	Integer	Data transfer authentication scheme 0 = Basic 1 = Digest 3 = None 4 = NTLM 5 = Negotiate

Data connection success (DAC)

Event ID	DAC
Cellular systems	All
Record state	Data connection attempt state
Description	Recorded when data connection received from the server. For non-connection TCP-based protocols (e.g. HTTP), this is recorded when the socket connection is established. This measurement event begins the data connection state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous

Parameters

Name	Type	Description
Data connection context ID	Context	Data connection context ID
Application protocol	Integer	Application protocol 0 = Nemo protocol using modem connection 1 = Nemo protocol using TCP 2 = Nemo protocol using UDP 3 = FTP 4 = HTTP 5 = SMTP 6 = POP3 7 = MMS 8 = WAP 1.0 9 = Streaming 10 = WAP 2.0 11 = HTTP browsing 12 = ICMP ping 13 = IPerf over TCP 14 = IPerf over UDP 15 = Trace route 16 = SFTP 17 = IMAP 18 = Facebook 19 = Twitter 20 = Instagram 21 = LinkedIn 22 = PEVQ-S 23 = Dropbox

Data connection failed (DAF)

Event ID	DAF
Cellular systems	All
Record state	Data connection attempt state
Description	Recorded after DAA measurement event after connection attempt to server has failed. For connection-based protocols, the logging to the server has failed, and for non-connection based TCP protocols, the socket connection cannot be established. This measurement event ends the data connection attempt state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous

Parameters

Name	Type	Description
Data connection context ID	Context	Data connection context ID
Application protocol	Integer	Application protocol 0 = Nemo protocol using modem connection 1 = Nemo protocol using TCP 2 = Nemo protocol using UDP 3 = FTP 4 = HTTP 5 = SMTP 6 = POP3 7 = MMS 8 = WAP 1.0 9 = Streaming 10 = WAP 2.0 11 = HTTP browsing 12 = ICMP ping 13 = IPerf over TCP 14 = IPerf over UDP 15 = Trace route 16 = SFTP 17 = IMAP 18 = Facebook 19 = Twitter 20 = Instagram 21 = LinkedIn 22 = PEVQ-S 23 = Dropbox
Data fail. status	Integer	Data connection failure status 1 = User abort 2 = Socket error 3 = Protocol error or timeout 4 = Test system failure

Parameters for succesful transfer

Name	Type	Description
Reserved	Integer	Reserved Always n/a.

Parameters for socket errors

Name	Type	Description

Socket cause	Integer	Socket cause
		10004 = A blocking operation was interrupted by a call to WSACancelBlockingCall.
		10009 = The file handle supplied is not valid.
		10013 = An attempt was made to access a socket in a way forbidden by its access permissions.
		10014 = The system detected an invalid pointer address in attempting to use a pointer argument in a call.
		10022 = An invalid argument was supplied.
		10024 = Too many open sockets.
		10035 = A non-blocking socket operation could not be completed immediately.
		10036 = A blocking operation is currently executing.
		10037 = An operation was attempted on a non-blocking socket that already had an operation in progress.
		10038 = An operation was attempted on something that is not a socket.
		10039 = A required address was omitted from an operation on a socket.
		10040 = A message sent on a datagram socket was larger than the internal message buffer or some other network limit, or the buffer used to receive a datagram into was smaller than the datagram itself.
		10041 = A protocol was specified in the socket function call that does not support the semantics of the socket type requested.
		10042 = An unknown, invalid, or unsupported option or level was specified in a getsockopt or setsockopt call.
		10043 = The requested protocol has not been configured into the system, or no implementation for it exists.
		10044 = The support for the specified socket type does not exist in this address family.
		10045 = The attempted operation is not supported for the type of object referenced.
		10046 = The protocol family has not been configured into the system or no implementation for it exists.
		10047 = An address incompatible with the requested protocol was used.
		10048 = Only one usage of each socket address (protocol/network address/port) is normally permitted.
		10049 = The requested address is not valid in its context.
		10050 = A socket operation encountered a dead network.
		10051 = A socket operation was attempted to an unreachable network.
		10052 = The connection has been broken due to keep-alive activity detecting a failure while the operation was in progress.
		10053 = An established connection was aborted by the software in your host machine.
		10054 = An existing connection was forcibly closed by the remote host.
		10055 = An operation on a socket could not be performed because the system lacked sufficient buffer space or because a queue was full.
		10056 = A connect request was made on an already connected socket.
		10057 = A request to send or receive data was disallowed because the socket is not connected and (when sending on a datagram socket using a sendto call) no address was supplied.
		10058 = A request to send or receive data was disallowed because the socket had already been shut down in that direction with a previous shutdown call.
		10059 = Too many references to some kernel object.
		10060 = A connection attempt failed because the connected party did not properly respond after a period of time, or

established connection failed because connected host has failed to respond.
10061 = No connection could be made because the target machine actively refused it.
10062 = Cannot translate name.
10063 = Name component or name was too long.
10064 = A socket operation failed because the destination host was down.
10065 = A socket operation was attempted to an unreachable host.
10066 = Cannot remove a directory that is not empty.
10067 = A Windows Sockets implementation may have a limit on the number of applications that may use it simultaneously.
10068 = Ran out of quota.
10069 = Ran out of disk quota.
10070 = File handle reference is no longer available.
10071 = Item is not available locally.
10091 = WSAStartup cannot function at this time because the underlying system it uses to provide network services is currently unavailable.
10092 = The Windows Sockets version requested is not supported.
10093 = Either the application has not called WSAStartup, or WSAStartup failed.
10101 = Returned by WSARecv or WSARecvFrom to indicate the remote party has initiated a graceful shutdown sequence.
10102 = No more results can be returned by WSALookupServiceNext.
10103 = A call to WSALookupServiceEnd was made while this call was still processing. The call has been canceled.
10104 = The procedure call table is invalid.
10105 = The requested service provider is invalid.
10106 = The requested service provider could not be loaded or initialized.
10107 = A system call that should never fail has failed.
10108 = No such service is known. The service cannot be found in the specified name space.
10109 = The specified class was not found.
10110 = No more results can be returned by WSALookupServiceNext.
10111 = A call to WSALookupServiceEnd was made while this call was still processing. The call has been canceled.
10112 = A database query failed because it was actively refused.
11001 = No such host is known.
11002 = This is usually a temporary error during hostname resolution and means that the local server did not receive a response from an authoritative server.
11003 = A non-recoverable error occurred during a database lookup.
11004 = The requested name is valid and was found in the database, but it does not have the correct associated data being resolved for.
11005 = At least one reserve has arrived.
11006 = At least one path has arrived.
11007 = There are no senders.
11008 = There are no receivers.
11009 = Reserve has been confirmed.
11010 = Error due to lack of resources.
11011 = Rejected for administrative reasons - bad credentials.
11012 = Unknown or conflicting style.
11013 = Problem with some part of the filterspec or providerspecific buffer in general.
11014 = Problem with some part of the flowspec.
11015 = General QOS error.

		11016 = An invalid or unrecognized service type was found in the flowspec.
		11017 = An invalid or inconsistent flowspec was found in the QOS structure.
		11018 = Invalid QOS provider-specific buffer.
		11019 = An invalid QOS filter style was used.
		11020 = An invalid QOS filter type was used.
		11021 = An incorrect number of QOS FILTERSPECs were specified in the FLOWDESCRIPTOR.
		11022 = An object with an invalid ObjectLength field was specified in the QOS provider-specific buffer.
		11023 = An incorrect number of flow descriptors was specified in the QOS structure.
		11024 = An unrecognized object was found in the QOS provider-specific buffer.
		11025 = An invalid policy object was found in the QOS provider-specific buffer.
		11026 = An invalid QOS flow descriptor was found in the flow descriptor list.
		11027 = An invalid or inconsistent flowspec was found in the QOS provider-specific buffer.
		11028 = An invalid FILTERSPEC was found in the QOS provider-specific buffer.
		11029 = An invalid shape discard mode object was found in the QOS provider-specific buffer.
		11030 = An invalid shaping rate object was found in the QOS provider-specific buffer.
		11031 = A reserved policy element was found in the QOS provider-specific buffer.

Parameters for Nemo protocol errors

Name	Type	Description
Data transfer cause	Integer	Data transfer cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file.

Parameters for FTP and SFTP protocol errors

Name	Type	Description
FTP cause	Integer	FTP cause 1 = Timeout 2 = Invalid remote address 3 = Invalid username/password 4 = Invalid remote file 5 = Invalid local file 104 = Already connected 116 = Remote port cannot be zero 118 = Firewall error 120 = Service ready in nnn minutes 135 = Operation would block 141 = Unspecified FTP protocol error 202 = Command not implemented, superfluous at this site 211 = Action impossible in control's present state 212 = Action impossible while connected 213 = Action impossible while listening 421 = Service not available, closing control connection 425 = Cannot open data connection 426 = Connection closed, transfer aborted 434 = Requested host unavailable 450 = Requested file action not taken. File unavailable (e.g., file busy)

		451 = Requested action aborted, local error in processing 452 = Requested action not taken. Insufficient storage space in system 500 = Syntax error, command unrecognized. This may include errors such as command line too long 501 = Syntax error in parameters or arguments 502 = Command not implemented 503 = Bad sequence of commands 504 = Command not implemented for that parameter 530 = User not logged in 532 = Need account for storing files 550 = Requested action not taken, file unavailable (e.g., file not found, no access) 552 = Requested file action aborted, storage allocation exceeded 553 = Requested action not taken, illegal file name 1032 = Password authentication failed 　　SFTP only. 1102 = Unrecognized remote SSH version string format 　　SFTP only. 1103 = SFTP command failed 　　SFTP only. 1105 = Already connecting, close the current connection first 　　SFTP only. 1120 = Connection dropped by remote host 　　SFTP only.

Parameters for HTTP protocol errors

Name	Type	Description
HTTP cause	Integer	HTTP cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue 101 = Switching protocols 102 = Processing 200 = OK, success 201 = Created 202 = Accepted 203 = Non-authoritative information 204 = No content 205 = Reset content 206 = Partial content 208 = Already reported 300 = Multiple choices 301 = Moved permanently 302 = Found 　　In some cases this can be same as moved temporarily. 303 = See other 304 = Not modified 305 = Use proxy 306 = Reserved 307 = Temporary redirect 308 = Permanent redirect 400 = Bad request 　　Server could not understand request. 401 = Unauthorized 402 = Payment required 403 = Forbidden 　　Operation is understood but refused. 404 = Not Found 405 = Method not allowed

		406 = Not acceptable 407 = Proxy authentication required 408 = Request timeout 409 = Conflict 410 = Gone 411 = Length Required 412 = Precondition failed 413 = Request entity too large 414 = Request-URI too long 415 = Unsupported media type 416 = Requested range not satisfiable 417 = Expectation failed 422 = Unprocessable entity 423 = Locked 424 = Failed dependency 426 = Upgrade required 428 = Precondition required 429 = Too many requests 431 = Request header fields too large 500 = Internal server error 501 = Not implemented 502 = Bad gateway 503 = Service unavailable 504 = Gateway timeout 505 = HTTP version not supported 1120 = Connection dropped by remote host

Parameters for SMTP protocol errors

Name	Type	Description
SMTP cause	Integer	SMTP cause 1 = Timeout 2 = Invalid remote address 5 = Invalid local file 102 = Invalid remote address 421 = Service not available, closing transmission channel 450 = Requested mail action not taken: mailbox unavailable 451 = Requested action aborted: local error in processing 452 = Requested action not taken: insufficient system storage 500 = Syntax error, command unrecognized 501 = Syntax error in parameters or arguments 502 = Command not implemented 503 = Bad sequence of commands 504 = Command parameter not implemented 535 = Incorrect password or account name 550 = Requested action not taken: mailbox unavailable 551 = User not local 552 = Requested mail action aborted: exceeded storage allocation 553 = Requested action not taken: mailbox name not allowed 554 = Transaction failed 1120 = Connection dropped by remote host

Parameters for POP3 protocol errors

Name	Type	Description
POP3 cause	Integer	POP3 cause 1 = Timeout 2 = Invalid remote address 6 = Incorrect index 118 = Firewall error 172 = Error communicating with server 174 = Busy executing current method

		1120 = Connection dropped by remote host

Parameters for WAP and MMS protocol errors

Name	Type	Description

WAP and MMS cause	Integer	WAP and MMS cause
		1 = Timeout
		2 = Invalid remote address
		4 = Invalid remote file
		5 = Invalid local file
		50 = Unknown
		    Only used with the MMS protocol.
		51 = Protocol error
		    Only used with the MMS protocol.
		52 = Invalid TID
		    Only used with the MMS protocol.
		53 = Not implemented class 2
		    Only used with the MMS protocol.
		54 = Not implemented SAR
		    Only used with the MMS protocol.
		55 = Not implemented user acknowledgement
		    Only used with the MMS protocol.
		56 = WTP version zero
		    Only used with the MMS protocol.
		57 = Capacity temporarily exceeded
		    Only used with the MMS protocol.
		58 = No response
		    Only used with the MMS protocol.
		59 = Message too large
		    Only used with the MMS protocol.
		100 = Continue
		101 = Switching Protocols
		129 = Unspecified
		    Only used with the MMS protocol.
		130 = Service denied
		    Only used with the MMS protocol.
		131 = Message format corrupt
		    Only used with the MMS protocol.
		132 = Sending address unresolved
		    Only used with the MMS protocol.
		133 = Message not found
		    Only used with the MMS protocol.
		134 = Network problem
		    Only used with the MMS protocol.
		135 = Content not accepted
		    Only used with the MMS protocol.
		136 = Unsupported message
		    Only used with the MMS protocol.
		200 = OK, success
		201 = Created
		202 = Accepted
		203 = Non-Authoritative information
		204 = No content
		205 = Reset content
		206 = Partial content
		300 = Multiple choices
		301 = Moved permanently
		302 = Moved temporarily
		303 = See other
		304 = Not modified
		305 = Use proxy
		306 = Reserved
		307 = Temporary redirect

		400 = Bad request - server could not understand request
		401 = Unauthorized
		402 = Payment required
		403 = Forbidden - operation is understood but refused
		404 = Not found
		405 = Method not allowed
		406 = Not acceptable
		407 = Proxy authentication required
		408 = Request timeout
		409 = Conflict
		410 = Gone
		411 = Length required
		412 = Precondition failed
		413 = Request entity too large
		414 = Request-URI too large
		415 = Unsupported media type
		416 = Requested range not satisfiable
		417 = Expectation failed
		500 = Internal server error
		501 = Not implemented
		502 = Bad gateway
		503 = Service unavailable
		504 = Gateway timeout
		505 = HTTP version not supported

Parameters for streaming protocol errors

Name	Type	Description
Streaming cause	Integer	Streaming cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 64413 = Audio stream config not available 64414 = Video stream config not available 64415 = Dx add filter failed 64416 = Com create failed 64417 = Audio cap create failed 64418 = Video cap create failed 64419 = Audio device lost 64420 = Video device lost 64421 = Find filter failed 64422 = Insert filter failed 64423 = No audio track present 64424 = No video track present 64425 = User authentication failed 64426 = Media not seekable 64427 = Media handler create failed 64428 = Streaming error 64429 = Get image failed 64430 = Extract buffering status failed 64431 = Audio conversion failed 64432 = Video conversion failed 64433 = Convert to pcm failed 64434 = Wave writer save failed 64435 = Mixer init failed 64436 = Get image bits failed 64437 = Get bitmap info failed 64438 = Get save video sample filename failed 64439 = Get audio sample filename failed 64440 = Get last video image failed 64441 = Get media info failed 64442 = Get parent hwnd failed 64443 = Tick counter failed 64444 = Destroy media handler failed

64445 = Init dll failed
64446 = Media wrapper library not available
64447 = Wrapper library not loaded
64448 = Lib proc not found
64449 = Unknown media action
64450 = Failed to reload media file
64451 = Failed to seek media file
64452 = Failed to pause media file
64453 = Failed to stop media file
64454 = Failed to play media file
64455 = Video writer init failed
64456 = Audio writer init failed
64457 = Video analyzer init failed
64458 = Audio analyzer init failed
64459 = Player not available
64460 = Media wrapper create failed
64461 = Get pin failed
64462 = Render output failed
64463 = Add key provider failed
64464 = Set media type failed
64465 = Get shell command failed
64466 = Dx filter pin access failed
64467 = Launch web browser failed
64468 = Monitor license acquisition failed
64469 = Failed to acquire license
64470 = Drm authentication failed
64471 = Open movie file failed
64472 = New movie failed
64473 = Get dib failed
64474 = Empty bitmap
64475 = Unknown media type
64476 = New gworld failed
64477 = New call back failed
64478 = New movie controller failed
64479 = Audio player create failed
64480 = Player init failed
64481 = Create player failed
64482 = Create client engine failed
64483 = Incomplete action in progress
64484 = No media loaded
64485 = Load media file failed
64486 = Unsupported media type
64487 = Unsupported writer format
64488 = Handler specific
64489 = High resolution counter unavailable
64490 = Mixer select recorder failed
64491 = Mixer get control detail failed
64492 = Unrecognized mixer component type
64493 = Empty mixer item
64494 = Mixer get line controls failed
64495 = Mixer get line info failed
64496 = Mixer close failed
64497 = Mixer get caps failed
64498 = Mixer open failed
64499 = Wave in start failed
64500 = Wave in stop failed
64501 = Wave in add buffer failed
64502 = Wave in prepare header failed
64503 = Wave in open failed
64504 = Mono line index read failed
64505 = Stereo line index read failed
64506 = Mixer index read failed
64507 = Invalid media handler
64508 = Avi write frame failed
64509 = Avi stream format failed

64510 = Avi stream create failed
64511 = Avi file create failed
65016 = Video image req failed
65017 = Video alignment out of range
65018 = Video alignment out of bound
65019 = Video analyzer pause failed
65020 = Video analyzer stop failed
65021 = Video analyzer start failed
65022 = Video analyzer load failed
65023 = Video analysis failed
65246 = Duration diff
65247 = Duration too diff
65248 = Duration too long
65249 = Incompatible sampling rate
65250 = Sut high sampling rate
65251 = Ref duration too short
65252 = Sut duration too short
65253 = Data end not found
65254 = Data begin not found
65255 = Get data buffer failed
65256 = Unmatched sample width
65257 = Corr too low
65258 = Upsampling failed
65259 = Merge data failed
65260 = Unsupport sampling rate
65261 = Unsupport sample width
65262 = Unsupport channel count
65263 = Unmatched channel count
65264 = Unmatched sampling rate
65265 = Level too diff
65266 = Replace data chunk failed
65267 = Split data failed
65268 = Fft failed
65269 = Audio analyzer pause failed
65270 = Audio analyzer stop failed
65271 = Audio analyzer start failed
65272 = Audio analyzer load failed
65273 = Audio analysis failed
65274 = Invalid audio sample width
65275 = Uninit audio mean mos table
65276 = Resampling failed
65277 = Access pass end of data
65278 = Fixed bit rate only
65279 = Invalid audio codec type
65489 = Unlock application failed
65490 = No file loaded
65491 = Empty file
65492 = Invalid sample width
65493 = Invalid channel count
65494 = Invalid data format
65495 = Invalid chunk data
65496 = Invalid riff header
65497 = Unexpected eof
65498 = Invalid analyzer type
65499 = Mixer recorder volume unavailable
65500 = No mixer available
65501 = Invalid command
65502 = Command parser error
65503 = Invalid command type
65504 = Analysis result create failed
65505 = Analyzer compute metrics failed
65506 = Analyzer prepare attribute failed
65507 = Analyzer create failed
65508 = Analyzer load failed
65509 = Analyzer pause failed

65510 = Analyzer stop failed
65511 = Analyzer start failed
65512 = Analyzer destroy failed
65513 = Analyzer library not available
65514 = Analyzer library not loaded
65515 = Open dib failed
65516 = Create window failed
65517 = Draw dib failed
65518 = Register wnd class failed
65519 = Dll interface specific
65520 = Init com failed
65521 = Registry query failed
65522 = Query interface failed
65523 = Generate temp file failed
65524 = Thread create failed
65525 = Wait timeout
65526 = Unsupported feature
65527 = Create process failed
65528 = File not exist
65529 = File open failed
65530 = Registry open failed
65531 = Invalid parameter
65532 = Uninitialized object
65533 = User interrupted
65534 = Out of memory
65535 = Unknown error
262148 = Invalid operation
262149 = Invalid version
262150 = Invalid revision
262151 = Not initialized
262152 = Doc missing
262153 = Unexpected
262156 = Incomplete
262157 = Buffer too small
262158 = Unsupported video
262159 = Unsupported audio
262160 = Invalid bandwidth
262161 = No renderer
262162 = Element not found
262163 = No class
262164 = Class no aggregation
262165 = Not licensed
262166 = No file system
262167 = Request upgrade
262168 = Awaiting license
262208 = Buffering
262209 = Paused
262210 = No data
262211 = Net socket invalid
262212 = Net connect
262213 = Bind
262214 = Socket create
262215 = Invalid host
262216 = Net read
262217 = Net write
262218 = Net UDP
262219 = Retry
262220 = Server timeout
262221 = Server disconnected
262222 = Would block
262223 = General nonet
262224 = Block canceled
262225 = Multicast join
262226 = General multicast
262227 = Multicast UDP

262228 = At interrupt
262229 = Msg too large
262230 = Net TCP
262231 = Try auto config
262232 = Not enough bandwidth
262233 = HTTP connect
262234 = Port in use
262235 = Load test not supported
262272 = At end
262273 = Invalid file
262274 = Invalid path
262275 = Record
262276 = Record write
262277 = Temp file
262278 = Already open
262279 = Seek pending
262280 = Cancelled
262281 = File not found
262282 = Write error
262283 = File exists
262285 = Advise prefer linear
262286 = Parse error
262336 = Bad server
262337 = Advanced server
262338 = Old server
262339 = Redirection
262340 = Server alert
262341 = Proxy
262342 = Proxy response
262343 = Advanced proxy
262344 = Old proxy
262345 = Invalid protocol
262346 = Invalid url option
262347 = Invalid url host
262348 = Invalid url path
262349 = HTTP content not found
262350 = Not authorized
262351 = Unexpected msg
262352 = Bad transport
262353 = No session id
262354 = Proxy dnr
262355 = Proxy net connect
262400 = Audio driver
262401 = Late packet
262402 = Overlapped packet
262403 = Out of order packet
262404 = Non contiguous packet
262464 = Open not processed
262528 = Expired
262593 = Could not init core
262594 = Perfectplay not supported
262595 = No live perfectplay
262596 = Perfectplay not allowed
262597 = No codecs
262598 = Slow machine
262599 = Force perfectplay
262600 = Invalid HTTP proxy host
262601 = Invalid metafile
262602 = Browser launch
262603 = View source noclip
262604 = View source dissabled
262656 = Decoder inited
262657 = Decoder not found
262658 = Decoder invalid
262659 = Decoder type mismatch

262660 = Decoder init failed
262661 = Decoder not inited
262662 = Decoder decompress
262663 = Obsolete version
262720 = Encoder file too small
262721 = Encoder unknown file
262722 = Encoder bad channels
262723 = Encoder bad sampsize
262724 = Encoder bad samprate
262725 = Encoder invalid
262726 = Encoder no output file
262727 = Encoder no input file
262728 = Encoder no output permissions
262729 = Encoder bad file type
262730 = Encoder invalid video
262731 = Encoder invalid audio
262732 = Encoder no video capture
262733 = Encoder invalid video capture
262734 = Encoder no audio capture
262735 = Encoder invalid audio capture
262736 = Encoder too slow for live
262737 = Encoder engine not initialized
262738 = Encoder coDecoder not found
262739 = Encoder coDecoder not initialized
262740 = Encoder invalid input dimensions
262741 = Encoder message ignored
262742 = Encoder no settings
262743 = Encoder no output types
262744 = Encoder improper state
262745 = Encoder invalid server
262746 = Encoder invalid temp path
262747 = Encoder merge fail
262748 = Bin data not found
262749 = Bin end of data
262750 = Bin data purged
262751 = Bin full
262752 = Bin offset past end
262753 = Encoder no encoded data
262754 = Encoder invalid dll
262755 = Not indexable
262756 = Encoder no browser
262757 = Encoder no file to server
262758 = Encoder insufficient disk space
262785 = Prop not found
262786 = Prop not composite
262787 = Prop duplicate
262788 = Prop type mismatch
262789 = Prop active
262790 = Prop inactive
262848 = Ppv no user
262849 = Ppv guid read only
262850 = Ppv guid collision
262851 = Register guid exists
262852 = Ppv authorization failed
262853 = Ppv old player
262854 = Ppv account locked
262856 = Ppv dbaccess error
262857 = Ppv user already exists
262914 = Resource not found
262915 = Resource close file first
262916 = Resource nodata
262917 = Resource badfile
262918 = Resource partial copy
262976 = Upg auth failed
262977 = Upg cert auth failed

262978 = Upg cert expired
262979 = Upg cert revoked
262980 = Upg rup bad
263105 = Rmt usage error
263106 = Rmt invalid end time
263107 = Rmt missing input file
263108 = Rmt missing output file
263109 = Rmt input equals output file
263110 = Rmt unsupported audio version
263111 = Rmt different audio
263112 = Rmt different video
263113 = Rmt paste missing stream
263114 = Rmt end of stream
263115 = Rmt image map parse error
263116 = Rmt invalid image map file
263117 = Rmt event parse error
263118 = Rmt invalid event file
263119 = Rmt invalid output file
263120 = Rmt invalid duration
263121 = Rmt no dump files
263122 = Rmt no event dump file
263123 = Rmt no imap dump file
263124 = Rmt no data
263125 = Rmt empty stream
263126 = Rmt read only file
263127 = Rmt paste missing audio stream
263128 = Rmt paste missing video stream
263168 = Autocfg success
263169 = Autocfg failed
263170 = Autocfg abort
266176 = Invalid inter leaver
266177 = Bad format
266178 = Chunk missing
266179 = Invalid stream
266180 = Dnr
266181 = Open driver
266182 = Upgrade
266183 = Notification
266184 = Not notified
266185 = Stopped
266186 = Closed
266187 = Invalid wav file
266188 = No seek

Parameters for HTTP browsing errors

Name	Type	Description
HTTP Browsing cause	Integer	HTTP Browsing cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue 101 = Switching protocols 102 = Processing 200 = OK, success 201 = Created 202 = Accepted 203 = Non-authoritative information 204 = No content 205 = Reset content 206 = Partial content 208 = Already reported 300 = Multiple choices

301 = Moved permanently
302 = Found
    In some cases this can be same as moved temporarily.
303 = See other
304 = Not modified
305 = Use proxy
306 = Reserved
307 = Temporary redirect
308 = Permanent redirect
400 = Bad request
    Server could not understand request.
401 = Unauthorized
402 = Payment required
403 = Forbidden
    Operation is understood but refused.
404 = Not Found
405 = Method not allowed
406 = Not acceptable
407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length Required
412 = Precondition failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Requested range not satisfiable
417 = Expectation failed
422 = Unprocessable entity
423 = Locked
424 = Failed dependency
426 = Upgrade required
428 = Precondition required
429 = Too many requests
431 = Request header fields too large
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported
1120 = Connection dropped by remote host
2002 = Failed
2003 = Aborted
2004 = Invalid argument
2005 = Invalid handle
2006 = File not found
2007 = Timed out
2008 = File too big
2009 = Unexpected error
2010 = Access denied
2011 = Not implemented
2100 = Connection closed
2101 = Connection reset
2102 = Connection refused
2103 = Connection aborted
2104 = Connection failed
2105 = Name not resolved
2106 = Internet disconnected
2107 = SSL protocol error
2108 = Invalid address
2109 = Address unreachable
2110 = SSL authentication certification needed
2111 = Tunnel connection failed

		2112 = No SSL versions enabled 2113 = SSL version or cipher mismatch 2114 = SSL renegotiation requested 2115 = Unsupported proxy authentication method 2116 = SSL renegotiation error 2117 = Bad or missing SSL client certificate 2118 = Connection timeout 2119 = Too many pending DNS resolves 2120 = Failed to connect SOCKS proxy 2121 = SOCKS proxy server failed to establish connection to the target host 2122 = The request to negotiate an alternate protocol failed 2123 = The peer sent an SSL no_renegotiation alert message 2124 = Winsock reported unexpected written bytes 2125 = SSL decompression failure 2126 = SSL bad record MAC alert 2127 = The proxy requested authentication for tunnel establishment 2128 = A known TLS strict server didn't offer the renegotiation extension 2129 = The SSL server attempted to use a weak ephemeral Diffie-Hellman key 2130 = Could not connect to proxy server 2131 = Snap start NPN misprection 2132 = ESET anti-virus SSL interception 2133 = Preconnect socket limit reached 2134 = The permission to use the SSL client certificate's private key was denied 2135 = The SSL client certificate has no private key 2136 = The certificate presented by the HTTPS Proxy was invalid 2137 = An error occurred when trying to do a name resolution (DNS) 2138 = Permission to access the network was denied 2139 = The request throttler module cancelled this request to avoid DDOS 2140 = SSL tunnel connection through HTTPS proxy failed 2200 = SSL certification invalid common name 2201 = SSL certification invalid date 2202 = SSL certification invalid authority 2203 = SSL certification contains errors 2204 = SSL certification has no revocation mechanism 2205 = Unable to the revocation for SSL certification 2206 = SSL certification revoked 2207 = SSL certification is invalid 2208 = SSL certification end 2300 = Invalid URL 2301 = Disallowed URL scheme 2302 = Unknown URL scheme 2310 = Too many redirects 2311 = Unsafe redirect 2312 = Unsafe port 2320 = Invalid response 2321 = Invalid chunked encoding 2322 = Method not supported 2323 = Unexpected proxy authentication 2324 = Empty response 2325 = Response headers are too big 2400 = Cache miss 2501 = Insecure response

Parameters for ICMP ping errors

Name	Type	Description

| ICMP ping cause | Integer | ICMP ping cause
2 = Invalid remote address
119 = Message too short |

Parameters for IPerf protocol errors

Name	Type	Description
Data transfer cause	Integer	Data transfer cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file.

Parameters for trace route errors

Name	Type	Description
Trace route cause	Integer	Trace route cause 1 = Timeout 2 = Invalid remote address 119 = Message too short 131 = Request queue is full 132 = Message for unknown request 159 = Invalid hop index (out of range) 312 = Busy performing current trace

Parameters for IMAP protocol errors

Name	Type	Description
IMAP cause	Integer	IMAP cause 1 = Timeout 2 = Invalid remote address 6 = Incorrect index 116 = RemotePort cannot be zero. Please specify a valid service port number 118 = Firewall error 270 = Cannot load specified security library 271 = Cannot open certificate store 272 = Cannot find specified certificate 273 = Cannot acquire security credentials 274 = Cannot find certificate chain 275 = Cannot verify certificate chain 276 = Error during handshake 280 = Error verifying certificate 281 = Could not find client certificate 282 = Could not find server certificate 283 = Error encrypting data 284 = Error decrypting data 315 = Invalid argument 317 = Unknown content encoding 1117 = You need to connect first. 1120 = Connection dropped by remote host

Parameters for Facebook protocol errors

Name	Type	Description
Facebook cause	Integer	Facebook cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue

101 = Switching protocols
102 = Processing
200 = OK, success
201 = Created
202 = Accepted
203 = Non-authoritative information
204 = No content
205 = Reset content
206 = Partial content
208 = Already reported
300 = Multiple choices
301 = Moved permanently
302 = Found
    In some cases this can be same as moved temporarily.
303 = See other
304 = Not modified
305 = Use proxy
306 = Reserved
307 = Temporary redirect
308 = Permanent redirect
400 = Bad request
    Server could not understand request.
401 = Unauthorized
402 = Payment required
403 = Forbidden
    Operation is understood but refused.
404 = Not Found
405 = Method not allowed
406 = Not acceptable
407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length Required
412 = Precondition failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Requested range not satisfiable
417 = Expectation failed
422 = Unprocessable entity
423 = Locked
424 = Failed dependency
426 = Upgrade required
428 = Precondition required
429 = Too many requests
431 = Request header fields too large
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported
1120 = Connection dropped by remote host
10231 = Unbalanced element tag
10232 = Invalid JSON markup
10233 = Invalid XPath
10234 = DOM tree unavailable
20000 = Invalid access token
20001 = An unknown error occurred
20002 = Service temporarily unavailable
20003 = Unknown method
20004 = Application request limit reached
20009 = User is performing too many actions
20011 = This method is deprecated

20013 = FQL query error
20015 = This method call must be signed with the application
secret
20017 = User request limit reached
20100 = Invalid parameter
20101 = Invalid API key
20102 = Session key invalid or no longer valid
20105 = Too many parameters
20110 = Invalid user id
20113 = Invalid email
20200 = Permissions error
20210 = User not visible
20211 = Application has no developers
20250 = Updating status requires the extended permission
status_update
20321 = Album is full
20324 = Missing or invalid image file
20325 = Too many unapproved photos pending
20340 = Feed publication request limit reached
20341 = Feed action request limit reached
20343 = The story title is too long
20345 = Feed story title rendered as blank
20346 = Feed story body is too long
20347 = Feed story photo could not be accessed or proxied
20348 = Feed story photo link invalid
20362 = Feed story body_data argument was not a valid
JSON-encoded array
20370 = The email address is not valid
20371 = The email address belongs to an existing account
20400 = Invalid email address
20401 = Invalid username or password
20402 = Invalid application auth sig
20403 = Invalid timestamp for authentication
20450 = Session key specified has passed its expiration time
20451 = Session key specified cannot be used to call this
method
20452 = Invalid session key
20453 = A session key is required for calling this method
20454 = A session key must be specified when request is
signed with a session secret
20455 = A session secret is not permitted to be used with this
type of session key
20500 = Message contains banned content
20501 = Missing message body
20502 = Message is too long
20503 = User has sent too many messages
20504 = Invalid reply thread id
20505 = Invalid message recipient
20506 = Duplicate status message
20803 = Invalid user id

Parameters for Twitter protocol errors

Name	Type	Description

Twitter cause	Integer	Twitter cause
		1 = Timeout
		200 = OK, success
		20032 = Could not authenticate
		    Call could not be completed as dialed.
		20034 = Page does not exist
		    Page does not exist. Corresponds with an HTTP 404 - the
		    specified resource was not found.
		20064 = Account suspended
		    Account is suspended and is not permitted to access this

		feature.
		20068 = Depracated API
		    The Twitter REST API v1 is no longer active. Please migrate to API v1.1.
		20088 = Rate limit exceeded
		    The request limit for this resource has been reached for the current rate limit window.
		20089 = Access token incorrect or expired
		    Use API v1.1.
		20092 = SSL is required
		    Only SSL connections are allowed in the API, you should update your request to a secure connection.
		20130 = Service unavailable
		    Corresponds with an HTTP 503 - Twitter is temporarily over capacity.
		20131 = Internal server error
		    Corresponds with an HTTP 500 - An unknown internal error occurred.
		20135 = Could not authenticate
		20161 = Unable to follow more people at this time
		20179 = Not authorized to see this status
		20185 = User is over daily status update limit
		20187 = Status is a duplicate
		20189 = Error creating status
		20215 = Bad authentication data
		    Typically sent with 1.1 responses with HTTP code 400.
		20226 = Spam
		    This request looks like it might be automated. To protect users from spam and other malicious activity, can not complete this action right now.
		20231 = User must verify login
		20251 = This endpoint has been retired
		    Corresponds to a HTTP request to a retired URL.
		20261 = Application cannot perform write actions

Parameters for Instagram protocol errors

Name	Type	Description
Instagram cause	Integer	Instagram cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue 101 = Switching protocols 102 = Processing 200 = OK, success 201 = Created 202 = Accepted 203 = Non-authoritative information 204 = No content 205 = Reset content 206 = Partial content 208 = Already reported 300 = Multiple choices 301 = Moved permanently 302 = Found In some cases this can be same as moved temporarily. 303 = See other 304 = Not modified 305 = Use proxy 306 = Reserved 307 = Temporary redirect

		308 = Permanent redirect
		400 = Bad request
		   Server could not understand request.
		401 = Unauthorized
		402 = Payment required
		403 = Forbidden
		   Operation is understood but refused.
		404 = Not Found
		405 = Method not allowed
		406 = Not acceptable
		407 = Proxy authentication required
		408 = Request timeout
		409 = Conflict
		410 = Gone
		411 = Length Required
		412 = Precondition failed
		413 = Request entity too large
		414 = Request-URI too long
		415 = Unsupported media type
		416 = Requested range not satisfiable
		417 = Expectation failed
		422 = Unprocessable entity
		423 = Locked
		424 = Failed dependency
		426 = Upgrade required
		428 = Precondition required
		429 = Too many requests
		431 = Request header fields too large
		500 = Internal server error
		501 = Not implemented
		502 = Bad gateway
		503 = Service unavailable
		504 = Gateway timeout
		505 = HTTP version not supported
		1120 = Connection dropped by remote host
		20001 = Image download failed
		20002 = Invalid user
		20400 = Invalid user or Access Token
		20429 = The maximum number of requests per hour has been exceeded
		20503 = too many requests

Parameters for LinkedIn protocol errors

Name	Type	Description
LinkedIn cause	Integer	LinkedIn cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue 101 = Switching protocols 102 = Processing 200 = OK, success 201 = Created 202 = Accepted 203 = Non-authoritative information 204 = No content 205 = Reset content 206 = Partial content 208 = Already reported 300 = Multiple choices 301 = Moved permanently 302 = Found

		In some cases this can be same as moved temporarily.
		303 = See other
		304 = Not modified
		305 = Use proxy
		306 = Reserved
		307 = Temporary redirect
		308 = Permanent redirect
		400 = Bad request
		   Server could not understand request.
		401 = Unauthorized
		402 = Payment required
		403 = Forbidden
		   Operation is understood but refused.
		404 = Not Found
		405 = Method not allowed
		406 = Not acceptable
		407 = Proxy authentication required
		408 = Request timeout
		409 = Conflict
		410 = Gone
		411 = Length Required
		412 = Precondition failed
		413 = Request entity too large
		414 = Request-URI too long
		415 = Unsupported media type
		416 = Requested range not satisfiable
		417 = Expectation failed
		422 = Unprocessable entity
		423 = Locked
		424 = Failed dependency
		426 = Upgrade required
		428 = Precondition required
		429 = Too many requests
		431 = Request header fields too large
		500 = Internal server error
		501 = Not implemented
		502 = Bad gateway
		503 = Service unavailable
		504 = Gateway timeout
		505 = HTTP version not supported
		1120 = Connection dropped by remote host
		20001 = Image download failed
		20003 = JSON error

Parameters for PEVQ-S errors

Name	Type	Description
PEVQ-S cause	Integer	PEVQ-S cause 1 = Timeout 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 12 = Invalid PEVQS handle 13 = Handle was already setup or used in another measurement 14 = Error with license 15 = Error with license info generation 16 = Out of Memory 17 = Packet drop in packet capture detected 18 = Network error 19 = Error with packet source 20 = Video is transported over HTTPS

21 = Could not open database
22 = Database does not match measured video stream
23 = Database version does not match PEVQ-S probe version
24 = Unspecific SQL error
25 = Could not open or parse SSL log file
26 = Error in player simulation
27 = Player signaled error
28 = The player end message is missing but end of video was detected
29 = General error
100 = Continue
101 = Switching protocols
102 = Processing
200 = OK, success
201 = Created
202 = Accepted
203 = Non-authoritative information
204 = No content
205 = Reset content
206 = Partial content
208 = Already reported
300 = Multiple choices
301 = Moved permanently
302 = Found
  In some cases this can be same as moved temporarily.
303 = See other
304 = Not modified
305 = Use proxy
306 = Reserved
307 = Temporary redirect
308 = Permanent redirect
400 = Bad request
  Server could not understand request.
401 = Unauthorized
402 = Payment required
403 = Forbidden
  Operation is understood but refused.
404 = Not Found
405 = Method not allowed
406 = Not acceptable
407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length Required
412 = Precondition failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Requested range not satisfiable
417 = Expectation failed
422 = Unprocessable entity
423 = Locked
424 = Failed dependency
426 = Upgrade required
428 = Precondition required
429 = Too many requests
431 = Request header fields too large
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported
1120 = Connection dropped by remote host

2002 = Failed
2003 = Aborted
2004 = Invalid argument
2005 = Invalid handle
2006 = File not found
2007 = Timed out
2008 = File too big
2009 = Unexpected error
2010 = Access denied
2011 = Not implemented
2100 = Connection closed
2101 = Connection reset
2102 = Connection refused
2103 = Connection aborted
2104 = Connection failed
2105 = Name not resolved
2106 = Internet disconnected
2107 = SSL protocol error
2108 = Invalid address
2109 = Address unreachable
2110 = SSL authentication certification needed
2111 = Tunnel connection failed
2112 = No SSL versions enabled
2113 = SSL version or cipher mismatch
2114 = SSL renegotiation requested
2115 = Unsupported proxy authentication method
2116 = SSL renegotiation error
2117 = Bad or missing SSL client certificate
2118 = Connection timeout
2119 = Too many pending DNS resolves
2120 = Failed to connect SOCKS proxy
2121 = SOCKS proxy server failed to establish connection to
the target host
2122 = The request to negotiate an alternate protocol failed
2123 = The peer sent an SSL no_renegotiation alert message
2124 = Winsock reported unexpected written bytes
2125 = SSL decompression failure
2126 = SSL bad record MAC alert
2127 = The proxy requested authentication for tunnel
establishment
2128 = A known TLS strict server didn't offer the renegotiation
extension
2129 = The SSL server attempted to use a weak ephemeral
Diffie-Hellman key
2130 = Could not connect to proxy server
2131 = Snap start NPN misprection
2132 = ESET anti-virus SSL interception
2133 = Preconnect socket limit reached
2134 = The permission to use the SSL client certificate's
private key was denied
2135 = The SSL client certificate has no private key
2136 = The certificate presented by the HTTPS Proxy was
invalid
2137 = An error occurred when trying to do a name resolution
(DNS)
2138 = Permission to access the network was denied
2139 = The request throttler module cancelled this request to
avoid DDOS
2140 = SSL tunnel connection through HTTPS proxy failed
2200 = SSL certification invalid common name
2201 = SSL certification invalid date
2202 = SSL certification invalid authority
2203 = SSL certification contains errors
2204 = SSL certification has no revocation mechanism
2205 = Unable to the revocation for SSL certification

		2206 = SSL certification revoked 2207 = SSL certification is invalid 2208 = SSL certification end 2300 = Invalid URL 2301 = Disallowed URL scheme 2302 = Unknown URL scheme 2310 = Too many redirects 2311 = Unsafe redirect 2312 = Unsafe port 2320 = Invalid response 2321 = Invalid chunked encoding 2322 = Method not supported 2323 = Unexpected proxy authentication 2324 = Empty response 2325 = Response headers are too big 2400 = Cache miss 2501 = Insecure response

Parameters for Dropbox errors

Name	Type	Description
Dropbox cause	Integer	Dropbox cause 4 = Invalid remote file 5 = Invalid local file 421 = Service not available 425 = Cannot open connection

Parameters for test system failure

Name	Type	Description
Reserved	Integer	Reserved Always n/a.

Data disconnect (DAD)

Event ID	DAD
Cellular systems	All
Record state	Data connection state
Description	Recorded when the connection to the server is disconnected. For TCP-based protocols this means that the socket connection has been terminated. The measurement event ends the data connection state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous

Parameters

Name	Type	Description
Data connection context ID	Context	Data connection context ID
Application protocol	Integer	Application protocol 0 = Nemo protocol using modem connection 1 = Nemo protocol using TCP 2 = Nemo protocol using UDP 3 = FTP 4 = HTTP 5 = SMTP 6 = POP3 7 = MMS 8 = WAP 1.0 9 = Streaming 10 = WAP 2.0 11 = HTTP browsing 12 = ICMP ping 13 = IPerf over TCP 14 = IPerf over UDP 15 = Trace route 16 = SFTP 17 = IMAP 18 = Facebook 19 = Twitter 20 = Instagram 21 = LinkedIn 22 = PEVQ-S 23 = Dropbox
Data disc. status	Integer	Data disconnect status 1 = Normal data disconnect 2 = Socket error 3 = Protocol error or timeout 4 = Test system failure

Parameters for succesful transfer

Name	Type	Description
Reserved	Integer	Reserved Always n/a.

Parameters for socket errors

Name	Type	Description
Socket cause	Integer	Socket cause

10004 = A blocking operation was interrupted by a call to WSACancelBlockingCall.

10009 = The file handle supplied is not valid.

10013 = An attempt was made to access a socket in a way forbidden by its access permissions.

10014 = The system detected an invalid pointer address in attempting to use a pointer argument in a call.

10022 = An invalid argument was supplied.

10024 = Too many open sockets.

10035 = A non-blocking socket operation could not be completed immediately.

10036 = A blocking operation is currently executing.

10037 = An operation was attempted on a non-blocking socket that already had an operation in progress.

10038 = An operation was attempted on something that is not a socket.

10039 = A required address was omitted from an operation on a socket.

10040 = A message sent on a datagram socket was larger than the internal message buffer or some other network limit, or the buffer used to receive a datagram into was smaller than the datagram itself.

10041 = A protocol was specified in the socket function call that does not support the semantics of the socket type requested.

10042 = An unknown, invalid, or unsupported option or level was specified in a getsockopt or setsockopt call.

10043 = The requested protocol has not been configured into the system, or no implementation for it exists.

10044 = The support for the specified socket type does not exist in this address family.

10045 = The attempted operation is not supported for the type of object referenced.

10046 = The protocol family has not been configured into the system or no implementation for it exists.

10047 = An address incompatible with the requested protocol was used.

10048 = Only one usage of each socket address (protocol/network address/port) is normally permitted.

10049 = The requested address is not valid in its context.

10050 = A socket operation encountered a dead network.

10051 = A socket operation was attempted to an unreachable network.

10052 = The connection has been broken due to keep-alive activity detecting a failure while the operation was in progress.

10053 = An established connection was aborted by the software in your host machine.

10054 = An existing connection was forcibly closed by the remote host.

10055 = An operation on a socket could not be performed because the system lacked sufficient buffer space or because a queue was full.

10056 = A connect request was made on an already connected socket.

10057 = A request to send or receive data was disallowed because the socket is not connected and (when sending on a datagram socket using a sendto call) no address was supplied.

10058 = A request to send or receive data was disallowed because the socket had already been shut down in that direction with a previous shutdown call.

10059 = Too many references to some kernel object.

10060 = A connection attempt failed because the connected party did not properly respond after a period of time, or established connection failed because connected host has

failed to respond.

10061 = No connection could be made because the target machine actively refused it.

10062 = Cannot translate name.

10063 = Name component or name was too long.

10064 = A socket operation failed because the destination host was down.

10065 = A socket operation was attempted to an unreachable host.

10066 = Cannot remove a directory that is not empty.

10067 = A Windows Sockets implementation may have a limit on the number of applications that may use it simultaneously.

10068 = Ran out of quota.

10069 = Ran out of disk quota.

10070 = File handle reference is no longer available.

10071 = Item is not available locally.

10091 = WSAStartup cannot function at this time because the underlying system it uses to provide network services is currently unavailable.

10092 = The Windows Sockets version requested is not supported.

10093 = Either the application has not called WSAStartup, or WSAStartup failed.

10101 = Returned by WSARecv or WSARecvFrom to indicate the remote party has initiated a graceful shutdown sequence.

10102 = No more results can be returned by WSALookupServiceNext.

10103 = A call to WSALookupServiceEnd was made while this call was still processing. The call has been canceled.

10104 = The procedure call table is invalid.

10105 = The requested service provider is invalid.

10106 = The requested service provider could not be loaded or initialized.

10107 = A system call that should never fail has failed.

10108 = No such service is known. The service cannot be found in the specified name space.

10109 = The specified class was not found.

10110 = No more results can be returned by WSALookupServiceNext.

10111 = A call to WSALookupServiceEnd was made while this call was still processing. The call has been canceled.

10112 = A database query failed because it was actively refused.

11001 = No such host is known.

11002 = This is usually a temporary error during hostname resolution and means that the local server did not receive a response from an authoritative server.

11003 = A non-recoverable error occurred during a database lookup.

11004 = The requested name is valid and was found in the database, but it does not have the correct associated data being resolved for.

11005 = At least one reserve has arrived.

11006 = At least one path has arrived.

11007 = There are no senders.

11008 = There are no receivers.

11009 = Reserve has been confirmed.

11010 = Error due to lack of resources.

11011 = Rejected for administrative reasons - bad credentials.

11012 = Unknown or conflicting style.

11013 = Problem with some part of the filterspec or providerspecific buffer in general.

11014 = Problem with some part of the flowspec.

11015 = General QOS error.

11016 = An invalid or unrecognized service type was found in

		the flowspec.
		11017 = An invalid or inconsistent flowspec was found in the QOS structure.
		11018 = Invalid QOS provider-specific buffer.
		11019 = An invalid QOS filter style was used.
		11020 = An invalid QOS filter type was used.
		11021 = An incorrect number of QOS FILTERSPECs were specified in the FLOWDESCRIPTOR.
		11022 = An object with an invalid ObjectLength field was specified in the QOS provider-specific buffer.
		11023 = An incorrect number of flow descriptors was specified in the QOS structure.
		11024 = An unrecognized object was found in the QOS provider-specific buffer.
		11025 = An invalid policy object was found in the QOS provider-specific buffer.
		11026 = An invalid QOS flow descriptor was found in the flow descriptor list.
		11027 = An invalid or inconsistent flowspec was found in the QOS provider-specific buffer.
		11028 = An invalid FILTERSPEC was found in the QOS provider-specific buffer.
		11029 = An invalid shape discard mode object was found in the QOS provider-specific buffer.
		11030 = An invalid shaping rate object was found in the QOS provider-specific buffer.
		11031 = A reserved policy element was found in the QOS provider-specific buffer.

Parameters for Nemo protocol errors

Name	Type	Description
Data transfer cause	Integer	Data transfer cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file.

Parameters for FTP and SFTP protocol errors

Name	Type	Description
FTP cause	Integer	FTP cause 1 = Timeout 2 = Invalid remote address 3 = Invalid username/password 4 = Invalid remote file 5 = Invalid local file 104 = Already connected 116 = Remote port cannot be zero 118 = Firewall error 120 = Service ready in nnn minutes 135 = Operation would block 141 = Unspecified FTP protocol error 202 = Command not implemented, superfluous at this site 211 = Action impossible in control's present state 212 = Action impossible while connected 213 = Action impossible while listening 421 = Service not available, closing control connection 425 = Cannot open data connection 426 = Connection closed, transfer aborted 434 = Requested host unavailable 450 = Requested file action not taken. File unavailable (e.g., file busy) 451 = Requested action aborted, local error in processing

| | | 452 = Requested action not taken. Insufficient storage space in system
500 = Syntax error, command unrecognized. This may include errors such as command line too long
501 = Syntax error in parameters or arguments
502 = Command not implemented
503 = Bad sequence of commands
504 = Command not implemented for that parameter
530 = User not logged in
532 = Need account for storing files
550 = Requested action not taken, file unavailable (e.g., file not found, no access)
552 = Requested file action aborted, storage allocation exceeded
553 = Requested action not taken, illegal file name
1032 = Password authentication failed
    SFTP only.
1102 = Unrecognized remote SSH version string format
    SFTP only.
1103 = SFTP command failed
    SFTP only.
1105 = Already connecting, close the current connection first
    SFTP only.
1120 = Connection dropped by remote host
    SFTP only. |

Parameters for HTTP protocol errors

Name	Type	Description

HTTP cause	Integer	HTTP cause
		1 = Timeout
		2 = Invalid remote address
		4 = Invalid remote file
		5 = Invalid local file
		100 = Continue
		101 = Switching protocols
		102 = Processing
		200 = OK, success
		201 = Created
		202 = Accepted
		203 = Non-authoritative information
		204 = No content
		205 = Reset content
		206 = Partial content
		208 = Already reported
		300 = Multiple choices
		301 = Moved permanently
		302 = Found
		    In some cases this can be same as moved temporarily.
		303 = See other
		304 = Not modified
		305 = Use proxy
		306 = Reserved
		307 = Temporary redirect
		308 = Permanent redirect
		400 = Bad request
		    Server could not understand request.
		401 = Unauthorized
		402 = Payment required
		403 = Forbidden
		    Operation is understood but refused.
		404 = Not Found
		405 = Method not allowed
		406 = Not acceptable

407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length Required
412 = Precondition failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Requested range not satisfiable
417 = Expectation failed
422 = Unprocessable entity
423 = Locked
424 = Failed dependency
426 = Upgrade required
428 = Precondition required
429 = Too many requests
431 = Request header fields too large
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported
1120 = Connection dropped by remote host

Parameters for SMTP protocol errors

Name	Type	Description
SMTP cause	Integer	SMTP cause 1 = Timeout 2 = Invalid remote address 5 = Invalid local file 102 = Invalid remote address 421 = Service not available, closing transmission channel 450 = Requested mail action not taken: mailbox unavailable 451 = Requested action aborted: local error in processing 452 = Requested action not taken: insufficient system storage 500 = Syntax error, command unrecognized 501 = Syntax error in parameters or arguments 502 = Command not implemented 503 = Bad sequence of commands 504 = Command parameter not implemented 535 = Incorrect password or account name 550 = Requested action not taken: mailbox unavailable 551 = User not local 552 = Requested mail action aborted: exceeded storage allocation 553 = Requested action not taken: mailbox name not allowed 554 = Transaction failed 1120 = Connection dropped by remote host

Parameters for POP3 protocol errors

Name	Type	Description
POP3 cause	Integer	POP3 cause 1 = Timeout 2 = Invalid remote address 6 = Incorrect index 118 = Firewall error 172 = Error communicating with server 174 = Busy executing current method 1120 = Connection dropped by remote host

Parameters for WAP and MMS protocol errors

Name	Type	Description

WAP and MMS cause	Integer	WAP and MMS cause
		1 = Timeout
		2 = Invalid remote address
		4 = Invalid remote file
		5 = Invalid local file
		50 = Unknown
		    Only used with the MMS protocol.
		51 = Protocol error
		    Only used with the MMS protocol.
		52 = Invalid TID
		    Only used with the MMS protocol.
		53 = Not implemented class 2
		    Only used with the MMS protocol.
		54 = Not implemented SAR
		    Only used with the MMS protocol.
		55 = Not implemented user acknowledgement
		    Only used with the MMS protocol.
		56 = WTP version zero
		    Only used with the MMS protocol.
		57 = Capacity temporarily exceeded
		    Only used with the MMS protocol.
		58 = No response
		    Only used with the MMS protocol.
		59 = Message too large
		    Only used with the MMS protocol.
		100 = Continue
		101 = Switching Protocols
		129 = Unspecified
		    Only used with the MMS protocol.
		130 = Service denied
		    Only used with the MMS protocol.
		131 = Message format corrupt
		    Only used with the MMS protocol.
		132 = Sending address unresolved
		    Only used with the MMS protocol.
		133 = Message not found
		    Only used with the MMS protocol.
		134 = Network problem
		    Only used with the MMS protocol.
		135 = Content not accepted
		    Only used with the MMS protocol.
		136 = Unsupported message
		    Only used with the MMS protocol.
		200 = OK, success
		201 = Created
		202 = Accepted
		203 = Non-Authoritative information
		204 = No content
		205 = Reset content
		206 = Partial content
		300 = Multiple choices
		301 = Moved permanently
		302 = Moved temporarily
		303 = See other
		304 = Not modified
		305 = Use proxy
		306 = Reserved
		307 = Temporary redirect
		400 = Bad request - server could not understand request

		401 = Unauthorized 402 = Payment required 403 = Forbidden - operation is understood but refused 404 = Not found 405 = Method not allowed 406 = Not acceptable 407 = Proxy authentication required 408 = Request timeout 409 = Conflict 410 = Gone 411 = Length required 412 = Precondition failed 413 = Request entity too large 414 = Request-URI too large 415 = Unsupported media type 416 = Requested range not satisfiable 417 = Expectation failed 500 = Internal server error 501 = Not implemented 502 = Bad gateway 503 = Service unavailable 504 = Gateway timeout 505 = HTTP version not supported

Parameters for streaming protocol errors

Name	Type	Description
Streaming cause	Integer	Streaming cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 64413 = Audio stream config not available 64414 = Video stream config not available 64415 = Dx add filter failed 64416 = Com create failed 64417 = Audio cap create failed 64418 = Video cap create failed 64419 = Audio device lost 64420 = Video device lost 64421 = Find filter failed 64422 = Insert filter failed 64423 = No audio track present 64424 = No video track present 64425 = User authentication failed 64426 = Media not seekable 64427 = Media handler create failed 64428 = Streaming error 64429 = Get image failed 64430 = Extract buffering status failed 64431 = Audio conversion failed 64432 = Video conversion failed 64433 = Convert to pcm failed 64434 = Wave writer save failed 64435 = Mixer init failed 64436 = Get image bits failed 64437 = Get bitmap info failed 64438 = Get save video sample filename failed 64439 = Get audio sample filename failed 64440 = Get last video image failed 64441 = Get media info failed 64442 = Get parent hwnd failed 64443 = Tick counter failed 64444 = Destroy media handler failed 64445 = Init dll failed

64446 = Media wrapper library not available
64447 = Wrapper library not loaded
64448 = Lib proc not found
64449 = Unknown media action
64450 = Failed to reload media file
64451 = Failed to seek media file
64452 = Failed to pause media file
64453 = Failed to stop media file
64454 = Failed to play media file
64455 = Video writer init failed
64456 = Audio writer init failed
64457 = Video analyzer init failed
64458 = Audio analyzer init failed
64459 = Player not available
64460 = Media wrapper create failed
64461 = Get pin failed
64462 = Render output failed
64463 = Add key provider failed
64464 = Set media type failed
64465 = Get shell command failed
64466 = Dx filter pin access failed
64467 = Launch web browser failed
64468 = Monitor license acquisition failed
64469 = Failed to acquire license
64470 = Drm authentication failed
64471 = Open movie file failed
64472 = New movie failed
64473 = Get dib failed
64474 = Empty bitmap
64475 = Unknown media type
64476 = New gworld failed
64477 = New call back failed
64478 = New movie controller failed
64479 = Audio player create failed
64480 = Player init failed
64481 = Create player failed
64482 = Create client engine failed
64483 = Incomplete action in progress
64484 = No media loaded
64485 = Load media file failed
64486 = Unsupported media type
64487 = Unsupported writer format
64488 = Handler specific
64489 = High resolution counter unavailable
64490 = Mixer select recorder failed
64491 = Mixer get control detail failed
64492 = Unrecognized mixer component type
64493 = Empty mixer item
64494 = Mixer get line controls failed
64495 = Mixer get line info failed
64496 = Mixer close failed
64497 = Mixer get caps failed
64498 = Mixer open failed
64499 = Wave in start failed
64500 = Wave in stop failed
64501 = Wave in add buffer failed
64502 = Wave in prepare header failed
64503 = Wave in open failed
64504 = Mono line index read failed
64505 = Stereo line index read failed
64506 = Mixer index read failed
64507 = Invalid media handler
64508 = Avi write frame failed
64509 = Avi stream format failed
64510 = Avi stream create failed

64511 = Avi file create failed
65016 = Video image req failed
65017 = Video alignment out of range
65018 = Video alignment out of bound
65019 = Video analyzer pause failed
65020 = Video analyzer stop failed
65021 = Video analyzer start failed
65022 = Video analyzer load failed
65023 = Video analysis failed
65246 = Duration diff
65247 = Duration too diff
65248 = Duration too long
65249 = Incompatible sampling rate
65250 = Sut high sampling rate
65251 = Ref duration too short
65252 = Sut duration too short
65253 = Data end not found
65254 = Data begin not found
65255 = Get data buffer failed
65256 = Unmatched sample width
65257 = Corr too low
65258 = Upsampling failed
65259 = Merge data failed
65260 = Unsupport sampling rate
65261 = Unsupport sample width
65262 = Unsupport channel count
65263 = Unmatched channel count
65264 = Unmatched sampling rate
65265 = Level too diff
65266 = Replace data chunk failed
65267 = Split data failed
65268 = Fft failed
65269 = Audio analyzer pause failed
65270 = Audio analyzer stop failed
65271 = Audio analyzer start failed
65272 = Audio analyzer load failed
65273 = Audio analysis failed
65274 = Invalid audio sample width
65275 = Uninit audio mean mos table
65276 = Resampling failed
65277 = Access pass end of data
65278 = Fixed bit rate only
65279 = Invalid audio codec type
65489 = Unlock application failed
65490 = No file loaded
65491 = Empty file
65492 = Invalid sample width
65493 = Invalid channel count
65494 = Invalid data format
65495 = Invalid chunk data
65496 = Invalid riff header
65497 = Unexpected eof
65498 = Invalid analyzer type
65499 = Mixer recorder volume unavailable
65500 = No mixer available
65501 = Invalid command
65502 = Command parser error
65503 = Invalid command type
65504 = Analysis result create failed
65505 = Analyzer compute metrics failed
65506 = Analyzer prepare attribute failed
65507 = Analyzer create failed
65508 = Analyzer load failed
65509 = Analyzer pause failed
65510 = Analyzer stop failed

65511 = Analyzer start failed
65512 = Analyzer destroy failed
65513 = Analyzer library not available
65514 = Analyzer library not loaded
65515 = Open dib failed
65516 = Create window failed
65517 = Draw dib failed
65518 = Register wnd class failed
65519 = Dll interface specific
65520 = Init com failed
65521 = Registry query failed
65522 = Query interface failed
65523 = Generate temp file failed
65524 = Thread create failed
65525 = Wait timeout
65526 = Unsupported feature
65527 = Create process failed
65528 = File not exist
65529 = File open failed
65530 = Registry open failed
65531 = Invalid parameter
65532 = Uninitialized object
65533 = User interrupted
65534 = Out of memory
65535 = Unknown error
262148 = Invalid operation
262149 = Invalid version
262150 = Invalid revision
262151 = Not initialized
262152 = Doc missing
262153 = Unexpected
262156 = Incomplete
262157 = Buffer too small
262158 = Unsupported video
262159 = Unsupported audio
262160 = Invalid bandwidth
262161 = No renderer
262162 = Element not found
262163 = No class
262164 = Class no aggregation
262165 = Not licensed
262166 = No file system
262167 = Request upgrade
262168 = Awaiting license
262208 = Buffering
262209 = Paused
262210 = No data
262211 = Net socket invalid
262212 = Net connect
262213 = Bind
262214 = Socket create
262215 = Invalid host
262216 = Net read
262217 = Net write
262218 = Net UDP
262219 = Retry
262220 = Server timeout
262221 = Server disconnected
262222 = Would block
262223 = General nonet
262224 = Block canceled
262225 = Multicast join
262226 = General multicast
262227 = Multicast UDP
262228 = At interrupt

262229 = Msg too large
262230 = Net TCP
262231 = Try auto config
262232 = Not enough bandwidth
262233 = HTTP connect
262234 = Port in use
262235 = Load test not supported
262272 = At end
262273 = Invalid file
262274 = Invalid path
262275 = Record
262276 = Record write
262277 = Temp file
262278 = Already open
262279 = Seek pending
262280 = Cancelled
262281 = File not found
262282 = Write error
262283 = File exists
262285 = Advise prefer linear
262286 = Parse error
262336 = Bad server
262337 = Advanced server
262338 = Old server
262339 = Redirection
262340 = Server alert
262341 = Proxy
262342 = Proxy response
262343 = Advanced proxy
262344 = Old proxy
262345 = Invalid protocol
262346 = Invalid url option
262347 = Invalid url host
262348 = Invalid url path
262349 = HTTP content not found
262350 = Not authorized
262351 = Unexpected msg
262352 = Bad transport
262353 = No session id
262354 = Proxy dnr
262355 = Proxy net connect
262400 = Audio driver
262401 = Late packet
262402 = Overlapped packet
262403 = Out of order packet
262404 = Non contiguous packet
262464 = Open not processed
262528 = Expired
262593 = Could not init core
262594 = Perfectplay not supported
262595 = No live perfectplay
262596 = Perfectplay not allowed
262597 = No codecs
262598 = Slow machine
262599 = Force perfectplay
262600 = Invalid HTTP proxy host
262601 = Invalid metafile
262602 = Browser launch
262603 = View source noclip
262604 = View source dissabled
262656 = Decoder inited
262657 = Decoder not found
262658 = Decoder invalid
262659 = Decoder type mismatch
262660 = Decoder init failed

262661 = Decoder not inited
262662 = Decoder decompress
262663 = Obsolete version
262720 = Encoder file too small
262721 = Encoder unknown file
262722 = Encoder bad channels
262723 = Encoder bad sampsize
262724 = Encoder bad samprate
262725 = Encoder invalid
262726 = Encoder no output file
262727 = Encoder no input file
262728 = Encoder no output permissions
262729 = Encoder bad file type
262730 = Encoder invalid video
262731 = Encoder invalid audio
262732 = Encoder no video capture
262733 = Encoder invalid video capture
262734 = Encoder no audio capture
262735 = Encoder invalid audio capture
262736 = Encoder too slow for live
262737 = Encoder engine not initialized
262738 = Encoder coDecoder not found
262739 = Encoder coDecoder not initialized
262740 = Encoder invalid input dimensions
262741 = Encoder message ignored
262742 = Encoder no settings
262743 = Encoder no output types
262744 = Encoder improper state
262745 = Encoder invalid server
262746 = Encoder invalid temp path
262747 = Encoder merge fail
262748 = Bin data not found
262749 = Bin end of data
262750 = Bin data purged
262751 = Bin full
262752 = Bin offset past end
262753 = Encoder no encoded data
262754 = Encoder invalid dll
262755 = Not indexable
262756 = Encoder no browser
262757 = Encoder no file to server
262758 = Encoder insufficient disk space
262785 = Prop not found
262786 = Prop not composite
262787 = Prop duplicate
262788 = Prop type mismatch
262789 = Prop active
262790 = Prop inactive
262848 = Ppv no user
262849 = Ppv guid read only
262850 = Ppv guid collision
262851 = Register guid exists
262852 = Ppv authorization failed
262853 = Ppv old player
262854 = Ppv account locked
262856 = Ppv dbaccess error
262857 = Ppv user already exists
262914 = Resource not found
262915 = Resource close file first
262916 = Resource nodata
262917 = Resource badfile
262918 = Resource partial copy
262976 = Upg auth failed
262977 = Upg cert auth failed
262978 = Upg cert expired

| | | 262979 = Upg cert revoked
262980 = Upg rup bad
263105 = Rmt usage error
263106 = Rmt invalid end time
263107 = Rmt missing input file
263108 = Rmt missing output file
263109 = Rmt input equals output file
263110 = Rmt unsupported audio version
263111 = Rmt different audio
263112 = Rmt different video
263113 = Rmt paste missing stream
263114 = Rmt end of stream
263115 = Rmt image map parse error
263116 = Rmt invalid image map file
263117 = Rmt event parse error
263118 = Rmt invalid event file
263119 = Rmt invalid output file
263120 = Rmt invalid duration
263121 = Rmt no dump files
263122 = Rmt no event dump file
263123 = Rmt no imap dump file
263124 = Rmt no data
263125 = Rmt empty stream
263126 = Rmt read only file
263127 = Rmt paste missing audio stream
263128 = Rmt paste missing video stream
263168 = Autocfg success
263169 = Autocfg failed
263170 = Autocfg abort
266176 = Invalid inter leaver
266177 = Bad format
266178 = Chunk missing
266179 = Invalid stream
266180 = Dnr
266181 = Open driver
266182 = Upgrade
266183 = Notification
266184 = Not notified
266185 = Stopped
266186 = Closed
266187 = Invalid wav file
266188 = No seek |

Parameters for HTTP browsing errors

Name	Type	Description
HTTP Browsing cause	Integer	HTTP Browsing cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue 101 = Switching protocols 102 = Processing 200 = OK, success 201 = Created 202 = Accepted 203 = Non-authoritative information 204 = No content 205 = Reset content 206 = Partial content 208 = Already reported 300 = Multiple choices 301 = Moved permanently

302 = Found
   In some cases this can be same as moved temporarily.
303 = See other
304 = Not modified
305 = Use proxy
306 = Reserved
307 = Temporary redirect
308 = Permanent redirect
400 = Bad request
   Server could not understand request.
401 = Unauthorized
402 = Payment required
403 = Forbidden
   Operation is understood but refused.
404 = Not Found
405 = Method not allowed
406 = Not acceptable
407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length Required
412 = Precondition failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Requested range not satisfiable
417 = Expectation failed
422 = Unprocessable entity
423 = Locked
424 = Failed dependency
426 = Upgrade required
428 = Precondition required
429 = Too many requests
431 = Request header fields too large
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported
1120 = Connection dropped by remote host
2002 = Failed
2003 = Aborted
2004 = Invalid argument
2005 = Invalid handle
2006 = File not found
2007 = Timed out
2008 = File too big
2009 = Unexpected error
2010 = Access denied
2011 = Not implemented
2100 = Connection closed
2101 = Connection reset
2102 = Connection refused
2103 = Connection aborted
2104 = Connection failed
2105 = Name not resolved
2106 = Internet disconnected
2107 = SSL protocol error
2108 = Invalid address
2109 = Address unreachable
2110 = SSL authentication certification needed
2111 = Tunnel connection failed
2112 = No SSL versions enabled

		2113 = SSL version or cipher mismatch
		2114 = SSL renegotiation requested
		2115 = Unsupported proxy authentication method
		2116 = SSL renegotiation error
		2117 = Bad or missing SSL client certificate
		2118 = Connection timeout
		2119 = Too many pending DNS resolves
		2120 = Failed to connect SOCKS proxy
		2121 = SOCKS proxy server failed to establish connection to the target host
		2122 = The request to negotiate an alternate protocol failed
		2123 = The peer sent an SSL no_renegotiation alert message
		2124 = Winsock reported unexpected written bytes
		2125 = SSL decompression failure
		2126 = SSL bad record MAC alert
		2127 = The proxy requested authentication for tunnel establishment
		2128 = A known TLS strict server didn't offer the renegotiation extension
		2129 = The SSL server attempted to use a weak ephemeral Diffie-Hellman key
		2130 = Could not connect to proxy server
		2131 = Snap start NPN misprection
		2132 = ESET anti-virus SSL interception
		2133 = Preconnect socket limit reached
		2134 = The permission to use the SSL client certificate's private key was denied
		2135 = The SSL client certificate has no private key
		2136 = The certificate presented by the HTTPS Proxy was invalid
		2137 = An error occurred when trying to do a name resolution (DNS)
		2138 = Permission to access the network was denied
		2139 = The request throttler module cancelled this request to avoid DDOS
		2140 = SSL tunnel connection through HTTPS proxy failed
		2200 = SSL certification invalid common name
		2201 = SSL certification invalid date
		2202 = SSL certification invalid authority
		2203 = SSL certification contains errors
		2204 = SSL certification has no revocation mechanism
		2205 = Unable to the revocation for SSL certification
		2206 = SSL certification revoked
		2207 = SSL certification is invalid
		2208 = SSL certification end
		2300 = Invalid URL
		2301 = Disallowed URL scheme
		2302 = Unknown URL scheme
		2310 = Too many redirects
		2311 = Unsafe redirect
		2312 = Unsafe port
		2320 = Invalid response
		2321 = Invalid chunked encoding
		2322 = Method not supported
		2323 = Unexpected proxy authentication
		2324 = Empty response
		2325 = Response headers are too big
		2400 = Cache miss
		2501 = Insecure response

Parameters for ICMP ping errors

Name	Type	Description

ICMP ping cause	Integer	ICMP ping cause 2 = Invalid remote address 119 = Message too short

Parameters for IPerf protocol errors

Name	Type	Description
Data transfer cause	Integer	Data transfer cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file.

Parameters for trace route errors

Name	Type	Description
Trace route cause	Integer	Trace route cause 1 = Timeout 2 = Invalid remote address 119 = Message too short 131 = Request queue is full 132 = Message for unknown request 159 = Invalid hop index (out of range) 312 = Busy performing current trace

Parameters for IMAP protocol errors

Name	Type	Description
IMAP cause	Integer	IMAP cause 1 = Timeout 2 = Invalid remote address 6 = Incorrect index 116 = RemotePort cannot be zero. Please specify a valid service port number 118 = Firewall error 270 = Cannot load specified security library 271 = Cannot open certificate store 272 = Cannot find specified certificate 273 = Cannot acquire security credentials 274 = Cannot find certificate chain 275 = Cannot verify certificate chain 276 = Error during handshake 280 = Error verifying certificate 281 = Could not find client certificate 282 = Could not find server certificate 283 = Error encrypting data 284 = Error decrypting data 315 = Invalid argument 317 = Unknown content encoding 1117 = You need to connect first. 1120 = Connection dropped by remote host

Parameters for Facebook protocol errors

Name	Type	Description
Facebook cause	Integer	Facebook cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue

101 = Switching protocols
102 = Processing
200 = OK, success
201 = Created
202 = Accepted
203 = Non-authoritative information
204 = No content
205 = Reset content
206 = Partial content
208 = Already reported
300 = Multiple choices
301 = Moved permanently
302 = Found
   In some cases this can be same as moved temporarily.
303 = See other
304 = Not modified
305 = Use proxy
306 = Reserved
307 = Temporary redirect
308 = Permanent redirect
400 = Bad request
   Server could not understand request.
401 = Unauthorized
402 = Payment required
403 = Forbidden
   Operation is understood but refused.
404 = Not Found
405 = Method not allowed
406 = Not acceptable
407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length Required
412 = Precondition failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Requested range not satisfiable
417 = Expectation failed
422 = Unprocessable entity
423 = Locked
424 = Failed dependency
426 = Upgrade required
428 = Precondition required
429 = Too many requests
431 = Request header fields too large
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported
1120 = Connection dropped by remote host
10231 = Unbalanced element tag
10232 = Invalid JSON markup
10233 = Invalid XPath
10234 = DOM tree unavailable
20000 = Invalid access token
20001 = An unknown error occurred
20002 = Service temporarily unavailable
20003 = Unknown method
20004 = Application request limit reached
20009 = User is performing too many actions
20011 = This method is deprecated

20013 = FQL query error
20015 = This method call must be signed with the application secret
20017 = User request limit reached
20100 = Invalid parameter
20101 = Invalid API key
20102 = Session key invalid or no longer valid
20105 = Too many parameters
20110 = Invalid user id
20113 = Invalid email
20200 = Permissions error
20210 = User not visible
20211 = Application has no developers
20250 = Updating status requires the extended permission status_update
20321 = Album is full
20324 = Missing or invalid image file
20325 = Too many unapproved photos pending
20340 = Feed publication request limit reached
20341 = Feed action request limit reached
20343 = The story title is too long
20345 = Feed story title rendered as blank
20346 = Feed story body is too long
20347 = Feed story photo could not be accessed or proxied
20348 = Feed story photo link invalid
20362 = Feed story body_data argument was not a valid JSON-encoded array
20370 = The email address is not valid
20371 = The email address belongs to an existing account
20400 = Invalid email address
20401 = Invalid username or password
20402 = Invalid application auth sig
20403 = Invalid timestamp for authentication
20450 = Session key specified has passed its expiration time
20451 = Session key specified cannot be used to call this method
20452 = Invalid session key
20453 = A session key is required for calling this method
20454 = A session key must be specified when request is signed with a session secret
20455 = A session secret is not permitted to be used with this type of session key
20500 = Message contains banned content
20501 = Missing message body
20502 = Message is too long
20503 = User has sent too many messages
20504 = Invalid reply thread id
20505 = Invalid message recipient
20506 = Duplicate status message
20803 = Invalid user id

Parameters for Twitter protocol errors

Name	Type	Description
Twitter cause	Integer	Twitter cause 1 = Timeout 200 = OK, success 20032 = Could not authenticate Call could not be completed as dialed. 20034 = Page does not exist Page does not exist. Corresponds with an HTTP 404 - the specified resource was not found. 20064 = Account suspended Account is suspended and is not permitted to access this

		feature.

		20068 = Depracated API
		   The Twitter REST API v1 is no longer active. Please
		   migrate to API v1.1.
		20088 = Rate limit exceeded
		   The request limit for this resource has been reached for the
		   current rate limit window.
		20089 = Access token incorrect or expired
		   Use API v1.1.
		20092 = SSL is required
		   Only SSL connections are allowed in the API, you should
		   update your request to a secure connection.
		20130 = Service unavailable
		   Corresponds with an HTTP 503 - Twitter is temporarily
		   over capacity.
		20131 = Internal server error
		   Corresponds with an HTTP 500 - An unknown internal
		   error occurred.
		20135 = Could not authenticate
		20161 = Unable to follow more people at this time
		20179 = Not authorized to see this status
		20185 = User is over daily status update limit
		20187 = Status is a duplicate
		20189 = Error creating status
		20215 = Bad authentication data
		   Typically sent with 1.1 responses with HTTP code 400.
		20226 = Spam
		   This request looks like it might be automated. To protect
		   users from spam and other malicious activity, can not
		   complete this action right now.
		20231 = User must verify login
		20251 = This endpoint has been retired
		   Corresponds to a HTTP request to a retired URL.
		20261 = Application cannot perform write actions

Parameters for Instagram protocol errors

Name	Type	Description
Instagram cause	Integer	Instagram cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue 101 = Switching protocols 102 = Processing 200 = OK, success 201 = Created 202 = Accepted 203 = Non-authoritative information 204 = No content 205 = Reset content 206 = Partial content 208 = Already reported 300 = Multiple choices 301 = Moved permanently 302 = Found In some cases this can be same as moved temporarily. 303 = See other 304 = Not modified 305 = Use proxy 306 = Reserved 307 = Temporary redirect 308 = Permanent redirect

		400 = Bad request
		    Server could not understand request.
		401 = Unauthorized
		402 = Payment required
		403 = Forbidden
		    Operation is understood but refused.
		404 = Not Found
		405 = Method not allowed
		406 = Not acceptable
		407 = Proxy authentication required
		408 = Request timeout
		409 = Conflict
		410 = Gone
		411 = Length Required
		412 = Precondition failed
		413 = Request entity too large
		414 = Request-URI too long
		415 = Unsupported media type
		416 = Requested range not satisfiable
		417 = Expectation failed
		422 = Unprocessable entity
		423 = Locked
		424 = Failed dependency
		426 = Upgrade required
		428 = Precondition required
		429 = Too many requests
		431 = Request header fields too large
		500 = Internal server error
		501 = Not implemented
		502 = Bad gateway
		503 = Service unavailable
		504 = Gateway timeout
		505 = HTTP version not supported
		1120 = Connection dropped by remote host
		20001 = Image download failed
		20002 = Invalid user
		20400 = Invalid user or Access Token
		20429 = The maximum number of requests per hour has been exceeded
		20503 = too many requests

Parameters for LinkedIn protocol errors

Name	Type	Description
LinkedIn cause	Integer	LinkedIn cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue 101 = Switching protocols 102 = Processing 200 = OK, success 201 = Created 202 = Accepted 203 = Non-authoritative information 204 = No content 205 = Reset content 206 = Partial content 208 = Already reported 300 = Multiple choices 301 = Moved permanently 302 = Found In some cases this can be same as moved temporarily.

303 = See other
304 = Not modified
305 = Use proxy
306 = Reserved
307 = Temporary redirect
308 = Permanent redirect
400 = Bad request
　　Server could not understand request.
401 = Unauthorized
402 = Payment required
403 = Forbidden
　　Operation is understood but refused.
404 = Not Found
405 = Method not allowed
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407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length Required
412 = Precondition failed
413 = Request entity too large
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417 = Expectation failed
422 = Unprocessable entity
423 = Locked
424 = Failed dependency
426 = Upgrade required
428 = Precondition required
429 = Too many requests
431 = Request header fields too large
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported
1120 = Connection dropped by remote host
20001 = Image download failed
20003 = JSON error

Parameters for PEVQ-S errors

Name	Type	Description
PEVQ-S cause	Integer	PEVQ-S cause 1 = Timeout 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 12 = Invalid PEVQS handle 13 = Handle was already setup or used in another measurement 14 = Error with license 15 = Error with license info generation 16 = Out of Memory 17 = Packet drop in packet capture detected 18 = Network error 19 = Error with packet source 20 = Video is transported over HTTPS 21 = Could not open database 22 = Database does not match measured video stream

23 = Database version does not match PEVQ-S probe version
24 = Unspecific SQL error
25 = Could not open or parse SSL log file
26 = Error in player simulation
27 = Player signaled error
28 = The player end message is missing but end of video was detected
29 = General error
100 = Continue
101 = Switching protocols
102 = Processing
200 = OK, success
201 = Created
202 = Accepted
203 = Non-authoritative information
204 = No content
205 = Reset content
206 = Partial content
208 = Already reported
300 = Multiple choices
301 = Moved permanently
302 = Found
   In some cases this can be same as moved temporarily.
303 = See other
304 = Not modified
305 = Use proxy
306 = Reserved
307 = Temporary redirect
308 = Permanent redirect
400 = Bad request
   Server could not understand request.
401 = Unauthorized
402 = Payment required
403 = Forbidden
   Operation is understood but refused.
404 = Not Found
405 = Method not allowed
406 = Not acceptable
407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length Required
412 = Precondition failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Requested range not satisfiable
417 = Expectation failed
422 = Unprocessable entity
423 = Locked
424 = Failed dependency
426 = Upgrade required
428 = Precondition required
429 = Too many requests
431 = Request header fields too large
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported
1120 = Connection dropped by remote host
2002 = Failed
2003 = Aborted

2004 = Invalid argument
2005 = Invalid handle
2006 = File not found
2007 = Timed out
2008 = File too big
2009 = Unexpected error
2010 = Access denied
2011 = Not implemented
2100 = Connection closed
2101 = Connection reset
2102 = Connection refused
2103 = Connection aborted
2104 = Connection failed
2105 = Name not resolved
2106 = Internet disconnected
2107 = SSL protocol error
2108 = Invalid address
2109 = Address unreachable
2110 = SSL authentication certification needed
2111 = Tunnel connection failed
2112 = No SSL versions enabled
2113 = SSL version or cipher mismatch
2114 = SSL renegotiation requested
2115 = Unsupported proxy authentication method
2116 = SSL renegotiation error
2117 = Bad or missing SSL client certificate
2118 = Connection timeout
2119 = Too many pending DNS resolves
2120 = Failed to connect SOCKS proxy
2121 = SOCKS proxy server failed to establish connection to the target host
2122 = The request to negotiate an alternate protocol failed
2123 = The peer sent an SSL no_renegotiation alert message
2124 = Winsock reported unexpected written bytes
2125 = SSL decompression failure
2126 = SSL bad record MAC alert
2127 = The proxy requested authentication for tunnel establishment
2128 = A known TLS strict server didn't offer the renegotiation extension
2129 = The SSL server attempted to use a weak ephemeral Diffie-Hellman key
2130 = Could not connect to proxy server
2131 = Snap start NPN misprection
2132 = ESET anti-virus SSL interception
2133 = Preconnect socket limit reached
2134 = The permission to use the SSL client certificate's private key was denied
2135 = The SSL client certificate has no private key
2136 = The certificate presented by the HTTPS Proxy was invalid
2137 = An error occurred when trying to do a name resolution (DNS)
2138 = Permission to access the network was denied
2139 = The request throttler module cancelled this request to avoid DDOS
2140 = SSL tunnel connection through HTTPS proxy failed
2200 = SSL certification invalid common name
2201 = SSL certification invalid date
2202 = SSL certification invalid authority
2203 = SSL certification contains errors
2204 = SSL certification has no revocation mechanism
2205 = Unable to the revocation for SSL certification
2206 = SSL certification revoked
2207 = SSL certification is invalid

		2208 = SSL certification end
		2300 = Invalid URL
		2301 = Disallowed URL scheme
		2302 = Unknown URL scheme
		2310 = Too many redirects
		2311 = Unsafe redirect
		2312 = Unsafe port
		2320 = Invalid response
		2321 = Invalid chunked encoding
		2322 = Method not supported
		2323 = Unexpected proxy authentication
		2324 = Empty response
		2325 = Response headers are too big
		2400 = Cache miss
		2501 = Insecure response

Parameters for Dropbox errors

Name	Type	Description
Dropbox cause	Integer	Dropbox cause 4 = Invalid remote file 5 = Invalid local file 421 = Service not available 425 = Cannot open connection

Parameters for test system failure

Name	Type	Description
Reserved	Integer	Reserved Always n/a.

Data transfer request (DREQ)

Event ID	DREQ
Cellular systems	All
Record state	Data connection state
Description	Recorded when data transfer is requested to or from the server. Begins the data transfer state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous

Parameters

Name	Type	Description
Data transfer context ID	Context	Data transfer context ID
Data connection context ID	Context	Data connection context ID
Application protocol	Integer	Application protocol 0 = Nemo protocol using modem connection 1 = Nemo protocol using TCP 2 = Nemo protocol using UDP 3 = FTP 4 = HTTP 5 = SMTP 6 = POP3 7 = MMS 8 = WAP 1.0 9 = Streaming 10 = WAP 2.0 11 = HTTP browsing 12 = ICMP ping 13 = IPerf over TCP 14 = IPerf over UDP 15 = Trace route 16 = SFTP 17 = IMAP 18 = Facebook 19 = Twitter 20 = Instagram 21 = LinkedIn 22 = PEVQ-S 23 = Dropbox
Transf. dir.	Integer	Data transfer direction 1 = Uplink 2 = Downlink 3 = Uplink and downlink

Parameters for Nemo test protocol

Name	Type	Description
File size	Integer	File size Amount of data to be transferred. Unit: byte
Packet size	Integer	Data transfer packet size Packet size used in data transfer. Unit: byte
Rate limit	Integer	Data transfer bitrate limit Transfer rate limit used in the transfer.

Ping size	Integer	Ping packet size Ping packet size is the size of the ping packet. The value also determines the size of the reply packet. Unit: byte
Ping rate	Integer	Ping rate Ping rate determines the delay between two consecutive ping requests. Unit: ms
Ping timeout	Integer	Ping timeout Ping timeout determines the maximum time between a ping request and the reply. If this time is exceeded, ping measurement event is created using the timeout parameter. Unit: ms

Parameters for FTP and SFTP

Name	Type	Description
File size	Integer	File size Amount of data to be transferred. Unit: byte
Filename	String	Data transfer filename
Transf. att. #	Integer	Data transfer attempt number
Threads	Integer	Data transfer threads Number of concurrent data transfers.
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for HTTP

Name	Type	Description
File size	Integer	File size Amount of data to be transferred. Unit: byte
Filename	String	Data transfer filename
Transf. att. #	Integer	Data transfer attempt number
Threads	Integer	Data transfer threads Number of concurrent data transfers.
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for SMTP

Name	Type	Description
File size	Integer	File size Amount of data to be transferred. Unit: byte
Filename	String	Data transfer filename
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for POP3

Name	Type	Description
File size	Integer	File size Amount of data to be transferred. Unit: byte
Filename	String	Data transfer filename
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for MMS

Name	Type	Description
MMS file size	Integer	MMS file size Amount of data to be transferred. Unit: byte
MMS filename	String	MMS filename
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for WAP 1.0 and 2.0

Name	Type	Description
File size	Integer	File size Amount of data to be transferred. Unit: byte
Filename	String	Data transfer filename
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for Streaming

Name	Type	Description
File size	Integer	File size Amount of data to be transferred. Unit: byte
Filename	String	Data transfer filename
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for HTTP browsing

Name	Type	Description
Filename	String	Data transfer filename
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the

		data transfer is terminated with the timeout result. Unit: ms

Parameters for ICMP ping

Name	Type	Description
Ping size	Integer	Ping packet size Ping packet size is the size of the ping packet. The value also determines the size of the reply packet. Unit: byte
Ping rate	Integer	Ping rate Ping rate determines the delay between two consecutive ping requests. Unit: ms
Ping timeout	Integer	Ping timeout Ping timeout determines the maximum time between a ping request and the reply. If this time is exceeded, ping measurement event is created using the timeout parameter. Unit: ms
Data connection context ID	Context	Data connection context ID

Parameters for IPerf over TCP

Name	Type	Description
Data size	Integer	Data size Amount of data to be transferred. For time based transfers this information is not available. Unit: byte
Threads	Integer	Data transfer threads Number of concurrent data transfers.
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for IPerf over UDP

Name	Type	Description
Data size	Integer	Data size Amount of data to be transferred. For time based transfers this information is not available. Unit: byte
Threads	Integer	Data transfer threads Number of concurrent data transfers.
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for trace route

Name	Type	Description
Packet size	Integer	Trace route packet size Currently not available. Unit: byte
Timeout	Integer	Trace route total timeout

		If the whole path to the destination has not been traced during the timeout period the trace route is recorded as failed. Unit: ms
TTL	Integer	Trace route time to live Maximum number of hops before failure.
Hop timeout	Integer	Trace route hop timeout Minimum value: 0 Unit: ms

Parameters for IMAP

Name	Type	Description
File size	Integer	File size Amount of data to be transferred. Unit: byte
Filename	String	Data transfer filename
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for Facebook

Name	Type	Description
Facebook operation	Integer	Facebook operation 1 = Get user feed 2 = Get friend list 3 = Post a status update 4 = Post an image
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for Twitter

Name	Type	Description
Twitter operation	Integer	Twitter operation 1 = Load home page 2 = Load profile 3 = Follow Twitter feed 4 = Text tweet 5 = Photo tweet
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for Instagram

Name	Type	Description
Instagram operation	Integer	Instagram operation 1 = Load user feed 2 = Load self feed 3 = Load popular feed 4 = Search media with a tag
Timeout	Integer	Data transfer timeout

		If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for LinkedIn

Name	Type	Description
LinkedIn operation	Integer	LinkedIn operation 1 = Load self feed 2 = Load profile from contact list 3 = Load profile using public URL 4 = Share text and URL 5 = Load my info
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for PEVQ-S

Name	Type	Description
Filename	String	Data transfer filename
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms

Parameters for Dropbox

Name	Type	Description
Dropbox operation	Integer	Dropbox operation 1 = Upload 2 = Download
Filename	String	Data transfer filename
Timeout	Integer	Data transfer timeout If no data has been transferred during the timeout period, the data transfer is terminated with the timeout result. Unit: ms
File size	Integer	File size Amount of data to be transferred. Unit: byte

Data transfer completed (DCOMP)

Event ID	DCOMP
Cellular systems	All
Record state	Data transfer state
Description	Recorded when data transfer is stopped. For TCP based protocols when the socket connection to the server is terminated. The measurement event ends the data transfer state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous

Parameters

Name	Type	Description
Data transfer context ID	Context	Data transfer context ID
Application protocol	Integer	Application protocol 0 = Nemo protocol using modem connection 1 = Nemo protocol using TCP 2 = Nemo protocol using UDP 3 = FTP 4 = HTTP 5 = SMTP 6 = POP3 7 = MMS 8 = WAP 1.0 9 = Streaming 10 = WAP 2.0 11 = HTTP browsing 12 = ICMP ping 12 = ICMP ping 13 = IPerf over TCP 14 = IPerf over UDP 15 = Trace route 16 = SFTP 17 = IMAP 18 = Facebook 19 = Twitter 20 = Instagram 21 = LinkedIn 22 = PEVQ-S 23 = Dropbox
Transf. status	Integer	Data transfer status 1 = Successful 2 = Socket error 3 = Protocol error or timeout 5 = User abort

Parameters for succesful transfer

Name	Type	Description
Reserved	Integer	Reserved Always n/a.

Parameters for socket errors

Name	Type	Description

Socket cause	Integer	Socket cause 10004 = A blocking operation was interrupted by a call to WSACancelBlockingCall. 10009 = The file handle supplied is not valid. 10013 = An attempt was made to access a socket in a way forbidden by its access permissions. 10014 = The system detected an invalid pointer address in attempting to use a pointer argument in a call. 10022 = An invalid argument was supplied. 10024 = Too many open sockets. 10035 = A non-blocking socket operation could not be completed immediately. 10036 = A blocking operation is currently executing. 10037 = An operation was attempted on a non-blocking socket that already had an operation in progress. 10038 = An operation was attempted on something that is not a socket. 10039 = A required address was omitted from an operation on a socket. 10040 = A message sent on a datagram socket was larger than the internal message buffer or some other network limit, or the buffer used to receive a datagram into was smaller than the datagram itself. 10041 = A protocol was specified in the socket function call that does not support the semantics of the socket type requested. 10042 = An unknown, invalid, or unsupported option or level was specified in a getsockopt or setsockopt call. 10043 = The requested protocol has not been configured into the system, or no implementation for it exists. 10044 = The support for the specified socket type does not exist in this address family. 10045 = The attempted operation is not supported for the type of object referenced. 10046 = The protocol family has not been configured into the system or no implementation for it exists. 10047 = An address incompatible with the requested protocol was used. 10048 = Only one usage of each socket address (protocol/network address/port) is normally permitted. 10049 = The requested address is not valid in its context. 10050 = A socket operation encountered a dead network. 10051 = A socket operation was attempted to an unreachable network. 10052 = The connection has been broken due to keep-alive activity detecting a failure while the operation was in progress. 10053 = An established connection was aborted by the software in your host machine. 10054 = An existing connection was forcibly closed by the remote host. 10055 = An operation on a socket could not be performed because the system lacked sufficient buffer space or because a queue was full. 10056 = A connect request was made on an already connected socket. 10057 = A request to send or receive data was disallowed because the socket is not connected and (when sending on a datagram socket using a sendto call) no address was supplied. 10058 = A request to send or receive data was disallowed because the socket had already been shut down in that direction with a previous shutdown call. 10059 = Too many references to some kernel object. 10060 = A connection attempt failed because the connected party did not properly respond after a period of time, or

established connection failed because connected host has failed to respond.

10061 = No connection could be made because the target machine actively refused it.

10062 = Cannot translate name.

10063 = Name component or name was too long.

10064 = A socket operation failed because the destination host was down.

10065 = A socket operation was attempted to an unreachable host.

10066 = Cannot remove a directory that is not empty.

10067 = A Windows Sockets implementation may have a limit on the number of applications that may use it simultaneously.

10068 = Ran out of quota.

10069 = Ran out of disk quota.

10070 = File handle reference is no longer available.

10071 = Item is not available locally.

10091 = WSAStartup cannot function at this time because the underlying system it uses to provide network services is currently unavailable.

10092 = The Windows Sockets version requested is not supported.

10093 = Either the application has not called WSAStartup, or WSAStartup failed.

10101 = Returned by WSARecv or WSARecvFrom to indicate the remote party has initiated a graceful shutdown sequence.

10102 = No more results can be returned by WSALookupServiceNext.

10103 = A call to WSALookupServiceEnd was made while this call was still processing. The call has been canceled.

10104 = The procedure call table is invalid.

10105 = The requested service provider is invalid.

10106 = The requested service provider could not be loaded or initialized.

10107 = A system call that should never fail has failed.

10108 = No such service is known. The service cannot be found in the specified name space.

10109 = The specified class was not found.

10110 = No more results can be returned by WSALookupServiceNext.

10111 = A call to WSALookupServiceEnd was made while this call was still processing. The call has been canceled.

10112 = A database query failed because it was actively refused.

11001 = No such host is known.

11002 = This is usually a temporary error during hostname resolution and means that the local server did not receive a response from an authoritative server.

11003 = A non-recoverable error occurred during a database lookup.

11004 = The requested name is valid and was found in the database, but it does not have the correct associated data being resolved for.

11005 = At least one reserve has arrived.

11006 = At least one path has arrived.

11007 = There are no senders.

11008 = There are no receivers.

11009 = Reserve has been confirmed.

11010 = Error due to lack of resources.

11011 = Rejected for administrative reasons - bad credentials.

11012 = Unknown or conflicting style.

11013 = Problem with some part of the filterspec or providerspecific buffer in general.

11014 = Problem with some part of the flowspec.

11015 = General QOS error.

| | | 11016 = An invalid or unrecognized service type was found in the flowspec.
11017 = An invalid or inconsistent flowspec was found in the QOS structure.
11018 = Invalid QOS provider-specific buffer.
11019 = An invalid QOS filter style was used.
11020 = An invalid QOS filter type was used.
11021 = An incorrect number of QOS FILTERSPECs were specified in the FLOWDESCRIPTOR.
11022 = An object with an invalid ObjectLength field was specified in the QOS provider-specific buffer.
11023 = An incorrect number of flow descriptors was specified in the QOS structure.
11024 = An unrecognized object was found in the QOS provider-specific buffer.
11025 = An invalid policy object was found in the QOS provider-specific buffer.
11026 = An invalid QOS flow descriptor was found in the flow descriptor list.
11027 = An invalid or inconsistent flowspec was found in the QOS provider-specific buffer.
11028 = An invalid FILTERSPEC was found in the QOS provider-specific buffer.
11029 = An invalid shape discard mode object was found in the QOS provider-specific buffer.
11030 = An invalid shaping rate object was found in the QOS provider-specific buffer.
11031 = A reserved policy element was found in the QOS provider-specific buffer. |

Parameters for Nemo protocol errors

Name	Type	Description
Data transfer cause	Integer	Data transfer cause
1 = Timeout
2 = Invalid remote address
4 = Invalid remote file.

Parameters for FTP and SFTP protocol errors

Name	Type	Description
FTP cause	Integer	FTP cause
1 = Timeout
2 = Invalid remote address
3 = Invalid username/password
4 = Invalid remote file
5 = Invalid local file
104 = Already connected
116 = Remote port cannot be zero
118 = Firewall error
120 = Service ready in nnn minutes
135 = Operation would block
141 = Unspecified FTP protocol error
202 = Command not implemented, superfluous at this site
211 = Action impossible in control's present state
212 = Action impossible while connected
213 = Action impossible while listening
421 = Service not available, closing control connection
425 = Cannot open data connection
426 = Connection closed, transfer aborted
434 = Requested host unavailable
450 = Requested file action not taken. File unavailable (e.g., file busy)

		451 = Requested action aborted, local error in processing
		452 = Requested action not taken. Insufficient storage space in system
		500 = Syntax error, command unrecognized. This may include errors such as command line too long
		501 = Syntax error in parameters or arguments
		502 = Command not implemented
		503 = Bad sequence of commands
		504 = Command not implemented for that parameter
		530 = User not logged in
		532 = Need account for storing files
		550 = Requested action not taken, file unavailable (e.g., file not found, no access)
		552 = Requested file action aborted, storage allocation exceeded
		553 = Requested action not taken, illegal file name
		1032 = Password authentication failed
		    SFTP only.
		1102 = Unrecognized remote SSH version string format
		    SFTP only.
		1103 = SFTP command failed
		    SFTP only.
		1105 = Already connecting, close the current connection first
		    SFTP only.
		1120 = Connection dropped by remote host
		    SFTP only.

Parameters for HTTP protocol errors

Name	Type	Description

HTTP cause	Integer	HTTP cause
		1 = Timeout
		2 = Invalid remote address
		4 = Invalid remote file
		5 = Invalid local file
		100 = Continue
		101 = Switching protocols
		102 = Processing
		200 = OK, success
		201 = Created
		202 = Accepted
		203 = Non-authoritative information
		204 = No content
		205 = Reset content
		206 = Partial content
		208 = Already reported
		300 = Multiple choices
		301 = Moved permanently
		302 = Found
		    In some cases this can be same as moved temporarily.
		303 = See other
		304 = Not modified
		305 = Use proxy
		306 = Reserved
		307 = Temporary redirect
		308 = Permanent redirect
		400 = Bad request
		    Server could not understand request.
		401 = Unauthorized
		402 = Payment required
		403 = Forbidden
		    Operation is understood but refused.
		404 = Not Found
		405 = Method not allowed

406 = Not acceptable
407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length Required
412 = Precondition failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Requested range not satisfiable
417 = Expectation failed
422 = Unprocessable entity
423 = Locked
424 = Failed dependency
426 = Upgrade required
428 = Precondition required
429 = Too many requests
431 = Request header fields too large
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported
1120 = Connection dropped by remote host

Parameters for SMTP protocol errors

Name	Type	Description
SMTP cause	Integer	SMTP cause 1 = Timeout 2 = Invalid remote address 5 = Invalid local file 102 = Invalid remote address 421 = Service not available, closing transmission channel 450 = Requested mail action not taken: mailbox unavailable 451 = Requested action aborted: local error in processing 452 = Requested action not taken: insufficient system storage 500 = Syntax error, command unrecognized 501 = Syntax error in parameters or arguments 502 = Command not implemented 503 = Bad sequence of commands 504 = Command parameter not implemented 535 = Incorrect password or account name 550 = Requested action not taken: mailbox unavailable 551 = User not local 552 = Requested mail action aborted: exceeded storage allocation 553 = Requested action not taken: mailbox name not allowed 554 = Transaction failed 1120 = Connection dropped by remote host

Parameters for POP3 protocol errors

Name	Type	Description
POP3 cause	Integer	POP3 cause 1 = Timeout 2 = Invalid remote address 6 = Incorrect index 118 = Firewall error 172 = Error communicating with server 174 = Busy executing current method

		1120 = Connection dropped by remote host

Parameters for WAP and MMS protocol errors

Name	Type	Description

WAP and MMS cause	Integer	WAP and MMS cause
		1 = Timeout
		2 = Invalid remote address
		4 = Invalid remote file
		5 = Invalid local file
		50 = Unknown
		   Only used with the MMS protocol.
		51 = Protocol error
		   Only used with the MMS protocol.
		52 = Invalid TID
		   Only used with the MMS protocol.
		53 = Not implemented class 2
		   Only used with the MMS protocol.
		54 = Not implemented SAR
		   Only used with the MMS protocol.
		55 = Not implemented user acknowledgement
		   Only used with the MMS protocol.
		56 = WTP version zero
		   Only used with the MMS protocol.
		57 = Capacity temporarily exceeded
		   Only used with the MMS protocol.
		58 = No response
		   Only used with the MMS protocol.
		59 = Message too large
		   Only used with the MMS protocol.
		100 = Continue
		101 = Switching Protocols
		129 = Unspecified
		   Only used with the MMS protocol.
		130 = Service denied
		   Only used with the MMS protocol.
		131 = Message format corrupt
		   Only used with the MMS protocol.
		132 = Sending address unresolved
		   Only used with the MMS protocol.
		133 = Message not found
		   Only used with the MMS protocol.
		134 = Network problem
		   Only used with the MMS protocol.
		135 = Content not accepted
		   Only used with the MMS protocol.
		136 = Unsupported message
		   Only used with the MMS protocol.
		200 = OK, success
		201 = Created
		202 = Accepted
		203 = Non-Authoritative information
		204 = No content
		205 = Reset content
		206 = Partial content
		300 = Multiple choices
		301 = Moved permanently
		302 = Moved temporarily
		303 = See other
		304 = Not modified
		305 = Use proxy
		306 = Reserved
		307 = Temporary redirect

400 = Bad request - server could not understand request
401 = Unauthorized
402 = Payment required
403 = Forbidden - operation is understood but refused
404 = Not found
405 = Method not allowed
406 = Not acceptable
407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length required
412 = Precondition failed
413 = Request entity too large
414 = Request-URI too large
415 = Unsupported media type
416 = Requested range not satisfiable
417 = Expectation failed
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported

Parameters for streaming protocol errors

Name	Type	Description
Streaming cause	Integer	Streaming cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 64413 = Audio stream config not available 64414 = Video stream config not available 64415 = Dx add filter failed 64416 = Com create failed 64417 = Audio cap create failed 64418 = Video cap create failed 64419 = Audio device lost 64420 = Video device lost 64421 = Find filter failed 64422 = Insert filter failed 64423 = No audio track present 64424 = No video track present 64425 = User authentication failed 64426 = Media not seekable 64427 = Media handler create failed 64428 = Streaming error 64429 = Get image failed 64430 = Extract buffering status failed 64431 = Audio conversion failed 64432 = Video conversion failed 64433 = Convert to pcm failed 64434 = Wave writer save failed 64435 = Mixer init failed 64436 = Get image bits failed 64437 = Get bitmap info failed 64438 = Get save video sample filename failed 64439 = Get audio sample filename failed 64440 = Get last video image failed 64441 = Get media info failed 64442 = Get parent hwnd failed 64443 = Tick counter failed 64444 = Destroy media handler failed

64445 = Init dll failed
64446 = Media wrapper library not available
64447 = Wrapper library not loaded
64448 = Lib proc not found
64449 = Unknown media action
64450 = Failed to reload media file
64451 = Failed to seek media file
64452 = Failed to pause media file
64453 = Failed to stop media file
64454 = Failed to play media file
64455 = Video writer init failed
64456 = Audio writer init failed
64457 = Video analyzer init failed
64458 = Audio analyzer init failed
64459 = Player not available
64460 = Media wrapper create failed
64461 = Get pin failed
64462 = Render output failed
64463 = Add key provider failed
64464 = Set media type failed
64465 = Get shell command failed
64466 = Dx filter pin access failed
64467 = Launch web browser failed
64468 = Monitor license acquisition failed
64469 = Failed to acquire license
64470 = Drm authentication failed
64471 = Open movie file failed
64472 = New movie failed
64473 = Get dib failed
64474 = Empty bitmap
64475 = Unknown media type
64476 = New gworld failed
64477 = New call back failed
64478 = New movie controller failed
64479 = Audio player create failed
64480 = Player init failed
64481 = Create player failed
64482 = Create client engine failed
64483 = Incomplete action in progress
64484 = No media loaded
64485 = Load media file failed
64486 = Unsupported media type
64487 = Unsupported writer format
64488 = Handler specific
64489 = High resolution counter unavailable
64490 = Mixer select recorder failed
64491 = Mixer get control detail failed
64492 = Unrecognized mixer component type
64493 = Empty mixer item
64494 = Mixer get line controls failed
64495 = Mixer get line info failed
64496 = Mixer close failed
64497 = Mixer get caps failed
64498 = Mixer open failed
64499 = Wave in start failed
64500 = Wave in stop failed
64501 = Wave in add buffer failed
64502 = Wave in prepare header failed
64503 = Wave in open failed
64504 = Mono line index read failed
64505 = Stereo line index read failed
64506 = Mixer index read failed
64507 = Invalid media handler
64508 = Avi write frame failed
64509 = Avi stream format failed

64510 = Avi stream create failed
64511 = Avi file create failed
65016 = Video image req failed
65017 = Video alignment out of range
65018 = Video alignment out of bound
65019 = Video analyzer pause failed
65020 = Video analyzer stop failed
65021 = Video analyzer start failed
65022 = Video analyzer load failed
65023 = Video analysis failed
65246 = Duration diff
65247 = Duration too diff
65248 = Duration too long
65249 = Incompatible sampling rate
65250 = Sut high sampling rate
65251 = Ref duration too short
65252 = Sut duration too short
65253 = Data end not found
65254 = Data begin not found
65255 = Get data buffer failed
65256 = Unmatched sample width
65257 = Corr too low
65258 = Upsampling failed
65259 = Merge data failed
65260 = Unsupport sampling rate
65261 = Unsupport sample width
65262 = Unsupport channel count
65263 = Unmatched channel count
65264 = Unmatched sampling rate
65265 = Level too diff
65266 = Replace data chunk failed
65267 = Split data failed
65268 = Fft failed
65269 = Audio analyzer pause failed
65270 = Audio analyzer stop failed
65271 = Audio analyzer start failed
65272 = Audio analyzer load failed
65273 = Audio analysis failed
65274 = Invalid audio sample width
65275 = Uninit audio mean mos table
65276 = Resampling failed
65277 = Access pass end of data
65278 = Fixed bit rate only
65279 = Invalid audio codec type
65489 = Unlock application failed
65490 = No file loaded
65491 = Empty file
65492 = Invalid sample width
65493 = Invalid channel count
65494 = Invalid data format
65495 = Invalid chunk data
65496 = Invalid riff header
65497 = Unexpected eof
65498 = Invalid analyzer type
65499 = Mixer recorder volume unavailable
65500 = No mixer available
65501 = Invalid command
65502 = Command parser error
65503 = Invalid command type
65504 = Analysis result create failed
65505 = Analyzer compute metrics failed
65506 = Analyzer prepare attribute failed
65507 = Analyzer create failed
65508 = Analyzer load failed
65509 = Analyzer pause failed

65510 = Analyzer stop failed
65511 = Analyzer start failed
65512 = Analyzer destroy failed
65513 = Analyzer library not available
65514 = Analyzer library not loaded
65515 = Open dib failed
65516 = Create window failed
65517 = Draw dib failed
65518 = Register wnd class failed
65519 = Dll interface specific
65520 = Init com failed
65521 = Registry query failed
65522 = Query interface failed
65523 = Generate temp file failed
65524 = Thread create failed
65525 = Wait timeout
65526 = Unsupported feature
65527 = Create process failed
65528 = File not exist
65529 = File open failed
65530 = Registry open failed
65531 = Invalid parameter
65532 = Uninitialized object
65533 = User interrupted
65534 = Out of memory
65535 = Unknown error
262148 = Invalid operation
262149 = Invalid version
262150 = Invalid revision
262151 = Not initialized
262152 = Doc missing
262153 = Unexpected
262156 = Incomplete
262157 = Buffer too small
262158 = Unsupported video
262159 = Unsupported audio
262160 = Invalid bandwidth
262161 = No renderer
262162 = Element not found
262163 = No class
262164 = Class no aggregation
262165 = Not licensed
262166 = No file system
262167 = Request upgrade
262168 = Awaiting license
262208 = Buffering
262209 = Paused
262210 = No data
262211 = Net socket invalid
262212 = Net connect
262213 = Bind
262214 = Socket create
262215 = Invalid host
262216 = Net read
262217 = Net write
262218 = Net UDP
262219 = Retry
262220 = Server timeout
262221 = Server disconnected
262222 = Would block
262223 = General nonet
262224 = Block canceled
262225 = Multicast join
262226 = General multicast
262227 = Multicast UDP

262228 = At interrupt
262229 = Msg too large
262230 = Net TCP
262231 = Try auto config
262232 = Not enough bandwidth
262233 = HTTP connect
262234 = Port in use
262235 = Load test not supported
262272 = At end
262273 = Invalid file
262274 = Invalid path
262275 = Record
262276 = Record write
262277 = Temp file
262278 = Already open
262279 = Seek pending
262280 = Cancelled
262281 = File not found
262282 = Write error
262283 = File exists
262285 = Advise prefer linear
262286 = Parse error
262336 = Bad server
262337 = Advanced server
262338 = Old server
262339 = Redirection
262340 = Server alert
262341 = Proxy
262342 = Proxy response
262343 = Advanced proxy
262344 = Old proxy
262345 = Invalid protocol
262346 = Invalid url option
262347 = Invalid url host
262348 = Invalid url path
262349 = HTTP content not found
262350 = Not authorized
262351 = Unexpected msg
262352 = Bad transport
262353 = No session id
262354 = Proxy dnr
262355 = Proxy net connect
262400 = Audio driver
262401 = Late packet
262402 = Overlapped packet
262403 = Out of order packet
262404 = Non contiguous packet
262464 = Open not processed
262528 = Expired
262593 = Could not init core
262594 = Perfectplay not supported
262595 = No live perfectplay
262596 = Perfectplay not allowed
262597 = No codecs
262598 = Slow machine
262599 = Force perfectplay
262600 = Invalid HTTP proxy host
262601 = Invalid metafile
262602 = Browser launch
262603 = View source noclip
262604 = View source dissabled
262656 = Decoder inited
262657 = Decoder not found
262658 = Decoder invalid
262659 = Decoder type mismatch

262660 = Decoder init failed
262661 = Decoder not inited
262662 = Decoder decompress
262663 = Obsolete version
262720 = Encoder file too small
262721 = Encoder unknown file
262722 = Encoder bad channels
262723 = Encoder bad sampsize
262724 = Encoder bad samprate
262725 = Encoder invalid
262726 = Encoder no output file
262727 = Encoder no input file
262728 = Encoder no output permissions
262729 = Encoder bad file type
262730 = Encoder invalid video
262731 = Encoder invalid audio
262732 = Encoder no video capture
262733 = Encoder invalid video capture
262734 = Encoder no audio capture
262735 = Encoder invalid audio capture
262736 = Encoder too slow for live
262737 = Encoder engine not initialized
262738 = Encoder coDecoder not found
262739 = Encoder coDecoder not initialized
262740 = Encoder invalid input dimensions
262741 = Encoder message ignored
262742 = Encoder no settings
262743 = Encoder no output types
262744 = Encoder improper state
262745 = Encoder invalid server
262746 = Encoder invalid temp path
262747 = Encoder merge fail
262748 = Bin data not found
262749 = Bin end of data
262750 = Bin data purged
262751 = Bin full
262752 = Bin offset past end
262753 = Encoder no encoded data
262754 = Encoder invalid dll
262755 = Not indexable
262756 = Encoder no browser
262757 = Encoder no file to server
262758 = Encoder insufficient disk space
262785 = Prop not found
262786 = Prop not composite
262787 = Prop duplicate
262788 = Prop type mismatch
262789 = Prop active
262790 = Prop inactive
262848 = Ppv no user
262849 = Ppv guid read only
262850 = Ppv guid collision
262851 = Register guid exists
262852 = Ppv authorization failed
262853 = Ppv old player
262854 = Ppv account locked
262856 = Ppv dbaccess error
262857 = Ppv user already exists
262914 = Resource not found
262915 = Resource close file first
262916 = Resource nodata
262917 = Resource badfile
262918 = Resource partial copy
262976 = Upg auth failed
262977 = Upg cert auth failed

262978 = Upg cert expired
262979 = Upg cert revoked
262980 = Upg rup bad
263105 = Rmt usage error
263106 = Rmt invalid end time
263107 = Rmt missing input file
263108 = Rmt missing output file
263109 = Rmt input equals output file
263110 = Rmt unsupported audio version
263111 = Rmt different audio
263112 = Rmt different video
263113 = Rmt paste missing stream
263114 = Rmt end of stream
263115 = Rmt image map parse error
263116 = Rmt invalid image map file
263117 = Rmt event parse error
263118 = Rmt invalid event file
263119 = Rmt invalid output file
263120 = Rmt invalid duration
263121 = Rmt no dump files
263122 = Rmt no event dump file
263123 = Rmt no imap dump file
263124 = Rmt no data
263125 = Rmt empty stream
263126 = Rmt read only file
263127 = Rmt paste missing audio stream
263128 = Rmt paste missing video stream
263168 = Autocfg success
263169 = Autocfg failed
263170 = Autocfg abort
266176 = Invalid inter leaver
266177 = Bad format
266178 = Chunk missing
266179 = Invalid stream
266180 = Dnr
266181 = Open driver
266182 = Upgrade
266183 = Notification
266184 = Not notified
266185 = Stopped
266186 = Closed
266187 = Invalid wav file
266188 = No seek

Parameters for HTTP browsing errors

Name	Type	Description
HTTP Browsing cause	Integer	HTTP Browsing cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue 101 = Switching protocols 102 = Processing 200 = OK, success 201 = Created 202 = Accepted 203 = Non-authoritative information 204 = No content 205 = Reset content 206 = Partial content 208 = Already reported 300 = Multiple choices

301 = Moved permanently
302 = Found
    In some cases this can be same as moved temporarily.
303 = See other
304 = Not modified
305 = Use proxy
306 = Reserved
307 = Temporary redirect
308 = Permanent redirect
400 = Bad request
    Server could not understand request.
401 = Unauthorized
402 = Payment required
403 = Forbidden
    Operation is understood but refused.
404 = Not Found
405 = Method not allowed
406 = Not acceptable
407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length Required
412 = Precondition failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Requested range not satisfiable
417 = Expectation failed
422 = Unprocessable entity
423 = Locked
424 = Failed dependency
426 = Upgrade required
428 = Precondition required
429 = Too many requests
431 = Request header fields too large
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported
1120 = Connection dropped by remote host
2002 = Failed
2003 = Aborted
2004 = Invalid argument
2005 = Invalid handle
2006 = File not found
2007 = Timed out
2008 = File too big
2009 = Unexpected error
2010 = Access denied
2011 = Not implemented
2100 = Connection closed
2101 = Connection reset
2102 = Connection refused
2103 = Connection aborted
2104 = Connection failed
2105 = Name not resolved
2106 = Internet disconnected
2107 = SSL protocol error
2108 = Invalid address
2109 = Address unreachable
2110 = SSL authentication certification needed
2111 = Tunnel connection failed

2112 = No SSL versions enabled
2113 = SSL version or cipher mismatch
2114 = SSL renegotiation requested
2115 = Unsupported proxy authentication method
2116 = SSL renegotiation error
2117 = Bad or missing SSL client certificate
2118 = Connection timeout
2119 = Too many pending DNS resolves
2120 = Failed to connect SOCKS proxy
2121 = SOCKS proxy server failed to establish connection to the target host
2122 = The request to negotiate an alternate protocol failed
2123 = The peer sent an SSL no_renegotiation alert message
2124 = Winsock reported unexpected written bytes
2125 = SSL decompression failure
2126 = SSL bad record MAC alert
2127 = The proxy requested authentication for tunnel establishment
2128 = A known TLS strict server didn't offer the renegotiation extension
2129 = The SSL server attempted to use a weak ephemeral Diffie-Hellman key
2130 = Could not connect to proxy server
2131 = Snap start NPN misprection
2132 = ESET anti-virus SSL interception
2133 = Preconnect socket limit reached
2134 = The permission to use the SSL client certificate's private key was denied
2135 = The SSL client certificate has no private key
2136 = The certificate presented by the HTTPS Proxy was invalid
2137 = An error occurred when trying to do a name resolution (DNS)
2138 = Permission to access the network was denied
2139 = The request throttler module cancelled this request to avoid DDOS
2140 = SSL tunnel connection through HTTPS proxy failed
2200 = SSL certification invalid common name
2201 = SSL certification invalid date
2202 = SSL certification invalid authority
2203 = SSL certification contains errors
2204 = SSL certification has no revocation mechanism
2205 = Unable to the revocation for SSL certification
2206 = SSL certification revoked
2207 = SSL certification is invalid
2208 = SSL certification end
2300 = Invalid URL
2301 = Disallowed URL scheme
2302 = Unknown URL scheme
2310 = Too many redirects
2311 = Unsafe redirect
2312 = Unsafe port
2320 = Invalid response
2321 = Invalid chunked encoding
2322 = Method not supported
2323 = Unexpected proxy authentication
2324 = Empty response
2325 = Response headers are too big
2400 = Cache miss
2501 = Insecure response

Parameters for ICMP ping errors

Name	Type	Description

ICMP ping cause	Integer	ICMP ping cause 2 = Invalid remote address 119 = Message too short

Parameters for IPerf protocol errors

Name	Type	Description
Data transfer cause	Integer	Data transfer cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file.

Parameters for trace route errors

Name	Type	Description
Trace route cause	Integer	Trace route cause 1 = Timeout 2 = Invalid remote address 119 = Message too short 131 = Request queue is full 132 = Message for unknown request 159 = Invalid hop index (out of range) 312 = Busy performing current trace

Parameters for IMAP protocol errors

Name	Type	Description
IMAP cause	Integer	IMAP cause 1 = Timeout 2 = Invalid remote address 6 = Incorrect index 116 = RemotePort cannot be zero. Please specify a valid service port number 118 = Firewall error 270 = Cannot load specified security library 271 = Cannot open certificate store 272 = Cannot find specified certificate 273 = Cannot acquire security credentials 274 = Cannot find certificate chain 275 = Cannot verify certificate chain 276 = Error during handshake 280 = Error verifying certificate 281 = Could not find client certificate 282 = Could not find server certificate 283 = Error encrypting data 284 = Error decrypting data 315 = Invalid argument 317 = Unknown content encoding 1117 = You need to connect first. 1120 = Connection dropped by remote host

Parameters for Facebook protocol errors

Name	Type	Description
Facebook cause	Integer	Facebook cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue

101 = Switching protocols
102 = Processing
200 = OK, success
201 = Created
202 = Accepted
203 = Non-authoritative information
204 = No content
205 = Reset content
206 = Partial content
208 = Already reported
300 = Multiple choices
301 = Moved permanently
302 = Found
    In some cases this can be same as moved temporarily.
303 = See other
304 = Not modified
305 = Use proxy
306 = Reserved
307 = Temporary redirect
308 = Permanent redirect
400 = Bad request
    Server could not understand request.
401 = Unauthorized
402 = Payment required
403 = Forbidden
    Operation is understood but refused.
404 = Not Found
405 = Method not allowed
406 = Not acceptable
407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length Required
412 = Precondition failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Requested range not satisfiable
417 = Expectation failed
422 = Unprocessable entity
423 = Locked
424 = Failed dependency
426 = Upgrade required
428 = Precondition required
429 = Too many requests
431 = Request header fields too large
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported
1120 = Connection dropped by remote host
10231 = Unbalanced element tag
10232 = Invalid JSON markup
10233 = Invalid XPath
10234 = DOM tree unavailable
20000 = Invalid access token
20001 = An unknown error occurred
20002 = Service temporarily unavailable
20003 = Unknown method
20004 = Application request limit reached
20009 = User is performing too many actions
20011 = This method is deprecated

20013 = FQL query error
20015 = This method call must be signed with the application
secret
20017 = User request limit reached
20100 = Invalid parameter
20101 = Invalid API key
20102 = Session key invalid or no longer valid
20105 = Too many parameters
20110 = Invalid user id
20113 = Invalid email
20200 = Permissions error
20210 = User not visible
20211 = Application has no developers
20250 = Updating status requires the extended permission
status_update
20321 = Album is full
20324 = Missing or invalid image file
20325 = Too many unapproved photos pending
20340 = Feed publication request limit reached
20341 = Feed action request limit reached
20343 = The story title is too long
20345 = Feed story title rendered as blank
20346 = Feed story body is too long
20347 = Feed story photo could not be accessed or proxied
20348 = Feed story photo link invalid
20362 = Feed story body_data argument was not a valid
JSON-encoded array
20370 = The email address is not valid
20371 = The email address belongs to an existing account
20400 = Invalid email address
20401 = Invalid username or password
20402 = Invalid application auth sig
20403 = Invalid timestamp for authentication
20450 = Session key specified has passed its expiration time
20451 = Session key specified cannot be used to call this
method
20452 = Invalid session key
20453 = A session key is required for calling this method
20454 = A session key must be specified when request is
signed with a session secret
20455 = A session secret is not permitted to be used with this
type of session key
20500 = Message contains banned content
20501 = Missing message body
20502 = Message is too long
20503 = User has sent too many messages
20504 = Invalid reply thread id
20505 = Invalid message recipient
20506 = Duplicate status message
20803 = Invalid user id

Parameters for Twitter protocol errors

Name	Type	Description

Twitter cause	Integer	Twitter cause
		1 = Timeout
		200 = OK, success
		20032 = Could not authenticate
		    Call could not be completed as dialed.
		20034 = Page does not exist
		    Page does not exist. Corresponds with an HTTP 404 - the
		    specified resource was not found.
		20064 = Account suspended
		    Account is suspended and is not permitted to access this

feature.
20068 = Depracated API
    The Twitter REST API v1 is no longer active. Please
    migrate to API v1.1.
20088 = Rate limit exceeded
    The request limit for this resource has been reached for the
    current rate limit window.
20089 = Access token incorrect or expired
    Use API v1.1.
20092 = SSL is required
    Only SSL connections are allowed in the API, you should
    update your request to a secure connection.
20130 = Service unavailable
    Corresponds with an HTTP 503 - Twitter is temporarily
    over capacity.
20131 = Internal server error
    Corresponds with an HTTP 500 - An unknown internal
    error occurred.
20135 = Could not authenticate
20161 = Unable to follow more people at this time
20179 = Not authorized to see this status
20185 = User is over daily status update limit
20187 = Status is a duplicate
20189 = Error creating status
20215 = Bad authentication data
    Typically sent with 1.1 responses with HTTP code 400.
20226 = Spam
    This request looks like it might be automated. To protect
    users from spam and other malicious activity, can not
    complete this action right now.
20231 = User must verify login
20251 = This endpoint has been retired
    Corresponds to a HTTP request to a retired URL.
20261 = Application cannot perform write actions

Parameters for Instagram protocol errors

Name	Type	Description
Instagram cause	Integer	Instagram cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue 101 = Switching protocols 102 = Processing 200 = OK, success 201 = Created 202 = Accepted 203 = Non-authoritative information 204 = No content 205 = Reset content 206 = Partial content 208 = Already reported 300 = Multiple choices 301 = Moved permanently 302 = Found In some cases this can be same as moved temporarily. 303 = See other 304 = Not modified 305 = Use proxy 306 = Reserved 307 = Temporary redirect

		308 = Permanent redirect
		400 = Bad request
		   Server could not understand request.
		401 = Unauthorized
		402 = Payment required
		403 = Forbidden
		   Operation is understood but refused.
		404 = Not Found
		405 = Method not allowed
		406 = Not acceptable
		407 = Proxy authentication required
		408 = Request timeout
		409 = Conflict
		410 = Gone
		411 = Length Required
		412 = Precondition failed
		413 = Request entity too large
		414 = Request-URI too long
		415 = Unsupported media type
		416 = Requested range not satisfiable
		417 = Expectation failed
		422 = Unprocessable entity
		423 = Locked
		424 = Failed dependency
		426 = Upgrade required
		428 = Precondition required
		429 = Too many requests
		431 = Request header fields too large
		500 = Internal server error
		501 = Not implemented
		502 = Bad gateway
		503 = Service unavailable
		504 = Gateway timeout
		505 = HTTP version not supported
		1120 = Connection dropped by remote host
		20001 = Image download failed
		20002 = Invalid user
		20400 = Invalid user or Access Token
		20429 = The maximum number of requests per hour has been exceeded
		20503 = too many requests

Parameters for LinkedIn protocol errors

Name	Type	Description
LinkedIn cause	Integer	LinkedIn cause 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 100 = Continue 101 = Switching protocols 102 = Processing 200 = OK, success 201 = Created 202 = Accepted 203 = Non-authoritative information 204 = No content 205 = Reset content 206 = Partial content 208 = Already reported 300 = Multiple choices 301 = Moved permanently 302 = Found

		In some cases this can be same as moved temporarily.
		303 = See other
		304 = Not modified
		305 = Use proxy
		306 = Reserved
		307 = Temporary redirect
		308 = Permanent redirect
		400 = Bad request
		    Server could not understand request.
		401 = Unauthorized
		402 = Payment required
		403 = Forbidden
		    Operation is understood but refused.
		404 = Not Found
		405 = Method not allowed
		406 = Not acceptable
		407 = Proxy authentication required
		408 = Request timeout
		409 = Conflict
		410 = Gone
		411 = Length Required
		412 = Precondition failed
		413 = Request entity too large
		414 = Request-URI too long
		415 = Unsupported media type
		416 = Requested range not satisfiable
		417 = Expectation failed
		422 = Unprocessable entity
		423 = Locked
		424 = Failed dependency
		426 = Upgrade required
		428 = Precondition required
		429 = Too many requests
		431 = Request header fields too large
		500 = Internal server error
		501 = Not implemented
		502 = Bad gateway
		503 = Service unavailable
		504 = Gateway timeout
		505 = HTTP version not supported
		1120 = Connection dropped by remote host
		20001 = Image download failed
		20003 = JSON error

Parameters for PEVQ-S protocol errors

Name	Type	Description
PEVQ-S cause	Integer	PEVQ-S cause 1 = Timeout 1 = Timeout 2 = Invalid remote address 4 = Invalid remote file 5 = Invalid local file 12 = Invalid PEVQS handle 13 = Handle was already setup or used in another measurement 14 = Error with license 15 = Error with license info generation 16 = Out of Memory 17 = Packet drop in packet capture detected 18 = Network error 19 = Error with packet source 20 = Video is transported over HTTPS

21 = Could not open database
22 = Database does not match measured video stream
23 = Database version does not match PEVQ-S probe version
24 = Unspecific SQL error
25 = Could not open or parse SSL log file
26 = Error in player simulation
27 = Player signaled error
28 = The player end message is missing but end of video was detected
29 = General error
100 = Continue
101 = Switching protocols
102 = Processing
200 = OK, success
201 = Created
202 = Accepted
203 = Non-authoritative information
204 = No content
205 = Reset content
206 = Partial content
208 = Already reported
300 = Multiple choices
301 = Moved permanently
302 = Found
    In some cases this can be same as moved temporarily.
303 = See other
304 = Not modified
305 = Use proxy
306 = Reserved
307 = Temporary redirect
308 = Permanent redirect
400 = Bad request
    Server could not understand request.
401 = Unauthorized
402 = Payment required
403 = Forbidden
    Operation is understood but refused.
404 = Not Found
405 = Method not allowed
406 = Not acceptable
407 = Proxy authentication required
408 = Request timeout
409 = Conflict
410 = Gone
411 = Length Required
412 = Precondition failed
413 = Request entity too large
414 = Request-URI too long
415 = Unsupported media type
416 = Requested range not satisfiable
417 = Expectation failed
422 = Unprocessable entity
423 = Locked
424 = Failed dependency
426 = Upgrade required
428 = Precondition required
429 = Too many requests
431 = Request header fields too large
500 = Internal server error
501 = Not implemented
502 = Bad gateway
503 = Service unavailable
504 = Gateway timeout
505 = HTTP version not supported
1120 = Connection dropped by remote host

2002 = Failed
2003 = Aborted
2004 = Invalid argument
2005 = Invalid handle
2006 = File not found
2007 = Timed out
2008 = File too big
2009 = Unexpected error
2010 = Access denied
2011 = Not implemented
2100 = Connection closed
2101 = Connection reset
2102 = Connection refused
2103 = Connection aborted
2104 = Connection failed
2105 = Name not resolved
2106 = Internet disconnected
2107 = SSL protocol error
2108 = Invalid address
2109 = Address unreachable
2110 = SSL authentication certification needed
2111 = Tunnel connection failed
2112 = No SSL versions enabled
2113 = SSL version or cipher mismatch
2114 = SSL renegotiation requested
2115 = Unsupported proxy authentication method
2116 = SSL renegotiation error
2117 = Bad or missing SSL client certificate
2118 = Connection timeout
2119 = Too many pending DNS resolves
2120 = Failed to connect SOCKS proxy
2121 = SOCKS proxy server failed to establish connection to the target host
2122 = The request to negotiate an alternate protocol failed
2123 = The peer sent an SSL no_renegotiation alert message
2124 = Winsock reported unexpected written bytes
2125 = SSL decompression failure
2126 = SSL bad record MAC alert
2127 = The proxy requested authentication for tunnel establishment
2128 = A known TLS strict server didn't offer the renegotiation extension
2129 = The SSL server attempted to use a weak ephemeral Diffie-Hellman key
2130 = Could not connect to proxy server
2131 = Snap start NPN misprection
2132 = ESET anti-virus SSL interception
2133 = Preconnect socket limit reached
2134 = The permission to use the SSL client certificate's private key was denied
2135 = The SSL client certificate has no private key
2136 = The certificate presented by the HTTPS Proxy was invalid
2137 = An error occurred when trying to do a name resolution (DNS)
2138 = Permission to access the network was denied
2139 = The request throttler module cancelled this request to avoid DDOS
2140 = SSL tunnel connection through HTTPS proxy failed
2200 = SSL certification invalid common name
2201 = SSL certification invalid date
2202 = SSL certification invalid authority
2203 = SSL certification contains errors
2204 = SSL certification has no revocation mechanism
2205 = Unable to the revocation for SSL certification

2206 = SSL certification revoked
2207 = SSL certification is invalid
2208 = SSL certification end
2300 = Invalid URL
2301 = Disallowed URL scheme
2302 = Unknown URL scheme
2310 = Too many redirects
2311 = Unsafe redirect
2312 = Unsafe port
2320 = Invalid response
2321 = Invalid chunked encoding
2322 = Method not supported
2323 = Unexpected proxy authentication
2324 = Empty response
2325 = Response headers are too big
2400 = Cache miss
2501 = Insecure response

Parameters for Dropbox protocol errors

Name	Type	Description
Dropbox cause	Integer	Dropbox cause 4 = Invalid remote file 5 = Invalid local file 421 = Service not available 425 = Cannot open connection

Parameters for aborted transfer

Name	Type	Description
Reserved	Integer	Reserved Always n/a.

Parameters for ICMP ping

Name	Type	Description

Parameters for all protocols

Name	Type	Description
IP access time	Integer	Data transfer IP service access time Time from DREQ to moment when socket connection has been established and first data packet is send. Minimum value: 0 Unit: ms
IP term. time	Integer	Data transfer IP termination time Time from last data packet to the DCOMP when all connections has been terminated and data transfer is finished. Minimum value: 0 Unit: ms
Bytes UL	Integer	Transferred bytes uplink This is a cumulative byte count from the beginning of the transfer. Minimum value: 0 Unit: byte
Bytes DL	Integer	Transferred bytes downlink This is a cumulative byte count from the beginning of the transfer. Minimum value: 0

		Unit: byte
Header transfer time	Integer	Header transfer time Currently this parameter is only logged for POP3 and IMAP protocols. Minimum value: 0 Unit: ms
TCP connection time	Integer	TCP connection establishment time Delay of TCP handshake when opening a socket and connecting to a server. Minimum value: 0 Unit: ms

Data throughput (DRATE)

Event ID	DRATE
Cellular systems	All
Record state	Data transfer state
Description	Recorded semi-periodically when application layer data is transferred to or received from the server. Minimum time period between two measurement events is one second; the maximum is ten seconds (zero values are recorded when data has not been transferred at a point in time).
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous

Parameters

Name	Type	Description
Data transfer context ID	Context	Data transfer context ID
Application protocol	Integer	Application protocol 0 = Nemo protocol using modem connection 1 = Nemo protocol using TCP 2 = Nemo protocol using UDP 3 = FTP 4 = HTTP 5 = SMTP 6 = POP3 7 = MMS 8 = WAP 1.0 9 = Streaming 10 = WAP 2.0 11 = HTTP browsing 13 = IPerf over TCP 14 = IPerf over UDP 16 = SFTP 17 = IMAP 18 = Facebook 19 = Twitter 20 = Instagram 21 = LinkedIn 22 = PEVQ-S 23 = Dropbox

Parameters for application protocols

Name	Type	Description
App. rate UL	Integer	Application throughput uplink The value of this parameter is calculated based on the SDUs that are successfully transferred through the application layer. Missing and erroneous application layer data is excluded from the throughput calculation. Note that with TCP/IP-based application protocols, the TCP/IP headers are not taken into account when calculating the throughput. Minimum value: 0 Unit: bit/s
App. rate DL	Integer	Application throughput downlink The value of this parameter is calculated based on the SDUs that are successfully transferred through the application layer. Missing and erroneous application layer data is excluded from the throughput calculation. Note that with TCP/IP-based

		application protocols, the TCP/IP headers are not taken into account when calculating the throughput. Minimum value: 0 Unit: bit/s
Bytes UL	Integer	Transferred bytes uplink This is a cumulative byte count from the beginning of the transfer. Minimum value: 0 Unit: byte
Bytes DL	Integer	Transferred bytes downlink This is a cumulative byte count from the beginning of the transfer. Minimum value: 0 Unit: byte

Packet error rate (PER)

Event ID	PER
Cellular systems	All
Record state	Data transfer state
Description	Recorded semi-periodically when application layer data is transferred to or received from the server. The measurement event is written simultaneously with the DRATE measurement event for the documented UDP-based protocols.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Data transfer context ID	Context	Data transfer context ID
Application protocol	Integer	Application protocol 9 = Streaming 14 = IPerf over UDP

Parameters for streaming and IPerf over UDP protocols

Name	Type	Description
PER UL	Float	Packet error rate uplink The ratio of erroneously transferred packets to total number of transferred packets. Range: 0 – 100 Unit: %
PER DL	Float	Packet error rate downlink The ratio of erroneously received packets to total number of received packets. Range: 0 – 100 Unit: %
Packets UL	Integer	Transferred packets uplink
Packets DL	Integer	Transferred packets downlink
Errors UL	Integer	Erroneous packets uplink
Errors DL	Integer	Erroneous packets downlink

Round trip time (RTT)

Event ID	RTT
Cellular systems	All
Record state	Data transfer state
Description	Recorded for each ICMP ping packet separately.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Data transfer context ID	Context	Data transfer context ID
Application protocol	Integer	Application protocol 12 = ICMP ping

Parameters for ICMP ping

Name	Type	Description
Ping size	Integer	Ping packet size Ping packet size is the size of the ping packet. The value also determines the size of the reply packet. Unit: byte
Ping RTT	Integer	Ping round trip time Unit: ms

Jitter (JITTER)

Event ID	JITTER
Cellular systems	All
Record state	Data transfer state
Description	Recorded semi-periodically when application layer data is transferred to or received from the server. The measurement event is written simultaneously with the DRATE measurement.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Data transfer context ID	Context	Data transfer context ID
Application protocol	Integer	Application protocol 14 = IPerf over UDP

Parameters for IPerf over UDP

Name	Type	Description
Jitter UL	Integer	Packet jitter uplink Unit: ms
Jitter DL	Integer	Packet jitter downlink Unit: ms

Data stream status (DSS)

Event ID	DSS
Cellular systems	All
Record state	Data transfer state
Description	Recorded when the data stream state changes.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Application protocol	Integer	Application protocol 9 = Streaming 22 = PEVQ-S

Parameters for Streaming

Name	Type	Description
Data transfer context ID	Context	Data transfer context ID
Stream state	Integer	Data transfer stream state 0 = Uninitialized 1 = Stopped 2 = Buffering 3 = Streaming
Stream bandwidth	Integer	Data transfer stream bandwidth Non-measured stream throughput that have to be used to be able to receive data stream without breaks. Minimum value: 0 Unit: bit/s
Stream resolution	String	Data transfer stream resolution The string format is XxY, e.g. 1920x1080.
Stream duration	Integer	Data transfer stream total duration Minimum value: 0 Unit: ms
Stream position	Integer	Data transfer stream playback position Minimum value: 0 Unit: ms
Stream content type	String	Data transfer stream content type
Stream video codec	String	Data transfer stream video codec
Stream audio codec	String	Data transfer stream audio codec
File size	Integer	File size Amount of data to be transferred. Unit: byte

Data content (DCONTENT)

Event ID	DCONTENT
Cellular systems	All
Record state	Data transfer state
Description	Recorded after data transfer has been completed and WAP/HTML content has been parsed.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Application protocol	Integer	Application protocol 8 = WAP 1.0 10 = WAP 2.0 11 = HTTP browsing 18 = Facebook 19 = Twitter 20 = Instagram 21 = LinkedIn

Parameters for WAP 1.0 and 2.0

Name		Type	Description
Data transfer context ID		Context	Data transfer context ID
Number of content elements		Integer	Number of content elements
Number of parameters per content		Integer	Number of parameters per content
	Content	String	Content For text this is the content itself and for the other content types the URL to the resource.
	Content type	Integer	Content type 1 = File 2 = Image 3 = Link 4 = Text
	Content size	Integer	Content size Unit: byte
	Content encoding	String	Content encoding

Parameters for HTTP browsing, Facebook, Twitter, Instagram, and LinkedIn

Name	Type	Description
Data transfer context ID	Context	Data transfer context ID
Number of content	Integer	Number of content elements

elements		
Number of parameters per content	Integer	Number of parameters per content
Content	String	Content For text this is the content itself and for the other content types the URL to the resource.
Content type	Integer	Content type 1 = File 2 = Image 3 = Link 4 = Text
Content size	Integer	Content size Unit: byte
Content encoding	String	Content encoding

Trace route (DTRACE)

Event ID	DTRACE
Cellular systems	All
Record state	Data transfer state
Description	One measurement event is recorded for each trace route host.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Data transfer context ID	Context	Data transfer context ID
Application protocol	Integer	Application protocol 15 = Trace route

Parameters for trace route

Name	Type	Description
Host	String	Destination address
Trace hop count	Integer	Trace hop count
Ping RTT	Integer	Ping round trip time Unit: ms

DNS query (DNSQUERY)

Event ID	DNSQUERY
Cellular systems	All
Record state	Always
Description	Recorded after DNS query.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
DNS query address	String	DNS query address This is the domain name in human friendly format and this is translated to the IP address using DNS.
DNS query latency	Integer	DNS host name resolution time See 3GPP TS 102.25 subclause 5.11. Unit: ms
DNS query result	Integer	DNS query result 0 = Success 1460 = Timeout 9001 = DNS server unable to interpret format. 9002 = DNS server failure. 9003 = DNS name does not exist. 9004 = DNS request not supported by name server. 9005 = DNS operation refused. 9006 = DNS name that ought not exist, does exist. 9007 = DNS RR set that ought not exist, does exist. 9008 = DNS RR set that ought to exist, does not exist. 9009 = DNS server not authoritative for zone. 9010 = DNS name in update or prereq is not in zone. 9016 = DNS signature failed to verify. 9017 = DNS bad key. 9018 = DNS signature validity expired. 9501 = No records found for given DNS query. 9502 = Bad DNS packet. 9503 = No DNS packet. 9504 = DNS error, check rcode. 9505 = Unsecured DNS packet. 9551 = Invalid DNS type. 9552 = Invalid IP address. 9553 = Invalid property. 9554 = Try DNS operation again later. 9555 = Record for given name and type is not unique. 9556 = DNS name does not comply with RFC specifications. 9557 = DNS name is a fully-qualified DNS name. 9558 = DNS name is dotted (multi-label). 9559 = DNS name is a single-part name. 9560 = DNS name contains an invalid character. 9561 = DNS name is entirely numeric. 9562 = The operation requested is not permitted on a DNS root server. 9563 = The record could not be created because this part of the DNS namespace has been delegated to another server. 9564 = The DNS server could not find a set of root hints. 9565 = The DNS server found root hints but they were not consistent across all adapters. 9566 = The specified value is too small for this parameter.

9567 = The specified value is too large for this parameter.
9568 = This operation is not allowed while the DNS server is loading zones in the background. Please try again later.
9569 = The operation requested is not permitted on against a DNS server running on a read-only DC.
9570 = No data is allowed to exist underneath a DNAME record.
9571 = This operation requires credentials delegation.
9601 = DNS zone does not exist.
9602 = DNS zone information not available.
9603 = Invalid operation for DNS zone.
9604 = Invalid DNS zone configuration.
9605 = DNS zone has no start of authority (SOA) record.
9606 = DNS zone has no Name Server (NS) record.
9607 = DNS zone is locked.
9608 = DNS zone creation failed.
9609 = DNS zone already exists.
9610 = DNS automatic zone already exists.
9611 = Invalid DNS zone type.
9612 = Secondary DNS zone requires master IP address.
9613 = DNS zone not secondary.
9614 = Need secondary IP address.
9615 = WINS initialization failed.
9616 = Need WINS servers.
9617 = NBTSTAT initialization call failed.
9618 = Invalid delete of start of authority (SOA)
9619 = A conditional forwarding zone already exists for that name.
9620 = This zone must be configured with one or more master DNS server IP addresses.
9621 = The operation cannot be performed because this zone is shutdown.
9651 = Primary DNS zone requires datafile.
9652 = Invalid datafile name for DNS zone.
9653 = Failed to open datafile for DNS zone.
9654 = Failed to write datafile for DNS zone.
9655 = Failure while reading datafile for DNS zone.
9701 = DNS record does not exist.
9702 = DNS record format error.
9703 = Node creation failure in DNS.
9704 = Unknown DNS record type.
9705 = DNS record timed out.
9706 = Name not in DNS zone.
9707 = CNAME loop detected.
9708 = Node is a CNAME DNS record.
9709 = A CNAME record already exists for given name.
9710 = Record only at DNS zone root.
9711 = DNS record already exists.
9712 = Secondary DNS zone data error.
9713 = Could not create DNS cache data.
9714 = DNS name does not exist.
9715 = Could not create pointer (PTR) record.
9716 = DNS domain was undeleted.
9717 = The directory service is unavailable.
9718 = DNS zone already exists in the directory service.
9719 = DNS server not creating or reading the boot file for the directory service integrated DNS zone.
9720 = Node is a DNAME DNS record.
9721 = A DNAME record already exists for given name.
9722 = An alias loop has been detected with either CNAME or DNAME records.
9751 = DNS AXFR (zone transfer) complete.
9752 = DNS zone transfer failed.
9753 = Added local WINS server.
9801 = Secure update call needs to continue update request.
9851 = TCP/IP network protocol not installed.
9852 = No DNS servers configured for local system.

9901 = The specified directory partition does not exist.
9902 = The specified directory partition already exists.
9903 = This DNS server is not enlisted in the specified directory partition.
9904 = This DNS server is already enlisted in the specified directory partition.
9905 = The directory partition is not available at this time. Please wait a few minutes and try again.
9906 = The application directory partition operation failed.
10004 = A blocking operation was interrupted by a call to WSACancelBlockingCall.
10009 = The file handle supplied is not valid.
10013 = An attempt was made to access a socket in a way forbidden by its access permissions.
10014 = The system detected an invalid pointer address in attempting to use a pointer argument in a call.
10022 = An invalid argument was supplied.
10024 = Too many open sockets.
10035 = A non-blocking socket operation could not be completed immediately.
10036 = A blocking operation is currently executing.
10037 = An operation was attempted on a non-blocking socket that already had an operation in progress.
10038 = An operation was attempted on something that is not a socket.
10039 = A required address was omitted from an operation on a socket.
10040 = A message sent on a datagram socket was larger than the internal message buffer or some other network limit, or the buffer used to receive a datagram into was smaller than the datagram itself.
10041 = A protocol was specified in the socket function call that does not support the semantics of the socket type requested.
10042 = An unknown, invalid, or unsupported option or level was specified in a getsockopt or setsockopt call.
10043 = The requested protocol has not been configured into the system, or no implementation for it exists.
10044 = The support for the specified socket type does not exist in this address family.
10045 = The attempted operation is not supported for the type of object referenced.
10046 = The protocol family has not been configured into the system or no implementation for it exists.
10047 = An address incompatible with the requested protocol was used.
10048 = Only one usage of each socket address (protocol/network address/port) is normally permitted.
10049 = The requested address is not valid in its context.
10050 = A socket operation encountered a dead network.
10051 = A socket operation was attempted to an unreachable network.
10052 = The connection has been broken due to keep-alive activity detecting a failure while the operation was in progress.
10053 = An established connection was aborted by the software in your host machine.
10054 = An existing connection was forcibly closed by the remote host.
10055 = An operation on a socket could not be performed because the system lacked sufficient buffer space or because a queue was full.
10056 = A connect request was made on an already connected socket.
10057 = A request to send or receive data was disallowed because the socket is not connected and (when sending on a datagram socket using a sendto call) no address was supplied.
10058 = A request to send or receive data was disallowed because the socket had already been shut down in that direction with a

previous shutdown call.

10059 = Too many references to some kernel object.

10060 = A connection attempt failed because the connected party did not properly respond after a period of time, or established connection failed because connected host has failed to respond.

10061 = No connection could be made because the target machine actively refused it.

10062 = Cannot translate name.

10063 = Name component or name was too long.

10064 = A socket operation failed because the destination host was down.

10065 = A socket operation was attempted to an unreachable host.

10066 = Cannot remove a directory that is not empty.

10067 = A Windows Sockets implementation may have a limit on the number of applications that may use it simultaneously.

10068 = Ran out of quota.

10069 = Ran out of disk quota.

10070 = File handle reference is no longer available.

10071 = Item is not available locally.

10091 = WSAStartup cannot function at this time because the underlying system it uses to provide network services is currently unavailable.

10092 = The Windows Sockets version requested is not supported.

10093 = Either the application has not called WSAStartup, or WSAStartup failed.

10101 = Returned by WSARecv or WSARecvFrom to indicate the remote party has initiated a graceful shutdown sequence.

10102 = No more results can be returned by WSALookupServiceNext.

10103 = A call to WSALookupServiceEnd was made while this call was still processing. The call has been canceled.

10104 = The procedure call table is invalid.

10105 = The requested service provider is invalid.

10106 = The requested service provider could not be loaded or initialized.

10107 = A system call that should never fail has failed.

10108 = No such service is known. The service cannot be found in the specified name space.

10109 = The specified class was not found.

10110 = No more results can be returned by WSALookupServiceNext.

10111 = A call to WSALookupServiceEnd was made while this call was still processing. The call has been canceled.

10112 = A database query failed because it was actively refused.

11001 = No such host is known.

11002 = This is usually a temporary error during hostname resolution and means that the local server did not receive a response from an authoritative server.

11003 = A non-recoverable error occurred during a database lookup.

11004 = The requested name is valid and was found in the database, but it does not have the correct associated data being resolved for.

11005 = At least one reserve has arrived.

11006 = At least one path has arrived.

11007 = There are no senders.

11008 = There are no receivers.

11009 = Reserve has been confirmed.

11010 = Error due to lack of resources.

11011 = Rejected for administrative reasons - bad credentials.

11012 = Unknown or conflicting style.

11013 = Problem with some part of the filterspec or providerspecific buffer in general.

11014 = Problem with some part of the flowspec.

11015 = General QOS error.

11016 = An invalid or unrecognized service type was found in the flowspec.

11017 = An invalid or inconsistent flowspec was found in the QOS structure.

			11018 = Invalid QOS provider-specific buffer. 11019 = An invalid QOS filter style was used. 11020 = An invalid QOS filter type was used. 11021 = An incorrect number of QOS FILTERSPECs were specified in the FLOWDESCRIPTOR. 11022 = An object with an invalid ObjectLength field was specified in the QOS provider-specific buffer. 11023 = An incorrect number of flow descriptors was specified in the QOS structure. 11024 = An unrecognized object was found in the QOS provider-specific buffer. 11025 = An invalid policy object was found in the QOS provider-specific buffer. 11026 = An invalid QOS flow descriptor was found in the flow descriptor list. 11027 = An invalid or inconsistent flowspec was found in the QOS provider-specific buffer. 11028 = An invalid FILTERSPEC was found in the QOS provider-specific buffer. 11029 = An invalid shape discard mode object was found in the QOS provider-specific buffer. 11030 = An invalid shaping rate object was found in the QOS provider-specific buffer. 11031 = A reserved policy element was found in the QOS provider-specific buffer.
#Results		Integer	Number of resolved DNS results
#Params/result		Integer	Number of parameters per resolved DNS result
	DNS address	String	DNS resolved address The DNS query result in the IP format. When multiple IP addresses is received for the domain name the first recorded IP address is used by the recording tool.
	DNS cache	Integer	DNS query cache status Defines if IP address was received from the client side DNS cache or requested from the DNS server. 0 = Non-cached 1 = Cached

TCP Statistics (TCPSTAT)

Event ID	TCPSTAT
Cellular systems	All
Record state	Data transfer state
Description	Recorded once a second.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Application protocol	Integer	Application protocol 0 = Nemo protocol using modem connection 1 = Nemo protocol using TCP 2 = Nemo protocol using UDP 3 = FTP 4 = HTTP 5 = SMTP 6 = POP3 7 = MMS 8 = WAP 1.0 9 = Streaming 10 = WAP 2.0 11 = HTTP browsing 13 = IPerf over TCP 14 = IPerf over UDP 16 = SFTP 17 = IMAP 18 = Facebook 19 = Twitter 20 = Instagram 21 = LinkedIn 22 = PEVQ-S 23 = Dropbox

Parameters for application protocols

Name	Type	Description
Data transfer context ID	Context	Data transfer context ID
TCP RWIN	Integer	TCP receive window size See http://en.wikipedia.org/wiki/TCP_tuning. Minimum value: 0 Unit: byte
TCP send window size	Integer	TCP send window size Minimum value: 0 Unit: byte
TCP RTP	Integer	TCP round-trip time TCP round-trip time is counted from the moment a data packet has been sent to a moment when a server has been responded with an ACK. This calculation is based on the packet timestamps, not the time the packet is sent and ACK is received at local time. SRTT (Smoothed Round-Trip Time) is an averaged estimation of the current RTT. The calculation formula is: SRTT = (0.9 * previous_SRTT) + (0.1 * current_RTT). See http://tools.ietf.org/html/rfc6298. Minimum value: 0

		Unit: ms
TCP UL BIF	Integer	TCP uplink bytes in flight This parameter shows how much data has been sent or received, but has not been confirmed by an ACK packet. If there is a problem with the network or multiple packets are lost or retransmitted, the value increases until it has been confirmed. The calculation of this parameters differs from the way Wireshark does it. In Wireshark, BIF can be quite high if an Out Of Order packet arrives to the data stream because Wireshark identifies BIF by sequence numbers. In Outdoor this is always calculated by inspecting the payload length of non-sent or non-received packets. Minimum value: 0 Unit: byte
TCP throughput downlink	Integer	TCP throughput downlink Minimum value: 0 Unit: bit/s
TCP throughput uplink	Integer	TCP throughput uplink Minimum value: 0 Unit: bit/s
TCP UL retr.	Integer	TCP uplink retransmission rate Minimum value: 0
TCP DUP ACKs	Integer	TCP duplicate ACKs Duplicate ACK is an ACK packet where all the sequence numbers are identical to the previous ACK. It is caused by a missing packet from the server side we try to get the server to send again. Minimum value: 0
TCP OoOs	Integer	TCP out-of-order packets Out Of Order is a packet that arrives in the middle of data sequence. Minimum value: 0
TCP RSTs	Integer	TCP reset packets RST packets are an indication about TCP connection that is only half open and one side has stopped sending information for some reason and connection has to be closed. Often RST packet is a response to receiving a packet for a socket that is already closed. Minimum value: 0

Cell measurement (CELLMEAS)

Event ID	CELLMEAS
Cellular systems	GSM,TETRA,UMTS FDD,UMTS TD-SCDMA,LTE FDD,LTE TDD,cdmaOne,CDMA 1x,EVDO,WLAN,GAN WLAN,WiMAX,AMPS,DAMPS,NAMPS,iDEN
Record state	Always
Description	Recorded when parameter sample is received from the device. Note that not necessarily all received samples are recorded and currently the recording frequency is about twice per second in connected state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO 20 = WLAN 21 = GAN WLAN 25 = WiMAX 51 = AMPS 52 = NAMPS 53 = DAMPS 55 = iDEN

Parameters for GSM

Name	Type	Description
#Header params	Integer	Number of header parameters
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
Cell type	Integer	Cell type 0 = Neighbor 1 = Serving
Band	Integer	Band 10850 = GSM 850 Band 850 is also known as band 800. 10900 = GSM 900 11800 = GSM 1800 11900 = GSM 1900 19999 = GSM
ARFCN	Integer	Channel number During the active state this is the TCH channel number. If hopping is enabled the first hopping channel is reported.
BSIC	Integer	Base station identification code Range: 0 – 63

RxLev full	Float	RX level full The received signal level of all TDMA frames. See 3GPP TS 145.008 subclause 8.4. Range: −120 – −10 Unit: dBm
RxLev sub	Float	RX level sub The received signal level of the subset of the TDMA frames. See 3GPP TS 145.008 subclause 8.4. Range: −120 – −10 Unit: dBm
C1	Float	C1 criterion Path loss criterion parameter C1 is used for cell selection and reselection. See 3GPP TS 145.008 subclause 6.4 (with GPRS, also subclause 10.1.2). Unit: dB
C2	Float	C2 criterion The reselection criterion C2 is used for cell reselection. This parameter is used for cell reselection when the value of the path loss criterion C1 is over zero. See 3GPP TS 145.008 subclause 6.4. Unit: dB
C31	Float	C31 criterion The signal level threshold criterion parameter C31 is used to determine whether prioritized hierarchical GPRS and LSA cell re-selection shall apply. See 3GPP TS 145.008 subclause 10.1.2.
C32	Float	C32 criterion The cell ranking criterion C32 is used in selecting cells from cells that have the same priority. See 3GPP TS 145.008 subclause 10.1.2.
HCS priority	Integer	HCS priority class Defines the cell re-selection order of the cells. See 3GPP TS 145.008 subclause 10.1.3. Range: 0 – 7
HCS thr.	Float	HCS threshold See 3GPP TS 145.008 subclause 10.1.2. Range: −48 – −110 Unit: dBm
Cell ID	Integer	Cell identification Cell identity of the current cell. For GSM this is 16 bit value, for UMTS this is 28 bit value (RNC ID + 16 bit cell ID), and for LTE this is 28 bit value (eNB ID + 8 bit cell ID). Range: 0 – 65535
LAC	Integer	Location area code Range: 0 – 65535
RAC	Integer	Routing area code
Srxlev	Float	Neighbor Srxlev criterion Cell selection criterion S based on RX level. This value is only available during the UMTS mode. See 3GPP TS 25.304 subclause 5.2.3 cell selection process. Range: −107 – 90 Unit: dBm

Parameters for TETRA

Name	Type	Description
#Header params	Integer	Number of header parameters
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell

Cell type	Integer	Cell type 0 = Neighbor 1 = Serving
Band	Integer	Band 20001 = TETRA band 1 20002 = TETRA band 2 20003 = TETRA band 3 20004 = TETRA band 4 20005 = TETRA band 5 20006 = TETRA band 6 20007 = TETRA band 7 20008 = TETRA band 8 20009 = TETRA band 9 20010 = TETRA band 10 20011 = TETRA band 11 20012 = TETRA band 12 20013 = TETRA band 13 20014 = TETRA band 14 20015 = TETRA band 15 29999 = TETRA
ARFCN	Integer	Channel number
LAC	Integer	Location area code Range: 0 – 65535
RSSI	Float	RSSI Range: −111 – −10 Unit: dBm
C1	Float	C1 criterion Path loss criterion parameter C1 is used for cell selection and reselection. See 3GPP TS 145.008 subclause 6.4 (with GPRS, also subclause 10.1.2). Unit: dB
C2	Float	C2 criterion The reselection criterion C2 is used for cell reselection. This parameter is used for cell reselection when the value of the path loss criterion C1 is over zero. See 3GPP TS 145.008 subclause 6.4. Unit: dB
CC	Integer	Color code Range: 0 – 63

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
Ch	Integer	Channel number
RSSI	Float	Carrier RSSI Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Unit: dBm
Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800.

		50006 = UMTS FDD 850 band 6
		50007 = UMTS FDD 2600 band 7
		50008 = UMTS FDD 900 band 8
		50009 = UMTS FDD 1800 band 9
		50010 = UMTS FDD 2100 band 10
		50011 = UMTS FDD 1400 band 11
		50012 = UMTS FDD 700 band 12
		50013 = UMTS FDD 700 band 13
		50014 = UMTS FDD 700 band 14
		50019 = UMTS FDD 850 band 19
		50020 = UMTS FDD 800 band 20
		50021 = UMTS FDD 1500 band 21
		50022 = UMTS FDD 3500 band 22
		50025 = UMTS FDD 1900 band 25
		50026 = UMTS FDD 850 band 26
		59999 = UMTS FDD
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell

Cell type	Integer	Cell type
		0 = Active
		  The Node-B the UE is connected to (i.e., the UTRA cells currently assigning a downlink DPCH to the UE constitute the active set).
		1 = Monitored
		  The Node-B that is included in the neighbor list but not in the active set.
		2 = Detected
		  The Node-B that is detected by the UE but is not included in the neighbor list. Reporting of the measurements of the detected set is only applicable to intra-frequency measurements made by UEs in CELL_DCH state.
		3 = Undetected

Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20 50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD
Ch	Integer	Channel number
SC	Integer	Scrambling code Range: 0 – 511
Ec/N0	Float	Ec/N0 The received energy per chip divided by the power density of the band measured on the primary CPICH. See 3GPP TS 125.215 subclause 5.1.5.

		Range: −30 – 0 Unit: dB
STTD	Integer	STTD status 0 = STTD not active on PCCPCH 1 = STTD active on PCCPCH
RSCP	Float	RSCP The received signal code power of a single code measured on the primary CPICH. See 3GPP TS 125.215 subclause 5.1.1. Range: −150 – −20 Unit: dBm
Secondary SC	Integer	Secondary scrambling code Range: 0 – 15
Squal	Float	Squal criterion Cell selection criterion S based on Ec/N0. Valid only for UMTS FDD cells. See 3GPP TS 25.304 subclause 5.2.3 cell selection process. Range: −24 – 24
Srxlev	Float	Srxlev criterion Cell selection criterion S based on RSCP. See 3GPP TS 25.304 subclause 5.2.3 cell selection process. Range: −107 – 90
Hqual	Float	Hqual criterion Hierarchical cell criterion H based on Ec/N0. Valid only for UMTS FDD cells. See 3GPP TS 25.304 subclause 5.2.6 cell reselection evaluation process. Range: −32 – 24
Hrxlev	Float	Hrxlev criterion Hierarchical cell criterion H based on RSCP. See 3GPP TS 25.304 subclause 5.2.6 cell reselection evaluation process. Range: −115 – 90
Rqual	Float	Rqual criterion Cell ranking criterion R based on Ec/N0. Valid only for UMTS FDD cells. See 3GPP TS 25.304 subclause 5.2.6 cell reselection evaluation process. Range: −200 – 50
Rrxlev	Float	Rrxlev criterion Cell ranking criterion R based on RSCP. See 3GPP TS 25.304 subclause 5.2.6 cell reselection evaluation process. Range: −191 – 25
OFF	Integer	SFN-CFN difference frames Range: 0 – 255 Unit: frame
Tm	Float	SFN-CFN difference chips Range: 0 – 38400 Unit: chip
Pathloss	Float	Pathloss The reduction of the power density from the base station to the mobile station. Range: 40 – 170 Unit: dB

Parameters for UMTS TD-SCDMA

Name	Type	Description
#Header params	Integer	Number of header parameters
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel

Band	Integer	Band 60001 = UMTS TD-SCDMA 2000 band a 60002 = UMTS TD-SCDMA 1900 band b 60003 = UMTS TD-SCDMA 1900 band c 60004 = UMTS TD-SCDMA 2600 band d 60005 = UMTS TD-SCDMA 1900 band e 60006 = UMTS TD-SCDMA 2300 band f 69999 = UMTS TD-SCDMA
Ch	Integer	Channel number
RSSI	Float	Carrier RSSI Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Unit: dBm
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
Cell type	Integer	Cell type 0 = Neighbor 1 = Serving
Band	Integer	Band 60001 = UMTS TD-SCDMA 2000 band a 60002 = UMTS TD-SCDMA 1900 band b 60003 = UMTS TD-SCDMA 1900 band c 60004 = UMTS TD-SCDMA 2600 band d 60005 = UMTS TD-SCDMA 1900 band e 60006 = UMTS TD-SCDMA 2300 band f 69999 = UMTS TD-SCDMA
Ch	Integer	Channel number
Cell params ID	Integer	Cell parameters ID Range: 0 – 127
RSCP	Float	PCCPCH RSCP The received signal code power of a single code measured on PCCPCH. See 3GPP TS 5.1.2 subclause 5.1.2. Range: −116 – −20 Unit: dBm
Srxlev	Float	Srxlev criterion Cell selection criterion S based on RSCP. See 3GPP TS 25.304 subclause 5.2.3 cell selection process. Range: −107 – 90
Hrxlev	Float	Hrxlev criterion Hierarchical cell criterion H based on RSCP. See 3GPP TS 25.304 subclause 5.2.6 cell reselection evaluation process. Range: −115 – 90
Rrxlev	Float	Rrxlev criterion Cell ranking criterion R based on RSCP. See 3GPP TS 25.304 subclause 5.2.6 cell reselection evaluation process. Range: −191 – 25
Pathloss	Float	Pathloss Range: 46 – 148 Unit: dB

Parameters for LTE

Name	Type	Description
#Header params	Integer	Number of header parameters
#Cells	Integer	Number of cells

#Params/Cell	Integer	Number of parameters per cell
Cell type	Integer	Cell type 0 = Serving 1 = Listed 2 = Detected 10 = SCell 0 The first secondary serving cell. 11 = SCell 1

Band	Integer	Band
		70001 = LTE FDD 2100 band 1
		70002 = LTE FDD 1900 band 2
		70003 = LTE FDD 1800 band 3
		70004 = LTE FDD 2100 AWS band 4
		70005 = LTE FDD 850 band 5
		   Band 850 is also known as band 800.
		70006 = LTE FDD 850 band 6
		70007 = LTE FDD 2600 band 7
		70008 = LTE FDD 900 band 8
		70009 = LTE FDD 1800 band 9
		70010 = LTE FDD 2100 band 10
		70011 = LTE FDD 1400 band 11
		70012 = LTE FDD 700 band 12
		70013 = LTE FDD 700 band 13
		70014 = LTE FDD 700 band 14
		70017 = LTE FDD 700 band 17
		70018 = LTE FDD 850 band 18
		70019 = LTE FDD 850 band 19
		70020 = LTE FDD 800 band 20
		70021 = LTE FDD 1500 band 21
		70022 = LTE FDD 3500 band 22
		70023 = LTE FDD 2200 band 23
		70024 = LTE FDD 1500 band 24
		70025 = LTE FDD 1900 band 25
		70026 = LTE FDD 850 band 26
		70027 = LTE FDD 800 band 27
		70028 = LTE FDD 700 band 28
		70029 = LTE FDD 700 band 29
		   This is downlink only band.
		70030 = LTE FDD 2350 band 30
		70031 = LTE FDD 450 band 31
		70032 = LTE FDD 1500 L-band
		   This is downlink only band.
		70064 = LTE FDD 390-470 band 64
		   This is a non-standard LTE FDD band.
		70065 = LTE FDD 2100 band 65
		70066 = LTE FDD AWS-3 2100 band 66
		70067 = LTE FDD 700 EU band 67
		   This is downlink only band.
		79999 = LTE FDD
		80033 = LTE TDD 1900-1920 band 33
		80034 = LTE TDD 2010-2025 band 34
		80035 = LTE TDD 1850-1910 band 35
		80036 = LTE TDD 1930-1990 band 36
		80037 = LTE TDD 1910-1930 band 37
		80038 = LTE TDD 2570-2620 band 38
		80039 = LTE TDD 1880-1920 band 39
		80040 = LTE TDD 2300-2400 band 40
		80041 = LTE TDD 2496-2690 band 41
		80042 = LTE TDD 3400-3600 band 42
		80043 = LTE TDD 3600-3800 band 43
		80044 = LTE TDD 703-803 band 44
		80045 = LTE TDD 1447-1467 band 45
		80061 = LTE TDD 1447-1467 band 61
		   This is a non-standard LTE TDD band.

		80062 = LTE TDD 1785-1805 band 62
		    This is a non-standard LTE TDD band.
		80087 = LTE TDD 1447-1467 band 87
		    This is a non-standard LTE TDD band.
		80088 = LTE TDD 1785-1805 band 88
		    This is a non-standard LTE TDD band.
		89999 = LTE TDD

Ch	Integer	Channel number
PCI	Integer	Physical cell identity Range: 0 – 503
RSSI	Float	E-UTRAN carrier RSSI Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Unit: dBm
RSRP	Float	RSRP Reference signal received power is the linear average of the power contributions of the resource elements that carry cell-specific reference signals within the considered measurement frequency. 3GPP TS 36.214 subclause 5.1.1. Range: −140 – 0 Unit: dBm
RSRQ	Float	RSRQ Reference signal received quality is the ratio N * RSRP / E-UTRA carrier RSSI, where N is the number of resource blocks of the E-UTRA carrier RSSI measurement bandwidth. The measurements in the numerator and denominator are made over the same set of resource blocks. 3GPP TS 36.214 subclause 5.1.3. Range: −30 – 0 Unit: dB
Timing	Integer	Cell frame timing The unit of this parameter is Ts and one Ts is 1/30720000 seconds. Range: 0 – 307199
Pathloss	Float	Pathloss The reduction of the power density from the base station to the mobile station. Range: 0 – 170 Unit: dB

Parameters for cdmaOne and CDMA 1x

Name	Type	Description
#Header params	Integer	Number of header parameters
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel

Band	Integer	Band
		100000 = cdmaOne 800
		    North American cellular 800 MHz band, also in Korea, Australia, Hong Kong, China, Taiwan, and others.
		100001 = cdmaOne 1900
		    North American PCS 1900 MHz band.
		100002 = cdmaOne 900 (TACS)
		    Total access communication system (TACS) 900 MHz band.
		100003 = cdmaOne 800 (JTACS)
		    JTACS 800 MHz band (Japanese 800 MHz reversed).
		100004 = cdmaOne 1800 (Korean)
		    Korean PCS 1800 MHz band.
		100005 = cdmaOne 450 (NMT)
		    Nordic mobile telephone (NMT) 450 MHz band.

100006 = cdmaOne 1900-2100 (IMT)
   IMT-2000 1900-2100 MHz band.
100007 = cdmaOne 700
   North American cellular 700 MHz band.
100008 = cdmaOne 1800
   1800 MHz band.
100009 = cdmaOne 900
   900 MHz band.
100010 = cdmaOne 900 (SMR)
   Specialized mobile radio (SMR) 900 MHz band.
100011 = cdmaOne 400 (PAMR)
   European PAMR 400 MHz band.
100012 = cdmaOne 800 (PAMR)
   European PAMR 800 MHz band.
100013 = cdmaOne 2500
   2.5 GHz IMT-2000 extension.
100014 = cdmaOne 1900 (band 14)
   US PCS 1.9 GHz.
100015 = cdmaOne 2100 (AWS)
100016 = cdmaOne 2500 (band 16)
   US 2.5 GHz.
100018 = cdmaOne 700 (public safety)
100019 = cdmaOne 700 (lower)
100020 = cdmaOne 1500 (L-band)
100021 = cdmaOne 2000 (S-band)
109999 = cdmaOne
110000 = CDMA 1x 800
   North American cellular 800 MHz band, also in Korea, Australia,
   Hong Kong, China, Taiwan, and others.
110001 = CDMA 1x 1900
   North American PCS 1900 MHz band.
110002 = CDMA 1x 900 (TACS)
   Total access communication system (TACS) 900 MHz band.
110003 = CDMA 1x 800 (JTACS)
   JTACS 800 MHz band (Japanese 800 MHz reversed).
110004 = CDMA 1x 1800 (Korean)
   Korean PCS 1800 MHz band.
110005 = CDMA 1x 450 (NMT)
   Nordic mobile telephone (NMT) 450 MHz band.
110006 = CDMA 1x 1900-2100 (IMT)
   IMT-2000 1900-2100 MHz band.
110007 = CDMA 1x 700
   North American cellular 700 MHz band.
110008 = CDMA 1x 1800
   1800 MHz band.
110009 = CDMA 1x 900
   900 MHz band.
110010 = CDMA 1x 900 (SMR)
   Specialized mobile radio (SMR) 900 MHz band.
110011 = CDMA 1x 400 (PAMR)
   European PAMR 400 MHz band.
110012 = CDMA 1x 800 (PAMR)
   European PAMR 800 MHz band.
110013 = CDMA 1x 2500
   2.5 GHz IMT-2000 extension.
110014 = CDMA 1x 1900 (band 14)
   US PCS 1.9 GHz.
110015 = CDMA 1x 2100 (AWS)
110016 = CDMA 1x 2500 (band 16)
   US 2.5 GHz.
110018 = CDMA 1x 700 (public safety)
110019 = CDMA 1x 700 (lower)
110020 = CDMA 1x 1500 (L-band)
110021 = CDMA 1x 2000 (S-band)
119999 = CDMA 1x

Ch	Integer	Channel number
RX power	Float	RX power Range: −120 – 30 Unit: dBm
RX0 power	Float	RX power antenna 0 Range: −120 – 30 Unit: dBm
RX1 power	Float	RX power antenna 1 Range: −120 – 30 Unit: dBm
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
Set	Integer	Set information 0 = Active 1 = Candidate 2 = Neighbor 3 = Remainder

Band	Integer	Band
		100000 = cdmaOne 800
		   North American cellular 800 MHz band, also in Korea, Australia,
		   Hong Kong, China, Taiwan, and others.
		100001 = cdmaOne 1900
		   North American PCS 1900 MHz band.
		100002 = cdmaOne 900 (TACS)
		   Total access communication system (TACS) 900 MHz band.
		100003 = cdmaOne 800 (JTACS)
		   JTACS 800 MHz band (Japanese 800 MHz reversed).
		100004 = cdmaOne 1800 (Korean)
		   Korean PCS 1800 MHz band.
		100005 = cdmaOne 450 (NMT)
		   Nordic mobile telephone (NMT) 450 MHz band.
		100006 = cdmaOne 1900-2100 (IMT)
		   IMT-2000 1900-2100 MHz band.
		100007 = cdmaOne 700
		   North American cellular 700 MHz band.
		100008 = cdmaOne 1800
		   1800 MHz band.
		100009 = cdmaOne 900
		   900 MHz band.
		100010 = cdmaOne 900 (SMR)
		   Specialized mobile radio (SMR) 900 MHz band.
		100011 = cdmaOne 400 (PAMR)
		   European PAMR 400 MHz band.
		100012 = cdmaOne 800 (PAMR)
		   European PAMR 800 MHz band.
		100013 = cdmaOne 2500
		   2.5 GHz IMT-2000 extension.
		100014 = cdmaOne 1900 (band 14)
		   US PCS 1.9 GHz.
		100015 = cdmaOne 2100 (AWS)
		100016 = cdmaOne 2500 (band 16)
		   US 2.5 GHz.
		100018 = cdmaOne 700 (public safety)
		100019 = cdmaOne 700 (lower)
		100020 = cdmaOne 1500 (L-band)
		100021 = cdmaOne 2000 (S-band)
		109999 = cdmaOne
		110000 = CDMA 1x 800
		   North American cellular 800 MHz band, also in Korea, Australia,
		   Hong Kong, China, Taiwan, and others.
		110001 = CDMA 1x 1900

		North American PCS 1900 MHz band.
		110002 = CDMA 1x 900 (TACS)
		    Total access communication system (TACS) 900 MHz band.
		110003 = CDMA 1x 800 (JTACS)
		    JTACS 800 MHz band (Japanese 800 MHz reversed).
		110004 = CDMA 1x 1800 (Korean)
		    Korean PCS 1800 MHz band.
		110005 = CDMA 1x 450 (NMT)
		    Nordic mobile telephone (NMT) 450 MHz band.
		110006 = CDMA 1x 1900-2100 (IMT)
		    IMT-2000 1900-2100 MHz band.
		110007 = CDMA 1x 700
		    North American cellular 700 MHz band.
		110008 = CDMA 1x 1800
		    1800 MHz band.
		110009 = CDMA 1x 900
		    900 MHz band.
		110010 = CDMA 1x 900 (SMR)
		    Specialized mobile radio (SMR) 900 MHz band.
		110011 = CDMA 1x 400 (PAMR)
		    European PAMR 400 MHz band.
		110012 = CDMA 1x 800 (PAMR)
		    European PAMR 800 MHz band.
		110013 = CDMA 1x 2500
		    2.5 GHz IMT-2000 extension.
		110014 = CDMA 1x 1900 (band 14)
		    US PCS 1.9 GHz.
		110015 = CDMA 1x 2100 (AWS)
		110016 = CDMA 1x 2500 (band 16)
		    US 2.5 GHz.
		110018 = CDMA 1x 700 (public safety)
		110019 = CDMA 1x 700 (lower)
		110020 = CDMA 1x 1500 (L-band)
		110021 = CDMA 1x 2000 (S-band)
		119999 = CDMA 1x

Ch	Integer	Channel number
PN	Integer	Pilot number Range: 0 – 511
Ec/I0	Float	Ec/I0 Range: −50 – 0 Unit: dB
Walsh	Integer	Walsh code Walsh code used, available only for active set.
RSCP	Float	RSCP The received signal code power of a single code. Range: −150 – −20 Unit: dBm

Parameters for EVDO

Name	Type	Description
#Header params	Integer	Number of header parameters
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel

Band	Integer	Band
		120000 = EVDO 800
		    North American cellular 800 MHz band. Also in Korea, Australia,
		    Hong Kong, China, Taiwan, and others.

		120001 = EVDO 1900
		    North American PCS 1900 MHz band.
		120002 = EVDO 900 (TACS)
		    Total access communication system (TACS) 900 MHz band.
		120003 = EVDO 800 (JTACS)
		    JTACS 800 MHz band (Japanese 800 MHz reversed).
		120004 = EVDO 1800 (Korean)
		    Korean PCS 1800 MHz band.
		120005 = EVDO 450 (NMT)
		    Nordic mobile telephone (NMT) 450 MHz band.
		120006 = EVDO 1900-2100 (IMT)
		    IMT-2000 1900-2100 MHz band.
		120007 = EVDO 700
		    North American cellular 700 MHz band.
		120008 = EVDO 1800
		    1800 MHz band.
		120009 = EVDO 900
		    900 MHz band.
		120010 = EVDO 900 (SMR)
		    Specialized mobile radio (SMR) 900 MHz band.
		120011 = EVDO 400 (PAMR)
		    European PAMR 400 MHz band.
		120012 = EVDO 800 (PAMR)
		    European PAMR 800 MHz band.
		120013 = EVDO 2500
		    2.5 GHz IMT-2000 extension.
		120014 = EVDO 1900 (band 14)
		    US PCS 1.9 GHz.
		120015 = EVDO 2100 (AWS)
		120016 = EVDO 2500 (band 16)
		    US 2.5 GHz.
		120018 = EVDO 700 (public safety)
		120019 = EVDO 700 (lower)
		120020 = EVDO 1500 (L-band)
		120021 = EVDO 2000 (S-band)
		129999 = EVDO

Ch	Integer	Channel number
RX power	Float	RX power Range: −120 – 30 Unit: dBm
RX0 power	Float	RX power antenna 0 Range: −120 – 30 Unit: dBm
RX1 power	Float	RX power antenna 1 Range: −120 – 30 Unit: dBm
Ch ID	Integer	Channel ID Range: 0 – 7
#Chs	Integer	Number of channels
#Params/Cell	Integer	Number of parameters per cell
Set	Integer	Set information 0 = Active 1 = Candidate 2 = Neighbor 3 = Remainder

Band	Integer	Band
		120000 = EVDO 800
		    North American cellular 800 MHz band. Also in Korea, Australia,
		    Hong Kong, China, Taiwan, and others.
		120001 = EVDO 1900
		    North American PCS 1900 MHz band.

		120002 = EVDO 900 (TACS)
		    Total access communication system (TACS) 900 MHz band.
		120003 = EVDO 800 (JTACS)
		    JTACS 800 MHz band (Japanese 800 MHz reversed).
		120004 = EVDO 1800 (Korean)
		    Korean PCS 1800 MHz band.
		120005 = EVDO 450 (NMT)
		    Nordic mobile telephone (NMT) 450 MHz band.
		120006 = EVDO 1900-2100 (IMT)
		    IMT-2000 1900-2100 MHz band.
		120007 = EVDO 700
		    North American cellular 700 MHz band.
		120008 = EVDO 1800
		    1800 MHz band.
		120009 = EVDO 900
		    900 MHz band.
		120010 = EVDO 900 (SMR)
		    Specialized mobile radio (SMR) 900 MHz band.
		120011 = EVDO 400 (PAMR)
		    European PAMR 400 MHz band.
		120012 = EVDO 800 (PAMR)
		    European PAMR 800 MHz band.
		120013 = EVDO 2500
		    2.5 GHz IMT-2000 extension.
		120014 = EVDO 1900 (band 14)
		    US PCS 1.9 GHz.
		120015 = EVDO 2100 (AWS)
		120016 = EVDO 2500 (band 16)
		    US 2.5 GHz.
		120018 = EVDO 700 (public safety)
		120019 = EVDO 700 (lower)
		120020 = EVDO 1500 (L-band)
		120021 = EVDO 2000 (S-band)
		129999 = EVDO

Ch	Integer	Channel number
PN	Integer	Pilot number Range: 0 – 511
Ec/I0	Float	Ec/I0 Range: −50 – 0 Unit: dB
RSCP	Float	RSCP The received signal code power of a single code. Range: −150 – 0 Unit: dBm
Reportable	Integer	Reportable This parameter is only valid for EVDO Rev B active set cells. 0 = No 1 = Yes
Scheduler tag	Integer	Scheduler tag This parameter is only valid for EVDO Rev B active set cells. Range: 0 – 7

Parameters for WLAN

Name	Type	Description
#Header params	Integer	Number of header parameters
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell

Cell type	Integer	Cell type 0 = Neighbor 1 = Serving
Band	Integer	WLAN band The band ofhe WLAN access point. 200001 = WLAN 2.4 GHz 200002 = WLAN 3.6 GHz 200003 = WLAN 4.9 GHz 200004 = WLAN 5.0 GHz 209999 = WLAN
Quality	Float	WLAN quality Range: 0 – 100 Unit: %
Channel	Integer	WLAN channel number
RSSI	Float	WLAN RSSI Range: −110 – 20 Unit: dBm
SSID	String	WLAN service set identifier
BSSID	String	WLAN BSSID This is same as MAC address.
Security	Integer	WLAN security mode 0 = Open 1 = 802.1x 2 = WEP 3 = WPA-EAP 4 = WPA-PSK 5 = WPA2-EAP 6 = WPA2-PSK
Link speed	Integer	WLAN link speed Unit: Mbit/s
IP	String	WLAN IP address The IP address for the WLAN access point.

Parameters for GAN WLAN

Name	Type	Description
#Header params	Integer	Number of header parameters
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
Cell type	Integer	Cell type 0 = Neighbor 1 = Serving
Band	Integer	WLAN band The band ofhe WLAN access point. 219999 = GAN WLAN
Quality	Float	WLAN quality Range: 0 – 100 Unit: %
Channel	Integer	WLAN channel number
RSSI	Float	WLAN RSSI Range: −110 – 20 Unit: dBm
SSID	String	WLAN service set identifier

BSSID	String	WLAN BSSID This is same as MAC address.

Parameters for WiMAX

Name	Type	Description
#Header params	Integer	Number of header parameters
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
Cell type	Integer	Cell type 0 = Neighbor 1 = Serving
Band	Integer	Band 259999 = WiMAX
Frequency	Float	WiMAX frequency Unit: MHz
Preamble index	Integer	WiMAX preamble index Range: 0 – 113
BS ID	String	WiMAX base station ID Six colon separated hex values.
RSSI	Float	WiMAX RSSI Signal strength. Range: −120 – 20 Unit: dBm
RSSI dev	Float	WiMAX RSSI deviation Range: 0 – 50 Unit: dB
CINR	Float	WiMAX CINR Channel to interference-noise ratio. Range: −32 – 40 Unit: dB
CINR dev	Float	WiMAX CINR deviation Channel to interference-noise ratio devitaion. Range: 0 – 40 Unit: dB

Parameters for AMPS and NAMPS

Name	Type	Description
#Header params	Integer	Number of header parameters
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
Cell type	Integer	Cell type 0 = Neighbor 1 = Serving
Band	Integer	Band 510800 = AMPS 800 519999 = AMPS 520800 = NAMPS 800 529999 = NAMPS
Ch	Integer	Channel number

SAT	Integer	Setup audio tone Range: 0 – 6
RxLev	Float	RX level Range: −120 – −10 Unit: dBm

Parameters for DAMPS

Name	Type	Description
#Header params	Integer	Number of header parameters
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
Cell type	Integer	Cell type 0 = Neighbor 1 = Serving
Band	Integer	Band 530800 = DAMPS 800 531900 = DAMPS 1900 539999 = DAMPS
Ch	Integer	Channel number
DCC	Integer	Digital color code Range: 0 – 255
RxLev	Float	RX level Range: −120 – −10 Unit: dBm

Parameters for iDEN

Name	Type	Description
#Header params	Integer	Number of header parameters
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
Cell type	Integer	Cell type 0 = Neighbor 1 = Serving
Band	Integer	Band 550001 = iDEN proprietary 550002 = iDEN 800 standard 550003 = iDEN 800 extended 550004 = iDEN 900 550005 = iDEN 1500 559999 = iDEN
Ch	Integer	Channel number
CC	Integer	Color code Range: 0 – 15
Sync count	Integer	Sync count Minimum value: 0
RxLev	Float	RX level Range: −130 – −30 Unit: dBm
SQE	Float	SQE Range: 0 – 50

		Unit: dB
Foregound	Integer	Foregound 0 = No 1 = Yes

MIMO measurement (MIMOMEAS)

Event ID	MIMOMEAS
Cellular systems	UMTS FDD,LTE FDD,LTE TDD
Record state	Always
Description	Currently the recording interval is about two times per second.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 7 = LTE FDD 8 = LTE TDD

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
#Measurements	Integer	Number of measurements
#Params/measurement	Integer	Number of parameters per measurement
Band	Integer	MIMO band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20 50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD
Ch	Integer	MIMO channel
SC	Integer	MIMO scrambling code Range: 0 – 511
Antenna	Integer	MIMO antenna port Range: 0 – 1

Cell type	Integer	Cell type
		0 = Active
		    The Node-B the UE is connected to (i.e., the UTRA cells
		    currently assigning a downlink DPCH to the UE constitute the

		active set).
		1 = Monitored The Node-B that is included in the neighbor list but not in the active set.
		2 = Detected The Node-B that is detected by the UE but is not included in the neighbor list. Reporting of the measurements of the detected set is only applicable to intra-frequency measurements made by UEs in CELL_DCH state.
		3 = Undetected
RSSI	Float	MIMO RSSI Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Unit: dBm
Ec/N0	Float	MIMO Ec/N0 The received energy per chip divided by the power density of the band. Range: −30 – 0 Unit: dB
RSCP	Float	MIMO RSCP The received signal code power of a single code. Range: −150 – −20 Unit: dBm

Parameters for LTE FDD and LTE TDD

Name	Type	Description
#Header params	Integer	Number of header parameters
#Measurements	Integer	Number of measurements
#Params/measurement	Integer	Number of parameters per measurement

Band	Integer	MIMO band
		70001 = LTE FDD 2100 band 1
		70002 = LTE FDD 1900 band 2
		70003 = LTE FDD 1800 band 3
		70004 = LTE FDD 2100 AWS band 4
		70005 = LTE FDD 850 band 5
		    Band 850 is also known as band 800.
		70006 = LTE FDD 850 band 6
		70007 = LTE FDD 2600 band 7
		70008 = LTE FDD 900 band 8
		70009 = LTE FDD 1800 band 9
		70010 = LTE FDD 2100 band 10
		70011 = LTE FDD 1400 band 11
		70012 = LTE FDD 700 band 12
		70013 = LTE FDD 700 band 13
		70014 = LTE FDD 700 band 14
		70017 = LTE FDD 700 band 17
		70018 = LTE FDD 850 band 18
		70019 = LTE FDD 850 band 19
		70020 = LTE FDD 800 band 20
		70021 = LTE FDD 1500 band 21
		70022 = LTE FDD 3500 band 22
		70023 = LTE FDD 2200 band 23
		70024 = LTE FDD 1500 band 24
		70025 = LTE FDD 1900 band 25
		70026 = LTE FDD 850 band 26
		70027 = LTE FDD 800 band 27
		70028 = LTE FDD 700 band 28
		70029 = LTE FDD 700 band 29
		    This is downlink only band.

		70030 = LTE FDD 2350 band 30
		70031 = LTE FDD 450 band 31
		70032 = LTE FDD 1500 L-band
		   This is downlink only band.
		70064 = LTE FDD 390-470 band 64
		   This is a non-standard LTE FDD band.
		70065 = LTE FDD 2100 band 65
		70066 = LTE FDD AWS-3 2100 band 66
		70067 = LTE FDD 700 EU band 67
		   This is downlink only band.
		79999 = LTE FDD
		80033 = LTE TDD 1900-1920 band 33
		80034 = LTE TDD 2010-2025 band 34
		80035 = LTE TDD 1850-1910 band 35
		80036 = LTE TDD 1930-1990 band 36
		80037 = LTE TDD 1910-1930 band 37
		80038 = LTE TDD 2570-2620 band 38
		80039 = LTE TDD 1880-1920 band 39
		80040 = LTE TDD 2300-2400 band 40
		80041 = LTE TDD 2496-2690 band 41
		80042 = LTE TDD 3400-3600 band 42
		80043 = LTE TDD 3600-3800 band 43
		80044 = LTE TDD 703-803 band 44
		80045 = LTE TDD 1447-1467 band 45
		80061 = LTE TDD 1447-1467 band 61
		   This is a non-standard LTE TDD band.
		80062 = LTE TDD 1785-1805 band 62
		   This is a non-standard LTE TDD band.
		80087 = LTE TDD 1447-1467 band 87
		   This is a non-standard LTE TDD band.
		80088 = LTE TDD 1785-1805 band 88
		   This is a non-standard LTE TDD band.
		89999 = LTE TDD

Ch	Integer	MIMO channel
PCI	Integer	Physical cell identity Range: 0 – 503

Port	Integer	Antenna port
		0 = Port 0
		   This is the same as TX0.
		1 = Port 1
		   This is the same as TX1.
		2 = Port 2
		   This is the same as TX2.
		3 = Port 3
		   This is the same as TX3.
		100 = TX0-RX0 channel
		101 = TX0-RX1 channel
		102 = TX0-RX2 channel
		103 = TX0-RX3 channel
		110 = TX1-RX0 channel
		111 = TX1-RX1 channel
		112 = TX1-RX2 channel
		113 = TX1-RX3 channel
		120 = TX2-RX0 channel
		121 = TX2-RX1 channel
		122 = TX2-RX2 channel
		123 = TX2-RX3 channel
		130 = TX3-RX0 channel
		131 = TX3-RX1 channel
		132 = TX3-RX2 channel
		133 = TX3-RX3 channel

Cell type	Integer	MIMO cell type 0 = Serving

		10 = SCell 0 11 = SCell 1
RSSI/P	Float	E-UTRAN carrier RSSI/Antenna port Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Unit: dBm
RSRQ/P	Float	RSRQ/Antenna port Reference signal received quality is the ratio N * RSRP / E-UTRA carrier RSSI, where N is the number of resource blocks of the E-UTRA carrier RSSI measurement bandwidth. The measurements in the numerator and denominator are made over the same set of resource blocks. 3GPP TS 36.214 subclause 5.1.3. Range: −30 – 0 Unit: dB
RSRP/P	Float	RSRP/Antenna port Reference signal received power is the linear average of the power contributions of the resource elements that carry cell-specific reference signals within the considered measurement frequency. 3GPP TS 36.214 subclause 5.1.1. Range: −140 – 0 Unit: dBm
Timing/P	Integer	Cell frame timing/Antenna port The unit of this parameter is Ts and one Ts is 1/30720000 seconds. Range: 0 – 307199

Adjacent Channel Measurement (ADJMEAS)

Event ID	ADJMEAS
Cellular systems	GSM
Record state	Always
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM

Parameters for GSM

Name	Type	Description
#Header params	Integer	Number of header parameters
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
C/A ch	Integer	C/A center channel
C/A minimum	Float	C/A minimum Carrier to adjacent channel ratio between center channel and the strongest adjacent channel. Range: −100 – 100 Unit: dB
RSSI	Float	C/A measurement RSSI Signal strength for center channel. Range: −120 – −10 Unit: dBm
C/A -1	Float	C/A -1 The value of C/A -1 parameter is the ratio between center channel RSSI and adjacent channel RSSI. The adjacent channel frequency is 200 kHz lower than the frequency of the center channel. Range: −100 – 100 Unit: dB
RSSI -1	Float	C/A measurement RSSI -1 The RSSI value of the adjacent channel. The adjacent channel is 200 kHz lower than the frequency of the center channel. Range: −120 – −10 Unit: dBm
C/A +1	Float	C/A +1 The value of C/A +1 parameter is the ratio between center channel RSSI and adjacent channel RSSI. The adjacent channel frequency is 200 kHz higher than the frequency of the center channel. Range: −100 – 100 Unit: dB
RSSI +1	Float	C/A measurement RSSI +1 The RSSI value of the adjacent channel. The adjacent channel is 200 kHz higher than the frequency of the center channel. Range: −120 – −10 Unit: dBm

C/A -2	Float	C/A -2 The value of C/A -2 parameter is the ratio between center channel RSSI and adjacent channel RSSI. The adjacent channel frequency is 400 kHz lower than the frequency of the center channel. Range: −100 – 100 Unit: dB
RSSI -2	Float	C/A measurement RSSI -2 The RSSI value of the adjacent channel. The adjacent channel is 400 kHz lower than the frequency of the center channel. Range: −120 – −10 Unit: dBm
C/A +2	Float	C/A +2 The value of C/A +2 parameter is the ratio between center channel RSSI and adjacent channel RSSI. The adjacent channel frequency is 400 kHz higher than the frequency of the center channel. Range: −100 – 100 Unit: dB
RSSI +2	Float	C/A measurement RSSI +2 The RSSI value of the adjacent channel. The adjacent channel is 400 kHz higher than the frequency of the center channel. Range: −120 – −10 Unit: dBm

RX quality (RXQ)

Event ID	RXQ
Cellular systems	GSM,DAMPS
Record state	Call attempt and connection state
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result. Currently the maximum update frequency is about twice per second.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM 53 = DAMPS

Parameters for GSM

Name	Type	Description
RXQ full	Integer	RX quality full Quality value measured on every TDMA frame. Use this value when DTX is inactive. See 3GPP TS 145.008 subclause 8.4.
RXQ sub	Integer	RX quality sub Quality value measured over the subset of every TDMA frame. Use this value when DTX is active. See 3GPP TS 145.008 subclause 8.4.

Parameters for DAMPS

Name	Type	Description
BER class	Integer	BER class BER class value reported by mobile. Range: 0 – 7

Packet channel RX quality (PRXQ)

Event ID	PRXQ
Cellular systems	GSM
Record state	Attach and packet active state
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM

Parameters for GSM

Name	Type	Description
RXQ	Integer	Packet RX quality See 3GPP TS 145.008 subclause 8.2.3.1. This parameter is only recorded for GPRS. Range: 0 – 7
C value	Float	C value Received signal level of each paging block monitored by the MS according to its current DRX mode and its paging group. See 3GPP TS 145.008 subclause 10.2.3.1. This parameter is only recorded for GPRS. Range: −120 – −48 Unit: dBm
SIGN_VAR	Float	Signal variance Average variance of signal level (C value). See 3GPP TS 145.008 subclause 10.2.3.1. This parameter is only recorded for GPRS. Range: 0 – 16 Unit: dBm2
#TSL results	Integer	Number of timeslot C/I results
TSL interf.	Float	Timeslot interference Timeslot interference level relative to C value. See 3GPP TS 145.008 subclause 10.3. This parameter is only recorded for GPRS. Range: −28 – 0

Frame error rate (FER)

Event ID	FER
Cellular systems	GSM,UMTS FDD,UMTS TD-SCDMA,cdmaOne,CDMA 1x
Record state	Call connection state
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM 5 = UMTS FDD 6 = UMTS TD-SCDMA 10 = cdmaOne 11 = CDMA 1x

Parameters for GSM

Name	Type	Description
FER full	Float	Frame error rate full This calculation assumes all 25 frames of the SACCH multiframe have been sent. Just like RXQual Full, when DL DTX is on, FER FULL will become invalid. This is because only 2 or 3 frames are sent when DL DTX is on. Range: 0 – 100 Unit: %
FER sub	Float	Frame error rate sub FER Sub is calculated as the ratio of erroneous frames to number of sent frames. With EFR speech, only 2 out of the 25 are sent when DL DTX is on. With AMR speech, either 2 or 3 frames will be sent. Range: 0 – 100 Unit: %
FER TCH	Float	Frame error rate TCH This calculation concentrates only on TCH frames. It is also more robust when DL DTX is changing. This is because it concentrates on the ratio of TCH frame errors to TCH frames sent. Range: 0 – 100 Unit: %
DTX DL	Integer	DTX downlink Defines if the DTX is used during the previous reporting period. 0 = DTX not in use 1 = DTX in use

Parameters for UMTS FDD

Name	Type	Description
FER	Float	Frame error rate Calculated from the speech frames.

	Range: 0 – 100 Unit: %

Parameters for UMTS TD-SCDMA

Name	Type	Description
FER	Float	Frame error rate Range: 0 – 100 Unit: %

Parameters for cdmaOne and CDMA 1x

Name	Type	Description
FER (dec)	Float	FER Total (fundamental channel + supplemental channel) frame error rate value reported by mobile. Range: 0 – 100 Unit: %
FER F-FCH target	Float	FER F-FCH target Range: 0 – 100
FER F-SCH0 target	Float	FER F-SCH0 target Range: 0 – 100
FER F-DCCH target	Float	FER F-DCCH target Range: 0 – 100
FER F-FCH	Float	FER F-FCH Range: 0 – 100
FER F-SCH0	Float	FER F-SCH0 Range: 0 – 100
FER F-DCCH	Float	FER F-DCCH Range: 0 – 100

MS power (MSP)

Event ID	MSP
Cellular systems	GSM,DAMPS,AMPS
Record state	Call connection and packet active state
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM 51 = AMPS 52 = NAMPS 53 = DAMPS

Parameters for GSM

Name	Type	Description
MSP	Integer	MS power level Reported mobile station power level class. See 3GPP TS 45.005 subclause 4.1. Range: 0 – 32
Band	Integer	Band 10850 = GSM 850 Band 850 is also known as band 800. 10900 = GSM 900 11800 = GSM 1800 11900 = GSM 1900 19999 = GSM

Parameters for AMPS and NAMPS

Name	Type	Description
MSP	Integer	MS power level Reported mobile station power level class. See 3GPP TS 45.005 subclause 4.1. Range: 0 – 32

Parameters for DAMPS

Name	Type	Description
MSP	Integer	MS power level Reported mobile station power level class. See 3GPP TS 45.005 subclause 4.1. Range: 0 – 32

Radio link timeout (RLT)

Event ID	RLT
Cellular systems	GSM
Record state	Call connection state
Description	Recorded when the radio link timeout changes.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM

Parameters for GSM

Name	Type	Description
RLT	Integer	Radiolink timeout The counter used in determining when the radio link failure condition is declared. The value of the counter is decreased by one when SACCH message decoding fails. When decoding succeeds, it is increased by two. If the value of the counter drops to zero, the radio link failure condition is declared. See 3GPP TS 145.008 subclause 5. Range: 0 – 64

Timing advance (TAD)

Event ID	TAD
Cellular systems	GSM,UMTS TD-SCDMA,LTE FDD,LTE TDD,DAMPS
Record state	Always
Description	Recorded when timing advance changes.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 53 = DAMPS

Parameters for GSM

Name	Type	Description
TA	Integer	Timing advance Reported timing advance. Range: 0 – 63

Parameters for UMTS TD-SCDMA

Name	Type	Description
TA	Float	Timing advance Range: −16 – 240 Unit: chip

Parameters for LTE

Name	Type	Description
TA	Integer	Timing advance Timing advance is used to adjust uplink transmission timing in a way that allows node B to receive transmissions from all UEs simultanously. The timing advance is relative to downlink radio frame received by UE. This parameter is the same as N_TA parameter divided by 16. See 3GPP TS 36.213 subclause 4.2.3 and 3GPP TS 36.211 subclause 8. Range: 0 – 1282

Parameters for DAMPS

Name	Type	Description
TAL	Integer	Timing alignment Reported timing alignment. Range: 0 – 30

Downlink signaling counter (DSC)

Event ID	DSC
Cellular systems	GSM
Record state	Packet active state
Description	Recorded when downlink signaling counter value changes.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM

Parameters for GSM

Name	Type	Description
DSC current	Integer	Downlink signaling counter current The counter used in determining when the downlink signaling failure condition is declared. Whenever the message is decoded in the paging subchannel; if the message decoding is successful, the DSC counter is increased by one; if the message decoding fails, the DSC counter is decreased by four. The downlink signaling failure condition is declared if the DSC counter drops to zero or below. See 3GPP TS 145.008 subclause 6.5. Range: 0 – 45
DSC max	Integer	Downlink signaling counter maximum The maximum value of the DSC counter. Range: 0 – 45

Bit error probability (BEP)

Event ID	BEP
Cellular systems	GSM
Record state	Attach and packet active state
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result. Recorded only when EGPRS is used.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM

Parameters for GSM

Name	Type	Description
GMSK MEAN_BEP	Integer	BEP mean class GMSK See 3GPP TS 145.008 subclause 8.2.3.2. Range: 0 – 31
GMSK CV_BEP	Integer	BEP CV class GMSK See 3GPP TS 145.008 subclause 8.2.3.2. Range: 0 – 7
8-PSK MEAN_BEP	Integer	BEP mean class 8-PSK See 3GPP TS 145.008 subclause 8.2.3.2. Range: 0 – 31
8-PSK CV_BEP	Integer	BEP CV class 8-PSK See 3GPP TS 145.008 subclause 8.2.3.2. Range: 0 – 7

Carrier per interference (CI)

Event ID	CI
Cellular systems	GSM,UMTS TD-SCDMA,LTE FDD,LTE TDD,EVDO
Record state	Always
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 12 = EVDO

Parameters for GSM

Name		Type	Description
C/I		Float	C/I average C/I average is calculated over the reporting period. The C/I average is the average of all C/I values per hopping channel (and timeslot with GPRS) when this information is available. If C/I per hopping channel or per timeslot is not available, the C/I average calculation method is vendor specific. Range: −10 – 40 Unit: dB
#TSL results		Integer	Number of timeslot C/I results
C/I per TSL		Float	C/I per timeslot Separate C/I result for each dedicated GRPS timeslot. C/I calculation method is vendor specific. Range: −10 – 40 Unit: dB
#Chs		Integer	Number of channels
#Params/Ch		Integer	Number of parameters per channel
	ARFCN	Integer	Channel number
	C/I	Float	C/I per hopping channel Separate C/I result for each hopping channel. C/I calculation method is vendor specific. Range: −10 – 40 Unit: dB
	RSSI	Float	RSSI per hopping channel Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Unit: dBm

Parameters for UMTS TD-SCDMA

Name	Type	Description
C/I	Float	PCCPCH C/I

		Range: −45 – 40 Unit: dB

Parameters for LTE

Name	Type	Description
#Header params	Integer	Number of header parameters
SNR	Float	RS SNR The calculation method for this parameter is device specific and can change between the devices. Range: −40 – 50 Unit: dB

Cell type	Integer	Serving cell type
		The value of this parameter is the same as the serving cell index.
		0 = PCell
		    Primary serving cell.
		1 = SCell 0
		    The first secondary serving cell.
		2 = SCell 1

#Antennas	Integer	Number of antennas
#Params/antenna	Integer	Parameters per antenna
SNR/P	Float	RS SNR/Antenna port The calculation method for this parameter is device specific and can change between the devices. Range: −40 – 50 Unit: dB

Port	Integer	Antenna port or channel
		0 = Port 0
		    This is the same as TX0.
		1 = Port 1
		    This is the same as TX1.
		2 = Port 2
		    This is the same as TX2.
		3 = Port 3
		    This is the same as TX3.
		100 = TX0-RX0 channel
		101 = TX0-RX1 channel
		102 = TX0-RX2 channel
		103 = TX0-RX3 channel
		110 = TX1-RX0 channel
		111 = TX1-RX1 channel
		112 = TX1-RX2 channel
		113 = TX1-RX3 channel
		120 = TX2-RX0 channel
		121 = TX2-RX1 channel
		122 = TX2-RX2 channel
		123 = TX2-RX3 channel
		130 = TX3-RX0 channel
		131 = TX3-RX1 channel
		132 = TX3-RX2 channel
		133 = TX3-RX3 channel

Parameters for EVDO

Name	Type	Description
#Header params	Integer	Number of header parameters
#Act set PNs	Integer	Number of pilots in active set
Params/pilot	Integer	Number of parameters per pilot

PN	Integer	Pilot number Range: 0 – 511
SINR	Float	Signal-to-interference and noise ratio Range: −28 – 15 Unit: dB
MAC Index	Integer	MAC index Range: 0 – 255
DRC cover	Integer	Cover used to transmit DRC Range: 0 – 7
RPC cell index	Integer	RPC cell index Range: 0 – 15
DRC Lock	Integer	DRC lock 0 = Unlocked 1 = Locked
RAB	Integer	Reverse activity bit Range: 0 – 1
Ch	Integer	Channel number
Slot FRAB	Integer	Slot FRAB Slot fast reverse activity bit.
Slot QRAB	Integer	Slot QRAB Slot quick reverse activity bit. 0 = Unloaded 1 = Loaded

TX power control (TXPC)

Event ID	TXPC
Cellular systems	UMTS FDD,UMTS TD-SCDMA,LTE FDD,LTE TDD,cdmaOne,CDMA 1x,EVDO,TETRA,WiMAX
Record state	Always
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO 25 = WiMAX

Parameters for TETRA

Name	Type	Description
TX power	Float	TX power MS transit power. Range: 15 – 45 Unit: dBm
Pwr ctrl alg.	Integer	TX power control algorithm Range: 0 – 1
TX power change	Float	TX power change Range: −30 – 30 Unit: dBm

Parameters for UMTS FDD

Name	Type	Description
TX power	Float	TX power The total UE transmitted power on one carrier. See 3GPP TS 125.215 subclause 5.1.7. Range: −120 – 30 Unit: dBm
Pwr ctrl alg.	Integer	TX power control algorithm 0 = Power control algorithm 0 1 = Power control algorithm 1
Pwr ctrl step	Float	TX power control step size Range: 1 – 2 Unit: dB
Compr. mode	Integer	Compressed mode 0 = No compressed mode

Name	Type	Description
		1 = Compressed mode
#UL pwr up	Integer	Number of "UL power up" commands Number of received "UL power up" commands (BTS to mobile).
#UL pwr down	Integer	Number of "UL power down" commands Number of received "UL power down" commands (BTS to mobile).
UL pwr up %	Float	Percentage of "UL power up" commands In percentage the number of "UL power up" commands from all commands. If this value is 100%, all commands request to increase power. Range: 0 – 100

Parameters for UMTS TD-SCDMA

Name	Type	Description
TX power	Float	TX power Range: −99 – 99 Unit: dBm
Pwr ctrl step	Float	TX power control step size Range: 1 – 3 Unit: dB
#UL pwr up	Integer	Number of "UL power up" commands Number of received "UL power up" commands (BTS to mobile).
#UL pwr down	Integer	Number of "UL power down" commands Number of received "UL power down" commands (BTS to mobile).
UL pwr up %	Float	Percentage of "UL power up" commands In percentage the number of "UL power up" commands from all commands. If this value is 100%, all commands request to increase power. Range: 0 – 100

Parameters for LTE

Name	Type	Description
PUSCH TX power	Float	TX power PUSCH The average transmit power for PUSCH calculated over the reporting period. See 3GPP TS 36.213 subclause 5.1.1.1. Range: −41 – 40 Unit: dBm
PUCCH TX power	Float	TX power PUCCH The average transmit power for PUCCH calculated over the reporting period. See 3GPP TS 36.213 subclause 5.1.2.1. Range: −41 – 40 Unit: dBm
PH	Float	TX power headroom (PUSCH) The average UE power headroom reported from the same reporting period as PUSCH TX power. See 3GPP TS 36.213 subclause 5.1.1.2. Range: −23 – 40 Unit: dB
f(i)	Float	TX power PUSCH adjustment The average PUSCH power control adjustment during the last reporting period. Same as f(i) parameter in 3GPP TS 36.213 subclause 5.1.1.1. Unit: dB
g(i)	Float	TX power PUCCH adjustment The average PUCCH power control adjustment during the last reporting period. Same as g(i) parameter in 3GPP TS 36.213

		subclause 5.1.2.1. Unit: dB
#PUSCH TPCs	Integer	Number of PUSCH TPCs
#Params/PUSCH TPC	Integer	Number of parameters per PUSCH TPC
#PUSCH TPC	Integer	PUSCH TPC count The number of times this TPC command is received since the previous report. Minimum value: 0
PUSCH TPC	Float	PUSCH TPC This is the same as delta_PUSCH. See 3GPP TS 136.213 subclause 5.1.1. Range: −4 – 4 Unit: dB
#PUCCH TPCs	Integer	Number of PUCCH TPCs
#Params/PUCCH TPC	Integer	Number of parameters per PUCCH TPC
#PUCCH TPC	Integer	PUCCH TPC count The number of times this TPC command is received since the previous report. Minimum value: 0
PUCCH TPC	Float	PUCCH TPC This is the same as delta_PUCCH. See 3GPP TS 136.123 subclause 5.1.2. Range: −1 – 3 Unit: dB
SRS TX power	Float	TX power SRS The average transmit power for SRS calculated over the reporting period. See 3GPP TS 36.211 subclause 5.5.3 and 36.213 subclause 5.1.3. Range: −41 – 40
M_SRS	Integer	SRS TX bandwidth Bandwidth of sounding reference signal (SRS) in physical resource blocks. This is same as M_SRS parameter. See 3GPP TS 36.211 subclause 5.5.3 and 36.213 subclause 5.1.3. Range: 4 – 96

Parameters for cdmaOne and CDMA 1x

Name	Type	Description
TX power	Float	TX power Range: −99 – 99 Unit: dBm
Pwr ctrl step	Integer	TX power control step size 0 = 1.0 1 = 0.5 2 = 0.25 Unit: dB
#UL pwr up	Integer	Number of "UL power up" commands Number of received "UL power up" commands (BTS to mobile).
#UL pwr down	Integer	Number of "UL power down" commands Number of received "UL power down" commands (BTS to mobile).
UL pwr up %	Float	Percentage of "UL power up" commands In percentage the number of "UL power up" commands from all commands. If this value is 100%, all commands request to increase power. Range: 0 – 100

TX adjust	Float	Closed loop adjustment Unit: dB
TX pwr limit	Float	Upper limit on TX power Unit: dBm
Max Power Limited	Integer	Reports whether max power protection is in effect 0 = Not applicable 1 = Not in effect 2 = In effect
R-FCH/R-PICH	Float	R-FCH to pilot ratio Unit: dB
R-SCH0/R-PICH	Float	R-SCH0 to pilot ratio Unit: dB
R-SCH1/R-PICH	Float	R-SCH1 to pilot ratio Unit: dB
R-DCCH/R-PICH	Float	R-DCCH to pilot ratio Unit: dB

Parameters for EVDO

Name	Type	Description
TX power	Float	TX power Range: −99 – 99 Unit: dBm
#UL pwr up	Integer	Number of "UL power up" commands Number of received "UL power up" commands (BTS to mobile).
#UL pwr hold	Integer	Number of "UL power hold" commands Number of received "UL power hold" commands (BTS to mobile).
#UL pwr down	Integer	Number of "UL power down" commands Number of received "UL power down" commands (BTS to mobile).
UL pwr up %	Float	Percentage of "UL power up" commands In percentage the number of "UL power up" commands from all commands. If this value is 100%, all commands request to increase power. Range: 0 – 100
TX adjust	Float	Closed loop adjustment Unit: dB
TX Pilot	Float	TX pilot power Range: −99 – 99 Unit: dBm
TX open loop power	Float	TX power determined by the open loop adjust mechanism Range: −99 – 99 Unit: dBm
DRC/Pilot	Float	DRC channel to pilot ratio Unit: dB
ACK/Pilot	Float	ACK channel to pilot ratio Unit: dB
Data/Pilot	Float	Data channel to pilot ratio Unit: dB
PA Max.	Float	Maximum recommended headroom available (Rev A) Unit: dB
DRC lock period	Integer	DRC lock period DRC lock period indicates which RPC bits are 'hold' (Rel 0). 8 = 8 slots 16 = 16 slots

Name	Type	Description
TX throttle	Float	TX throttle TX throttle indicates how often TX channel gains are being throttled during the previous reporting period (Rev A). Range: 0 – 100 Unit: %
TX max power usage	Float	TX max power usage Indicates how often TX AGC was at maximum power during the previous reporting period. Range: 0 – 100 Unit: %
TX min power usage	Float	TX min power usage Indicates how often TX AGC was at minimum power during the previous reporting period. Range: 0 – 100 Unit: %
Transmission mode	Integer	Transmission mode Indicates the transmission mode of the data packets being transmitted (Rev A). 0 = HiCap 1 = LoLat
PS	Integer	Physical layer packet size Minimum value: 0 Unit: bit
RRI/Pilot	Float	RRI channel to pilot ratio (Rev A). Unit: dB
DSC/Pilot	Float	DSC channel to pilot ratio (Rev A). Unit: dB
AUX/Data	Float	AUX channel to data channel ratio Unit: dB
#Carriers	Integer	Number of EVDO carriers
#Params/Carrier	Integer	Number of parameters per EVDO carrier
Ch	Integer	Channel number
TX power/Ch	Float	TX power/Channel Range: −99 – 99 Unit: dBm
TX Pilot/Ch	Float	TX pilot power/Channel Range: −99 – 99 Unit: dBm
TX adjust/Ch	Float	Closed loop adjustment/Channel Unit: dB
Power limited/Ch	Integer	Power limited/Channel 0 = No 1 = Yes
Power amplifier/Ch	Integer	Power amplifier/Channel 0 = Off 1 = On
TX OL power/Ch	Float	TX open loop power/Channel Range: −128 – 127 Unit: dBm
TX T2P	Float	TX T2P Range: −100 – 100 Unit: dB

Parameters for WiMAX

Name	Type	Description

TX power	Float	WiMAX TX power MS transmit power. Range: −99 – 99 Unit: dBm
TX ref. power	Float	WiMAX TX reference power Range: −99 – 99 Unit: dBm
TX power headroom	Float	WiMAX TX power headroom Range: 0 – 99 Unit: dBm
TX power BS offset	Float	WiMAX TX power BS offset Range: −99 – 99 Unit: dB
TX power IrMax	Float	WiMAX initial ranging max TX power Range: −99 – 99 Unit: dBm
BS EIRP	Float	WiMAX BS EIRP Base station effective isotrophic radiated power. Range: −99 – 99 Unit: dBm
BS N+I	Float	WiMAX BS noise + interference level Range: −128 – −1 Unit: dBm

RX power control (RXPC)

Event ID	RXPC
Cellular systems	UMTS FDD,UMTS TD-SCDMA,cdmaOne,CDMA 1x
Record state	Always
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 6 = UMTS TD-SCDMA 10 = cdmaOne 11 = CDMA 1x

Parameters for UMTS FDD

Name	Type	Description
SIR target	Float	Signal-to-interference ratio target Current target SIR at update time. Range: −32 – 30 Unit: dB
SIR	Float	Signal-to-interference ratio See 3GPP TS 125.215 subclause 5.2.2. Range: −32 – 30 Unit: dB
BS div. state	Integer	BS diversity state Base Station TX closed loop diversity state. 0 = Not active 1 = Closed loop mode 1 2 = Closed loop mode 2
#DL pwr up	Integer	Number of "DL power up" commands Number of sent "DL power up" commands (mobile to BTS).
#DL pwr down	Integer	Number of "DL power down" commands Number of sent "DL power down" commands (mobile to BTS).
DL pwr up %	Float	Percentage of "DL power up" commands In percentage the number of "DL power up" commands from all commands. If this value is 100%, all commands request to increase power. Range: 0 – 100
DPC mode	Integer	DL Power control mode 0 = Unique TPC command in each slot 1 = Same TPC command repeated over three slots

Parameters for UMTS TD-SCDMA

Name	Type	Description
#Header params	Integer	Number of header parameters

SIR target	Float	Signal-to-interference ratio target Current target SIR at update time. Range: −32 – 30 Unit: dB
SIR	Float	Signal-to-interference ratio See 3GPP TS 125.215 subclause 5.2.2. Range: −32 – 30 Unit: dB
#DL pwr up	Integer	Number of "DL power up" commands Number of sent "DL power up" commands (mobile to BTS).
#DL pwr down	Integer	Number of "DL power down" commands Number of sent "DL power down" commands (mobile to BTS).
DL pwr up %	Float	Percentage of "DL power up" commands In percentage the number of "DL power up" commands from all commands. If this value is 100%, all commands request to increase power. Range: 0 – 100
#Timeslots	Integer	Number of timeslots
#Params/TSL	Integer	Number of parameters per timeslot
TSL	Integer	Timeslot Range: 0 – 6
ISCP	Float	Timeslot ISCP Interference signal code power. Range: −116 – −25 Unit: dB
RSCP	Float	DPCH RSCP DPCH received signal code power. Range: −116 – −25 Unit: dB
SIR	Float	DPCH SIR DPCH Signal-to-interference ratio. Range: −35 – 40 Unit: dB

Parameters for cdmaOne and CDMA 1x

Name	Type	Description
FPC mode	Integer	Forward power control operation mode indicator Range: 0 – 7
FPC subchannel	Integer	Forward power control subchannel indicator 0 = F-FCH setpoint 1 = F-DCCH setpoint
FPC gain	Float	Forward power control subchannel gain Unit: dB
#DL pwr up	Integer	Number of "DL power up" commands Number of sent "DL power up" commands (mobile to BTS).
#DL pwr down	Integer	Number of "DL power down" commands Number of sent "DL power down" commands (mobile to BTS).
DL pwr up %	Float	Percentage of "DL power up" commands In percentage the number of "DL power up" commands from all commands. If this value is 100%, all commands request to increase power. Range: 0 – 100
F-FCH cur. sp	Float	F-FCH current setpoint Unit: dB

F-FCH min. sp	Float	F-FCH minimum setpoint Unit: dB
F-FCH max. sp	Float	F-FCH maximum setpoint Unit: dB
F-SCH0 cur. sp	Float	F-SCH0 current setpoint Unit: dB
F-SCH0 min. sp	Float	F-SCH0 minimum setpoint Unit: dB
F-SCH0 max. sp	Float	F-SCH0 maximum setpoint Unit: dB
F-SCH1 cur. sp	Float	F-SCH1 current setpoint Unit: dB
F-SCH1 min. sp	Float	F-SCH1 minimum setpoint Unit: dB
F-SCH1 max. sp	Float	F-SCH1 maximum setpoint Unit: dB
F-DCCH cur. sp	Float	F-DCCH current setpoint Unit: dB
F-DCCH min. sp	Float	F-DCCH minimum setpoint Unit: dB
F-DCCH max. sp	Float	F-DCCH maximum setpoint Unit: dB

Bit error rate (BER)

Event ID	BER
Cellular systems	TETRA,UMTS FDD
Record state	Always
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 2 = TETRA 5 = UMTS FDD

Parameters for TETRA

Name	Type	Description
BER	Float	BER Bit error rate that is calculated with training sequence algorithm. Range: 0 – 100 Unit: %

Parameters for UMTS FDD

Name	Type	Description
Pilot BER	Float	BER pilot bit Bit error rate of downlink DPCCH (dedicated physical control channel) pilot bits. Range: 0 – 100 Unit: %
TFCI BER	Float	BER TFCI Estimated raw BER before channel coding based on TFCI bits. Range: 0 – 100 Unit: %

Physical channel throughput (PHRATE)

Event ID	PHRATE
Cellular systems	UMTS FDD,UMTS TD-SCDMA,LTE FDD,LTE TDD,cdmaOne,CDMA 1x,EVDO
Record state	Always
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 12 = EVDO

Parameters for UMTS FDD and UMTS TD-SCDMA

Name	Type	Description
DPDCH rate UL	Integer	Uplink DPDCH bitrate Minimum value: 0 Unit: bit/s

Parameters for LTE

Name	Type	Description
Ph. ch. type	Integer	Physical channel type 1 = PBCH 2 = PDSCH 3 = PUSCH

Parameters for LTE PBCH

Name	Type	Description
PBCH block rate	Integer	PBCH block rate Minimum value: 0
PBCH BLER	Float	PBCH BLER Physical Downlink Shared Channel (PDSCH) block error rate. Block error rate (BLER) is the number of received erroneous blocks per total number of sent blocks. Erroneous blocks are found with the cyclic redundancy check (CRC), see 3GPP TS 34.121-1 subclause F.6.1.1. Range: 0 – 100 Unit: %

Cell type	Integer	Serving cell type
		The value of this parameter is the same as the serving cell index.
		0 = PCell
		   Primary serving cell.
		1 = SCell 0
		   The first secondary serving cell.
		2 = SCell 1

Parameters for LTE PDSCH

Name	Type	Description
PDSCH bitrate 0	Integer	PDSCH throughput for codeword 0 Minimum value: 0 Unit: bit/s
PDSCH bitrate 1	Integer	PDSCH throughput for codeword 1 Minimum value: 0 Unit: bit/s
PDSCH block rate	Integer	PDSCH block rate Minimum value: 0
PDSCH BLER	Float	PDSCH BLER Range: 0 – 100 Unit: %
Sch bitrate/PRB	Integer	PDSCH scheduled throughput/PRB Scheduled throughput per PRB is the average throughput per PRB over the TTIs where PRB resources are allocated. This is calculated by summing PDSCH throughput per PRB during the reporting period and this is divided by number of allocated PRBs during the reporting period. Minimum value: 0 Unit: bit/s
PDSCH bitrate	Integer	PDSCH throughput Minimum value: 0 Unit: bit/s
PDCCH BLER est.	Float	PDCCH BLER estimation This parameter estimates PDCCH BLER by calculating number of undetected and missed downlink grants. The parameter does not contain all possible PDCCH errors so it is more of an indicative rathern than an absolute ratio of errors in the PDCCH channel. Note that the exact calculation method of the parameter can change in the future. Range: 0 – 100 Unit: %

Cell type	Integer	Serving cell type
		The value of this parameter is the same as the serving cell index.
		0 = PCell
		    Primary serving cell.
		1 = SCell 0
		    The first secondary serving cell.
		2 = SCell 1

CFI 1	Float	PDCCH CFI 1 percentage Defines how many percent of subframes are using CFI 1 meaning that 1 symbol (2 when 1.4 MHz bandwidth) is allocated for PDCCH. See 3GPP TS 36.212 subclause 5.3.4. Range: 0 – 100 Unit: %
CFI 2	Float	PDCCH CFI 2 percentage Defines how many percent of subframes are using CFI 2 meaning that 2 symbols (3 when 1.4 MHz bandwidth) are allocated for PDCCH. See 3GPP TS 36.212 subclause 5.3.4. Range: 0 – 100 Unit: %
CFI 3	Float	PDCCH CFI 3 percentage Defines how many percent of subframes are using CFI 3 meaning that 3 symbols (4 when 1.4 MHz bandwidth) are allocated for PDCCH. See 3GPP TS 36.212 subclause 5.3.4. Range: 0 – 100

		Unit: %
PDSCH BLER 0	Float	PDSCH BLER for codeword 0 Range: 0 – 100 Unit: %
PDSCH BLER 1	Float	PDSCH BLER for codeword 1 Range: 0 – 100 Unit: %
#PDCCH channel formats	Integer	Number of PDCCH channel formats
#Params/PDCCH channel format	Integer	Number of parameters per PDCCH channel format
PDCCH format count	Integer	PDCCH format count Defines how many times PDCCH format has been used during the previous reporting period.

PDCCH format	Integer	PDCCH format
		PDCCH format defines how much resources are allocated for PDCCH channel. See more 3GPP TS 36.211 subclause 6.8.1.
		0 = PDCCH format 0
		   Same as aggregation level 1.
		1 = PDCCH format 1
		   Same as aggregation level 2.
		2 = PDCCH format 2
		   Same as aggregation level 4.
		3 = PDCCH format 3
		   Same as aggregation level 8.

Parameters for LTE PUSCH

Name	Type	Description
PUSCH bitrate	Integer	PUSCH throughput Rate of successful message delivery on the Physical Uplink Shared Channel (PUSCH). Minimum value: 0 Unit: bit/s

Cell type	Integer	Serving cell type
		The value of this parameter is the same as the serving cell index.
		0 = PCell
		   Primary serving cell.
		1 = SCell 0
		   The first secondary serving cell.
		2 = SCell 1

Parameters for EVDO

Name	Type	Description
Ph rate UL	Integer	Physical layer throughput UL Minimum value: 0 Unit: bit/s
Ph rate DL	Integer	Physical layer throughput DL Minimum value: 0 Unit: bit/s
SU rate DL	Integer	Single-user throughput DL Minimum value: 0 Unit: bit/s
MU rate DL	Integer	Multi-user throughput DL Minimum value: 0 Unit: bit/s

PER SU	Float	PER single-user Range: 0 – 100 Unit: %
PER MU	Float	PER multi-user Range: 0 – 100 Unit: %
PER	Float	PER reverse Range: 0 – 100 Unit: %
#Carriers	Integer	Number of EVDO carriers
#Params/Carrier	Integer	Number of parameters per EVDO carrier
Ch	Integer	Channel number
Ph rate UL/Ch	Integer	Physical layer throughput UL per carrier Minimum value: 0 Unit: bit/s
Ph rate DL/Ch	Integer	Physical layer throughput DL per carrier Minimum value: 0 Unit: bit/s
SU rate DL/Ch	Integer	Single-user throughput DL per carrier Minimum value: 0 Unit: bit/s
MU rate DL/Ch	Integer	Multi-user throughput DL per carrier Minimum value: 0 Unit: bit/s

WLAN throughput (WLANRATE)

Event ID	WLANRATE
Cellular systems	GAN WLAN
Record state	Always
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 21 = GAN WLAN
WLAN rate UL	Integer	WLAN throughput uplink
WLAN rate DL	Integer	WLAN throughput downlink

PPP layer throughput (PPPRATE)

Event ID	PPPRATE
Cellular systems	All
Record state	Packet active
Description	Recorded when PPP layer data is received or transmitted based on operating system services. Currently minimum time interval between two measurement events is one second. If data has not been transmitted or received in two seconds, a zero-value measurement event is recorded.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
PPP rate UL	Integer	PPP throughput uplink The value of this parameter is calculated based on the SDUs that are successfully transferred through the PPP layer. Missing and erroneous PPP packets are excluded from the throughput calculation. With Nemo Handy, the PPP layer is not used and the reported value is TCP/IP throughput instead. With Nemo Outdoor, the PPP layer carries the IP layer in order to produce a good approximation of TCP/IP throughput. However, this approximation is not exact. Also note that with Nemo Outdoor the PPP throughput is only reported when the packet session is activated using the dialup interface. Minimum value: 0 Unit: bit/s
PPP rate DL	Integer	PPP throughput downlink The value of this parameter is calculated based on the SDUs that are successfully transferred through the PPP layer. Missing and erroneous PPP packets are excluded from the throughput calculation. With Nemo Handy, the PPP layer is not used and the reported value is TCP/IP throughput instead. With Nemo Outdoor, the PPP layer carries the IP layer in order to produce a good approximation of TCP/IP throughput. However, this approximation is not exact. Also note that with Nemo Outdoor the PPP throughput is only reported when the packet session is activated using the dialup interface. Minimum value: 0 Unit: bit/s
Sent PPP bytes	Integer	Transferred PPP bytes uplink Cumulative amount of data transferred in uplink direction during the packet session. Unit: byte
Recv. PPP bytes	Integer	Transferred PPP bytes downlink Cumulative amount of data transferred in downlink direction during the packet session. Unit: byte

RLP layer throughput (RLPRATE)

Event ID	RLPRATE
Cellular systems	cdmaOne,CDMA 1x,EVDO
Record state	Packet active
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 10 = cdmaOne 11 = CDMA 1x 12 = EVDO
RLP rev. rate	Integer	RLP reverse user throughput Reverse user throughput in radio link protocol layer. Minimum value: 0 Unit: bit/s
RLP for. rate	Integer	RLP forward user throughput Forward user throughput in radio link protocol layer. Minimum value: 0 Unit: bit/s
RLP rev. retr. rate	Float	RLP reverse retransmission rate Range: 0 – 100 Unit: %
RLP fwd. retr. rate	Float	RLP forward retransmission rate Range: 0 – 100 Unit: %
RLP err. UL	Float	RLP error rate uplink Range: 0 – 100 Unit: %
RLP err. DL	Float	RLP error rate downlink Range: 0 – 100 Unit: %

RLP statistics (RLPSTATISTICS)

Event ID	RLPSTATISTICS
Cellular systems	cdmaOne,CDMA 1x,EVDO
Record state	Packet active
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 10 = cdmaOne 11 = CDMA 1x 12 = EVDO

Parameters for cdmaOne and CDMA 1x

Name	Type	Description
Service ID	Integer	Service ID
Resets	Integer	Number of resets
Aborts	Integer	Number of NAK aborts
Last RTT	Integer	Last RTT Number of 20-ms time frames for the last round-trip time measurement. Unit: frame
Block of bytes used	Integer	Block of bytes used 0 = Not received 1 = Specified NAK scheme 2 = Specified RTT 3 = Specified RTT and NAK scheme
RX NAKs	Integer	Received NAKs Total number of negative acknowledgement frames received. Unit: frame
Largest Con. Erasures	Integer	Largest block of consecutive erasures
Retrans. not found	Integer	Number of retransmitted frames not found Unit: frame
RX retrans. frames	Integer	Received retransmitted frames Unit: frame
RX idle frames	Integer	Received idle frames Unit: frame
RX fill frames	Integer	Received fill frames Unit: frame
RX blank frames	Integer	Received blank frames Unit: frame
RX null frames	Integer	Received null frames Unit: frame
RX new frames	Integer	Received new data frames Unit: frame
RX fund. frames	Integer	Received fundamental data frames

		Unit: frame
RX bytes	Integer	Received bytes Unit: byte
RX RLP erasures	Integer	Received RLP erasures Unit: frame
RX MUX erasures	Integer	Received multiplexer erasures Unit: frame
TX NAKs	Integer	Transmitted NAKs Unit: frame
TX retrans. frames	Integer	Transmitted retransmitted frames Unit: frame
TX idle frames	Integer	Transmitted idle frames Unit: frame
TX new frames	Integer	Transmitted new data frames Unit: frame
TX fund. frames	Integer	Transmitted fundamental data frames Unit: frame
TX bytes	Integer	Transmitted bytes Unit: byte

Parameters for EVDO

Name	Type	Description
Service ID	Integer	Service ID Identifies RLP service.
RX NAKs	Integer	Received NAKs
RX NAKs in bytes	Integer	Received NAKs in bytes
Retrans. not found	Integer	Number of retransmitted frames not found
RX dup. bytes	Integer	Received duplice bytes
ReRX bytes	Integer	Received retransmitted bytes
RX new bytes	Integer	Received new data bytes
RX bytes	Integer	Received bytes
TX NAKs	Integer	Transmitted NAKs
TX NAKs in bytes	Integer	Transmitted NAKs in bytes
ReTX bytes	Integer	Retransmitted bytes
TX new bytes	Integer	Transmitted new data bytes
TX bytes	Integer	Transmitted bytes
NAK timeouts	Integer	NAK timeouts Contains NAK timeouts and aborts.
Reset count	Integer	Reset count Total resets that have occurred, initiated either by the AN or the AT.
AT reset request count	Integer	Resets requested by the AT
AN reset ack count	Integer	Reset ACKs received from the AN
AN reset request count	Integer	Resets requested by the AN
RX frames	Integer	Received frames
RX new frames	Integer	Received new frames
ReRX frames	Integer	Received retransmitted frames
RX frames first	Integer	Received frames with first data unit

RX frames last	Integer	Received frames with last data unit
TX frames	Integer	Transmitted frames
TX new frames	Integer	Transmitted new frames
ReTX frames	Integer	Retransmitted frames
TX frames first	Integer	Transmitted frames with first data unit
TX frames last	Integer	Transmitted frames with last data unit
Link flow ID	Integer	Link flow ID
Route number	Integer	Route number
Flow protocol	Integer	Flow protocol
Route protocol	Integer	Route protocol
Packet stream	Integer	Packet stream Whether link flow is packet-based. 0 = Non-packet based 1 = Packet based
Sequence type	Integer	Sequence type Whether link flow is doing segment-based sequencing. 0 = Non-segment based sequencing 1 = Segment based sequencing

Measurement event information (MEI)

Event ID	MEI
Cellular systems	UMTS FDD,UMTS TD-SCDMA
Record state	Always
Description	Recorded when a UMTS measurement event is transmitted to the network based on signaling messages.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD

Parameters for UMTS FDD

Name	Type	Description

Measurement event	Integer	Measurement event
		1 = Event 1A
		    A primary CPICH enters the Reporting Range (FDD only).
		2 = Event 1B
		    A primary CPICH leaves the Reporting Range (FDD only).
		3 = Event 1C
		    A non-active Primary CPICH becomes better than an active Primary CPICH (FDD only).
		4 = Event 1D
		    Change of best cell (FDD only).
		5 = Event 1E
		    A primary CPICH becomes better than an absolute threshold (FDD only).
		6 = Event 1F
		    A primary CPICH becomes worse than an absolute threshold (FDD only).
		7 = Event 1G
		    Change of best cell (TDD only).
		8 = Event 1H
		    Timeslot ISCP below a certain threshold (TDD only).
		9 = Event 1I
		    Timeslot ISCP above a certain threshold (TDD only).
		10 = Event 1J
		    A non-active E-DCH but active DCH Primary CPICH becomes better than an active E-DCH Primary CPICH (FDD only).
		21 = Event 2A
		    Change of best frequency.
		22 = Event 2B
		    The estimated quality of the currently used frequency is below a certain threshold and the estimated quality of a non-used frequency is above a certain threshold.
		23 = Event 2C
		    The estimated quality of a non-used frequency is above a certain threshold.
		24 = Event 2D

The estimated quality of the currently used frequency is below a certain threshold.

25 = Event 2E

The estimated quality of a non-used frequency is below a certain threshold.

26 = Event 2F

The estimated quality of the currently used frequency is above a certain threshold.

31 = Event 3A

The estimated quality of the currently used UTRAN frequency is below a certain threshold and the estimated quality of the other system is above a certain threshold.

32 = Event 3B

The estimated quality of other system is below a certain threshold.

33 = Event 3C

The estimated quality of other system is above a certain threshold.

34 = Event 3D

Change of best cell in other system.

41 = Event 4A

Transport Channel Traffic Volume (3GPP TS 25.321) exceeds an absolute threshold.

42 = Event 4B

Transport Channel Traffic Volume (3GPP TS 25.321) becomes smaller than an absolute threshold.

51 = Event 5A

Number of bad CRCs on a certain transport channel exceeds a threshold.

61 = Event 6A

The UE Transmitted Power becomes larger than an absolute threshold.

62 = Event 6B

The UE Transmitted Power becomes less than an absolute threshold.

63 = Event 6C

The UE Transmitted Power reaches its minimum value.

64 = Event 6D

The UE Transmitted Power reaches its maximum value.

65 = Event 6E

The UE RSSI reaches the UEs dynamic receiver range.

66 = Event 6F

The UE Rx-Tx time difference for a RL included in the active set becomes larger than an absolute threshold (FDD only). The time difference indicated by T_ADV becomes larger than an absolute threshold (TD-SCDMA only).

67 = Event 6G

The UE Rx-Tx time difference for a RL included in the active set becomes less than an absolute threshold.

71 = Event 7A

The UE position changes more than an absolute threshold.

72 = Event 7B

SFN-SFN measurement changes more than an absolute threshold.

73 = Event 7C

GPS time and SFN time have drifted apart more than an absolute threshold.

Parameters for UMTS TD-SCDMA

Name	Type	Description
Measurement event	Integer	Measurement event
		1 = Event 1A
		A primary CPICH enters the Reporting Range (FDD only).

2 = Event 1B
A primary CPICH leaves the Reporting Range (FDD only).
3 = Event 1C
A non-active Primary CPICH becomes better than an active Primary CPICH (FDD only).
4 = Event 1D
Change of best cell (FDD only).
5 = Event 1E
A primary CPICH becomes better than an absolute threshold (FDD only).
6 = Event 1F
A primary CPICH becomes worse than an absolute threshold (FDD only).
7 = Event 1G
Change of best cell (TDD only).
8 = Event 1H
Timeslot ISCP below a certain threshold (TDD only).
9 = Event 1I
Timeslot ISCP above a certain threshold (TDD only).
10 = Event 1J
A non-active E-DCH but active DCH Primary CPICH becomes better than an active E-DCH Primary CPICH (FDD only).
21 = Event 2A
Change of best frequency.
22 = Event 2B
The estimated quality of the currently used frequency is below a certain threshold and the estimated quality of a non-used frequency is above a certain threshold.
23 = Event 2C
The estimated quality of a non-used frequency is above a certain threshold.
24 = Event 2D
The estimated quality of the currently used frequency is below a certain threshold.
25 = Event 2E
The estimated quality of a non-used frequency is below a certain threshold.
26 = Event 2F
The estimated quality of the currently used frequency is above a certain threshold.
31 = Event 3A
The estimated quality of the currently used UTRAN frequency is below a certain threshold and the estimated quality of the other system is above a certain threshold.
32 = Event 3B
The estimated quality of other system is below a certain threshold.
33 = Event 3C
The estimated quality of other system is above a certain threshold.
34 = Event 3D
Change of best cell in other system.
41 = Event 4A
Transport Channel Traffic Volume (3GPP TS 25.321) exceeds an absolute threshold.
42 = Event 4B
Transport Channel Traffic Volume (3GPP TS 25.321) becomes smaller than an absolute threshold.
51 = Event 5A
Number of bad CRCs on a certain transport channel exceeds a threshold.
61 = Event 6A
The UE Transmitted Power becomes larger than an absolute threshold.

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62 = Event 6B
    The UE Transmitted Power becomes less than an absolute threshold.
63 = Event 6C
    The UE Transmitted Power reaches its minimum value.
64 = Event 6D
    The UE Transmitted Power reaches its maximum value.
65 = Event 6E
    The UE RSSI reaches the UEs dynamic receiver range.
66 = Event 6F
    The UE Rx-Tx time difference for a RL included in the active set becomes larger than an absolute threshold (FDD only). The time difference indicated by T_ADV becomes larger than an absolute threshold (TD-SCDMA only).
67 = Event 6G
    The UE Rx-Tx time difference for a RL included in the active set becomes less than an absolute threshold.
71 = Event 7A
    The UE position changes more than an absolute threshold.
72 = Event 7B
    SFN-SFN measurement changes more than an absolute threshold.
73 = Event 7C
    GPS time and SFN time have drifted apart more than an absolute threshold.

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Parameters for LTE

Name	Type	Description

Measurement event	Integer	Measurement event
		See 3GPP TS 136.331 subclause 5.5.4.
		1 = Event A1
		    Serving becomes better than threshold.
		2 = Event A2
		    Serving becomes worse than threshold.
		3 = Event A3
		    Neighbor becomes offset better than PCell.
		4 = Event A4
		    Neighbor becomes better than threshold.
		5 = Event A5
		    PCell becomes worse than threshold 1 and neighbor becomes better than threshold 2.
		6 = Event A6
		    Neighbor becomes offset better than SCell.
		21 = Event B1
		    Inter RAT neighbor becomes better than threshold.
		22 = Event B2
		    PCell becomes worse than threshold 1 and inter RAT neighbor becomes better than threshold 2.

Measurement ID	Integer	Measurement ID See 3GPP TS 136.331 subclause 5.5. Range: 1 – 32

Position report information (POSI)

Event ID	POSI
Cellular systems	GSM,UMTS FDD,LTE FDD,LTE TDD
Record state	Always
Description	Recorded when a position information is reported from mobile to the network. This information is decoded from the signaling messages.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM 5 = UMTS FDD 7 = LTE FDD 8 = LTE TDD

Position report type	Integer	Position report type
		See 3GPP TS 123.271, 125.305, 136.305, 136.355, and 144.031.
		1 = UE-based A-GNSS
		   Assisted-global navigation satellite system.
		2 = NW-based OTDOA
		   Observed time difference of arrival. When this method is used the network calculates UE's position based on known nodeB coordinates, and signal reception times measured and reported by UE.
		3 = UE-based E-OTD
		   Enhanced observed time difference. This is similar with OTDOA but it is only used with GSM.
		4 = NW-based ECID
		   Enhanced cell ID positioning method where network calculates mobile's position using RX/TX measurements done by mobile. When this positioning method is used the longitude and latitude parameters are n/a.

Result	Integer	Position report result 1 = Success 2 = Undefined failure 3 = Not supported 4 = Request denied 50 = Assistance data not supported by server 51 = Assistance data not available 52 = Assistance data partly not supported or not available 100 = Not enough satellites 101 = Not all requested measurements are possible 200 = Unable to measure reference cell 201 = Unable to measure any neighbor cell 202 = Unable to measure some neighbor cells 300 = Not enough base stations
Lon.	Float	Position report longitude Longitude of the measured position.
Lat.	Float	Position report latitude Latitude of the measured position.
Height	Integer	Position report height Unit: m

Confidence	Float	Position report confidence Range: 0 – 100 Unit: %

MBMS information (MBMSI)

Event ID	MBMSI
Cellular systems	LTE FDD,LTE TDD
Record state	Always
Description	Recorded when MBMS allocation changes.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 7 = LTE FDD 8 = LTE TDD

Parameters for LTE

Name	Type	Description
#Header params	Integer	Number of header parameters
#Services	Integer	Number of MBMS services
#Params/service	Integer	Number of parameters per MBMS service
MCC	Integer	MBMS service MCC See ITU-T recommendation E.212. Range: 0 – 999
MNC	Integer	MBMS service MNC Range: 0 – 999
Service ID	Integer	MBMS service ID Uniquely identifies the identity of an MBMS service within a PLMN. See more 3GPP TS 136.331 subclause 6.3.7. Range: 0 – 16777215
Session ID	Integer	MBMS session ID Range: 0 – 255
Area ID	Integer	MBSFN area ID Multi broadcast single frequency network area identity. See more 3GPP TS 136.211 subclause 6.10.2.1. Range: 0 – 255
Data MCS	Integer	MBMS data MCS Defines the modulation and the amount of coding used. See 3GPP TS 36.213 subclause 7.1.7. Range: 0 – 31
State	Integer	MBMS service state 1 = Active 2 = Available

Physical channel throughput broadcast (PHRATEB)

Event ID	PHRATEB
Cellular systems	LTE FDD,LTE TDD
Record state	Always
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 7 = LTE FDD 8 = LTE TDD

Parameters for LTE

Name	Type	Description
PMCH throughput	Integer	PMCH throughput Physical layer PMCH throughput is sum of all transport blocks received from the PMCH disregarding CRC result. Minimum value: 0 Unit: bit/s
PMCH SNR	Float	PMCH SNR Mobile vendor specific signal-to-noise-ratio for PMCH. Unit: dB

MAC layer throughput broadcast (MACRATEB)

Event ID	MACRATEB
Cellular systems	LTE FDD,LTE TDD
Record state	Always
Description	Recorded when measurement sample is received from the device and the received sample differs from the previous result. This UMTS measurement event is recorded simultaneously with the PLAID measurement event and only during HSDPA session.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 7 = LTE FDD 8 = LTE TDD

Parameters for LTE

Name	Type	Description
MCH thoughput	Integer	MCH thoughput MAC layer MCH throughput is sum of transport blocks with correct CRC. With some implementations it is possible that MCH throughput does not contain MAC layer headers and overhead. Minimum value: 0 Unit: bit/s
MCH block rate	Integer	MCH block rate Number of received transport blocks since last report. Minimum value: 0
MCH BLER	Float	MCH BLER Ratio of correct and incorrect transport blocks since the last report. The number of the incorrect transport blocks is Block Rate times BLER divided by 100. Range: 0 – 100 Unit: %

RLC layer throughput broadcast (RLCRATEB)

Event ID	RLCRATEB
Cellular systems	LTE FDD,LTE TDD
Record state	Always
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 7 = LTE FDD 8 = LTE TDD

Parameters for LTE

Name		Type	Description
#Header params		Integer	Number of header parameters
	MTCH throughput	Integer	MTCH throughput RLC layer MTCH throughput is bit rate calculated from the RLC layer data SDUs. Minimum value: 0 Unit: bit/s
#MRBs		Integer	Number of MBMS radio bearers
#Params/MRB		Integer	Number of parameters per MBMS radio bearer
	Area ID/MRB	Integer	MBSFN area ID per MRB Multi broadcast single frequency network area identity. See more 3GPP TS 136.211 subclause 6.10.2.1. Range: 0 – 255
	PMCH ID/MRB	Integer	PMCH ID per MRB Range: 0 – 15
	Bitrate/MRB	Integer	MTCH throughput per MRB Minimum value: 0 Unit: bit/s
	Block rate/MRB	Integer	MTCH block rate per MRB Minimum value: 0

Channel quality indicator (CQI)

Event ID	CQI
Cellular systems	UMTS FDD,UMTS TD-SCDMA,LTE FDD,LTE TDD
Record state	Packet active state
Description	Recorded every 200 milliseconds to indicate distribution of HSDPA Channel Quality Indications (CQI) transmitted to the network. This measurement event is recorded simultaneously with the PLAID measurement event.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
Sample dur.	Integer	Sample duration The time from which samples are collected for the distribution. Unit: ms
Ph req. rate	Integer	HSDPA physical layer requested throughput Computational throughput based on the transport block sizes indicated by the CQI values. In MIMO mode, only CQI type A is used for the calculation. This is the throughput that would have been achieved if the network had sent the link adaptation parameters defined by the CQI. Minimum value: 0 Unit: bit/s
CQI repetitions	Integer	HSDPA CQI repetition factor Controls how often the UE repeats CQI information on the uplink. See 3GPP TS 25.214 subclause 6A.1.2. Range: 1 – 4
CQI cycle	Integer	HSDPA CQI feedback cycle Controls how often the UE transmits new CQI information on the uplink. See 3GPP TS 25.214 subclause 6A.1.2. Range: 0 – 160 Unit: ms
MIMO R2 req. %	Float	HSDPA MIMO rank 2 request ratio Defines the percentage of time MIMO was requested using CQI values. This is the ratio of double CQI values to total of type A CQI values. This parameter is also known as rank indicator. Range: 0 – 100 Unit: %
#CQI values	Integer	Number of CQI values
#Params/CQI value	Integer	Number of parameters per CQI value
Percentage	Float	HSDPA CQI percentage Percentage of this CQI value from the total sampling duration. Note

		that the sum of the percentages is 200 when the measurement event contains information about primary and secondary HSDPA cells. Range: 0 – 100 Unit: %
CQI	Integer	HSDPA CQI An estimate of the link adaptation (transport block size, the modulation type, the number of parallel codes, and the spreading factor) required to enable correct reception with reasonable block error rate. The measured value is reported periodically to the network. This information can be used for data scheduling and link adaptation. When the secondary CQI has a valid value, the range of the parameter is limited to values 0-14. See 3GPP TS 125.214 subclause 6A.2. Range: 0 – 30
CQI type	Integer	HSDPA CQI type See 3GPP TS 125.214 subclause 6A.1.2.2. 1 = CQI type A 2 = CQI type B This type is used when MIMO is not configured.
CQI 2	Integer	HSDPA CQI 2 An estimate of the link adaptation (transport block size, the modulation type, the number of parallel codes, and the spreading factor) required to enable correct reception with reasonable block error rate. The measured value is reported periodically to the network. This information can be used for data scheduling and link adaptation. This parameter is always n/a when CQI type B is used. See 3GPP TS 125.214 subclause 6A.2. Range: 0 – 14
Cell type	Integer	HSDPA cell type 1 = Primary 2 = Secondary

Parameters for UMTS TD-SCDMA

Name	Type	Description
#Params	Integer	Number of parameters
Sample dur.	Integer	Sample duration The time from which samples are collected for the distribution. Unit: ms
Ph req. rate	Integer	HSDPA physical layer requested throughput Computational throughput based on the transport block sizes indicated by the CQI values. In MIMO mode, only CQI type A is used for the calculation. This is the throughput that would have been achieved if the network had sent the link adaptation parameters defined by the CQI. Minimum value: 0 Unit: bit/s
#CQI values	Integer	Number of CQI values
#Params/CQI value	Integer	Number of parameters per CQI value
Percentage	Float	HSDPA CQI percentage Percentage of this CQI value from the total sampling duration. Note that the sum of the percentages is 200 when the measurement event contains information about primary and secondary HSDPA cells. Range: 0 – 100 Unit: %
CQI	Integer	HSDPA CQI An estimate of the link adaptation (transport block size, the

modulation type, the number of parallel codes, and the spreading factor) required to enable correct reception with reasonable block error rate. The measured value is reported periodically to the network. This information can be used for data scheduling and link adaptation. See 3GPP TS 125.224 subclause 4.11.2.
Range: 0 – 127

Parameters for LTE

Name	Type	Description
#Params	Integer	Number of parameters
Sample dur.	Integer	Sample duration The time from which samples are collected for the distribution. Unit: ms
Req. rate	Integer	Requested throughput Computational throughput based on the transport block sizes indicated by the wideband CQI values. In situations where rank 2 or rank 4 reception would have been possible, wideband CQI values of both codewords are used in the throughput calculation. This is the throughput that would have been achieved if the network had sent the link adaptation parameters defined by the CQI. Minimum value: 0 Unit: bit/s
WB CQI 0	Integer	Wideband CQI for codeword 0 This is the average wideband CQI calculated over the reporting period. See 3GPP TS 36.213 subclause 7.2. Range: 0 – 15
WB CQI 1	Integer	Wideband CQI for codeword 1 This is the average wideband CQI calculated over the reporting period. See 3GPP TS 36.213 subclause 7.2. Range: 0 – 15
SB CQI 0	Integer	Subband CQI for codeword 0 The subband CQI is the average calculated over the subbands defined by higher layer or selected by mobile. This reported subband CQI value is furthermore averaged over the reporting period before it is logged to the measurement event. More information about CQI see 3GPP TS 36.213 subclause 7.2. Range: 0 – 15
SB CQI 1	Integer	Subband CQI for codeword 1 The subband CQI is the average calculated over the subbands defined by higher layer or selected by mobile. This reported subband CQI value is furthermore averaged over the reporting period before it is logged to the measurement event. More information about CQI see 3GPP TS 36.213 subclause 7.2. Range: 0 – 15
WB PMI	Integer	Wideband PMI See 3GPP TS 136.213 subclause 7.2.4. The logged value is the most commonly used value during the reporting period.

Cell type	Integer	Serving cell type
		The value of this parameter is the same as the serving cell index.
		0 = PCell
		    Primary serving cell.
		1 = SCell 0
		    The first secondary serving cell.
		2 = SCell 1

#Ranks	Integer	Number of ranks The first requested rank value defines the ratio of rank one, the second rank value defines the ratio of rank two, etc.
#Params/rank	Integer	Parameters per rank

Req. rank	Float	Requested rank Defines based on RI reports the ratio of time when the mobile would have been able to receive data using defined rank. Range: 0 – 100 Unit: %
Rank	Integer	Rank Range: 1 – 4
#CQI subbands	Integer	Number of CQI subbands
#Params/Subband	Integer	Number of parameters per CQI subband
SB index	Integer	CQI subband index Subband Channel Quality Indication (CQI) reports the quality on a selected set of preferred subbands by the UE. The selected set can also be configured from a higher layer. See 3GPP TS 36.213 subclause 7.2.
CQI 0/SB	Integer	CQI for codeword 0 per subband The average channel quality index value over the reporting period for defined subband. Not available when the best M select mode is used. More information about CQI see 3GPP TS 36.213 subclause 7.2. Range: 0 – 15
CQI 1/SB	Integer	CQI for codeword 1 per subband The average channel quality index value over the reporting period for defined subband. Not available when the best M select mode is used. More information about CQI see 3GPP TS 36.213 subclause 7.2. Range: 0 – 15

HARQI process information (HARQI)

Event ID	HARQI
Cellular systems	UMTS FDD,UMTS TD-SCDMA
Record state	Packet active state
Description	Recorded every 200 milliseconds to indicate HSDPA HARQ throughput based on the trace messages of the mobile. This measurement event is recorded simultaneously with the PLAID measurement event.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 6 = UMTS TD-SCDMA

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
#HARQ processes	Integer	Number of HARQ processes
#Params/HARQ	Integer	Number of parameters per HARQ process.
HARQ ID	Integer	HSDPA HARQ process Identifier Range: 0 – 15
HARQ dir.	Integer	HSDPA HARQ process direction 1 = Uplink 2 = Downlink
HARQ Rate	Integer	HSDPA HARQ process throughput The value of the parameter is calculated from the transport block sizes for each HARQ process separately. Minimum value: 0 Unit: bit/s
#HARQ packets	Integer	HSDPA HARQ process block rate The number of MAC-hs PDUs transferred per HARQ process.
HARQ BLER	Float	HSDPA HARQ process BLER The ratio of erroneously received MAC-hs PDUs to all received MAC-hs PDUs for each HARQ process separately. Range: 0 – 100 Unit: %
Cell type	Integer	HSDPA cell type 1 = Primary 2 = Secondary

Parameters for UMTS TD-SCDMA

Name	Type	Description
#Header params	Integer	Number of header parameters
#HARQ processes	Integer	Number of HARQ processes

#Params/HARQ	Integer	Number of parameters per HARQ process.
HARQ ID	Integer	HSDPA HARQ process Identifier Range: 0 – 15
HARQ dir.	Integer	HSDPA HARQ process direction 1 = Uplink 2 = Downlink
HARQ Rate	Integer	HSDPA HARQ process throughput The value of the parameter is calculated from the transport block sizes for each HARQ process separately. Minimum value: 0 Unit: bit/s
#HARQ packets	Integer	HSDPA HARQ process block rate The number of MAC-hs PDUs transferred per HARQ process.
HARQ BLER	Float	HSDPA HARQ process BLER The ratio of erroneously received MAC-hs PDUs to all received MAC-hs PDUs for each HARQ process separately. Range: 0 – 100 Unit: %

HS-SCCH channel information (HSSCCHI)

Event ID	HSSCCHI
Cellular systems	UMTS FDD,UMTS TD-SCDMA
Record state	Packet active state
Description	Recorded every 200 milliseconds to indicate HS-SCCH channel usage based on the trace messages of the mobile. This measurement event is recorded simultaneously with the PLAID measurement event.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 6 = UMTS TD-SCDMA

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
HS-SCCH code	Integer	HSDPA HS-SCCH channelisation code Range: 0 – 127
HS-SCCH usage	Float	HSDPA HS-SCCH usage Defines the ratio of TTIs when new or retransmitted data is indicated using this HS-SCCH channelisation code. Note that the sum of the percentages is 200 when the measurement event contains information about primary and secondary HSDPA cells. Range: 0 – 100 Unit: %
Cell type	Integer	HSDPA cell type 1 = Primary 2 = Secondary

Parameters for UMTS TD-SCDMA

Name	Type	Description
#Header params	Integer	Number of header parameters
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
HS-SCCH 1st code	Integer	HSDPA HS-SCCH first channelisation code Range: 0 – 15
HS-SCCH 2nd code	Integer	HSDPA HS-SCCH second channelisation code Range: 0 – 15
HS-SCCH usage	Float	HSDPA HS-SCCH usage Defines the ratio of TTIs when new or retransmitted data is indicated using this HS-SCCH channelisation code. Note that the sum of the

		percentages is 200 when the measurement event contains information about primary and secondary HSDPA cells. Range: 0 – 100 Unit: %

Packet link adaptation info for downlink (PLAID)

Event ID	PLAID
Cellular systems	UMTS FDD,UMTS TD-SCDMA,LTE FDD,LTE TDD,WiMAX
Record state	Packet active state
Description	The measurement event contains statistical information on the usage of the downlink link adaptation based on the trace messages of the mobile. Currently recorded at a 200 millisecond interval with HSDPA.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 25 = WiMAX

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
Sample duration	Integer	Sample duration The time from which samples are collected for the distribution. Unit: ms
HS-PDSCH rate	Integer	HSDPA HS-PDSCH throughput High-Speed Physical Downlink Shared Channel throughput is calculated from all (also retransmitted) transport blocks received from the HS-DSCH transport channel and divided by sample duration. This parameter is also known as HSDPA physical channel throughput or served throughput. Minimum value: 0 Unit: bit/s
MIMO usage	Float	HSDPA MIMO usage ratio The percentage of TTIs during the reporting period when dual stream transfer is used. This value displays the exact amount of MIMO used with HSDPA. Range: 0 – 100 Unit: %
Scheduled rate	Integer	HSDPA HS-PDSCH scheduled throughput High-Speed Physical Downlink Shared Channel scheduled throughput is calculated from all (also retransmitted) transport blocks received from the HS-DSCH transport channel and divided by time when data is received from the network (idle time is not calculated). With DC-HSDPA the scheduled throughput is calculated separately for each cell and then the received values are summed up to get the total scheduled throughput. Minimum value: 0 Unit: bit/s
#PLA sets	Integer	Number of packet link adaptation sets
#Params/PLA set	Integer	Number of parameters per packet link adaptation set

Percentage	Float	HSDPA percentage Percentage of this set from the total sample duration. Note that the sum of the percentages is 200 when the measurement event contains information about primary and secondary HSDPA cells. Range: 0 – 100 Unit: %
Modulation	Integer	HSDPA modulation 1 = QPSK 2 = 16QAM 3 = 64QAM
Effective coding	Float	HSDPA effective coding Effective coding is transport block size divided by bits per TTI per physical channel (=U), where U is 960 bits for QPSK, 1920 bits for 16QAM, and 2880 bits for 64QAM. Range: 0 – 1
TB size	Integer	HSDPA transport block size Unit: bit
1st code	Integer	HSDPA first channelisation code Range: 0 – 15
#codes	Integer	HSDPA number of used channelisation codes Range: 1 – 15
BLER	Float	HSDPA MAC-hs BLER The ratio of erroneously received MAC-hs PDUs to all MAC-hs PDUs with this link adaptation configuration. Range: 0 – 100 Unit: %
HS-SCCH type	Integer	HSDPA HS-SCCH type See 3GPP TS 125.212 subclause 4.6. 0 = No data 1 = HS-SCCH type 1 2 = HS-SCCH type 2 3 = HS-SCCH type 3 10 = No data (DRX) 100 = RX and TX order, disable HS-SCCH-less mode 101 = DRX and TX order, disable HS-SCCH-less mode 102 = RX and DTX order, disable HS-SCCH-less mode 103 = DRX and DTX order, disable HS-SCCH-less mode 104 = RX and TX order, enable HS-SCCH-less mode 105 = DRX and TX order, enable HS-SCCH-less mode 106 = RX and DTX order, enable HS-SCCH-less mode 107 = DRX and DTX order, enable HS-SCCH-less mode 110 = Secondary serving HS-DSCH deactivation order 111 = Secondary serving HS-DSCH activation order
Modulation 2	Integer	HSDPA modulation for secondary stream 1 = QPSK 2 = 16QAM 3 = 64QAM
Effective coding 2	Float	HSDPA effective coding for secondary stream Range: 0 – 1
TB size 2	Integer	HSDPA transport block size for secondary stream Unit: bit
BLER 2	Float	HSDPA MAC-hs BLER for secondary stream Range: 0 – 100 Unit: %
Cell type	Integer	HSDPA cell type 1 = Primary 2 = Secondary

Parameters for UMTS TD-SCDMA

Name	Type	Description
#Header params	Integer	Number of header parameters
Sample duration	Integer	Sample duration The time from which samples are collected for the distribution. Unit: ms
HS-PDSCH rate	Integer	HSDPA HS-PDSCH throughput High-Speed Physical Downlink Shared Channel throughput is calculated from all (also retransmitted) transport blocks received from the HS-DSCH transport channel and divided by sample duration. This parameter is also known as HSDPA physical channel throughput or served throughput. Minimum value: 0 Unit: bit/s
#PLA sets	Integer	Number of packet link adaptation sets
#Params/PLA set	Integer	Number of parameters per packet link adaptation set
Percentage	Float	HSDPA percentage Percentage of this set from the total sample duration. Note that the sum of the percentages is 200 when the measurement event contains information about primary and secondary HSDPA cells. Range: 0 – 100 Unit: %
Modulation	Integer	HSDPA modulation 1 = QPSK 2 = 16QAM 3 = 64QAM
TB size	Integer	HSDPA transport block size Unit: bit
1st code	Integer	HSDPA first channelisation code Range: 0 – 15
#codes	Integer	HSDPA number of used channelisation codes Range: 1 – 15
BLER	Float	HSDPA MAC-hs BLER The ratio of erroneously received MAC-hs PDUs to all MAC-hs PDUs with this link adaptation configuration. Range: 0 – 100 Unit: %
SF	Integer	TD-SCDMA spreading factor Note that only valid values at the moment are 1 and 16. 1 = SF 1 2 = SF 2 4 = SF 4 8 = SF 8 16 = SF 16

Parameters for LTE

Name	Type	Description
#Header params	Integer	Number of header parameters
Sample duration	Integer	Sample duration The time from which samples are collected for the distribution. Unit: ms
PRB utilization DL	Float	PRB utilization DL Downlink PRB utilization proportional to bandwidth and reporting period.

		Range: 0 – 100 Unit: %
DL TBS	Integer	PDSCH average transport block size Minimum value: 0 Unit: bit
Max DL TBS	Integer	PDSCH maximum transport block size Minimum value: 0 Unit: bit

Cell type	Integer	Serving cell type
		The value of this parameter is the same as the serving cell index.
		0 = PCell
		   Primary serving cell.
		1 = SCell 0
		   The first secondary serving cell.
		2 = SCell 1

#PLA sets	Integer	Number of packet link adaptation sets
#Params/PLA set	Integer	Number of parameters per packet link adaptation set
Percentage	Float	PDSCH modulation percentage Range: 0 – 100 Unit: %
Rank	Integer	PDSCH rank Defines how many data streams are used for the data transmission. When spatial multiplexing transmission scheme is used, the rank is the same as the number of used layers. The value of the parameter is zero when data is not received. Range: 0 – 4
Modulation 0	Integer	PDSCH modulation for codeword 0 This is the modulation order as defined by 3GPP TS 36.213 subclause 7.1.7. 1 = QPSK 2 = 16QAM 3 = 64QAM 4 = 256QAM
MCS 0	Integer	PDSCH MCS index for codeword 0 Defines the modulation and the amount of coding used. See 3GPP TS 36.213 subclause 7.1.7. Range: 0 – 31
Modulation 1	Integer	PDSCH modulation for codeword 1 This is the modulation order as defined by 3GPP TS 36.213 subclause 7.1.7. 1 = QPSK 2 = 16QAM 3 = 64QAM 4 = 256QAM
MCS 1	Integer	PDSCH MCS index for codeword 1 Defines the modulation and the amount of coding used. See 3GPP TS 36.213 subclause 7.1.7. Range: 0 – 31
#PRBs	Integer	Number of PRBs
#Params/PRB	Integer	Number of parameters per PRB
Percentage	Float	PDSCH PRB percentage Range: 0 – 100 Unit: %
PRBs	Integer	PDSCH PRBs Range: 0 – 100
#PRB indexes	Integer	Number of PRB indexes

		This is the same as the system bandwidth. Range: 0 – 100
#Params/PRB index	Integer	Number of parameters per PRB index
DL PRB %/i	Float	PRB utilization DL/Index Range: 0 – 100 Unit: %
PRB index	Integer	PRB index Range: 0 – 99

Parameters for WiMAX

Name	Type	Description
#PLA header parameters	Integer	Number of header parameters
Sample dur.	Integer	Sample duration The time from which samples are collected for the distribution. Unit: ms
Burst count	Integer	WiMAX burst count Number of received or sent burst during reporting period.
#PLA sets	Integer	Number of packet link adaptation sets
#Params/PLA set	Integer	Number of parameters per packet link adaptation set
Percentage	Float	WiMAX percentage Ratio of burst that used this modulation and coding. Range: 0 – 100
Modulation	Integer	WiMAX modulation 1 = QPSK 2 = 16QAM 3 = 64QAM
Coding rate	Integer	WiMAX coding rate 1 = 1 / 2 2 = 3 / 5 3 = 5 / 8 4 = 2 / 3 5 = 3 / 4 6 = 4 / 5 7 = 5 / 6
Coding type	Integer	WiMAX coding type 1 = Tail biting convolutional Code (CC) 2 = Block turbo code (BTC) 3 = Convolutional turbo code (CTC) 4 = Zero tail convolutional code (ZTCC)
Repetition coding	Integer	WiMAX repetition coding 1 = No repetition coding 2 = Repetition coding 2 4 = Repetition coding 4 6 = Repetition coding 6

Packet link adaptation info for uplink (PLAIU)

Event ID	PLAIU
Cellular systems	UMTS FDD,WiMAX,LTE FDD,LTE TDD
Record state	Packet active state
Description	The measurement event contains statistical information on the usage of the uplink link adaptation based on the trace messages of the mobile. Recorded every 200 milliseconds with Nokia-based mobiles and every 400 milliseconds with Qualcomm-based mobiles.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 7 = LTE FDD 8 = LTE TDD 25 = WiMAX

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
Sample duration	Integer	Sample duration The time from which samples are collected for the distribution. Unit: ms
E-DPDCH Rate	Integer	HSUPA E-DPDCH throughput E-DPDCH throughput is calculated from all (including retransmitted) transport blocks received from the E-DCH transport channel. Minimum value: 0 Unit: bit/s
Lim. max power	Float	HSUPA E-TFC selection limited by max power percentage Percentage of frames when larger E-TFCI selection would cause exceeding of the maximum allowed TX power usage. Range: 0 – 100 Unit: %
Lim. grant	Float	HSUPA E-TFC selection limited by serving grant percentage Percentage of frames when larger E-TFCI cannot be selected since it would require more power than allowed by current serving grant. Range: 0 – 100 Unit: %
Lim. lack of data	Float	HSUPA E-TFC selection limited by lack of data percentage Percentage of frames when larger E-TFCI cannot be selected since mobile's output buffers doesn't contain enough data. Range: 0 – 100 Unit: %
Lim. by mux	Float	HSUPA E-TFC selection limited by mux restriction percentage Percentage of frames when larger E-TFCI cannot be selected since MAC-d flows containing data cannot be multiplexed together with currently selected MAC-d flow. Allowed multiplexing is defined by E-DCH MAC-d flow multiplexing list -parameter in 3GPP TS 125.331 subclause 10.3.5.1b. Range: 0 – 100

		Unit: %
Lim. by HARQ	Float	HSUPA E-TFC selection limited by HARQ restriction percentage Percentage of frames when larger E-TFCI cannot be selected since certain MAC-d flows cannot be send using current used HARQ process. Allowed HARQ processes per MAC-d flow is controlled by 2ms non-scheduled transmission grant HARQ process allocation - parameter in 3GPP TS 125.331 subclause 10.3.5.1b. Non-zero only when 2ms subframes are used. Range: 0 – 100 Unit: %
#PLA sets	Integer	Number of packet link adaptation sets
#Params/PLA set	Integer	Number of parameters per packet link adpatation set
Percentage	Float	HSUPA percentage Percentage of this set from the total sample duration. Note that the sum of the percentages is 200 when the measurement event contains information about primary and secondary HSDPA cells. Range: 0 – 100 Unit: %
Modulation	Integer	HSUPA modulation 1 = QPSK 2 = 16QAM
TB size	Integer	HSUPA transport block size Unit: bit
E-TFCI	Integer	HSUPA E-TFCI Range: 0 – 127
SFs	Integer	HSUPA spreading and channelisation codes 1 = SF 256 2 = SF 128 3 = SF 64 4 = SF 32 5 = SF 16 6 = SF 8 7 = SF 4 8 = 2 * SF 4 9 = 2 * SF 2 10 = 2 * SF 4 and 2 * SF 2
Retr.	Float	HSUPA retransmission rate per LA The ratio of erroneous MAC-e PDUs retransmitted using this link adaptation configuration. Range: 0 – 100 Unit: %
Avg. SG index	Integer	HSUPA average serving grant The most common value is reported. -1 = ZERO_GRANT 0 = 0 1 = 1 2 = 2 3 = 3 4 = 4 5 = 5 6 = 6 7 = 7 8 = 8 9 = 9 10 = 10 11 = 11 12 = 12 13 = 13 14 = 14

		15 = 15 16 = 16 17 = 17 18 = 18 19 = 19 20 = 20 21 = 21 22 = 22 23 = 23 24 = 24 25 = 25 26 = 26 27 = 27 28 = 28 29 = 29 30 = 30 31 = 31 32 = 32 33 = 33 34 = 34 35 = 35 36 = 36 37 = 37
Avg. SG	Float	HSUPA average serving grant power -10.0 if ZERO_GRANT. Range: −10 – 30 Unit: dB

Parameters for LTE

Name	Type	Description
#Header params	Integer	Number of header parameters
Sample duration	Integer	Sample duration The time from which samples are collected for the distribution. Unit: ms
PRB utilization UL	Float	PRB utilization UL Uplink PRB utilization proportional to bandwidth and reporting period. Range: 0 – 100 Unit: %
UL TBS	Integer	PUSCH average transport block size Minimum value: 0 Unit: bit
Max UL TBS	Integer	PUSCH maximum transport block size Minimum value: 0 Unit: bit
#PLA sets	Integer	Number of packet link adaptation sets
#Params/PLA set	Integer	Number of parameters per packet link adaptation set
Percentage	Float	PUSCH modulation percentage Range: 0 – 100 Unit: %
Rank	Integer	PUSCH rank Defines how many data streams are used for the data transmission. When spatial multiplexing transmission scheme is used, the rank is the same as the number of used layers. The value of the parameter is zero when data is not transmitted. Range: 0 – 1
Modulation 0	Integer	PUSCH modulation for codeword 0 The modulation order as defined by 3GPP TS 36.213 subclause 8.6

	Name	Type	Description
			1 = QPSK 2 = 16QAM 3 = 64QAM
	MCS index 0	Integer	PUSCH MCS index for codeword 0 Defines the modulation and the amount of coding used for data transmission. In the case of retransmission the recorded value is the same as originally used for the data transmission (instead of values from 29 to 31 that are used to indicate redundancy version). See 3GPP TS 36.213 subclause 8.6. Range: 0 – 31
#PRBs		Integer	Number of PRBs
#Params/PRB		Integer	Number of parameters per PRB
	Percentage	Float	PUSCH PRB percentage Range: 0 – 100 Unit: %
	PRBs	Integer	PUSCH PRBs Range: 0 – 100
#PRB indexes		Integer	Number of PRB indexes This is the same as the system bandwidth. Range: 0 – 100
#Params/PRB index		Integer	Number of parameters per PRB index
	UL PRB %/i	Float	PRB utilization UL/Index Range: 0 – 100 Unit: %
	PRB index	Integer	PRB index Range: 0 – 99

Parameters for WiMAX

	Name	Type	Description
#PLA header parameters		Integer	Number of header parameters
	Sample dur.	Integer	Sample duration The time from which samples are collected for the distribution. Unit: ms
	Burst count	Integer	WiMAX burst count Number of received or sent burst during reporting period.
#PLA sets		Integer	Number of packet link adaptation sets
#Params/PLA set		Integer	Number of parameters per packet link adaptation set
	Percentage	Float	WiMAX percentage Ratio of burst that used this modulation and coding. Range: 0 – 100
	Modulation	Integer	WiMAX modulation 1 = QPSK 2 = 16QAM 3 = 64QAM
	Coding rate	Integer	WiMAX coding rate 1 = 1 / 2 2 = 3 / 5 3 = 5 / 8 4 = 2 / 3 5 = 3 / 4 6 = 4 / 5 7 = 5 / 6

Coding type	Integer	WiMAX coding type 1 = Tail biting convolutional Code (CC) 2 = Block turbo code (BTC) 3 = Convolutional turbo code (CTC) 4 = Zero tail convolutional code (ZTCC)
Repetition coding	Integer	WiMAX repetition coding 1 = No repetition coding 2 = Repetition coding 2 4 = Repetition coding 4 6 = Repetition coding 6

Happy bit indicator (HBI)

Event ID	HBI
Cellular systems	UMTS FDD
Record state	Packet active state
Description	The measurement event contains information on the state of the happy bit transmitted by the mobile to the network during an HSUPA session. The measurement event is recorded simultaneously with the PLAIU measurement event.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD

Parameters for UMTS FDD

Name	Type	Description
Reporting interval	Integer	HSUPA happy bit reporting interval Defines how often HBI measurement event is reported during HSUPA transfer. Unit: ms
Happy bit	Float	HSUPA happy bit status percentage Defines how often happy bit status was set happy during previous reporting interval excluding DTX TTIs. Range: 0 – 100 Unit: %
DTX	Float	HSUPA happy bit DTX percentage How many TTIs DTX was used during previous reporting period. Range: 0 – 100 Unit: %

MAC-E layer throughput (MACERATE)

Event ID	MACERATE
Cellular systems	UMTS FDD
Record state	Packet active state
Description	The measurement event contains information on the MAC-e layer throughput based on the trace messages of the mobile. The measurement event is reported during an HSUPA session simultaneously with PLAIU measurement event.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD

Parameters for UMTS FDD

Name	Type	Description
MAC-e bitrate	Integer	HSUPA MAC-e throughput The value of this parameter is calculated based on the SDUs that are successfully transferred through the MAC-e layer. Missing and erroneous MAC-e blocks are excluded from the throughput calculation. Minimum value: 0 Unit: bit/s
MAC-e block rate	Integer	HSUPA MAC-e block rate The total number of MAC-e PDUs transmitted during the reporting period.
MAC-e 1st retr.	Float	HSUPA MAC-e 1st retransmission rate The ratio of MAC-e PDUs retransmitted after the first transmission attempt. Range: 0 – 100 Unit: %
MAC-e 2nd retr.	Float	HSUPA MAC-e 2nd retransmission rate The ratio of MAC-e PDUs retransmitted after the second transmission attempt. Range: 0 – 100 Unit: %
MAC-e 3rd+ retr.	Float	HSUPA MAC-e 3rd+ retransmission rate The ratio of MAC-e PDUs retransmitted after the third or later transmission attempt. Range: 0 – 100 Unit: %

Absolute Grant (AGRANT)

Event ID	AGRANT
Cellular systems	UMTS FDD
Record state	Packet active state
Description	Recorded when serving grant is modified using E-AGCH channel. Note that this measurement event is not necessarily recorded exactly with the correct timestamp because of limitations in the trace interface of the mobile. For the same reason, there can be multiple AGRANT measurement events with the same timestamp. In these cases, the order of the measurement events is the order of the E-AGCH modifications.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD

Parameters for UMTS FDD

Name	Type	Description
AGCH index	Integer	HSUPA AGCH absolute grant index Range: 0 – 31
AGCH grant	Float	HSUPA AGCH absolute grant power Power ratio between E-DPDCH and DPCCH channels. Range: −10 – 30 Unit: dB
AGCH scope	Integer	HSUPA AGCH absolute grant scope -1 = All HARQ processes 0 = HARQ process ID 0 1 = HARQ process ID 1 2 = HARQ process ID 2 3 = HARQ process ID 3 4 = HARQ process ID 4 5 = HARQ process ID 5 6 = HARQ process ID 6 7 = HARQ process ID 7
AGCH selector	Integer	HSUPA AGCH absolute grant selector 1 = Primary 2 = Secondary
E-RNTI selector	Integer	HSUPA serving grant selector Defines currently selected E-RNTI. 1 = Primary 2 = Secondary

Serving Grant (SGRANT)

Event ID	SGRANT
Cellular systems	UMTS FDD
Record state	Packet active state
Description	The measurement event contains statistical information on the used serving grant based on the trace interface. The measurement event is reported during an HSUPA session simultaneously with the PLAIU measurement event.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
Sample dur.	Integer	Sample duration The time from which samples are collected for the distribution. Unit: ms
Granted rate	Integer	HSUPA granted throughput The throughput that would have been achieved if all power defined by the serving grant had been used for the data transmission. Minimum value: 0 Unit: bit/s
SG utilization	Float	HSUPA serving grant utilization SG utilization is the total of all transferred scheduled bits divided by bits that could have been transferred if the appropriate serving grant index had been used. This is approximately the same as the ratio between transferred throughput and serving grant throughput. Range: 0 – 100 Unit: %
#SG sets	Integer	Number of serving grant sets
#Params/SG set	Integer	Number of parameters per serving grant set
Distribution	Float	HSUPA serving grant distribution Range: 0 – 100 Unit: %
SG index	Integer	HSUPA serving grant index -1 = ZERO_GRANT 0 = 0 1 = 1 2 = 2 3 = 3 4 = 4 5 = 5 6 = 6 7 = 7 8 = 8 9 = 9

		11 = 11 12 = 12 13 = 13 14 = 14 15 = 15 16 = 16 17 = 17 18 = 18 19 = 19 20 = 20 21 = 21 22 = 22 23 = 23 24 = 24 25 = 25 26 = 26 27 = 27 28 = 28 29 = 29 30 = 30 31 = 31 32 = 32 33 = 33 34 = 34 35 = 35 36 = 36 37 = 37
Serving grant	Float	HSUPA serving grant power Power ratio between E-DPDCH and DPCCH channels. -10.0 if ZERO_GRANT. Range: −10 – 30 Unit: dB

E-DCH Information (EDCHI)

Event ID	EDCHI
Cellular systems	UMTS FDD
Record state	Packet active state
Description	The measurement event contains statistical information on the received relative grant indications based on the trace interface. The measurement event is reported during an HSUPA session simultaneously with the PLAIU measurement event.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD

Parameters for UMTS FDD

Name		Type	Description
#Header params		Integer	Number of header parameters
	NS ACKs %	Float	HSUPA non-serving ACK percentage Defines how often only non-serving E-DCH cell has reported ACK. Non-transmitting frames are ignored. Range: 0 – 100 Unit: %
	NS grant down %	Float	HSUPA non-serving grant down percentage Defines how often non-serving E-DCH cell has reported grant down even if serving E-DCH cell has reported grant up or hold. Non-transmitting frames are ignored. Range: 0 – 100 Unit: %
#Cells		Integer	Number of E-DCH cells
#Params/Cell		Integer	Number of parameters per cell
	HSUPA channel	Integer	HSUPA channel
	HSUPA SC	Integer	HSUPA scrambling code Range: 0 – 511
	HSUPA RLS	Integer	HSUPA radio link set This parameter is the same as RG combination index defined in RRC protocol specification. Range: 0 – 5
	ACK %	Float	HSUPA HICH ACK percentage Range: 0 – 100 Unit: %
	NACK %	Float	HSUPA HICH NACK percentage Range: 0 – 100 Unit: %
	DTX %	Float	HSUPA HICH DTX percentage Range: 0 – 100 Unit: %

		Range: 0 – 100 Unit: %
Grant hold %	Float	HSUPA RGCH grant hold percentage Range: 0 – 100 Unit: %
Grant down %	Float	HSUPA RGCH grant down percentage Range: 0 – 100 Unit: %

HSUPA scheduling information (HSUPASI)

Event ID	HSUPASI
Cellular systems	UMTS FDD
Record state	Packet active state
Description	The measurement event contains statistical information on the transmitted Scheduling Information based on the trace interface. The measurement event is reported during an HSUPA session simultaneously with the PLAIU measurement event.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD

Parameters for UMTS FDD

Name	Type	Description
Dur.	Integer	HSUPA Scheduling information sample duration The time from which samples are collected. Unit: ms
SI count	Integer	HSUPA scheduling information count Number of Scheduling Informations sent during reporting period.
HLID	Integer	HSUPA SI highest priority logical channel ID Range: 0 – 15
HLBS	Integer	HSUPA SI highest priority logical channel buffer status Range: 0 – 15
TEBS	Integer	HSUPA SI total E-DCH buffer status This is a mode of all E-DCH buffer status received during reporting period. Range: 0 – 31
TEBS min	Integer	HSUPA SI total E-DCH buffer status minimum This is a minimum of all E-DCH buffer status received during reporting period. Range: 0 – 31
TEBS max	Integer	HSUPA SI total E-DCH buffer status maximum This is a maximum of all E-DCH buffer status received during reporting period. Range: 0 – 31
UPH	Integer	HSUPA SI UE power headroom This is mode of all UE power headrooms received during reporting period. Range: 0 – 31
UPH min	Integer	HSUPA SI UE power headroom minimum This is minimum of all UE power headrooms received during reporting period. Range: 0 – 31
UPH max	Integer	HSUPA SI UE power headroom maximum This is maximum of all UE power headrooms received during reporting period.

Data rate control info (DRCI)

Event ID	DRCI
Cellular systems	EVDO
Record state	Packet active state
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 12 = EVDO
#Header params	Integer	Number of header parameters
Sample duration	Integer	DRC sets sample duration
#DRC sets	Integer	Number of DRC set
#Params/DRC set	Integer	Number of parameters per DRC set
Percentage	Float	DRC set percentage Range: 0 – 100 Unit: %
Requested rate	Integer	DRC set requested rate
Packet length	Integer	Packet link adaptation packet length 0 = Short 1 = Long

Reverse data rate control (RDRC)

Event ID	RDRC
Cellular systems	EVDO
Record state	Always
Description	Recorded when parameters change.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 12 = EVDO

Parameters for EVDO

Name	Type	Description
TX rate limit	Integer	Reverse rate limit (Rev 0 only) Range: 0 – 153600
TX current rate	Integer	Current rate (Rev 0 only) Range: 0 – 153600
Comb. RAB	Integer	Combined busy bit (Rev 0 only) Range: 0 – 1
PA max	Integer	Maximum PA headroom available (Rev 0 only) Range: 0 – 153600 Unit: bit/s
Random variable	Integer	Random variable Random variable represents the random variable that was used to calculate the new reverse rate (Rev 0 only). Range: 0 – 255
Transition probability	Integer	Transition probability Transition probability that was used to calculate the new reverse rate (Rev 0 only).
Condition RRI	Integer	Condition RRI Condition reverse rate provides the reverse rate that was calculated based on the above factors (Rev 0 only). Range: 0 – 153600 Unit: bit/s
Actual RRI	Integer	Actual RRI Actual reverse rate. This should be less than condition RRI or there is not enough data to be sent (Rev 0 only). Range: 0 – 153600 Unit: bit/s
Padding bytes	Integer	Padding bytes Number of padding bytes included in the reverse link packets (Rev 0 only). Unit: byte
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
Packet carrier	Integer	Packet carrier number

FRAB	Integer	FRAB Fast reverse activity bit soft decision max.
QRAB	Integer	QRAB Quick reverse activity bit hard decision. 0 = Unloaded 1 = Loaded
QRABps	Integer	QRABps Quick reverse activity bit value based on pilot strength. 0 = Unloaded 1 = Loaded

Forward data rate control (FDRC)

Event ID	FDRC
Cellular systems	EVDO
Record state	Always
Description	Recorded when parameters change.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 12 = EVDO

Parameters for EVDO

Name	Type	Description
DRC index	Integer	DRC index Average over 16 samples.
DRC cover	Integer	Cover used to transmit DRC Range: 0 – 7
DSC value	Integer	Data source control value transmitted by the mobile (Rev A only) Range: 0 – 7
DRC boost	Integer	DRC gain boost 0 = Not applied 1 = Applied
DSC boost	Integer	DSC gain boost 0 = Not applied 1 = Applied
DRC lock upd. slot	Integer	Slot for DRC lock update
ACK channel status	Integer	ACK channel status 0 = Disabled 1 = Enabled
Forced ACK/NAK ratio	Float	Forced ACK/NAK ratio Represents the ratio of forced ACK/NAKs. Range: 0 – 100 Unit: %
ACK ratio	Float	ACK ratio Range: 0 – 100 Unit: %
Multiuser ACK ratio	Float	Multiuser ACK ratio Range: 0 – 100 Unit: %
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
Packet carrier	Integer	Packet carrier number
DRC index/Ch	Integer	DRC index/Channel Average over 16 samples.

Physical FER (PHFER)

Event ID	PHFER
Cellular systems	EVDO,WiMAX
Record state	Always
Description	Recorded when frame error rate reports are received from the device.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 12 = EVDO 25 = WiMAX

Parameters for EVDO

Name	Type	Description
PER	Float	PER instantaneous Range: 0 – 100 Unit: %
PER short	Float	PER short Range: 0 – 100 Unit: %
PER long	Float	PER long Range: 0 – 100 Unit: %
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
Packet carrier	Integer	Packet carrier number
PER/Ch	Float	PER instantaneous/Channel Range: 0 – 100 Unit: %
PER short/Ch	Float	PER short/Channel Range: 0 – 100 Unit: %
PER long/Ch	Float	PER long/Channel Range: 0 – 100 Unit: %

Parameters for WiMAX

Name	Type	Description
FER	Float	WiMAX frame lost ratio Range: 0 – 100 Unit: %

Markov mux information (MARKOVMUX)

Event ID	MARKOVMUX
Cellular systems	cdmaOne,CDMA 1x
Record state	Always
Description	Recorded when the mobile reports the information.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 10 = cdmaOne 11 = CDMA 1x

Parameters for cdmaOne and CDMA 1x

Name	Type	Description
#Header params	Integer	Number of header parameters Number of parameters before message data.
#Frames	Integer	Number of frames
Params/frame	Integer	Number of parameters per frame
M expecteted mux	Integer	Markov expected mux 0 = 9600 markov 1 = 4800 markov 2 = 2400 markov 3 = 1200 markov 4 = 8 kbps non-markov 5 = 14400 markov 6 = 7200 markov 7 = 3600 markov 8 = 1800 markov 9 = 13 kbps non-markov
M actual mux	Integer	Markov actual mux 0 = 9600 primary 1 = 9600 1/2 primary + signaling 2 = 9600 1/4 primary + signaling 3 = 9600 1/8 primary + signaling 4 = 9600 signaling (B&B) 5 = 4800 primary 6 = 2400 primary 7 = 1200 primary 8 = Erased frame (poor quality) 9 = Frame quality insufficient to decide upon rate 10 = 9600 1/2 primary + secondary 11 = 9600 1/4 primary + secondary 12 = 9600 1/8 primary + secondary 13 = 9600 secondary (B&B) 14 = 14400 primary 15 = 14400 1/2 primary + signaling 16 = 14400 1/4 primary + signaling 17 = 14400 1/8 primary + signaling 18 = 14400 signaling (B&B) 19 = 14400 1/2 primary + secondary 20 = 14400 1/4 primary + secondary

		21 = 14400 1/8 primary + secondary 22 = 14400 secondary (B&B) 23 = 14400 1/8 primary + signaling + secondary 24 = 7200 primary 25 = 7200 1/4 primary + signaling 26 = 7200 1/8 primary + signaling 27 = 7200 signaling (B&B) 28 = 7200 1/4 primary + secondary 29 = 7200 1/8 primary + secondary 30 = 7200 secondary (B&B) 31 = 7200 1/8 primary + signaling + secondary 32 = 3600 primary 33 = 3600 1/8 primary + signaling 34 = 3600 signaling (B&B) 35 = 3600 1/8 primary + secondary 36 = 3600 secondary (B&B) 37 = 1800 primary 38 = 1800 secondary (B&B)

MARKOV Statistics (MARKOVSTATS)

Event ID	MARKOVSTATS
Cellular systems	cdmaOne,CDMA 1x
Record state	Call connection state
Description	Recorded during a MARKOV call when parameter sample is received from the mobile.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 10 = cdmaOne 11 = CDMA 1x
#Header params	Integer	Number of header parameters
M FER	Float	Markov frame error rate Range: 0 – 100 Unit: %
#Expected rates	Integer	Number of expected rates
#Params	Integer	Number of parameters
M expected	Integer	Markov expected rate 1 = One eighth rate 2 = Quarter rate 3 = Half rate 4 = Full rate
M 1/1	Integer	Markov full rate frames received
M 1/2	Integer	Markov half rate frames received
M 1/4	Integer	Markov quarter rate frames received
M 1/8	Integer	Markov one eight rate frames received
M erasures	Integer	Markov erasures received

Multi carrier reverse link metrics (MCRLMETRICS)

Event ID	MCRLMETRICS
Cellular systems	EVDO
Record state	Always
Description	Recorded when parameters change.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 12 = EVDO

Parameters for EVDO

Name		Type	Description
#Header params		Integer	Number of header parameters
#Chs		Integer	Number of channels
#Params/Ch		Integer	Number of parameters per channel

	Band	Integer	Band
			120000 = EVDO 800
			    North American cellular 800 MHz band. Also in Korea, Australia,
			    Hong Kong, China, Taiwan, and others.
			120001 = EVDO 1900
			    North American PCS 1900 MHz band.
			120002 = EVDO 900 (TACS)
			    Total access communication system (TACS) 900 MHz band.
			120003 = EVDO 800 (JTACS)
			    JTACS 800 MHz band (Japanese 800 MHz reversed).
			120004 = EVDO 1800 (Korean)
			    Korean PCS 1800 MHz band.
			120005 = EVDO 450 (NMT)
			    Nordic mobile telephone (NMT) 450 MHz band.
			120006 = EVDO 1900-2100 (IMT)
			    IMT-2000 1900-2100 MHz band.
			120007 = EVDO 700
			    North American cellular 700 MHz band.
			120008 = EVDO 1800
			    1800 MHz band.
			120009 = EVDO 900
			    900 MHz band.
			120010 = EVDO 900 (SMR)
			    Specialized mobile radio (SMR) 900 MHz band.
			120011 = EVDO 400 (PAMR)
			    European PAMR 400 MHz band.
			120012 = EVDO 800 (PAMR)
			    European PAMR 800 MHz band.
			120013 = EVDO 2500
			    2.5 GHz IMT-2000 extension.
			120014 = EVDO 1900 (band 14)
			    US PCS 1.9 GHz.
			120015 = EVDO 2100 (AWS)
			120016 = EVDO 2500 (band 16)
			    US 2.5 GHz.

		120019 = EVDO 700 (lower) 120020 = EVDO 1500 (L-band) 120021 = EVDO 2000 (S-band) 129999 = EVDO
Packet carrier	Integer	Packet carrier number
Unexpected P-ARQ NACKs	Integer	Unexpected P-ARQ NACKs Number of P-ARQ NACKs received after an H-ARQ ACK was already received for same packet.
#Channels and PSs	Integer	Number of channels and packet sizes
#Params/Channel and PS	Integer	Number of parameters per channel and packet size
Packet carrier	Integer	Packet carrier number
PS	Integer	Physical layer packet size Minimum value: 0 Unit: bit
HiCap Subpacket 0 ACKs	Integer	HiCap Subpacket 0 ACKs
HiCap Subpacket 1 ACKs	Integer	HiCap Subpacket 1 ACKs
HiCap Subpacket 2 ACKs	Integer	HiCap Subpacket 2 ACKs
HiCap Subpacket 3 ACKs	Integer	HiCap Subpacket 3 ACKs
HiCapp ARQ NACKS	Integer	HiCapp ARQ NACKs
LoLat Subpacket 0 ACKs	Integer	LoLat Subpacket 0 ACKs
LoLat Subpacket 1 ACKs	Integer	LoLat Subpacket 1 ACKs
LoLat Subpacket 2 ACKs	Integer	LoLat Subpacket 2 ACKs
LoLat Subpacket 3 ACKs	Integer	LoLat Subpacket 3 ACKs
LoLat P-ARQ NACKs	Integer	LoLat P-ARQ NACKs

Multi carrier forward link statistics (MCFLSTATS)

Event ID	MCFLSTATS
Cellular systems	EVDO
Record state	Always
Description	Recorded when parameters change.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 12 = EVDO

Parameters for EVDO

Name		Type	Description
#Header params		Integer	Number of header parameters

	Band	Integer	Band
			120000 = EVDO 800
			    North American cellular 800 MHz band. Also in Korea, Australia,
			    Hong Kong, China, Taiwan, and others.
			120001 = EVDO 1900
			    North American PCS 1900 MHz band.
			120002 = EVDO 900 (TACS)
			    Total access communication system (TACS) 900 MHz band.
			120003 = EVDO 800 (JTACS)
			    JTACS 800 MHz band (Japanese 800 MHz reversed).
			120004 = EVDO 1800 (Korean)
			    Korean PCS 1800 MHz band.
			120005 = EVDO 450 (NMT)
			    Nordic mobile telephone (NMT) 450 MHz band.
			120006 = EVDO 1900-2100 (IMT)
			    IMT-2000 1900-2100 MHz band.
			120007 = EVDO 700
			    North American cellular 700 MHz band.
			120008 = EVDO 1800
			    1800 MHz band.
			120009 = EVDO 900
			    900 MHz band.
			120010 = EVDO 900 (SMR)
			    Specialized mobile radio (SMR) 900 MHz band.
			120011 = EVDO 400 (PAMR)
			    European PAMR 400 MHz band.
			120012 = EVDO 800 (PAMR)
			    European PAMR 800 MHz band.
			120013 = EVDO 2500
			    2.5 GHz IMT-2000 extension.
			120014 = EVDO 1900 (band 14)
			    US PCS 1.9 GHz.
			120015 = EVDO 2100 (AWS)
			120016 = EVDO 2500 (band 16)
			    US 2.5 GHz.
			120018 = EVDO 700 (public safety)
			120019 = EVDO 700 (lower)
			120020 = EVDO 1500 (L-band)

			129999 = EVDO
	Packet carrier	Integer	Packet carrier number
#DRC and PS types		Integer	Number of DRC and PS types
#Params/DRC and PS type		Integer	Number of parameters per DRC and PS type
	DRC and PS type	Integer	DRC and PS type 0 = DRC 0, 128 bits 1 = DRC 0, 256 bits 2 = DRC 0, 512 bits 3 = DRC 0, 1024 bits 10 = DRC 1, 128 bits 11 = DRC 1, 256 bits 12 = DRC 1, 512 bits 13 = DRC 1, 1024 bits 20 = DRC 2, 128 bits 21 = DRC 2, 256 bits 22 = DRC 2, 512 bits 23 = DRC 2, 1024 bits 30 = DRC 3, 128 bits 31 = DRC 3, 256 bits 32 = DRC 3, 512 bits 33 = DRC 3, 1024 bits 40 = DRC 4, 128 bits 41 = DRC 4, 256 bits 42 = DRC 4, 512 bits 43 = DRC 4, 1024 bits 50 = DRC 5, 512 bits 51 = DRC 5, 1024 bits 52 = DRC 5, 2048 bits 60 = DRC 6, 128 bits 61 = DRC 6, 256 bits 62 = DRC 6, 512 bits 63 = DRC 6, 1024 bits 70 = DRC 7, 512 bits 71 = DRC 7, 1024 bits 72 = DRC 7, 2048 bits 80 = DRC 8, 1024 bits 81 = DRC 8, 3072 bits 90 = DRC 9, 512 bits 91 = DRC 9, 1024 bits 92 = DRC 9, 2048 bits 100 = DRC 10, 4096 bits 110 = DRC 11, 1024 bits 111 = DRC 11, 3072 bits 120 = DRC 12, 4096 bits 130 = DRC 13, 5120 bits 140 = DRC 14, 5120 bits 1000 = Short CC, 128 bits 1001 = Short CC, 256 bits 1002 = Short CC, 512 bits 1010 = CC, 38400 bits 1011 = CC, 76800 bits
	TC packets good	Integer	TC packets good
	TC packes bad	Integer	TC packes bad
	TC packets decoded in slot 1	Integer	TC packets decoded in slot 1
	TC packets	Integer	TC packets decoded in slot 2

decoded in slot 2		
TC packets decoded in slot 3	Integer	TC packets decoded in slot 3
TC packets decoded in slot 4	Integer	TC packets decoded in slot 4
TC packets decoded in slot 5	Integer	TC packets decoded in slot 5
TC packets decoded in slot 6	Integer	TC packets decoded in slot 6
TC packets decoded in slot 7	Integer	TC packets decoded in slot 7
TC packets decoded in slot 8	Integer	TC packets decoded in slot 8
TC packets decoded in slot 9	Integer	TC packets decoded in slot 9
TC packets decoded in slot 10	Integer	TC packets decoded in slot 10
TC packets decoded in slot 11	Integer	TC packets decoded in slot 11
TC packets decoded in slot 12	Integer	TC packets decoded in slot 12
TC packets decoded in slot 13	Integer	TC packets decoded in slot 13
TC packets decoded in slot 14	Integer	TC packets decoded in slot 14
TC packets decoded in slot 15	Integer	TC packets decoded in slot 15
TC packets decoded in slot 16	Integer	TC packets decoded in slot 16

Multilink multi-flow RLP forward link statistics (MLMFRLPFLSTATS)

Event ID	MLMFRLPFLSTATS
Cellular systems	EVDO
Record state	Always
Description	Recorded when parameters change.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 12 = EVDO

Parameters for EVDO

Name	Type	Description
#Header params	Integer	Number of header parameters
Link flow ID	Integer	Link flow ID
Route number	Integer	Route number
Flow protocol	Integer	Flow protocol
Route protocol	Integer	Route protocol
Packet stream	Integer	Packet stream Whether link flow is packet-based. 0 = Non-packet based 1 = Packet based
Sequence type	Integer	Sequence type Whether link flow is doing segment-based sequencing. 0 = Non-segment based sequencing 1 = Segment based sequencing
SAR sequence length	Integer	SAR sequence length
SAR sequence length short	Integer	SAR sequence length short
AT quick NACK indication count	Integer	AT quick NACK indication count Number of indicated Quick NAK records AT sent out.
AT quick NACK count	Integer	AT quick NACK count Number of Quick NAK records AT sent out.
AT delayed NACK unit count	Integer	AT delayed NACK unit count Number of delayed NAK records AT sent out.
AT delayed NACK data unit count	Integer	AT delayed NACK data unit count Number of bytes requested by AT delayed NAKs.
RX retransmitted bytes	Integer	RX retransmitted bytes Unit: byte
RX retransmitted frames	Integer	RX retransmitted frames

RX new data bytes	Integer	RX new data bytes Unit: byte
RX new data frames	Integer	RX new data frames
RX first data unit	Integer	RX first data unit Number of RLP frames received with First Data Unit flag on.
RX last data unit	Integer	RX last data unit Number of RLP frames received with Last Data Unit flag on.
RX duplicate data bytes	Integer	RX duplicate data bytes Unit: byte
RX duplicate data frames	Integer	RX duplicate data frames
Called NACK timeouts	Integer	Called NACK timeouts
NACK abort data unit approximation	Integer	NACK abort data unit approximation
Called reset count	Integer	Called reset count Initiated by either the AN or AT.
AT reset request count	Integer	AT reset request count
AN reset ACK count	Integer	AN reset ACK count
AN reset request count	Integer	AN reset request count
RX resequencing queue size	Integer	RX resequencing queue size
RX NACK abort queue size	Integer	RX NACK abort queue size
RX delayed NACK queue size	Integer	RX delayed NACK queue size
#QN instances	Integer	Number of QN instances
#Params/QN instance	Integer	Parameters per QN instance
Scheduler group ID	Integer	Scheduler group ID
Number of carriers in the QN instance	Integer	Number of carriers in the QN instance
QN ID	Integer	QN ID
RX new data bytes/QN	Integer	RX new data bytes/QN Unit: byte
RX new data frames/QN	Integer	RX new data frames/QN
Quick NACKs/QN	Integer	QN quick NACK indication count/QN

Multilink multi-flow RLP reverse link statistics (MLMFRLPRLSTATS)

Event ID	MLMFRLPRLSTATS
Cellular systems	EVDO
Record state	Always
Description	Recorded when parameters change.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 12 = EVDO

Parameters for EVDO

Name	Type	Description
#Header params	Integer	Number of header parameters
Link flow ID	Integer	Link flow ID
Route number	Integer	Route number
Packet stream	Integer	Packet stream Whether link flow is packet-based. 0 = Non-packet based 1 = Packet based
Sequence type	Integer	Sequence type Whether link flow is doing segment-based sequencing. 0 = Non-segment based sequencing 1 = Segment based sequencing
Flow protocol	Integer	Flow protocol
Route protocol	Integer	Route protocol
SAR sequence length	Integer	SAR sequence length
TX new data bytes	Integer	TX new data bytes Unit: byte
TX new data units	Integer	TX new data units
TX first data unit frames	Integer	TX first data unit frames
TX last data unit frames	Integer	TX last data unit frames
PL NACK indications	Integer	PL NACK indications
New data units indicated by PL NACK indication	Integer	New data units indicated by PL NACK indication
Retransmitted data units indicated by PL NACK indication	Integer	Retransmitted data units indicated by PL NACK indication

transmissions		
Out-of-order bytes	Integer	Out-of-order bytes Unit: byte
HL packes dropped	Integer	HL packes dropped Number of higher layer packets dropped due to TransmitAbortTimer.
HL bytes dropped	Integer	HL bytes dropped
NACK records received	Integer	NACK records received
Requested data units	Integer	Requested data units
Retransmitted data units	Integer	Retransmitted data units
Retransmitted bytes	Integer	Retransmitted bytes Unit: byte
Retransmitted data units not found	Integer	Retransmitted data units not found
AT reset request count	Integer	AT reset request count
AN reset request count	Integer	AN reset request count
Max TX queue size	Integer	Max TX queue size
Max retransmission queue size	Integer	Max retransmission queue size
Max new data handles	Integer	Max new data handles Maximum number of new data handles used per slot within the logging interval.
Max retransmit data handles	Integer	Max retransmit data handles Maximum number of retransmit data handles used per slot within the logging interval.

Multilink multi-flow RLP RX processing (MMRLPRXPROCESSING)

Event ID	MMRLPRXPROCESSING
Cellular systems	EVDO
Record state	Always
Description	Recorded when parameters change.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 12 = EVDO

Parameters for EVDO

Name	Type	Description
#Header params	Integer	Number of header parameters
RLP event type	Integer	RLP event type 0 = Packet reception or forward link 1 = RLP reset 2 = Abort 3 = Flush message received
Link flow ID	Integer	Link flow ID
Route number	Integer	Route number
V(n) before	Integer	RLP V(n) before processing
V(n) after	Integer	RLP V(n) after processing
V(r) before	Integer	RLP V(r) before processing
V(r) after	Integer	RLP V(r) after processing
RLP link ID	Integer	RLP link ID
RLP scheduler group ID	Integer	RLP scheduler group ID
QN sequence number included	Integer	QN sequence number included
Data units	Integer	Data units
SAR sequence number	Integer	SAR sequence number
QN sequence number	Integer	QN sequence number
SAR sequence number short	Integer	SAR sequence number short

Multi carrier forward link packet header info (MCFLPACKETINFO)

Event ID	MCFLPACKETINFO
Cellular systems	EVDO
Record state	Always
Description	Recorded when parameters change.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 12 = EVDO

Parameters for EVDO

Name		Type	Description
#Header params		Integer	Number of header parameters
#Packets		Integer	Number of packets
#Params/packet		Integer	Number of parameters per packet

	Band	Integer	Band
			120000 = EVDO 800
			    North American cellular 800 MHz band. Also in Korea, Australia, Hong Kong, China, Taiwan, and others.
			120001 = EVDO 1900
			    North American PCS 1900 MHz band.
			120002 = EVDO 900 (TACS)
			    Total access communication system (TACS) 900 MHz band.
			120003 = EVDO 800 (JTACS)
			    JTACS 800 MHz band (Japanese 800 MHz reversed).
			120004 = EVDO 1800 (Korean)
			    Korean PCS 1800 MHz band.
			120005 = EVDO 450 (NMT)
			    Nordic mobile telephone (NMT) 450 MHz band.
			120006 = EVDO 1900-2100 (IMT)
			    IMT-2000 1900-2100 MHz band.
			120007 = EVDO 700
			    North American cellular 700 MHz band.
			120008 = EVDO 1800
			    1800 MHz band.
			120009 = EVDO 900
			    900 MHz band.
			120010 = EVDO 900 (SMR)
			    Specialized mobile radio (SMR) 900 MHz band.
			120011 = EVDO 400 (PAMR)
			    European PAMR 400 MHz band.
			120012 = EVDO 800 (PAMR)
			    European PAMR 800 MHz band.
			120013 = EVDO 2500
			    2.5 GHz IMT-2000 extension.
			120014 = EVDO 1900 (band 14)
			    US PCS 1.9 GHz.
			120015 = EVDO 2100 (AWS)
			120016 = EVDO 2500 (band 16)
			    US 2.5 GHz.

		120019 = EVDO 700 (lower) 120020 = EVDO 1500 (L-band) 120021 = EVDO 2000 (S-band) 129999 = EVDO
Packet carrier	Integer	Packet carrier number
Link ID	Integer	Link ID
Slot to decode	Integer	Slot to decode
CRC status	Integer	CRC status 0 = Failed 1 = Passed 2 = False pass
CRC length	Integer	CRC length 0 = 16 bits 1 = 24 bits

Packet type	Integer	Packet type
		0 = Unicast
		   Sing user traffic channel packet.
		1 = Multicast 0
		   Multiuser Traffic Channel packet decoded at MAC index
		   MUP_PREAMBLE_BASE.
		2 = Multicast 1
		   Multiuser Traffic Channel packet decoded at MAC index
		   MUP_PREAMBLE_BASE+1.
		3 = Multicast 2
		   Multiuser Traffic Channel packet decoded at MAC index
		   MUP_PREAMBLE_BASE+2.
		4 = Multicast 3
		   Multiuser Traffic Channel packet decoded at MAC index
		   MUP_PREAMBLE_BASE+3.
		5 = Multicast 4
		   Multiuser Traffic Channel packet decoded at MAC index
		   MUP_PREAMBLE_BASE+4.
		6 = Control Rel 0
		   Release 0 (std) control channel packet.
		7 = Control Rel A
		   Release A (short) control channel packet.
		8 = Control Rel A user defined
		   Release A control channel packet received at user defined short
		   packet MAC index.
		9 = Broadcast
		10 = Enhanced broadcast
		11 = Platinum broadcast

Searcher status (SEARCHERSTATUS)

Event ID	SEARCHERSTATUS
Cellular systems	cdmaOne,CDMA 1x,EVDO
Record state	Always
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 10 = cdmaOne 11 = CDMA 1x 12 = EVDO

Parameters for cdmaOne and CDMA 1x

Name	Type	Description
#Header params	Integer	Number of header parameters
Searcher state	Integer	Searcher state 0 = Raw initialization state 1 = Deep sleep in start state 2 = Initial state for CDMA operation 3 = Acquisition of the pilot channel 4 = Reception of the sync channel 5 = Transition from sync to paging channel 6 = Operation on the paging channel 7 = Slotted mode sleep state 8 = Operation on the traffic channel 9 = Return from paging or traffic to sync channel 10 = Operation in PCG state 11 = Power up state
Queue	Integer	Searcher queue 0 = High priority queue 0 1 = Low priority queue 0 2 = High priority queue 1
Priority	Integer	Searcher priority
Freq. offset	Float	Searcher frequency offset Unit: Hz
#Pilots	Integer	Number of pilots
#Params/pilot	Integer	Number of parameters per pilot
PN	Integer	Pilot number Range: 0 – 511
Set	Integer	Searcher set information 0 = Active set 1 = Candidate set 2 = Neighbor set 3 = Remaining set 4 = Precandidate set
Ant. config	Integer	Searcher antenna configuration 0 = Antenna 0

		2 = Dual antenna
Searcher QOF	Integer	Searcher QOF Range: 0 – 3
Coherent truncation control	Integer	Searcher coherent truncation control Range: 1 – 8 Unit: bit
Coherent integration length	Integer	Searcher coherent integration length Range: 0 – 4096 Unit: chip
Noncoherent integration length	Integer	Searcher noncoherent integration length Range: 0 – 128 Unit: chip
Pilot phase	Integer	Searcher pilot phase Range: 0 – 7
Walsh code	Integer	Searcher walsh code Range: 0 – 511
Window start	Float	Searcher pilot window start Range: 0 – 32767 Unit: chip
Window size	Float	Searcher pilot window size Range: 0 – 32767 Unit: chip
#Peaks	Integer	Number of peaks
#Params/peak	Integer	Number of parameters per peak
Position	Float	Searcher peak position Unit: chip
Energy	Float	Searcher peak energy Unit: dB

Parameters for EVDO

Name	Type	Description
#Header params	Integer	Number of header parameters
Searcher state	Integer	Searcher state 0 = Start 1 = Acquisition 2 = Synchronization 3 = Idle 4 = Idle suspended 5 = Idle broadcast 6 = Idle OFS 7 = Broadcast access 8 = Sleep 9 = Reacquisition 10 = Traffic 11 = Traffic suspended 12 = Traffic OFS
Searcher window size	Integer	Searcher window size
Ch	Integer	Channel number

Band	Integer	Band
		120000 = EVDO 800
		    North American cellular 800 MHz band. Also in Korea, Australia,
		    Hong Kong, China, Taiwan, and others.
		120001 = EVDO 1900
		    North American PCS 1900 MHz band.

		120002 = EVDO 900 (TACS)
		   Total access communication system (TACS) 900 MHz band.
		120003 = EVDO 800 (JTACS)
		   JTACS 800 MHz band (Japanese 800 MHz reversed).
		120004 = EVDO 1800 (Korean)
		   Korean PCS 1800 MHz band.
		120005 = EVDO 450 (NMT)
		   Nordic mobile telephone (NMT) 450 MHz band.
		120006 = EVDO 1900-2100 (IMT)
		   IMT-2000 1900-2100 MHz band.
		120007 = EVDO 700
		   North American cellular 700 MHz band.
		120008 = EVDO 1800
		   1800 MHz band.
		120009 = EVDO 900
		   900 MHz band.
		120010 = EVDO 900 (SMR)
		   Specialized mobile radio (SMR) 900 MHz band.
		120011 = EVDO 400 (PAMR)
		   European PAMR 400 MHz band.
		120012 = EVDO 800 (PAMR)
		   European PAMR 800 MHz band.
		120013 = EVDO 2500
		   2.5 GHz IMT-2000 extension.
		120014 = EVDO 1900 (band 14)
		   US PCS 1.9 GHz.
		120015 = EVDO 2100 (AWS)
		120016 = EVDO 2500 (band 16)
		   US 2.5 GHz.
		120018 = EVDO 700 (public safety)
		120019 = EVDO 700 (lower)
		120020 = EVDO 1500 (L-band)
		120021 = EVDO 2000 (S-band)
		129999 = EVDO

MSTR	Integer	Searcher MSTR
Equalizer status	Integer	Searcher equalizer status 0 = Off 1 = On
#Pilots	Integer	Number of pilots
#Params/pilot	Integer	Number of parameters per pilot
PN	Integer	Pilot number Range: 0 – 511
Set	Integer	Searcher set information 0 = Active set 1 = Candidate set 2 = Neighbor set 3 = Remaining set 4 = Empty set
Ant. config	Integer	Searcher antenna configuration 0 = Antenna 0 1 = Antenna 1 2 = Dual antenna
Searcher window center	Float	Searcher window center Unit: chip
Searcher earliest peak	Float	Searcher earliest peak Unit: chip
#Peaks	Integer	Number of peaks
#Params/peak	Integer	Number of parameters per peak
Position	Float	Searcher peak position

		Unit: chip
C/I	Float	Searcher peak C/I Unit: dB

Message error rate (MER)

Event ID	MER
Cellular systems	TETRA
Record state	Call connection state
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 2 = TETRA

Parameters for TETRA

Name	Type	Description
MER	Float	Message error rate Range: 0 – 100 Unit: %

DVB information (DVBI)

Event ID	DVBI
Cellular systems	DVB-H
Record state	DVB-H state
Description	Recorded when DVB-H channel configuration changes.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 65 = DVB-H

Parameters for DVB-H

Name	Type	Description
Service state	Integer	DVB-H service state 1 = Locked 2 = Not locked
Frequency	Float	DVB-H frequency Unit: MHz
Bandwidth	Float	DVB-H bandwidth
Cell ID	Integer	DVB-H cell ID
Tx mode	Integer	DVB-H transmission mode Also known as OFDM mode or FFT length. 2 = 2k 4 = 4k 8 = 8k
Modulation	Integer	DVB-H modulation 1 = QPSK 2 = 16QAM 3 = 64QAM
Code rate LP	Integer	DVB-H code rate low priority 1 = 1/2 2 = 2/3 3 = 3/4 4 = 5/6 5 = 7/8
Code rate HP	Integer	DVB-H code rate high priority 0 = Not used 1 = 1/2 2 = 2/3 3 = 3/4 4 = 5/6 5 = 7/8
Guard time	Integer	DVB-H guard time 1 = 1/4 2 = 1/8 3 = 1/16 4 = 1/32
MPE-FEC code rate LP	Integer	DVB-H MPE-FEC code rate low priority

		1 = 1/2 2 = 2/3 3 = 3/4 4 = 5/6 5 = 7/8
MPE-FEC code rate HP	Integer	DVB-H MPE-FEC code rate high priority 0 = Not used 1 = 1/2 2 = 2/3 3 = 3/4 4 = 5/6 5 = 7/8
Hierarchy	Integer	DVB-H hierarchy 0 = Disabled 1 = Enabled

DVB frame error rate (DVBFER)

Event ID	DVBFER
Cellular systems	DVB-H
Record state	DVB-H state
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 65 = DVB-H

Parameters for DVB-H

Name	Type	Description
FER	Float	DVB-H FER before FEC Range: 0 – 100 Unit: %
MFER	Float	DVB-H FER after FEC Range: 0 – 100 Unit: %
Frame count	Integer	DVB-H frame count

DVB bit error rate (DVBBER)

Event ID	DVBBER
Cellular systems	DVB-H
Record state	DVB-H state
Description	Recorded when parameter sample is received from the device and the received sample differs from the previous result.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 65 = DVB-H

Parameters for DVB-H

Name	Type	Description
BER	Float	DVB-H BER before viterbi Range: 0 – 100 Unit: %
VBER	Float	DVB-H BER after viterbi Range: 0 – 100 Unit: %

DVB RX level (DVBRXL)

Event ID	DVBRXL
Cellular systems	DVB-H
Record state	DVB-H state
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 65 = DVB-H

Parameters for DVB-H

Name		Type	Description
#Header params		Integer	Number of header parameters
#Chs		Integer	Number of channels
#Params/Ch		Integer	Number of parameters per channel
	Frequency	Float	DVB-H frequency Unit: MHz
	RxLev	Float	DVB-H Rx level Range: −111 − −10 Unit: dBm
	C/N	Float	DVB-H carrier to noise ratio Range: 0 − 40 Unit: dB
	Signal quality	Float	DVB-H signal quality Range: 0 − 100 Unit: %

DVB throughput (DVBRATE)

Event ID	DVBRATE
Cellular systems	DVB-H
Record state	DVB-H state
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Handy

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 65 = DVB-H

Parameters for DVB-H

Name	Type	Description
DVB-H rate	Integer	DVB-H throughput Minimum value: 0 Unit: bit/s

Start scanning (STARTSCAN)

Event ID	STARTSCAN
Cellular systems	All
Record state	Scanning state
Description	Recorded when a scanning session is begun and the scanning state initiated.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Scanning context ID	Context	Scanning context ID

Stop scanning (STOPSCAN)

Event ID	STOPSCAN
Cellular systems	All
Record state	Scanning state
Description	Recorded when a scanning session is stopped and the scanning state terminated.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Scanning context ID	Context	Scanning context ID

Scanning configuration (SCANCONFIG)

Event ID	SCANCONFIG
Cellular systems	All
Record state	Scanning state
Description	Recorded at the beginning of the scanning session. Defines scanning settings.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Scanning context ID	Context	Scanning context ID
#Header params	Integer	Number of header parameters
Scanning sets	Integer	Scanning sets
#Params/set	Integer	Parameters per scanning set
Scanning type	Integer	Scanning type 1 = GSM frequency scanning 5 = UMTS FDD frequency scanning 6 = UMTS TD-SCDMA frequency scanning 7 = LTE FDD frequency scanning 8 = LTE TDD frequency scanning 10 = cdmaOne frequency scanning 11 = CDMA 1x frequency scanning 12 = EVDO frequency scanning 25 = WiMAX frequency scanning 55 = iDEN frequency scanning 105 = UMTS FDD pilot scanning 106 = UMTS TD-SCDMA pilot scanning 110 = cdmaOne pilot scanning 111 = CDMA 1x pilot scanning 112 = EVDO pilot scanning 207 = LTE FDD OFDM scanning 208 = LTE TDD OFDM scanning 225 = WiMAX OFDM scanning 265 = DVB-H OFDM scanning 300 = Spectrum scanning 10001 = GSM band scanning 10105 = UMTS FDD band scanning 10106 = UMTS TD-SCDMA band scanning 10110 = cdmaOne band scanning 10111 = CDMA 1x band scanning 10112 = EVDO band scanning 10207 = LTE FDD band scanning 10208 = LTE TDD band scanning

Parameters for GSM frequency and band scanning

Name	Type	Description
Band	Integer	Band 10850 = GSM 850 Band 850 is also known as band 800. 10900 = GSM 900 11800 = GSM 1800 11900 = GSM 1900

		19999 = GSM
Channels	String	Channels Defines the measured channels. In the format comma separates different values and hyphen can be used to mark the range, e.g. 10,11,50-100.
Scanning options	Integer	Scanning options Note that this parameter is bitfield. 0 = None 1 = BSIC decoding 2 = Cell information decoding 1024 = C/I, SIR, or CINR
Bandwidth	Integer	Channel bandwidth Unit: Hz
Measurement period	Integer	Measurement period Unit: ms
Filter mode	Integer	Filter mode Defines the method that is used for sample filtering. 1 = Average 2 = Maximum 3 = Minimum 110 = 10 percentile 120 = 20 percentile 130 = 30 percentile 140 = 40 percentile 150 = 50 percentile 160 = 60 percentile 170 = 70 percentile 180 = 80 percentile 190 = 90 percentile
Filter samples	Integer	Filter samples Defines how many samples are filtered per reported measurement result.
Sampling ratio	Integer	Sampling ratio Defines every Nth measurement result that is reported.
Top N	Integer	Top N Only the best top N parameters are reported.
BSIC decoding threshold	Float	BSIC decoding threshold This threshold has to be exceeded before BSIC decoding is attempted. Unit: dBm
Dwelling time	Integer	Dwelling time (GSM) Defines for how long BCCH channel is attempted to be decoded. Minimum value: 0 Unit: frame

Parameters for UMTS frequency scanning

Name	Type	Description
Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9

		50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20 50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD 60001 = UMTS TD-SCDMA 2000 band a 60002 = UMTS TD-SCDMA 1900 band b 60003 = UMTS TD-SCDMA 1900 band c 60004 = UMTS TD-SCDMA 2600 band d 60005 = UMTS TD-SCDMA 1900 band e 60006 = UMTS TD-SCDMA 2300 band f 69999 = UMTS TD-SCDMA
Channels	String	Channels Defines the measured channels. In the format comma separates different values and hyphen can be used to mark the range, e.g. 10,11,50-100.
Scanning options	Integer	Scanning options Note that this parameter is bitfield. 0 = None
Bandwidth	Integer	Channel bandwidth Unit: Hz
Measurement period	Integer	Measurement period Unit: ms
Filter mode	Integer	Filter mode Defines the method that is used for sample filtering. 1 = Average 2 = Maximum 3 = Minimum 110 = 10 percentile 120 = 20 percentile 130 = 30 percentile 140 = 40 percentile 150 = 50 percentile 160 = 60 percentile 170 = 70 percentile 180 = 80 percentile 190 = 90 percentile
Filter samples	Integer	Filter samples Defines how many samples are filtered per reported measurement result.
Sampling ratio	Integer	Sampling ratio Defines every Nth measurement result that is reported.
Top N	Integer	Top N Only the best top N parameters are reported.

Parameters for LTE frequency scanning

Name	Type	Description
Band	Integer	Band 70001 = LTE FDD 2100 band 1 70002 = LTE FDD 1900 band 2 70003 = LTE FDD 1800 band 3 70004 = LTE FDD 2100 AWS band 4

		70005 = LTE FDD 850 band 5
		   Band 850 is also known as band 800.
		70006 = LTE FDD 850 band 6
		70007 = LTE FDD 2600 band 7
		70008 = LTE FDD 900 band 8
		70009 = LTE FDD 1800 band 9
		70010 = LTE FDD 2100 band 10
		70011 = LTE FDD 1400 band 11
		70012 = LTE FDD 700 band 12
		70013 = LTE FDD 700 band 13
		70014 = LTE FDD 700 band 14
		70017 = LTE FDD 700 band 17
		70018 = LTE FDD 850 band 18
		70019 = LTE FDD 850 band 19
		70020 = LTE FDD 800 band 20
		70021 = LTE FDD 1500 band 21
		70022 = LTE FDD 3500 band 22
		70023 = LTE FDD 2200 band 23
		70024 = LTE FDD 1500 band 24
		70025 = LTE FDD 1900 band 25
		70026 = LTE FDD 850 band 26
		70027 = LTE FDD 800 band 27
		70028 = LTE FDD 700 band 28
		70029 = LTE FDD 700 band 29
		   This is downlink only band.
		70030 = LTE FDD 2350 band 30
		70031 = LTE FDD 450 band 31
		70032 = LTE FDD 1500 L-band
		   This is downlink only band.
		70064 = LTE FDD 390-470 band 64
		   This is a non-standard LTE FDD band.
		70065 = LTE FDD 2100 band 65
		70066 = LTE FDD AWS-3 2100 band 66
		70067 = LTE FDD 700 EU band 67
		   This is downlink only band.
		79999 = LTE FDD
		80033 = LTE TDD 1900-1920 band 33
		80034 = LTE TDD 2010-2025 band 34
		80035 = LTE TDD 1850-1910 band 35
		80036 = LTE TDD 1930-1990 band 36
		80037 = LTE TDD 1910-1930 band 37
		80038 = LTE TDD 2570-2620 band 38
		80039 = LTE TDD 1880-1920 band 39
		80040 = LTE TDD 2300-2400 band 40
		80041 = LTE TDD 2496-2690 band 41
		80042 = LTE TDD 3400-3600 band 42
		80043 = LTE TDD 3600-3800 band 43
		80044 = LTE TDD 703-803 band 44
		80045 = LTE TDD 1447-1467 band 45
		80061 = LTE TDD 1447-1467 band 61
		   This is a non-standard LTE TDD band.
		80062 = LTE TDD 1785-1805 band 62
		   This is a non-standard LTE TDD band.
		80087 = LTE TDD 1447-1467 band 87
		   This is a non-standard LTE TDD band.
		80088 = LTE TDD 1785-1805 band 88
		   This is a non-standard LTE TDD band.
		89999 = LTE TDD

Channels	String	Channels Defines the measured channels. In the format comma separates different values and hyphen can be used to mark the range, e.g. 10,11,50-100.
Scanning options	Integer	Scanning options Note that this parameter is bitfield

Name	Type	Description
		0 = None
Bandwidth	Integer	Channel bandwidth Not defined when scanned channel bandwidth is selected automatically based on scanned channel. Unit: Hz
Measurement period	Integer	Measurement period Unit: ms
Filter mode	Integer	Filter mode Defines the method that is used for sample filtering. 1 = Average 2 = Maximum 3 = Minimum 110 = 10 percentile 120 = 20 percentile 130 = 30 percentile 140 = 40 percentile 150 = 50 percentile 160 = 60 percentile 170 = 70 percentile 180 = 80 percentile 190 = 90 percentile
Filter samples	Integer	Filter samples Defines how many samples are filtered per reported measurement result.
Sampling ratio	Integer	Sampling ratio Defines every Nth measurement result that is reported.
Top N	Integer	Top N Only the best top N parameters are reported.

Parameters for cdmaOne, CDMA 1x, and EVDO frequency scanning

Name	Type	Description

Band	Integer	Band
		100000 = cdmaOne 800
		    North American cellular 800 MHz band, also in Korea, Australia, Hong Kong, China, Taiwan, and others.
		100001 = cdmaOne 1900
		    North American PCS 1900 MHz band.
		100002 = cdmaOne 900 (TACS)
		    Total access communication system (TACS) 900 MHz band.
		100003 = cdmaOne 800 (JTACS)
		    JTACS 800 MHz band (Japanese 800 MHz reversed).
		100004 = cdmaOne 1800 (Korean)
		    Korean PCS 1800 MHz band.
		100005 = cdmaOne 450 (NMT)
		    Nordic mobile telephone (NMT) 450 MHz band.
		100006 = cdmaOne 1900-2100 (IMT)
		    IMT-2000 1900-2100 MHz band.
		100007 = cdmaOne 700
		    North American cellular 700 MHz band.
		100008 = cdmaOne 1800
		    1800 MHz band.
		100009 = cdmaOne 900
		    900 MHz band.
		100010 = cdmaOne 900 (SMR)
		    Specialized mobile radio (SMR) 900 MHz band.
		100011 = cdmaOne 400 (PAMR)
		    European PAMR 400 MHz band.
		100012 = cdmaOne 800 (PAMR)
		    European PAMR 800 MHz band.
		100013 = cdmaOne 2500

          2.5 GHz IMT-2000 extension.
100014 = cdmaOne 1900 (band 14)
     US PCS 1.9 GHz.
100015 = cdmaOne 2100 (AWS)
100016 = cdmaOne 2500 (band 16)
     US 2.5 GHz.
100018 = cdmaOne 700 (public safety)
100019 = cdmaOne 700 (lower)
100020 = cdmaOne 1500 (L-band)
100021 = cdmaOne 2000 (S-band)
109999 = cdmaOne
110000 = CDMA 1x 800
     North American cellular 800 MHz band, also in Korea, Australia,
     Hong Kong, China, Taiwan, and others.
110001 = CDMA 1x 1900
     North American PCS 1900 MHz band.
110002 = CDMA 1x 900 (TACS)
     Total access communication system (TACS) 900 MHz band.
110003 = CDMA 1x 800 (JTACS)
     JTACS 800 MHz band (Japanese 800 MHz reversed).
110004 = CDMA 1x 1800 (Korean)
     Korean PCS 1800 MHz band.
110005 = CDMA 1x 450 (NMT)
     Nordic mobile telephone (NMT) 450 MHz band.
110006 = CDMA 1x 1900-2100 (IMT)
     IMT-2000 1900-2100 MHz band.
110007 = CDMA 1x 700
     North American cellular 700 MHz band.
110008 = CDMA 1x 1800
     1800 MHz band.
110009 = CDMA 1x 900
     900 MHz band.
110010 = CDMA 1x 900 (SMR)
     Specialized mobile radio (SMR) 900 MHz band.
110011 = CDMA 1x 400 (PAMR)
     European PAMR 400 MHz band.
110012 = CDMA 1x 800 (PAMR)
     European PAMR 800 MHz band.
110013 = CDMA 1x 2500
     2.5 GHz IMT-2000 extension.
110014 = CDMA 1x 1900 (band 14)
     US PCS 1.9 GHz.
110015 = CDMA 1x 2100 (AWS)
110016 = CDMA 1x 2500 (band 16)
     US 2.5 GHz.
110018 = CDMA 1x 700 (public safety)
110019 = CDMA 1x 700 (lower)
110020 = CDMA 1x 1500 (L-band)
110021 = CDMA 1x 2000 (S-band)
119999 = CDMA 1x
120000 = EVDO 800
     North American cellular 800 MHz band. Also in Korea, Australia,
     Hong Kong, China, Taiwan, and others.
120001 = EVDO 1900
     North American PCS 1900 MHz band.
120002 = EVDO 900 (TACS)
     Total access communication system (TACS) 900 MHz band.
120003 = EVDO 800 (JTACS)
     JTACS 800 MHz band (Japanese 800 MHz reversed).
120004 = EVDO 1800 (Korean)
     Korean PCS 1800 MHz band.
120005 = EVDO 450 (NMT)
     Nordic mobile telephone (NMT) 450 MHz band.
120006 = EVDO 1900-2100 (IMT)
     IMT-2000 1900-2100 MHz band.

		120007 = EVDO 700
		   North American cellular 700 MHz band.
		120008 = EVDO 1800
		   1800 MHz band.
		120009 = EVDO 900
		   900 MHz band.
		120010 = EVDO 900 (SMR)
		   Specialized mobile radio (SMR) 900 MHz band.
		120011 = EVDO 400 (PAMR)
		   European PAMR 400 MHz band.
		120012 = EVDO 800 (PAMR)
		   European PAMR 800 MHz band.
		120013 = EVDO 2500
		   2.5 GHz IMT-2000 extension.
		120014 = EVDO 1900 (band 14)
		   US PCS 1.9 GHz.
		120015 = EVDO 2100 (AWS)
		120016 = EVDO 2500 (band 16)
		   US 2.5 GHz.
		120018 = EVDO 700 (public safety)
		120019 = EVDO 700 (lower)
		120020 = EVDO 1500 (L-band)
		120021 = EVDO 2000 (S-band)
		129999 = EVDO

Channels	String	Channels Defines the measured channels. In the format comma separates different values and hyphen can be used to mark the range, e.g. 10,11,50-100.
Scanning options	Integer	Scanning options Note that this parameter is bitfield. 0 = None
Bandwidth	Integer	Channel bandwidth Unit: Hz
Measurement period	Integer	Measurement period Unit: ms
Filter mode	Integer	Filter mode Defines the method that is used for sample filtering. 1 = Average 2 = Maximum 3 = Minimum 110 = 10 percentile 120 = 20 percentile 130 = 30 percentile 140 = 40 percentile 150 = 50 percentile 160 = 60 percentile 170 = 70 percentile 180 = 80 percentile 190 = 90 percentile
Filter samples	Integer	Filter samples Defines how many samples are filtered per reported measurement result.
Sampling ratio	Integer	Sampling ratio Defines every Nth measurement result that is reported.
Top N	Integer	Top N Only the best top N parameters are reported.

Parameters for WiMAX frequency scanning

Name	Type	Description

Band	Integer	Band 259999 = WiMAX
Frequencies	String	Frequencies Defines the measured frequencies. In the format comma separtes different values, hyphen can be used to mark the range and dot is used for decimal numbers, e.g. 1800000000.0-190000000.0. Unit: Hz
Scanning options	Integer	Scanning options Note that this parameter is bitfield. 0 = None
Bandwidth	Integer	Channel bandwidth Unit: Hz
Measurement period	Integer	Measurement period Unit: ms
Filter mode	Integer	Filter mode Defines the method that is used for sample filtering. 1 = Average 2 = Maximum 3 = Minimum 110 = 10 percentile 120 = 20 percentile 130 = 30 percentile 140 = 40 percentile 150 = 50 percentile 160 = 60 percentile 170 = 70 percentile 180 = 80 percentile 190 = 90 percentile
Filter samples	Integer	Filter samples Defines how many samples are filtered per reported measurement result.
Sampling ratio	Integer	Sampling ratio Defines every Nth measurement result that is reported.
Top N	Integer	Top N Only the best top N parameters are reported.

Parameters for iDEN frequency scanning

Name	Type	Description
Band	Integer	Band 550001 = iDEN proprietary 550002 = iDEN 800 standard 550003 = iDEN 800 extended 550004 = iDEN 900 550005 = iDEN 1500 559999 = iDEN
Channels	String	Channels Defines the measured channels. In the format comma separates different values and hyphen can be used to mark the range, e.g. 10,11,50-100.

Parameters for UMTS pilot and band scanning

Name	Type	Description
Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2

50003 = UMTS FDD 1800 band 3
50004 = UMTS FDD 2100 AWS band 4
50005 = UMTS FDD 850 band 5
   Band 850 is also known as band 800.
50006 = UMTS FDD 850 band 6
50007 = UMTS FDD 2600 band 7
50008 = UMTS FDD 900 band 8
50009 = UMTS FDD 1800 band 9
50010 = UMTS FDD 2100 band 10
50011 = UMTS FDD 1400 band 11
50012 = UMTS FDD 700 band 12
50013 = UMTS FDD 700 band 13
50014 = UMTS FDD 700 band 14
50019 = UMTS FDD 850 band 19
50020 = UMTS FDD 800 band 20
50021 = UMTS FDD 1500 band 21
50022 = UMTS FDD 3500 band 22
50025 = UMTS FDD 1900 band 25
50026 = UMTS FDD 850 band 26
59999 = UMTS FDD
60001 = UMTS TD-SCDMA 2000 band a
60002 = UMTS TD-SCDMA 1900 band b
60003 = UMTS TD-SCDMA 1900 band c
60004 = UMTS TD-SCDMA 2600 band d
60005 = UMTS TD-SCDMA 1900 band e
60006 = UMTS TD-SCDMA 2300 band f
69999 = UMTS TD-SCDMA

Channels	String	Channels Defines the measured channels. In the format comma separates different values and hyphen can be used to mark the range, e.g. 10,11,50-100.
Scanning options	Integer	Scanning options Note that this parameter is bitfield. 0 = None 2 = Cell information decoding 4 = SI or overhead decoding 8 = Neighbor list decoding 16 = Missing neighbor detection 1024 = C/I, SIR, or CINR 2048 = Finger 4096 = P-SCH 8192 = S-SCH 65536 = Delay Preamble delay, time of arrival, or time offset. 131072 = Delay spread 262144 = Delay profile
Reserved	Integer	Reserved
Measurement period	Integer	Measurement period Unit: ms
Filter mode	Integer	Filter mode Defines the method that is used for sample filtering. 1 = Average 2 = Maximum 3 = Minimum 110 = 10 percentile 120 = 20 percentile 130 = 30 percentile 140 = 40 percentile 150 = 50 percentile 160 = 60 percentile 170 = 70 percentile 180 = 80 percentile

Filter samples	Integer	Filter samples Defines how many samples are filtered per reported measurement result.
Sampling ratio	Integer	Sampling ratio Defines every Nth measurement result that is reported.
Top N	Integer	Top N Only the best top N parameters are reported.
Ec/N0 threshold	Float	Ec/N0 threshold This threshold has to be exceeded before Ec/N0 result is reported. Unit: dB
Finger combining mode	Integer	Finger combining mode Defines the method that is used to combine measured finger results to one measurement result. 1 = Peak 2 = Aggregate
Pilot measurement mode	Integer	Pilot measurement mode 1 = High speed 2 = High dynamic
Dwelling time	Integer	Dwelling time (UMTS) Defines for how long BCH channel is attempted to be decoded. Minimum value: 0 Unit: ms

Parameters for cdmaOne, CDMA 1x, and EVDO pilot and band scanning

Name	Type	Description

Band	Integer	Band
		100000 = cdmaOne 800
		   North American cellular 800 MHz band, also in Korea, Australia, Hong Kong, China, Taiwan, and others.
		100001 = cdmaOne 1900
		   North American PCS 1900 MHz band.
		100002 = cdmaOne 900 (TACS)
		   Total access communication system (TACS) 900 MHz band.
		100003 = cdmaOne 800 (JTACS)
		   JTACS 800 MHz band (Japanese 800 MHz reversed).
		100004 = cdmaOne 1800 (Korean)
		   Korean PCS 1800 MHz band.
		100005 = cdmaOne 450 (NMT)
		   Nordic mobile telephone (NMT) 450 MHz band.
		100006 = cdmaOne 1900-2100 (IMT)
		   IMT-2000 1900-2100 MHz band.
		100007 = cdmaOne 700
		   North American cellular 700 MHz band.
		100008 = cdmaOne 1800
		   1800 MHz band.
		100009 = cdmaOne 900
		   900 MHz band.
		100010 = cdmaOne 900 (SMR)
		   Specialized mobile radio (SMR) 900 MHz band.
		100011 = cdmaOne 400 (PAMR)
		   European PAMR 400 MHz band.
		100012 = cdmaOne 800 (PAMR)
		   European PAMR 800 MHz band.
		100013 = cdmaOne 2500
		   2.5 GHz IMT-2000 extension.
		100014 = cdmaOne 1900 (band 14)
		   US PCS 1.9 GHz.
		100015 = cdmaOne 2100 (AWS)
		100016 = cdmaOne 2500 (band 16)

US 2.5 GHz.
100018 = cdmaOne 700 (public safety)
100019 = cdmaOne 700 (lower)
100020 = cdmaOne 1500 (L-band)
100021 = cdmaOne 2000 (S-band)
109999 = cdmaOne
110000 = CDMA 1x 800
    North American cellular 800 MHz band, also in Korea, Australia,
    Hong Kong, China, Taiwan, and others.
110001 = CDMA 1x 1900
    North American PCS 1900 MHz band.
110002 = CDMA 1x 900 (TACS)
    Total access communication system (TACS) 900 MHz band.
110003 = CDMA 1x 800 (JTACS)
    JTACS 800 MHz band (Japanese 800 MHz reversed).
110004 = CDMA 1x 1800 (Korean)
    Korean PCS 1800 MHz band.
110005 = CDMA 1x 450 (NMT)
    Nordic mobile telephone (NMT) 450 MHz band.
110006 = CDMA 1x 1900-2100 (IMT)
    IMT-2000 1900-2100 MHz band.
110007 = CDMA 1x 700
    North American cellular 700 MHz band.
110008 = CDMA 1x 1800
    1800 MHz band.
110009 = CDMA 1x 900
    900 MHz band.
110010 = CDMA 1x 900 (SMR)
    Specialized mobile radio (SMR) 900 MHz band.
110011 = CDMA 1x 400 (PAMR)
    European PAMR 400 MHz band.
110012 = CDMA 1x 800 (PAMR)
    European PAMR 800 MHz band.
110013 = CDMA 1x 2500
    2.5 GHz IMT-2000 extension.
110014 = CDMA 1x 1900 (band 14)
    US PCS 1.9 GHz.
110015 = CDMA 1x 2100 (AWS)
110016 = CDMA 1x 2500 (band 16)
    US 2.5 GHz.
110018 = CDMA 1x 700 (public safety)
110019 = CDMA 1x 700 (lower)
110020 = CDMA 1x 1500 (L-band)
110021 = CDMA 1x 2000 (S-band)
119999 = CDMA 1x
120000 = EVDO 800
    North American cellular 800 MHz band. Also in Korea, Australia,
    Hong Kong, China, Taiwan, and others.
120001 = EVDO 1900
    North American PCS 1900 MHz band.
120002 = EVDO 900 (TACS)
    Total access communication system (TACS) 900 MHz band.
120003 = EVDO 800 (JTACS)
    JTACS 800 MHz band (Japanese 800 MHz reversed).
120004 = EVDO 1800 (Korean)
    Korean PCS 1800 MHz band.
120005 = EVDO 450 (NMT)
    Nordic mobile telephone (NMT) 450 MHz band.
120006 = EVDO 1900-2100 (IMT)
    IMT-2000 1900-2100 MHz band.
120007 = EVDO 700
    North American cellular 700 MHz band.
120008 = EVDO 1800
    1800 MHz band.
120009 = EVDO 900

		900 MHz band.

		120010 = EVDO 900 (SMR)
		    Specialized mobile radio (SMR) 900 MHz band.
		120011 = EVDO 400 (PAMR)
		    European PAMR 400 MHz band.
		120012 = EVDO 800 (PAMR)
		    European PAMR 800 MHz band.
		120013 = EVDO 2500
		    2.5 GHz IMT-2000 extension.
		120014 = EVDO 1900 (band 14)
		    US PCS 1.9 GHz.
		120015 = EVDO 2100 (AWS)
		120016 = EVDO 2500 (band 16)
		    US 2.5 GHz.
		120018 = EVDO 700 (public safety)
		120019 = EVDO 700 (lower)
		120020 = EVDO 1500 (L-band)
		120021 = EVDO 2000 (S-band)
		129999 = EVDO

Channels	String	Channels Defines the measured channels. In the format comma separates different values and hyphen can be used to mark the range, e.g. 10,11,50-100.
Scanning options	Integer	Scanning options Note that this parameter is bitfield. 0 = None 4 = SI or overhead decoding 65536 = Delay Preamble delay, time of arrival, or time offset. 131072 = Delay spread
Reserved	Integer	Reserved
Measurement period	Integer	Measurement period Unit: ms
Filter mode	Integer	Filter mode Defines the method that is used for sample filtering. 1 = Average 2 = Maximum 3 = Minimum 110 = 10 percentile 120 = 20 percentile 130 = 30 percentile 140 = 40 percentile 150 = 50 percentile 160 = 60 percentile 170 = 70 percentile 180 = 80 percentile 190 = 90 percentile
Filter samples	Integer	Filter samples Defines how many samples are filtered per reported measurement result.
Sampling ratio	Integer	Sampling ratio Defines every Nth measurement result that is reported.
Top N	Integer	Top N Only the best top N parameters are reported.
Ec/I0 threshold	Float	Ec/I0 threshold This threshold has to be exceeded before Ec/I0 result is reported. Unit: dB
Finger combining mode	Integer	Finger combining mode Defines the method that is used to combine measured finger results to one measurement result.

		1 = Peak 2 = Aggregate
Pilot search mode	Integer	Pilot search mode 1 = Standard 2 = Wide 3 = Very wide
Pilot window mode	Integer	Pilot window mode 1 = Offset 2 = Centered 3 = Edge
Correlator	Integer	Correlator
Pilot increment	Integer	Pilot increment

Parameters for LTE OFDM and band scanning

Name	Type	Description

Band	Integer	Band
		70001 = LTE FDD 2100 band 1
		70002 = LTE FDD 1900 band 2
		70003 = LTE FDD 1800 band 3
		70004 = LTE FDD 2100 AWS band 4
		70005 = LTE FDD 850 band 5
		   Band 850 is also known as band 800.
		70006 = LTE FDD 850 band 6
		70007 = LTE FDD 2600 band 7
		70008 = LTE FDD 900 band 8
		70009 = LTE FDD 1800 band 9
		70010 = LTE FDD 2100 band 10
		70011 = LTE FDD 1400 band 11
		70012 = LTE FDD 700 band 12
		70013 = LTE FDD 700 band 13
		70014 = LTE FDD 700 band 14
		70017 = LTE FDD 700 band 17
		70018 = LTE FDD 850 band 18
		70019 = LTE FDD 850 band 19
		70020 = LTE FDD 800 band 20
		70021 = LTE FDD 1500 band 21
		70022 = LTE FDD 3500 band 22
		70023 = LTE FDD 2200 band 23
		70024 = LTE FDD 1500 band 24
		70025 = LTE FDD 1900 band 25
		70026 = LTE FDD 850 band 26
		70027 = LTE FDD 800 band 27
		70028 = LTE FDD 700 band 28
		70029 = LTE FDD 700 band 29
		   This is downlink only band.
		70030 = LTE FDD 2350 band 30
		70031 = LTE FDD 450 band 31
		70032 = LTE FDD 1500 L-band
		   This is downlink only band.
		70064 = LTE FDD 390-470 band 64
		   This is a non-standard LTE FDD band.
		70065 = LTE FDD 2100 band 65
		70066 = LTE FDD AWS-3 2100 band 66
		70067 = LTE FDD 700 EU band 67
		   This is downlink only band.
		79999 = LTE FDD
		80033 = LTE TDD 1900-1920 band 33
		80034 = LTE TDD 2010-2025 band 34
		80035 = LTE TDD 1850-1910 band 35
		80036 = LTE TDD 1930-1990 band 36

		80037 = LTE TDD 1910-1930 band 37
		80038 = LTE TDD 2570-2620 band 38
		80039 = LTE TDD 1880-1920 band 39
		80040 = LTE TDD 2300-2400 band 40
		80041 = LTE TDD 2496-2690 band 41
		80042 = LTE TDD 3400-3600 band 42
		80043 = LTE TDD 3600-3800 band 43
		80044 = LTE TDD 703-803 band 44
		80045 = LTE TDD 1447-1467 band 45
		80061 = LTE TDD 1447-1467 band 61
		    This is a non-standard LTE TDD band.
		80062 = LTE TDD 1785-1805 band 62
		    This is a non-standard LTE TDD band.
		80087 = LTE TDD 1447-1467 band 87
		    This is a non-standard LTE TDD band.
		80088 = LTE TDD 1785-1805 band 88
		    This is a non-standard LTE TDD band.
		89999 = LTE TDD

Channels	String	Channels Defines the measured channels. In the format comma separates different values and hyphen can be used to mark the range, e.g. 10,11,50-100.

Scanning options	Integer	Scanning options
		Note that this parameter is bitfield.
		0 = None
		2 = Cell information decoding
		4 = SI or overhead decoding
		1024 = C/I, SIR, or CINR
		16384 = Sync signal
		32768 = Reference signal
		65536 = Delay
		    Preamble delay, time of arrival, or time offset.
		131072 = Delay spread
		524288 = MIMO scanning
		1048576 = Narrow band
		    The scanning is done from the RS signals transmitted during the PBCH transmission.
		2097152 = PRB scanning

Bandwidth	Integer	Channel bandwidth Not defined when scanned channel bandwidth is selected automatically based on scanned channel. Unit: Hz
Measurement period	Integer	Measurement period Unit: ms
Filter mode	Integer	Filter mode Defines the method that is used for sample filtering. 1 = Average 2 = Maximum 3 = Minimum 110 = 10 percentile 120 = 20 percentile 130 = 30 percentile 140 = 40 percentile 150 = 50 percentile 160 = 60 percentile 170 = 70 percentile 180 = 80 percentile 190 = 90 percentile
Filter samples	Integer	Filter samples Defines how many samples are filtered per reported measurement result.

Sampling ratio	Integer	Sampling ratio Defines every Nth measurement result that is reported.
Top N	Integer	Top N Only the best top N parameters are reported.
RSSI threshold	Float	RSSI threshold This threshold has to be exceeded before the RSSI result is reported. Unit: dBm
CP	Integer	Cyclic prefix 0 = Auto detect 1 = Normal 15 kHz 2 = Extended 15 kHz 3 = Extended 7.5 kHz
Antenna ports	Integer	Antenna ports 1 = Port 0 2 = Port 0-1 4 = Port 0-3

UL/DL config	Integer	TDD UL/DL configuration
		0 = Config 0
		    Allocated uplink subframes are: 2, 3, 4, 7, 8, 9.
		1 = Config 1
		    Allocated uplink subframes are: 2, 3, 7, 8.
		2 = Config 2
		    Allocated uplink subframes are: 2, 7.
		3 = Config 3
		    Allocated uplink subframes are: 2, 3, 4.
		4 = Config 4
		    Allocated uplink subframes are: 2, 3.
		5 = Config 5
		    Allocated uplink subframe is: 2.
		6 = Config 6
		    Allocated uplink subframes are: 2, 3, 4, 7, 8.

Pilot measurement mode	Integer	Pilot measurement mode 1 = High speed 2 = High dynamic

Parameters for WiMAX scanning

Name	Type	Description
Band	Integer	Band 259999 = WiMAX
Frequencies	String	Frequencies Defines the measured frequencies. In the format comma separtes different values, hyphen can be used to mark the range and dot is used for decimal numbers, e.g. 1800000000.0-190000000.0. Unit: Hz
Scanning options	Integer	Scanning options Note that this parameter is bitfield. 0 = None
Resolution bandwidth	Integer	Resolution bandwidth To be able to scan large bandwidth spectrums, the total sweep bandwidth must be divided into smaller parts. The resolution bandwidth defines the size of the smaller parts, each of which is scanned separately. Unit: Hz
Measurement period	Integer	Measurement period Unit: ms
Filter mode	Integer	Filter mode Defines the method that is used for sample filtering.

		1 = Average 2 = Maximum 3 = Minimum 110 = 10 percentile 120 = 20 percentile 130 = 30 percentile 140 = 40 percentile 150 = 50 percentile 160 = 60 percentile 170 = 70 percentile 180 = 80 percentile 190 = 90 percentile
Filter samples	Integer	Filter samples Defines how many samples are filtered per reported measurement result.
Sampling ratio	Integer	Sampling ratio Defines every Nth measurement result that is reported.
Top N	Integer	Top N Only the best top N parameters are reported.
Reuse factor	Integer	Reuse factor 1 = Reuse factor 1 3 = Reuse factor 3
Pilot measurement mode	Integer	Pilot measurement mode 1 = High speed 2 = High dynamic

Parameters for DVB-H scanning

Name	Type	Description
Frequencies	String	Frequencies Defines the measured frequencies. In the format comma separtes different values, hyphen can be used to mark the range and dot is used for decimal numbers, e.g. 1800000000.0-190000000.0. Unit: Hz
Scanning options	Integer	Scanning options Note that this parameter is bitfield. 0 = None
Resolution bandwidth	Integer	Resolution bandwidth To be able to scan large bandwidth spectrums, the total sweep bandwidth must be divided into smaller parts. The resolution bandwidth defines the size of the smaller parts, each of which is scanned separately. Unit: Hz
Measurement period	Integer	Measurement period Unit: ms
Filter mode	Integer	Filter mode Defines the method that is used for sample filtering. 1 = Average 2 = Maximum 3 = Minimum 110 = 10 percentile 120 = 20 percentile 130 = 30 percentile 140 = 40 percentile 150 = 50 percentile 160 = 60 percentile 170 = 70 percentile 180 = 80 percentile 190 = 90 percentile

Filter samples	Integer	Filter samples Defines how many samples are filtered per reported measurement result.
Sampling ratio	Integer	Sampling ratio Defines every Nth measurement result that is reported.
Top N	Integer	Top N Only the best top N parameters are reported.

Parameters for spectrum scanning

Name	Type	Description
Frequencies	String	Frequencies Defines the measured frequencies. In the format comma separtes different values, hyphen can be used to mark the range and dot is used for decimal numbers, e.g. 1800000000.0-190000000.0. Unit: Hz
Scanning options	Integer	Scanning options Note that this parameter is bitfield. 0 = None
Resolution bandwidth	Integer	Resolution bandwidth To be able to scan large bandwidth spectrums, the total sweep bandwidth must be divided into smaller parts. The resolution bandwidth defines the size of the smaller parts, each of which is scanned separately. Unit: Hz
Measurement period	Integer	Measurement period Unit: ms
Filter mode	Integer	Filter mode Defines the method that is used for sample filtering. 1 = Average 2 = Maximum 3 = Minimum 110 = 10 percentile 120 = 20 percentile 130 = 30 percentile 140 = 40 percentile 150 = 50 percentile 160 = 60 percentile 170 = 70 percentile 180 = 80 percentile 190 = 90 percentile
Filter samples	Integer	Filter samples Defines how many samples are filtered per reported measurement result.
Sampling ratio	Integer	Sampling ratio Defines every Nth measurement result that is reported.
Top N	Integer	Top N Only the best top N parameters are reported.
Resolution samples	Integer	Resolution samples To be able to scan large bandwidth spectrums, the total sweep bandwidth must be divided into smaller parts. The resolution samples defines the number of samples size, each of which is scanned separately.

Frequency scanning results (FREQSCAN)

Event ID	FREQSCAN
Cellular systems	GSM,UMTS FDD,UMTS TD-SCDMA,LTE FDD,LTE TDD,cdmaOne,CDMA 1x,EVDO,AMPS,NAMPS,DAMPS,WiMAX,iDEN
Record state	Scanning state
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 7 = LTE FDD 8 = LTE TDD 8 = LTE TDD 10 = cdmaOne 10 = cdmaOne 11 = CDMA 1x 11 = CDMA 1x 12 = EVDO 25 = WiMAX 51 = AMPS 52 = NAMPS 53 = DAMPS 55 = iDEN

Parameters for GSM

Name	Type	Description
#Header params	Integer	Number of header parameters
Band	Integer	Band 10850 = GSM 850 Band 850 is also known as band 800. 10900 = GSM 900 11800 = GSM 1800 11900 = GSM 1900 19999 = GSM
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
ARFCN	Integer	Channel number
BSIC	Integer	Base station identification code Range: 0 – 63
RX level	Float	RX level Range: −140 – −10 Unit: dBm
C/I	Float	C/I Range: −10 – 40

SCH RX level	Float	SCH RX level Range: −140 – −10 Unit: dBm

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20 50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
Ch	Integer	Channel number
RSSI	Float	Carrier RSSI (frequency scanning mode) Carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Range: −140 – −10 Unit: dBm

Parameters for UMTS TD-SCDMA

Name	Type	Description
#Header params	Integer	Number of header parameters
Band	Integer	Band 60001 = UMTS TD-SCDMA 2000 band a 60002 = UMTS TD-SCDMA 1900 band b 60003 = UMTS TD-SCDMA 1900 band c 60004 = UMTS TD-SCDMA 2600 band d 60005 = UMTS TD-SCDMA 1900 band e 60006 = UMTS TD-SCDMA 2300 band f 69999 = UMTS TD-SCDMA
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
Ch	Integer	Channel number

RSSI	Float	Carrier RSSI (frequency scanning mode) Carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Range: −140 − −10 Unit: dBm

Parameters for LTE

Name	Type	Description
#Header params	Integer	Number of header parameters
Band	Integer	Band
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
Ch	Integer	Channel number
RSSI	Float	Carrier RSSI (frequency scanning mode) Carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Range: −140 − −10 Unit: dBm

Parameters for cdmaOne and CDMA 1x

Name	Type	Description
#Header params	Integer	Number of header parameters
Band	Integer	Band
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
Ch	Integer	Channel number
RSSI	Float	RSSI Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Range: −140 − 0 Unit: dBm

Parameters for EVDO

Name	Type	Description
#Header params	Integer	Number of header parameters

Band	Integer	Band
		120000 = EVDO 800
		    North American cellular 800 MHz band. Also in Korea, Australia, Hong Kong, China, Taiwan, and others.
		120001 = EVDO 1900
		    North American PCS 1900 MHz band.
		120002 = EVDO 900 (TACS)
		    Total access communication system (TACS) 900 MHz band.
		120003 = EVDO 800 (JTACS)
		    JTACS 800 MHz band (Japanese 800 MHz reversed).
		120004 = EVDO 1800 (Korean)
		    Korean PCS 1800 MHz band.
		120005 = EVDO 450 (NMT)
		    Nordic mobile telephone (NMT) 450 MHz band.
		120006 = EVDO 1900-2100 (IMT)

		IMT-2000 1900-2100 MHz band.
		120007 = EVDO 700
		    North American cellular 700 MHz band.
		120008 = EVDO 1800
		      1800 MHz band.
		120009 = EVDO 900
		      900 MHz band.
		120010 = EVDO 900 (SMR)
		    Specialized mobile radio (SMR) 900 MHz band.
		120011 = EVDO 400 (PAMR)
		    European PAMR 400 MHz band.
		120012 = EVDO 800 (PAMR)
		    European PAMR 800 MHz band.
		120013 = EVDO 2500
		    2.5 GHz IMT-2000 extension.
		120014 = EVDO 1900 (band 14)
		    US PCS 1.9 GHz.
		120015 = EVDO 2100 (AWS)
		120016 = EVDO 2500 (band 16)
		    US 2.5 GHz.
		120018 = EVDO 700 (public safety)
		120019 = EVDO 700 (lower)
		120020 = EVDO 1500 (L-band)
		120021 = EVDO 2000 (S-band)
		129999 = EVDO

#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
Ch	Integer	Channel number
RSSI	Float	RSSI Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Range: −140 – 0 Unit: dBm

Parameters for WiMAX

Name	Type	Description
#Header params	Integer	Number of header parameters
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
Frequency	Float	WiMAX frequency Unit: MHz
RSSI	Float	Carrier RSSI (frequency scanning mode) Wide-band power of all subcarriers including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Unit: dBm

Parameters for AMPS and NAMPS

Name	Type	Description
#Header params	Integer	Number of header parameters
#Chs	Integer	Number of channels
#Params/Ch	Integer	Number of parameters per channel
Ch	Integer	Channel number
SAT	Integer	Saturnical

		Range: 0 – 6
RX level	Float	RX level Range: −140 – −10 Unit: dBm

Parameters for DAMPS

Name		Type	Description
#Header params		Integer	Number of header parameters
#Chs		Integer	Number of channels
#Params/Ch		Integer	Number of parameters per channel
	Ch	Integer	Channel number
	DCC	Integer	Digital color code Range: 0 – 255
	RX level	Float	RX level Range: −140 – −10 Unit: dBm

Parameters for iDEN

Name		Type	Description
#Header params		Integer	Number of header parameters
#Cells		Integer	Number of cells
#Params/Cell		Integer	Number of parameters per cell
	Ch	Integer	Channel number
	CC	Integer	Color code Range: 0 – 15
	RxLev	Float	RX level Range: −130 – −30 Unit: dBm
	SQE	Float	SQE Range: 0 – 50 Unit: dB
	N+I	Float	Noise + interference level Range: −130 – 30 Unit: dBm

Spectrum scanning result (SPECTRUMSCAN)

Event ID	SPECTRUMSCAN
Cellular systems	All
Record state	Scanning state
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Scanning mode	Integer	Scanning mode 1 = Spectrum scanning

Parameters for spectrum scanning

Name	Type	Description
#Header params	Integer	Number of header parameters
Bandwidth	Float	Resolution bandwidth To be able to scan large bandwidth spectrums, the total sweep bandwidth must be divided into smaller parts. The resolution bandwidth defines the size of the smaller parts, each of which is scanned separately. Unit: Hz
Sweep bandwidth	Float	Sweep bandwidth The total scanned bandwidth that is divided into smaller parts before the scanning. Unit: MHz
Sweep frequency	Float	Sweep center frequency Unit: MHz
Sweep average RX level	Float	Sweep average RX level The linear average of RX levels measured over bandwidth of 'resolution bandwidth'. Range: −160 – −10 Unit: dBm
Sweep minimum RX level	Float	Sweep minimum RX level Minimum RX levels measured over bandwidth of 'resolution bandwidth'. Range: −160 – −10 Unit: dBm
Sweep maximum RX level	Float	Sweep maximum RX level Maximum RX levels measured over bandwidth of 'resolution bandwidth'. Range: −160 – −10 Unit: dBm
#Frequencies	Integer	Number of frequencies
#Params/frequency	Integer	#Params/frequency
Frequency	Float	Frequency Center frequency of the measured sample. Unit: MHz
RX level	Float	RX level Range: −160 – −10

		Unit: dBm

Pilot scanning results (PILOTSCAN)

Event ID	PILOTSCAN
Cellular systems	UMTS FDD,UMTS TD-SCDMA,cdmaOne,CDMA 1x,EVDO
Record state	Scanning state
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 6 = UMTS TD-SCDMA 10 = cdmaOne 10 = cdmaOne 11 = CDMA 1x 11 = CDMA 1x 12 = EVDO

Parameters for UMTS FDD

Name		Type	Description
#Header params		Integer	Number of header parameters
	Ch	Integer	Channel number
	Ch type	Integer	UMTS channel type 1 = CPICH 2 = P SCH 3 = S SCH 4 = CPICH (TX diversity) 5 = PPCH
	RSSI	Float	Carrier RSSI (pilot scanning mode) Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Range: −140 – −10 Unit: dBm
	Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20

		50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
SC	Integer	Scrambling code Range: 0 – 511
Ec/N0	Float	Ec/N0 The average received chip power to noise ratio of the channel specified by the Ch type parameter. Range: −30 – 0 Unit: dB
RSCP	Float	RSCP The received signal code power of the channel specified by the Ch type parameter. Range: −150 – −20 Unit: dBm
SIR	Float	Signal-to-interference ratio CPICH Range: 0 – 30
Delay	Float	Delay The time difference between actual received signal and expected point in time derived from the GPS time (when available). This parameter is also known as time offset. Range: 0 – 38400 Unit: chip
Delay spread	Float	Delay spread Time between first and last pilot Ec/N0 peak above the PN threshold of the channel specified by the Ch type parameter. Unit: chip

Parameters for UMTS TD-SCDMA

Name	Type	Description
#Header params	Integer	Number of header parameters
Channel type	Integer	Channel type 1 = PCCPCH 2 = Sync DL
Band	Integer	Band 60001 = UMTS TD-SCDMA 2000 band a 60002 = UMTS TD-SCDMA 1900 band b 60003 = UMTS TD-SCDMA 1900 band c 60004 = UMTS TD-SCDMA 2600 band d 60005 = UMTS TD-SCDMA 1900 band e 60006 = UMTS TD-SCDMA 2300 band f 69999 = UMTS TD-SCDMA
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
Ch	Integer	Channel number
Cell params ID	Integer	Cell parameters ID Range: 0 – 127
Ec/I0	Float	Ec/I0 The received energy per chip divided by the relevant measured power density (noise and signal) in the wide band.

		Range: −30 − 0 Unit: dB
Time offset	Float	Time offset Position of a selected pilot. Range: 0 − 6500 Unit: chip
SIR	Float	SIR Range: −30 − 25 Unit: dB
RSCP	Float	RSCP The received signal code power of a single code. Range: −116 − −20 Unit: dB
RSSI	Float	Carrier RSSI (pilot scanning mode) Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Range: −140 − −10 Unit: dBm

Parameters for cdmaOne and CDMA 1x

Name	Type	Description
#Header params	Integer	Number of header parameters
Ch	Integer	Channel number
RSSI	Float	Carrier RSSI (pilot scanning mode) Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Range: −140 − −10 Unit: dBm
Band	Integer	Band
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
PN	Integer	Pilot number Range: 0 − 511
Ec/I0	Float	Ec/I0 Range: −35 − 3 Unit: dB
Delay	Float	Delay The time difference between actual received signal and expected point in time derived from the GPS time. This parameter is also known as time offset. Unit: chip
RSCP	Float	RSCP The received signal code power of single code. Unit: dBm
Delay spread	Float	Delay spread The time between the first and the last multi-path peak component inside the search window above the PN threshold. Unit: chip

Parameters for EVDO

Name	Type	Description
#Header	Integer	Number of header parameters

Ch	Integer	Channel number
RSSI	Float	Carrier RSSI (pilot scanning mode) Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Range: −140 − −10 Unit: dBm

Band	Integer	Band
		120000 = EVDO 800
		   North American cellular 800 MHz band. Also in Korea, Australia,
		   Hong Kong, China, Taiwan, and others.
		120001 = EVDO 1900
		   North American PCS 1900 MHz band.
		120002 = EVDO 900 (TACS)
		   Total access communication system (TACS) 900 MHz band.
		120003 = EVDO 800 (JTACS)
		   JTACS 800 MHz band (Japanese 800 MHz reversed).
		120004 = EVDO 1800 (Korean)
		   Korean PCS 1800 MHz band.
		120005 = EVDO 450 (NMT)
		   Nordic mobile telephone (NMT) 450 MHz band.
		120006 = EVDO 1900-2100 (IMT)
		   IMT-2000 1900-2100 MHz band.
		120007 = EVDO 700
		   North American cellular 700 MHz band.
		120008 = EVDO 1800
		   1800 MHz band.
		120009 = EVDO 900
		   900 MHz band.
		120010 = EVDO 900 (SMR)
		   Specialized mobile radio (SMR) 900 MHz band.
		120011 = EVDO 400 (PAMR)
		   European PAMR 400 MHz band.
		120012 = EVDO 800 (PAMR)
		   European PAMR 800 MHz band.
		120013 = EVDO 2500
		   2.5 GHz IMT-2000 extension.
		120014 = EVDO 1900 (band 14)
		   US PCS 1.9 GHz.
		120015 = EVDO 2100 (AWS)
		120016 = EVDO 2500 (band 16)
		   US 2.5 GHz.
		120018 = EVDO 700 (public safety)
		120019 = EVDO 700 (lower)
		120020 = EVDO 1500 (L-band)
		120021 = EVDO 2000 (S-band)
		129999 = EVDO

#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
PN	Integer	Pilot number Range: 0 − 511
Ec/I0	Float	Ec/I0 Range: −35 − 3 Unit: dB
Delay	Float	Delay The time difference between actual received signal and expected point in time derived from the GPS time. This parameter is also known as time offset. Unit: chip
RSCP	Float	RSCP The received signal code power of single code.

Delay spread	Float	Delay spread The time between the first and the last multi-path peak component inside the search window above the PN threshold. Unit: chip

OFDM scanning results (OFDMSCAN)

Event ID	OFDMSCAN
Cellular systems	WiMAX,DVB-H,LTE FDD,LTE TDD
Record state	Scanning state
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 7 = LTE FDD 7 = LTE FDD 8 = LTE TDD 8 = LTE TDD 25 = WiMAX 65 = DVB-H

Parameters for LTE

Name	Type	Description
#Header params	Integer	Number of header parameters
Ch	Integer	Channel number
Ph. ch type	Integer	Physical channel or signal type 1 = RS 2 = SCH 3 = PBCH
DL bandwidth	Integer	DL bandwidth This is the scanned bandwidth when the scanned bandwidth differs from the system bandwidth. 6 = 1.4 MHz 15 = 3 MHz 25 = 5 MHz 50 = 10 MHz 75 = 15 MHz 100 = 20 MHz
RSSI	Float	Carrier RSSI Wide-band power of all subcarriers including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. For the reference signal scanning this is the same as E-UTRAN carrier RSSI. See 3GPP TS 136.214 subclause 5.1.5. Unit: dBm
Band	Integer	Band

Parameters for LTE RS

Name	Type	Description
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
PCI	Integer	Physical cell identity Range: 0 – 503

CP	Integer	Cyclic prefix DL 1 = Normal 15 kHz 2 = Extended 15 kHz 3 = Extended 7.5 kHz
Antenna ports	Integer	Detected TX antenna ports 0 = Port 0 1 = Ports 0-1 3 = Ports 0-3
RSRP	Float	RSRP Reference signal received power is the linear average of the power contributions of the resource elements that carry cell-specific reference signals within the considered measurement frequency. 3GPP TS 36.214 subclause 5.1.1. Range: −140 – 0 Unit: dBm
RSRQ	Float	RSRQ Reference signal received quality is the ratio N * RSRP / E-UTRA carrier RSSI, where N is the number of resource blocks of the E-UTRA carrier RSSI measurement bandwidth. The measurements in the numerator and denominator are made over the same set of resource blocks. 3GPP TS 36.214 subclause 5.1.3. Range: −30 – 0 Unit: dB
CINR	Float	CINR Ratio between the reference signal received power (RSRP) and the interference and noise from the same reference signal set. Range: −40 – 50 Unit: dB
Time offset	Integer	Time offset The time difference between actual received P-SCH primary synchronization signal and expected point in time derived from GPS reference time. The unit of the parameter is 32.552ns that is the same as the Ts parameter defined by 3GPP TS 136.211 subclause 4. Range: 0 – 307199
Delay spread	Integer	Delay spread The unit of the parameter is 32.552ns that is the same as the Ts parameter defined by 3GPP TS 136.211 subclause 4. Range: 0 – 1023 Unit: Ts

Indication	Integer	Scanning result indication
		The parameter contains the status of the measurement result. This is a bit field so the value of the parameter is the sum of all simultaneouns measurement statuses, e.g. if the antenna power imbalance and frequency offset too large conditions happen simultaneously the recorded value would be three.
		1 = Antenna power imbalance
		   Indicates if difference in received reference signal power between antennas is greater than or equal to 15 dB when at least one of received signal power is greater than or equal to -90 dBm.
		2 = Frequency offset too large
		   Indicates if frequency offset is greater than or equal to 1 kHz.

MIMO mode	Integer	MIMO mode information The parameter indicates the current MIMO mode of each LTE PCI. The value of the parameter specifies the received TX-RX port configuration in the following format: [number of TX ports used] x [number of RX ports used]. 11 = 1x1 1 TX port and 1 RX port used. 12 = 1x2

		1 TX port and 2 RX ports used.
		14 = 1x4
		    1 TX port and 4 RX ports used.
		21 = 2x1
		    2 TX ports and 1 RX port used.
		22 = 2x2
		    2 TX ports and 2 RX ports used.
		24 = 2x4
		    2 TX ports and 4 RX ports used.
		41 = 4x1
		    4 TX ports and 1 RX port used.
		42 = 4x2
		    4 TX ports and 2 RX ports used.
		44 = 4x4
		    4 TX ports and 4 RX ports used.

#Ports	Integer	Number of measurement results per antenna port For example if there are two physical cell identities and four antenna ports per cell identity the value of the parameter would be eight. The first four blocks would contain measurement results per antenna port for the first cell and next four blocks would contain results for the second cell.
#Params/port	Integer	Number of parameters per measurement result
PCI	Integer	Physical cell identity Range: 0 – 503

Antenna port	Integer	Antenna port
		0 = Port 0
		    This is the same as TX0.
		1 = Port 1
		    This is the same as TX1.
		2 = Port 2
		    This is the same as TX2.
		3 = Port 3
		    This is the same as TX3.
		100 = TX0-RX0 channel
		101 = TX0-RX1 channel
		102 = TX0-RX2 channel
		103 = TX0-RX3 channel
		110 = TX1-RX0 channel
		111 = TX1-RX1 channel
		112 = TX1-RX2 channel
		113 = TX1-RX3 channel
		120 = TX2-RX0 channel
		121 = TX2-RX1 channel
		122 = TX2-RX2 channel
		123 = TX2-RX3 channel
		130 = TX3-RX0 channel
		131 = TX3-RX1 channel
		132 = TX3-RX2 channel
		133 = TX3-RX3 channel

RSRP/P	Float	RSRP/Antenna port Reference signal received power is the linear average of the power contributions of the resource elements that carry cell-specific reference signals within the considered measurement frequency. 3GPP TS 36.214 subclause 5.1.1. Range: −140 – 0 Unit: dBm
RSRQ/P	Float	RSRQ/Antenna port Reference signal received quality is the ratio N * RSRP / E-UTRA carrier RSSI, where N is the number of resource blocks of the E-UTRA carrier RSSI measurement bandwidth. The measurements in the numerator and denominator are made over the same set of resource blocks. 3GPP TS 36.214 subclause 5.1.3.

		Range: −30 − 0 Unit: dB
CINR/P	Float	CINR/Antenna port Ratio between the reference signal received power (RSRP) and the interference and noise from the same reference signal set. Range: −40 − 50 Unit: dB
RSSI/P	Float	E-UTRAN carrier RSSI/Antenna port Wideband power of all subcarriers including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. See 3GPP TS 136.214 subclause 5.1.5. Unit: dBm

Parameters for LTE SCH

Name	Type	Description
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
P-SCH PCI	Integer	P-SCH physical cell identity Range: 0 − 503
Cyclic prefix	Integer	P-SCH cyclic prefix 1 = Normal 15 kHz 2 = Extended 15 kHz 3 = Extended 7.5 kHz
P-SCH RP	Float	P-SCH received power Linear average over the power contributions of the resource elements that carry primary synchronization signal. Unit: dBm
P-SCH RQ	Float	P-SCH received quality The ratio between P-SCH reference power (P-SCH RP) and linear average of total received power measured over OFDM symbols and resource blocks, including primary synchronization (P-SCH) signal. The measurements in the numerator and denominator are made over the same set of resource blocks. Unit: dB
S-SCH RP	Float	S-SCH received power Linear average over the power contributions of the resource elements that carry secondary synchronization signal. Unit: dBm
S-SCH RQ	Float	S-SCH received quality The ratio between S-SCH reference power (S-SCH RP) and linear average of total received power measured over OFDM symbols and resource blocks, including secondary synchronization (S-SCH) signal. The measurements in the numerator and denominator are made over the same set of resource blocks. Unit: dB
S-SCH CINR	Float	S-SCH CINR The ratio between synchronization channel received power and interference and noise from the same synchronization signal set. Range: −40 − 50 Unit: dB
Time offset	Integer	P-SCH time offset The time difference between actual received P-SCH primary synchronization signal and expected point in time derived from GPS reference time. The unit of the parameter is 32.552ns that is the same as the Ts parameter defined by 3GPP TS 136.211 subclause 4. Range: 0 − 307199

P-SCH CINR	Float	P-SCH CINR The ratio between synchronization channel received power and interference and noise from the same synchronization signal set. Range: −40 – 50 Unit: dB

Parameters for LTE PBCH

Name	Type	Description
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
PBCH PCI	Integer	PBCH physical cell identity Range: 0 – 503
Cyclic prefix	Integer	PBCH cyclic prefix 1 = Normal 15 kHz 2 = Extended 15 kHz 3 = Extended 7.5 kHz
PBCH RP	Float	PBCH received power Currently support for this parameter has not been implemented. Unit: dBm
PBCH RQ	Float	PBCH received quality Currently support for this parameter has not been implemented. Unit: dB
PBCH CINR	Float	PBCH CINR Currently support for this parameter has not been implemented. Range: −40 – 50 Unit: dB
Time offset	Integer	PBCH time offset The time difference between actual received P-SCH primary synchronization signal and expected point in time derived from GPS reference time. The unit of the parameter is 32.552ns that is the same as the Ts parameter defined by 3GPP TS 136.211 subclause 4. Range: 0 – 307199

Parameters for WiMAX

Name	Type	Description
#Header params	Integer	Number of header parameters
#Frequencies	Integer	Number of frequencies
#Params/frequency	Integer	#Params/frequency
Frequency	Float	Frequency Unit: MHz
RSSI	Float	Carrier RSSI (OFDM scanning mode) Wide-band power of all subcarriers including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Unit: dBm
#Preambles	Integer	Number of preambles
#Params/preamble	Integer	Number of parameters per preamble
Frequency	Float	WiMAX frequency Unit: MHz
Preamble index	Integer	WiMAX preamble index Range: 0 – 113

Preamble RSSI	Float	WiMAX preamble RSSI Range: −120 – 0 Unit: dBm
CINR	Float	WiMAX CINR Channel to interference-noise ratio. Range: −32 – 40 Unit: dB
Delay	Float	WiMAX preamble delay Range: 0 – 1055

Parameters for DVB-H

Name	Type	Description
#Header params	Integer	Number of header parameters
#Frequencies	Integer	Number of frequencies
#Params/frequency	Integer	#Params/frequency
Frequency	Float	Frequency Unit: MHz
RSSI	Float	Carrier RSSI Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Unit: dBm
MER	Float	DVB-H MER Range: 0 – 60 Unit: dB

Physical resource block scanning results (PRBSCAN)

Event ID	PRBSCAN
Cellular systems	LTE FDD
Record state	Scanning state
Description	This measurement event is logged for each cell separately and contains scanning results per physical resource block. Recorded when measurement sample is received from the device. Currently logged about once per second with Rohde&Schwarz scanners.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 7 = LTE FDD
Scanner type	Integer	Scanner type 1 = Rohde&Schwarz 2 = PCTel 3 = Nemo FSR1
#System and device specific parameters	Integer	Number of system and device specific parameters

Parameters for LTE Rohde&Schwarz

Name	Type	Description
#Header params	Integer	Number of header parameters
Band	Integer	Band 70001 = LTE FDD 2100 band 1 70002 = LTE FDD 1900 band 2 70003 = LTE FDD 1800 band 3 70004 = LTE FDD 2100 AWS band 4 70005 = LTE FDD 850 band 5 Band 850 is also known as band 800. 70006 = LTE FDD 850 band 6 70007 = LTE FDD 2600 band 7 70008 = LTE FDD 900 band 8 70009 = LTE FDD 1800 band 9 70010 = LTE FDD 2100 band 10 70011 = LTE FDD 1400 band 11 70012 = LTE FDD 700 band 12 70013 = LTE FDD 700 band 13 70014 = LTE FDD 700 band 14 70017 = LTE FDD 700 band 17 70018 = LTE FDD 850 band 18 70019 = LTE FDD 850 band 19 70020 = LTE FDD 800 band 20 70021 = LTE FDD 1500 band 21 70022 = LTE FDD 3500 band 22 70023 = LTE FDD 2200 band 23 70024 = LTE FDD 1500 band 24 70025 = LTE FDD 1900 band 25 70026 = LTE FDD 850 band 26

		70028 = LTE FDD 700 band 28
		70029 = LTE FDD 700 band 29
		    This is downlink only band.
		70030 = LTE FDD 2350 band 30
		70031 = LTE FDD 450 band 31
		70032 = LTE FDD 1500 L-band
		    This is downlink only band.
		70064 = LTE FDD 390-470 band 64
		    This is a non-standard LTE FDD band.
		70065 = LTE FDD 2100 band 65
		70066 = LTE FDD AWS-3 2100 band 66
		70067 = LTE FDD 700 EU band 67
		    This is downlink only band.
		79999 = LTE FDD

Ch	Integer	Channel number
PCI	Integer	Physical cell identity Range: 0 – 503
#PRB indexes	Integer	Number of PRB indexes This is the same as the system bandwidth. Range: 0 – 100
#Params/PRB index	Integer	Number of parameters per PRB index
PRB index	Integer	PRB index Range: 0 – 99
2x2 rank	Integer	2x2 MIMO rank estimation/PRB Minimum value: 0
2x2 K	Float	2x2 MIMO condition number/PRB Minimum value: 0 Unit: dB
2x4 rank	Integer	2x4 MIMO rank estimation/PRB Minimum value: 0
2x4 K	Float	2x4 MIMO condition number/PRB Minimum value: 0 Unit: dB

Parameters for LTE PCTel

Name	Type	Description
#Header params	Integer	Number of header parameters
Band	Integer	Band 70001 = LTE FDD 2100 band 1 70002 = LTE FDD 1900 band 2 70003 = LTE FDD 1800 band 3 70004 = LTE FDD 2100 AWS band 4 70005 = LTE FDD 850 band 5 Band 850 is also known as band 800. 70006 = LTE FDD 850 band 6 70007 = LTE FDD 2600 band 7 70008 = LTE FDD 900 band 8 70009 = LTE FDD 1800 band 9 70010 = LTE FDD 2100 band 10 70011 = LTE FDD 1400 band 11 70012 = LTE FDD 700 band 12 70013 = LTE FDD 700 band 13 70014 = LTE FDD 700 band 14 70017 = LTE FDD 700 band 17 70018 = LTE FDD 850 band 18 70019 = LTE FDD 850 band 19

		70020 = LTE FDD 800 band 20
		70021 = LTE FDD 1500 band 21
		70022 = LTE FDD 3500 band 22
		70023 = LTE FDD 2200 band 23
		70024 = LTE FDD 1500 band 24
		70025 = LTE FDD 1900 band 25
		70026 = LTE FDD 850 band 26
		70027 = LTE FDD 800 band 27
		70028 = LTE FDD 700 band 28
		70029 = LTE FDD 700 band 29
		   This is downlink only band.
		70030 = LTE FDD 2350 band 30
		70031 = LTE FDD 450 band 31
		70032 = LTE FDD 1500 L-band
		   This is downlink only band.
		70064 = LTE FDD 390-470 band 64
		   This is a non-standard LTE FDD band.
		70065 = LTE FDD 2100 band 65
		70066 = LTE FDD AWS-3 2100 band 66
		70067 = LTE FDD 700 EU band 67
		   This is downlink only band.
		79999 = LTE FDD

Ch	Integer	Channel number
#Cells	Integer	Number of cells
#Params/cell	Integer	Number of parameters per cell
PCI	Integer	Physical cell identity Range: 0 – 503
2x2 K	Float	2x2 MIMO condition number Minimum value: 0 Unit: dB
OLSM CQI	Integer	Single layer open-loop CQI Range: 0 – 15
OLSM rate	Integer	Single layer open-loop throughput Minimum value: 0 Unit: bit/s
CLSM CQI	Integer	Single layer closed-loop CQI Range: 0 – 15
CLSM rate	Integer	Single layer closed-loop throughput Minimum value: 0 Unit: bit/s
OLSM CQI 0	Integer	Dual layer open-loop CQI 0 Range: 0 – 15
OLSM rate 0	Integer	Dual layer open-loop throughput 0 Minimum value: 0 Unit: bit/s
OLSM CQI 1	Integer	Dual layer open-loop CQI 1 Range: 0 – 15
OLSM rate 1	Integer	Dual layer open-loop throughput 1 Minimum value: 0 Unit: bit/s
CLSM CQI 0	Integer	Dual layer closed-loop SM CQI 0 Range: 0 – 15
CLSM rate 0	Integer	Dual layer closed-loop throughput 0 Minimum value: 0 Unit: bit/s
CLSM CQI 1	Integer	Dual layer closed-loop SM CQI 1 Range: 0 – 15

CLSM rate 1	Integer	Dual layer closed-loop throughput 1 Minimum value: 0 Unit: bit/s

Parameters for LTE Nemo FSR1

Name	Type	Description
#Header params	Integer	Number of header parameters

Band	Integer	Band
		70001 = LTE FDD 2100 band 1
		70002 = LTE FDD 1900 band 2
		70003 = LTE FDD 1800 band 3
		70004 = LTE FDD 2100 AWS band 4
		70005 = LTE FDD 850 band 5
		    Band 850 is also known as band 800.
		70006 = LTE FDD 850 band 6
		70007 = LTE FDD 2600 band 7
		70008 = LTE FDD 900 band 8
		70009 = LTE FDD 1800 band 9
		70010 = LTE FDD 2100 band 10
		70011 = LTE FDD 1400 band 11
		70012 = LTE FDD 700 band 12
		70013 = LTE FDD 700 band 13
		70014 = LTE FDD 700 band 14
		70017 = LTE FDD 700 band 17
		70018 = LTE FDD 850 band 18
		70019 = LTE FDD 850 band 19
		70020 = LTE FDD 800 band 20
		70021 = LTE FDD 1500 band 21
		70022 = LTE FDD 3500 band 22
		70023 = LTE FDD 2200 band 23
		70024 = LTE FDD 1500 band 24
		70025 = LTE FDD 1900 band 25
		70026 = LTE FDD 850 band 26
		70027 = LTE FDD 800 band 27
		70028 = LTE FDD 700 band 28
		70029 = LTE FDD 700 band 29
		    This is downlink only band.
		70030 = LTE FDD 2350 band 30
		70031 = LTE FDD 450 band 31
		70032 = LTE FDD 1500 L-band
		    This is downlink only band.
		70064 = LTE FDD 390-470 band 64
		    This is a non-standard LTE FDD band.
		70065 = LTE FDD 2100 band 65
		70066 = LTE FDD AWS-3 2100 band 66
		70067 = LTE FDD 700 EU band 67
		    This is downlink only band.
		79999 = LTE FDD

Ch	Integer	Channel number
PCI	Integer	Physical cell identity Range: 0 – 503
#PRB indexes	Integer	Number of PRB indexes This is the same as the system bandwidth. Range: 0 – 100
#Params/PRB index	Integer	Number of parameters per PRB index
PRB index	Integer	PRB index Range: 0 – 99

2x2 rank	Integer	2x2 MIMO rank estimation/PRB Minimum value: 0
2x2 K	Float	2x2 MIMO condition number/PRB Minimum value: 0 Unit: dB
2x4 rank	Integer	2x4 MIMO rank estimation/PRB Minimum value: 0
2x4 K	Float	2x4 MIMO condition number/PRB Minimum value: 0 Unit: dB
RSRP	Float	RSRP/PRB Reference signal received power is the linear average of the power contributions of the resource elements that carry cell-specific reference signals within the considered measurement frequency. 3GPP TS 36.214 subclause 5.1.1. Range: −140 – 0 Unit: dBm
CINR	Float	CINR/PRB Ratio between the reference signal received power (RSRP) and the interference and noise from the same reference signal set. Range: −40 – 50 Unit: dB

Timing profile scanning result (TPROFSCAN)

Event ID	TPROFSCAN
Cellular systems	UMTS FDD
Record state	Scanning state
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
Ch	Integer	Channel number
RSSI	Float	RSSI Wide-band carrier power including thermal noise, co-carrier and adjacent carrier interference, and noise generated in the receiver. Range: −140 – 0 Unit: dBm
Ch type	Integer	UMTS channel type 1 = CPICH 2 = P SCH 3 = S SCH 4 = CPICH (TX diversity) 5 = PPCH
Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20 50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD
#Params/Sample	Integer	Number of parameters per sample

#Samples	Integer	Number of samples
Chip	Integer	Chip number
Ec/N0	Float	Chip Ec/N0 The received energy per chip divided by the power density of the band. Range: −30 – 0 Unit: dB

Delay profile scanning result (DPROFSCAN)

Event ID	DPROFSCAN
Cellular systems	UMTS FDD,cdmaOne,CDMA 1x
Record state	Scanning state
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
Ch	Integer	Channel number
SC	Integer	Scrambling code Range: 0 – 511
Ch type	Integer	UMTS channel type 1 = CPICH 2 = P SCH 3 = S SCH 4 = CPICH (TX diversity) 5 = PPCH
Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20 50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD
#Params/Sample	Integer	Number of parameters per sample

#Samples	Integer	Number of samples
Sample offset	Float	Delay profile sample offset Delay in 0.5 chip resolution. Range: −550 – 550 Unit: chip
Sample	Float	Delay profile sample

Parameters for cdmaOne, CDMA 1x, and EVDO

Name	Type	Description
#Header params	Integer	Number of header parameters

Band	Integer	Band
		100000 = cdmaOne 800
		    North American cellular 800 MHz band, also in Korea, Australia, Hong Kong, China, Taiwan, and others.
		100001 = cdmaOne 1900
		    North American PCS 1900 MHz band.
		100002 = cdmaOne 900 (TACS)
		    Total access communication system (TACS) 900 MHz band.
		100003 = cdmaOne 800 (JTACS)
		    JTACS 800 MHz band (Japanese 800 MHz reversed).
		100004 = cdmaOne 1800 (Korean)
		    Korean PCS 1800 MHz band.
		100005 = cdmaOne 450 (NMT)
		    Nordic mobile telephone (NMT) 450 MHz band.
		100006 = cdmaOne 1900-2100 (IMT)
		    IMT-2000 1900-2100 MHz band.
		100007 = cdmaOne 700
		    North American cellular 700 MHz band.
		100008 = cdmaOne 1800
		    1800 MHz band.
		100009 = cdmaOne 900
		    900 MHz band.
		100010 = cdmaOne 900 (SMR)
		    Specialized mobile radio (SMR) 900 MHz band.
		100011 = cdmaOne 400 (PAMR)
		    European PAMR 400 MHz band.
		100012 = cdmaOne 800 (PAMR)
		    European PAMR 800 MHz band.
		100013 = cdmaOne 2500
		    2.5 GHz IMT-2000 extension.
		100014 = cdmaOne 1900 (band 14)
		    US PCS 1.9 GHz.
		100015 = cdmaOne 2100 (AWS)
		100016 = cdmaOne 2500 (band 16)
		    US 2.5 GHz.
		100018 = cdmaOne 700 (public safety)
		100019 = cdmaOne 700 (lower)
		100020 = cdmaOne 1500 (L-band)
		100021 = cdmaOne 2000 (S-band)
		109999 = cdmaOne
		110000 = CDMA 1x 800
		    North American cellular 800 MHz band, also in Korea, Australia, Hong Kong, China, Taiwan, and others.
		110001 = CDMA 1x 1900
		    North American PCS 1900 MHz band.
		110002 = CDMA 1x 900 (TACS)
		    Total access communication system (TACS) 900 MHz band.
		110003 = CDMA 1x 800 (JTACS)
		    JTACS 800 MHz band (Japanese 800 MHz reversed).
		110004 = CDMA 1x 1800 (Korean)
		    Korean PCS 1800 MHz band.

110005 = CDMA 1x 450 (NMT)
    Nordic mobile telephone (NMT) 450 MHz band.
110006 = CDMA 1x 1900-2100 (IMT)
    IMT-2000 1900-2100 MHz band.
110007 = CDMA 1x 700
    North American cellular 700 MHz band.
110008 = CDMA 1x 1800
    1800 MHz band.
110009 = CDMA 1x 900
    900 MHz band.
110010 = CDMA 1x 900 (SMR)
    Specialized mobile radio (SMR) 900 MHz band.
110011 = CDMA 1x 400 (PAMR)
    European PAMR 400 MHz band.
110012 = CDMA 1x 800 (PAMR)
    European PAMR 800 MHz band.
110013 = CDMA 1x 2500
    2.5 GHz IMT-2000 extension.
110014 = CDMA 1x 1900 (band 14)
    US PCS 1.9 GHz.
110015 = CDMA 1x 2100 (AWS)
110016 = CDMA 1x 2500 (band 16)
    US 2.5 GHz.
110018 = CDMA 1x 700 (public safety)
110019 = CDMA 1x 700 (lower)
110020 = CDMA 1x 1500 (L-band)
110021 = CDMA 1x 2000 (S-band)
119999 = CDMA 1x
120000 = EVDO 800
    North American cellular 800 MHz band. Also in Korea, Australia,
    Hong Kong, China, Taiwan, and others.
120001 = EVDO 1900
    North American PCS 1900 MHz band.
120002 = EVDO 900 (TACS)
    Total access communication system (TACS) 900 MHz band.
120003 = EVDO 800 (JTACS)
    JTACS 800 MHz band (Japanese 800 MHz reversed).
120004 = EVDO 1800 (Korean)
    Korean PCS 1800 MHz band.
120005 = EVDO 450 (NMT)
    Nordic mobile telephone (NMT) 450 MHz band.
120006 = EVDO 1900-2100 (IMT)
    IMT-2000 1900-2100 MHz band.
120007 = EVDO 700
    North American cellular 700 MHz band.
120008 = EVDO 1800
    1800 MHz band.
120009 = EVDO 900
    900 MHz band.
120010 = EVDO 900 (SMR)
    Specialized mobile radio (SMR) 900 MHz band.
120011 = EVDO 400 (PAMR)
    European PAMR 400 MHz band.
120012 = EVDO 800 (PAMR)
    European PAMR 800 MHz band.
120013 = EVDO 2500
    2.5 GHz IMT-2000 extension.
120014 = EVDO 1900 (band 14)
    US PCS 1.9 GHz.
120015 = EVDO 2100 (AWS)
120016 = EVDO 2500 (band 16)
    US 2.5 GHz.
120018 = EVDO 700 (public safety)
120019 = EVDO 700 (lower)
120020 = EVDO 1500 (L-band)

		120021 = EVDO 2000 (S-band) 129999 = EVDO
Ch	Integer	Channel number
#Params/Sample	Integer	Number of parameters per sample
#Samples	Integer	Number of samples
Sample offset	Integer	Delay profile sample absolute offset Delay profile sample offset. Range: 0 – 32768 Unit: chip
Sample energy	Float	Delay profile sample energy Range: −35 – 3 Unit: dB

Rake finger allocation (FINGER)

Event ID	FINGER
Cellular systems	UMTS FDD,cdmaOne,CDMA 1x,EVDO
Record state	Always
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
#Fingers	Integer	Number of fingers
#Params/Finger	Integer	Number of parameters per finger
Ch	Integer	Channel number
SC	Integer	Scrambling code Range: 0 – 511
Secondary SC	Integer	Secondary scrambling code Range: 0 – 15
Ec/N0	Float	Finger Ec/N0 The received energy per chip divided by the power density of the band. Range: −30 – 0 Unit: dB
Finger abs. offset	Float	Absolute finger offset Note that the accuracy can be greater than one chip. Unit: chip
Finger rel. offset	Float	Finger offset relative to strongest peak Finger offset to the strongest peak. Note that the accuracy can be greater than one chip. Unit: chip
Finger RSCP	Float	Finger RSCP The received signal code power of single code. Unit: dBm

Parameters for cdmaOne and CDMA 1x

Name	Type	Description
#Header params	Integer	Number of header parameters
Agg. Ec/I0	Float	Aggregate Ec/I0 Summary of the Ec/I0 of the fingers. At least one finger has to be locked.

		Range: −50 – 0 Unit: dB
Ant. config	Integer	Antenna configuration 0 = RX0 1 = RX1 2 = Diversity enabled 3 = Simultaneous mode RX0 4 = Simultaneous mode RX1
#Fingers	Integer	Number of fingers
#Params/Finger	Integer	Number of parameters per finger
PN	Integer	Pilot number Range: 0 – 511
Finger abs. offset	Float	Absolute finger offset Note that the accuracy can be greater than one chip. Unit: chip
Finger locked	Integer	Finger locked 0 = No 1 = Yes
Ec/I0	Float	Ec/I0 If antenna configuration is 2, then this represents Ec/I0 for the paired fingers. Range: −30 – 30 Unit: dB
Ref. finger	Integer	Reference finger 0 = No 1 = Yes
Assigned finger	Integer	Assigned finger 0 = No 1 = Yes
TD mode	Integer	Transmit diversity mode 0 = None 1 = Reserver I 2 = OTD 3 = STS
TD power	Float	Transmit diversity power level Range: −9 – 0
Subchannel	Integer	Subchannel 1 = PCH 2 = Primary BCCH 4 = Secondary BCCH 1 8 = Secondary BCCH 2 16 = Secondary BCCH 3 32 = Secondary BCCH 4 64 = Secondary BCCH 5 128 = Secondary BCCH 6 256 = Secondary BCCH 7 512 = FCCCH 1024 = QPCH 2048 = FCH 4096 = DCCH 8192 = SCCH 16384 = SCH 32768 = PDCCH 65536 = GCH 0 131072 = GCH 1 262144 = RCCH 524288 = ACKCH 1048576 = CPCCH 2097152 = CACH

	Integer	Locked antennas 0 = RX0 1 = RX1
Locked antennas		
RX0 Ec/I0	Float	Ec/I0 antenna 0 Ec/I0 for finger tracking RX0. Range: −30 – 30 Unit: dB
RX1 Ec/I0	Float	Ec/I0 antenna 1 Ec/I0 for finger tracking RX1. Range: −30 – 30 Unit: dB

Parameters for EVDO

Name	Type	Description
#Header params	Integer	Number of header parameters
Searcher state	Integer	Searcher state 0 = Start (inactive) 1 = Acquisition 2 = Synchronization 3 = Idle 4 = Idle suspended 5 = Idle broadcast 6 = Idle off-frequency searching 7 = Broadcast access 8 = Sleep 9 = Reacquisition 10 = Traffic 11 = Traffic suspended 12 = Traffic off-frequency searching
MSTR	Integer	Mobile station time reference Relative to the RTC timebase. Unit: chip
MSTR error	Integer	Mobile station time reference error Relative to the earliest arriving in-lock and enabled active set pilot. Unit: chip
MSTR PN	Integer	Mobile station PN offset Pilot PN of the finger which the MSTR is tracking. Typically the earliest arriving finger. Range: 0 – 511
Ant. config	Integer	Antenna configuration 0 = RX0 1 = RX1 2 = Diversity enabled 3 = Simultaneous mode RX0 4 = Simultaneous mode RX1
#Fingers	Integer	Number of fingers
#Params/Finger	Integer	Number of parameters per finger
PN	Integer	Pilot number Range: 0 – 511
Finger index	Integer	Finger index Index of the demodulator finger. Range: 0 – 11
RPC cell index	Integer	RPC cell index Value/index assigned to a cell by AT. Range: 0 – 6
ASP index	Integer	ASP index

		Value/index assigned to a sector by AT. Range: 0 – 6
Ec/I0	Float	Ec/I0 If antenna configuration is 2, then this represents Ec/I0 for the paired fingers. Range: −30 – 30 Unit: dB
RX0 Ec/I0	Float	Ec/I0 antenna 0 Ec/I0 for finger tracking RX0. Range: −30 – 30 Unit: dB
RX1 Ec/I0	Float	Ec/I0 antenna 1 Ec/I0 for finger tracking RX1. Range: −30 – 30 Unit: dB
Finger locked	Integer	Finger locked 0 = No 1 = Yes
Finger abs. offset	Float	Absolute finger offset Note that the accuracy can be greater than one chip. Unit: chip
Packet carrier	Integer	Packet carrier number

Uplink interference scanning results (UISCAN)

Event ID	UISCAN
Cellular systems	UMTS FDD
Record state	Scanning state
Description	Recorded when parameter sample is received from the device.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD

Parameters for UMTS FDD

Name		Type	Description
#Header params		Integer	Number of header parameters
	Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20 50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD
#Params/Cell		Integer	Number of parameters per cell
#Cells		Integer	Number of scanned cells
	ARFCN	Integer	Channel number
	SC	Integer	Scrambling code Range: 0 – 511
	UL interf.	Float	Uplink interference Uplink Interference is measured by the NodeB and broadcasted by the NodeB in SIB7. This is used by the UE to in setting the initial TX power for the first PRACH preamble. The Uplink Interference value in SIB7 uses 1 dB step. More information can be found in 3GPP TS 25.133 and 25.215 (information about SIB7 in 3GPP TS 25.331), where the Uplink Interference is referred as "Received total wide band power"

		Range: −110 – −52 Unit: dBm

Cell scanning results (CELLSCAN)

Event ID	CELLSCAN
Cellular systems	GSM,UMTS FDD,LTE FDD,LTE TDD
Record state	Scanning state
Description	Recorded when parameter sample is received from the device. With GSM the system information messages, and with UMTS and LTE the system information blocks, are decoded to produce the information required for this measurement event.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 1 = GSM 5 = UMTS FDD 7 = LTE FDD 7 = LTE FDD 8 = LTE TDD 8 = LTE TDD

Parameters for GSM

Name		Type	Description
#Header params		Integer	Number of header parameters
	Band	Integer	Band 10850 = GSM 850 Band 850 is also known as band 800. 10900 = GSM 900 11800 = GSM 1800 11900 = GSM 1900 19999 = GSM
#Cells		Integer	Number of cells
#Params/Cell		Integer	Number of parameters per cell
	ARFCN	Integer	Scanned channel number
	BSIC	Integer	Scanned base station identification code Range: 0 – 63
	MCC	Integer	Scanned MCC See ITU-T recommendation E.212. Range: 0 – 999
	MNC	Integer	Scanned MNC Range: 0 – 999
	LAC	Integer	Scanned LAC Range: 0 – 65535
	Cell ID	Integer	Scanned cell identification Cell identity of the current cell. For GSM this is 16 bit value, for UMTS this is 28 bit value (RNC ID + 16 bit cell ID), and for LTE this is 28 bit value (eNB ID + 8 bit cell ID). Range: 0 – 65535

Parameters for UMTS FDD

Name	Type	Description
#Header params	Integer	Number of header parameters
Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20 50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
UARFCN	Integer	Scanned channel number
SC	Integer	Scanned scrambling code Range: 0 – 511
MCC	Integer	Scanned MCC See ITU-T recommendation E.212. Range: 0 – 999
MNC	Integer	Scanned MNC Range: 0 – 999
LAC	Integer	Scanned LAC Range: 0 – 65535
Cell ID	Integer	Scanned cell identification Cell identity of the current cell. For GSM this is 16 bit value, for UMTS this is 28 bit value (RNC ID + 16 bit cell ID), and for LTE this is 28 bit value (eNB ID + 8 bit cell ID). Range: 0 – 268435455

Parameters for LTE

Name	Type	Description
#Header params	Integer	Number of header parameters
Band	Integer	Band
#Cells	Integer	Number of cells
#Params/Cell	Integer	Number of parameters per cell
EARFCN	Integer	Scanned channel number
PCI	Integer	Scanned physical cell identity Range: 0 – 503

MCC	Integer	Scanned MCC See ITU-T recommendation E.212. Range: 0 – 999
MNC	Integer	Scanned MNC Range: 0 – 999
TAC	Integer	Scanned TAC Range: 0 – 65535
Cell ID	Integer	Scanned cell identification Cell identity of the current cell. For GSM this is 16 bit value, for UMTS this is 28 bit value (RNC ID + 16 bit cell ID), and for LTE this is 28 bit value (eNB ID + 8 bit cell ID). Range: 0 – 268435455

Handover/handoff attempt (HOA)

Event ID	HOA
Cellular systems	All
Record state	Always
Description	Recorded when handover attempt is initiated based on signaling. For GSM, RR layer3 signaling is used. For UMTS, RRC signaling is used. Note that this measurement event is not recorded with GSM when the first TCH allocation is done. Instead, after a successful TCH assignment, a CAC measurement event is recorded. The measurement event begins the handover attempt state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Handover context ID	Context	Handover context ID
#Header params	Integer	Number of header parameters
HOA type	Integer	Handover/handoff attempt type 101 = GSM internal handover 102 = GSM handover between cells 103 = GSM handover between systems 104 = GSM handover between bands 105 = GSM internal handover between bands 201 = DAMPS handoff between sectors or handoff to small diameter cell (SBI = 00) 202 = DAMPS handoff to small diameter cell or handoff to large diameter cell (SBI = 01 or SBI = 10) 203 = DAMPS handoff between systems 301 = CDMA hard handoff 303 = CDMA handoff between systems 401 = UMTS FDD hard handover 403 = UMTS FDD handover between systems 501 = TD-SCDMA hard inter-frequency handover 502 = TD-SCDMA hard intra-frequency handover 503 = TD-SCDMA handover between systems 504 = TD-SCDMA baton inter-frequency handover 505 = TD-SCDMA baton intra-frequency handover 600 = TETRA announced cell reselection type 1 601 = TETRA announced cell reselection type 2 602 = TETRA announced cell reselection type 3 703 = GAN WLAN handover between systems 801 = WiMAX handover between cells 901 = LTE handover between cells 902 = LTE handover between frequencies 903 = LTE handover between bands 904 = LTE handover between systems 1001 = iDEN intra-cell 1002 = iDEN inter-cell

Current system parameters

Name	Type	Description
Current system	Integer	Current cellular system 1 = GSM

		2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO 21 = GAN WLAN 25 = WiMAX 53 = DAMPS 55 = iDEN
Number of current system parameters	Integer	Number of current system parameters

Parameters for GSM

Name	Type	Description
Ch number	Integer	Channel number If the current cell does not have hopping, the value is the currently used channel number. If hopping is in use, the value is the BCCH channel number of the serving cell.
TSL	Integer	Timeslot Range: 0 – 7
Band	Integer	Band 10850 = GSM 850 Band 850 is also known as band 800. 10900 = GSM 900 11800 = GSM 1800 11900 = GSM 1900 19999 = GSM

Parameters for TETRA

Name	Type	Description
Ch number	Integer	Channel number
TSL	Integer	Timeslot Range: 0 – 7
Band	Integer	Band 20001 = TETRA band 1 20002 = TETRA band 2 20003 = TETRA band 3 20004 = TETRA band 4 20005 = TETRA band 5 20006 = TETRA band 6 20007 = TETRA band 7 20008 = TETRA band 8 20009 = TETRA band 9 20010 = TETRA band 10 20011 = TETRA band 11 20012 = TETRA band 12 20013 = TETRA band 13 20014 = TETRA band 14 20015 = TETRA band 15 29999 = TETRA

Parameters for UMTS FDD

Ch number	Integer	Channel number
SC	Integer	Scrambling code Range: 0 – 511
Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20 50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD

Parameters for UMTS TD-SCDMA

Name	Type	Description
Ch number	Integer	Channel number
Cell params ID	Integer	Cell parameters ID Range: 0 – 127
Band	Integer	Band 60001 = UMTS TD-SCDMA 2000 band a 60002 = UMTS TD-SCDMA 1900 band b 60003 = UMTS TD-SCDMA 1900 band c 60004 = UMTS TD-SCDMA 2600 band d 60005 = UMTS TD-SCDMA 1900 band e 60006 = UMTS TD-SCDMA 2300 band f 69999 = UMTS TD-SCDMA

Parameters for LTE

Name	Type	Description
Ch number	Integer	Channel number
PCI	Integer	Physical cell ID Range: 0 – 503
Band	Integer	Band 70001 = LTE FDD 2100 band 1 70002 = LTE FDD 1900 band 2 70003 = LTE FDD 1800 band 3 70004 = LTE FDD 2100 AWS band 4 70005 = LTE FDD 850 band 5 Band 850 is also known as band 800. 70006 = LTE FDD 850 band 6 70007 = LTE FDD 2600 band 7 70008 = LTE FDD 900 band 8 70009 = LTE FDD 1800 band 9

70010 = LTE FDD 2100 band 10
70011 = LTE FDD 1400 band 11
70012 = LTE FDD 700 band 12
70013 = LTE FDD 700 band 13
70014 = LTE FDD 700 band 14
70017 = LTE FDD 700 band 17
70018 = LTE FDD 850 band 18
70019 = LTE FDD 850 band 19
70020 = LTE FDD 800 band 20
70021 = LTE FDD 1500 band 21
70022 = LTE FDD 3500 band 22
70023 = LTE FDD 2200 band 23
70024 = LTE FDD 1500 band 24
70025 = LTE FDD 1900 band 25
70026 = LTE FDD 850 band 26
70027 = LTE FDD 800 band 27
70028 = LTE FDD 700 band 28
70029 = LTE FDD 700 band 29
　　This is downlink only band.
70030 = LTE FDD 2350 band 30
70031 = LTE FDD 450 band 31
70032 = LTE FDD 1500 L-band
　　This is downlink only band.
70064 = LTE FDD 390-470 band 64
　　This is a non-standard LTE FDD band.
70065 = LTE FDD 2100 band 65
70066 = LTE FDD AWS-3 2100 band 66
70067 = LTE FDD 700 EU band 67
　　This is downlink only band.
79999 = LTE FDD
80033 = LTE TDD 1900-1920 band 33
80034 = LTE TDD 2010-2025 band 34
80035 = LTE TDD 1850-1910 band 35
80036 = LTE TDD 1930-1990 band 36
80037 = LTE TDD 1910-1930 band 37
80038 = LTE TDD 2570-2620 band 38
80039 = LTE TDD 1880-1920 band 39
80040 = LTE TDD 2300-2400 band 40
80041 = LTE TDD 2496-2690 band 41
80042 = LTE TDD 3400-3600 band 42
80043 = LTE TDD 3600-3800 band 43
80044 = LTE TDD 703-803 band 44
80045 = LTE TDD 1447-1467 band 45
80061 = LTE TDD 1447-1467 band 61
　　This is a non-standard LTE TDD band.
80062 = LTE TDD 1785-1805 band 62
　　This is a non-standard LTE TDD band.
80087 = LTE TDD 1447-1467 band 87
　　This is a non-standard LTE TDD band.
80088 = LTE TDD 1785-1805 band 88
　　This is a non-standard LTE TDD band.
89999 = LTE TDD

Parameters for cdmaOne, CDMA 1x, and EVDO

Name	Type	Description
Ch number	Integer	Channel number
Band	Integer	Band 100000 = cdmaOne 800 　　North American cellular 800 MHz band, also in Korea, Australia, 　　Hong Kong, China, Taiwan, and others. 100001 = cdmaOne 1900 　　North American PCS 1900 MHz band.

100002 = cdmaOne 900 (TACS)
    Total access communication system (TACS) 900 MHz band.
100003 = cdmaOne 800 (JTACS)
    JTACS 800 MHz band (Japanese 800 MHz reversed).
100004 = cdmaOne 1800 (Korean)
    Korean PCS 1800 MHz band.
100005 = cdmaOne 450 (NMT)
    Nordic mobile telephone (NMT) 450 MHz band.
100006 = cdmaOne 1900-2100 (IMT)
    IMT-2000 1900-2100 MHz band.
100007 = cdmaOne 700
    North American cellular 700 MHz band.
100008 = cdmaOne 1800
    1800 MHz band.
100009 = cdmaOne 900
    900 MHz band.
100010 = cdmaOne 900 (SMR)
    Specialized mobile radio (SMR) 900 MHz band.
100011 = cdmaOne 400 (PAMR)
    European PAMR 400 MHz band.
100012 = cdmaOne 800 (PAMR)
    European PAMR 800 MHz band.
100013 = cdmaOne 2500
    2.5 GHz IMT-2000 extension.
100014 = cdmaOne 1900 (band 14)
    US PCS 1.9 GHz.
100015 = cdmaOne 2100 (AWS)
100016 = cdmaOne 2500 (band 16)
    US 2.5 GHz.
100018 = cdmaOne 700 (public safety)
100019 = cdmaOne 700 (lower)
100020 = cdmaOne 1500 (L-band)
100021 = cdmaOne 2000 (S-band)
109999 = cdmaOne
110000 = CDMA 1x 800
    North American cellular 800 MHz band, also in Korea, Australia,
    Hong Kong, China, Taiwan, and others.
110001 = CDMA 1x 1900
    North American PCS 1900 MHz band.
110002 = CDMA 1x 900 (TACS)
    Total access communication system (TACS) 900 MHz band.
110003 = CDMA 1x 800 (JTACS)
    JTACS 800 MHz band (Japanese 800 MHz reversed).
110004 = CDMA 1x 1800 (Korean)
    Korean PCS 1800 MHz band.
110005 = CDMA 1x 450 (NMT)
    Nordic mobile telephone (NMT) 450 MHz band.
110006 = CDMA 1x 1900-2100 (IMT)
    IMT-2000 1900-2100 MHz band.
110007 = CDMA 1x 700
    North American cellular 700 MHz band.
110008 = CDMA 1x 1800
    1800 MHz band.
110009 = CDMA 1x 900
    900 MHz band.
110010 = CDMA 1x 900 (SMR)
    Specialized mobile radio (SMR) 900 MHz band.
110011 = CDMA 1x 400 (PAMR)
    European PAMR 400 MHz band.
110012 = CDMA 1x 800 (PAMR)
    European PAMR 800 MHz band.
110013 = CDMA 1x 2500
    2.5 GHz IMT-2000 extension.
110014 = CDMA 1x 1900 (band 14)
    US PCS 1.9 GHz.

110015 = CDMA 1x 2100 (AWS)
110016 = CDMA 1x 2500 (band 16)
    US 2.5 GHz.
110018 = CDMA 1x 700 (public safety)
110019 = CDMA 1x 700 (lower)
110020 = CDMA 1x 1500 (L-band)
110021 = CDMA 1x 2000 (S-band)
119999 = CDMA 1x
120000 = EVDO 800
    North American cellular 800 MHz band. Also in Korea, Australia,
    Hong Kong, China, Taiwan, and others.
120001 = EVDO 1900
    North American PCS 1900 MHz band.
120002 = EVDO 900 (TACS)
    Total access communication system (TACS) 900 MHz band.
120003 = EVDO 800 (JTACS)
    JTACS 800 MHz band (Japanese 800 MHz reversed).
120004 = EVDO 1800 (Korean)
    Korean PCS 1800 MHz band.
120005 = EVDO 450 (NMT)
    Nordic mobile telephone (NMT) 450 MHz band.
120006 = EVDO 1900-2100 (IMT)
    IMT-2000 1900-2100 MHz band.
120007 = EVDO 700
    North American cellular 700 MHz band.
120008 = EVDO 1800
    1800 MHz band.
120009 = EVDO 900
    900 MHz band.
120010 = EVDO 900 (SMR)
    Specialized mobile radio (SMR) 900 MHz band.
120011 = EVDO 400 (PAMR)
    European PAMR 400 MHz band.
120012 = EVDO 800 (PAMR)
    European PAMR 800 MHz band.
120013 = EVDO 2500
    2.5 GHz IMT-2000 extension.
120014 = EVDO 1900 (band 14)
    US PCS 1.9 GHz.
120015 = EVDO 2100 (AWS)
120016 = EVDO 2500 (band 16)
    US 2.5 GHz.
120018 = EVDO 700 (public safety)
120019 = EVDO 700 (lower)
120020 = EVDO 1500 (L-band)
120021 = EVDO 2000 (S-band)
129999 = EVDO

Parameters for GAN WLAN

Name	Type	Description
Reserved	Integer	Reserved

Parameters for WiMAX

Name	Type	Description
BS ID	String	WiMAX base station ID Six colon separated hex values.
Preamble index	Integer	WiMAX preamble index Range: 0 – 113
Frequency	Float	WiMAX frequency

Parameters for DAMPS

Name	Type	Description
Ch number	Integer	Channel number
TSL	Integer	Timeslot Range: 0 – 7

Parameters for iDEN

Name	Type	Description
Ch number	Integer	Channel number
CC	Integer	Color code Range: 0 – 15
Band	Integer	Band 550001 = iDEN proprietary 550002 = iDEN 800 standard 550003 = iDEN 800 extended 550004 = iDEN 900 550005 = iDEN 1500 559999 = iDEN

Attempted system parameters

Name	Type	Description
Attempt. system	Integer	Attempted cellular system 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO 21 = GAN WLAN 25 = WiMAX 53 = DAMPS 55 = iDEN
Number of attempted system parameters	Integer	Number of attempted system parameters

Parameters for GSM

Name	Type	Description
Att. ch	Integer	Attempted channel number If hopping flag is disable (see GSM 04.08 / 10.5.2.5) the value is the same as ARFCN. If hopping is enabled and assignment command was used, the value is the same as the serving cell BCCH. If hopping is enabled and handover command was used, the value is BCCH ARFCN (see GSM 04.08/ 10.5.2.2).
Att. TSL	Integer	Attempted timeslot Range: 0 – 7
Att. Band	Integer	Attempted band 10850 = GSM 850

		Band 850 is also known as band 800. 10900 = GSM 900 11800 = GSM 1800 11900 = GSM 1900 19999 = GSM

Parameters for TETRA

Name	Type	Description
Att. ch	Integer	Attempted channel number
Att. TSL	Integer	Attempted timeslot Range: 0 – 7
Att. Band	Integer	Attempted band 20001 = TETRA band 1 20002 = TETRA band 2 20003 = TETRA band 3 20004 = TETRA band 4 20005 = TETRA band 5 20006 = TETRA band 6 20007 = TETRA band 7 20008 = TETRA band 8 20009 = TETRA band 9 20010 = TETRA band 10 20011 = TETRA band 11 20012 = TETRA band 12 20013 = TETRA band 13 20014 = TETRA band 14 20015 = TETRA band 15 29999 = TETRA

Parameters for UMTS FDD

Name	Type	Description
Att. ch	Integer	Attempted channel number
Att. SC	Integer	Attempted scrambling code Range: 0 – 511
Att. Band	Integer	Attempted band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20 50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD

Parameters for UMTS TD-SCDMA

Name	Type	Description
Att. ch	Integer	Attempted channel number
Att. Cell params ID	Integer	Attempted cell parameters ID Range: 0 – 127
Att. Band	Integer	Attempted band 60001 = UMTS TD-SCDMA 2000 band a 60002 = UMTS TD-SCDMA 1900 band b 60003 = UMTS TD-SCDMA 1900 band c 60004 = UMTS TD-SCDMA 2600 band d 60005 = UMTS TD-SCDMA 1900 band e 60006 = UMTS TD-SCDMA 2300 band f 69999 = UMTS TD-SCDMA

Parameters for LTE

Name	Type	Description
Att. ch	Integer	Attempted channel number
Att. PCI	Integer	Attempted physical cell ID Range: 0 – 503

Att. Band	Integer	Attempted band
		70001 = LTE FDD 2100 band 1
		70002 = LTE FDD 1900 band 2
		70003 = LTE FDD 1800 band 3
		70004 = LTE FDD 2100 AWS band 4
		70005 = LTE FDD 850 band 5
		   Band 850 is also known as band 800.
		70006 = LTE FDD 850 band 6
		70007 = LTE FDD 2600 band 7
		70008 = LTE FDD 900 band 8
		70009 = LTE FDD 1800 band 9
		70010 = LTE FDD 2100 band 10
		70011 = LTE FDD 1400 band 11
		70012 = LTE FDD 700 band 12
		70013 = LTE FDD 700 band 13
		70014 = LTE FDD 700 band 14
		70017 = LTE FDD 700 band 17
		70018 = LTE FDD 850 band 18
		70019 = LTE FDD 850 band 19
		70020 = LTE FDD 800 band 20
		70021 = LTE FDD 1500 band 21
		70022 = LTE FDD 3500 band 22
		70023 = LTE FDD 2200 band 23
		70024 = LTE FDD 1500 band 24
		70025 = LTE FDD 1900 band 25
		70026 = LTE FDD 850 band 26
		70027 = LTE FDD 800 band 27
		70028 = LTE FDD 700 band 28
		70029 = LTE FDD 700 band 29
		   This is downlink only band.
		70030 = LTE FDD 2350 band 30
		70031 = LTE FDD 450 band 31
		70032 = LTE FDD 1500 L-band
		   This is downlink only band.
		70064 = LTE FDD 390-470 band 64
		   This is a non-standard LTE FDD band.
		70065 = LTE FDD 2100 band 65
		70066 = LTE FDD AWS-3 2100 band 66
		70067 = LTE FDD 700 EU band 67

		This is downlink only band.
		79999 = LTE FDD
		80033 = LTE TDD 1900-1920 band 33
		80034 = LTE TDD 2010-2025 band 34
		80035 = LTE TDD 1850-1910 band 35
		80036 = LTE TDD 1930-1990 band 36
		80037 = LTE TDD 1910-1930 band 37
		80038 = LTE TDD 2570-2620 band 38
		80039 = LTE TDD 1880-1920 band 39
		80040 = LTE TDD 2300-2400 band 40
		80041 = LTE TDD 2496-2690 band 41
		80042 = LTE TDD 3400-3600 band 42
		80043 = LTE TDD 3600-3800 band 43
		80044 = LTE TDD 703-803 band 44
		80045 = LTE TDD 1447-1467 band 45
		80061 = LTE TDD 1447-1467 band 61
		   This is a non-standard LTE TDD band.
		80062 = LTE TDD 1785-1805 band 62
		   This is a non-standard LTE TDD band.
		80087 = LTE TDD 1447-1467 band 87
		   This is a non-standard LTE TDD band.
		80088 = LTE TDD 1785-1805 band 88
		   This is a non-standard LTE TDD band.
		89999 = LTE TDD

Parameters for cdmaOne, CDMA 1x, and EVDO

Name	Type	Description
Att. ch	Integer	Attempted channel number

Att. Band	Integer	Attempted band
		100000 = cdmaOne 800
		   North American cellular 800 MHz band, also in Korea, Australia,
		   Hong Kong, China, Taiwan, and others.
		100001 = cdmaOne 1900
		   North American PCS 1900 MHz band.
		100002 = cdmaOne 900 (TACS)
		   Total access communication system (TACS) 900 MHz band.
		100003 = cdmaOne 800 (JTACS)
		   JTACS 800 MHz band (Japanese 800 MHz reversed).
		100004 = cdmaOne 1800 (Korean)
		   Korean PCS 1800 MHz band.
		100005 = cdmaOne 450 (NMT)
		   Nordic mobile telephone (NMT) 450 MHz band.
		100006 = cdmaOne 1900-2100 (IMT)
		   IMT-2000 1900-2100 MHz band.
		100007 = cdmaOne 700
		   North American cellular 700 MHz band.
		100008 = cdmaOne 1800
		   1800 MHz band.
		100009 = cdmaOne 900
		   900 MHz band.
		100010 = cdmaOne 900 (SMR)
		   Specialized mobile radio (SMR) 900 MHz band.
		100011 = cdmaOne 400 (PAMR)
		   European PAMR 400 MHz band.
		100012 = cdmaOne 800 (PAMR)
		   European PAMR 800 MHz band.
		100013 = cdmaOne 2500
		   2.5 GHz IMT-2000 extension.
		100014 = cdmaOne 1900 (band 14)
		   US PCS 1.9 GHz.
		100015 = cdmaOne 2100 (AWS)
		100016 = cdmaOne 2500 (band 16)

US 2.5 GHz.
100018 = cdmaOne 700 (public safety)
100019 = cdmaOne 700 (lower)
100020 = cdmaOne 1500 (L-band)
100021 = cdmaOne 2000 (S-band)
109999 = cdmaOne
110000 = CDMA 1x 800
   North American cellular 800 MHz band, also in Korea, Australia,
   Hong Kong, China, Taiwan, and others.
110001 = CDMA 1x 1900
   North American PCS 1900 MHz band.
110002 = CDMA 1x 900 (TACS)
   Total access communication system (TACS) 900 MHz band.
110003 = CDMA 1x 800 (JTACS)
   JTACS 800 MHz band (Japanese 800 MHz reversed).
110004 = CDMA 1x 1800 (Korean)
   Korean PCS 1800 MHz band.
110005 = CDMA 1x 450 (NMT)
   Nordic mobile telephone (NMT) 450 MHz band.
110006 = CDMA 1x 1900-2100 (IMT)
   IMT-2000 1900-2100 MHz band.
110007 = CDMA 1x 700
   North American cellular 700 MHz band.
110008 = CDMA 1x 1800
   1800 MHz band.
110009 = CDMA 1x 900
   900 MHz band.
110010 = CDMA 1x 900 (SMR)
   Specialized mobile radio (SMR) 900 MHz band.
110011 = CDMA 1x 400 (PAMR)
   European PAMR 400 MHz band.
110012 = CDMA 1x 800 (PAMR)
   European PAMR 800 MHz band.
110013 = CDMA 1x 2500
   2.5 GHz IMT-2000 extension.
110014 = CDMA 1x 1900 (band 14)
   US PCS 1.9 GHz.
110015 = CDMA 1x 2100 (AWS)
110016 = CDMA 1x 2500 (band 16)
   US 2.5 GHz.
110018 = CDMA 1x 700 (public safety)
110019 = CDMA 1x 700 (lower)
110020 = CDMA 1x 1500 (L-band)
110021 = CDMA 1x 2000 (S-band)
119999 = CDMA 1x
120000 = EVDO 800
   North American cellular 800 MHz band. Also in Korea, Australia,
   Hong Kong, China, Taiwan, and others.
120001 = EVDO 1900
   North American PCS 1900 MHz band.
120002 = EVDO 900 (TACS)
   Total access communication system (TACS) 900 MHz band.
120003 = EVDO 800 (JTACS)
   JTACS 800 MHz band (Japanese 800 MHz reversed).
120004 = EVDO 1800 (Korean)
   Korean PCS 1800 MHz band.
120005 = EVDO 450 (NMT)
   Nordic mobile telephone (NMT) 450 MHz band.
120006 = EVDO 1900-2100 (IMT)
   IMT-2000 1900-2100 MHz band.
120007 = EVDO 700
   North American cellular 700 MHz band.
120008 = EVDO 1800
   1800 MHz band.
120009 = EVDO 900

900 MHz band.
120010 = EVDO 900 (SMR)
    Specialized mobile radio (SMR) 900 MHz band.
120011 = EVDO 400 (PAMR)
    European PAMR 400 MHz band.
120012 = EVDO 800 (PAMR)
    European PAMR 800 MHz band.
120013 = EVDO 2500
    2.5 GHz IMT-2000 extension.
120014 = EVDO 1900 (band 14)
    US PCS 1.9 GHz.
120015 = EVDO 2100 (AWS)
120016 = EVDO 2500 (band 16)
    US 2.5 GHz.
120018 = EVDO 700 (public safety)
120019 = EVDO 700 (lower)
120020 = EVDO 1500 (L-band)
120021 = EVDO 2000 (S-band)
129999 = EVDO

Parameters for GAN WLAN

Name	Type	Description
Reserved	Integer	Reserved

Parameters for WiMAX

Name	Type	Description
Att. BS ID	String	Attempted WiMAX base station ID Six colon separated hex values.
Att. preamble index	Integer	Attempted WiMAX preamble index Range: 0 – 113
Att. frequency	Float	Attempted WiMAX frequency Unit: MHz

Parameters for DAMPS

Name	Type	Description
Att. ch	Integer	Attempted channel number
Att. TSL	Integer	Attempted timeslot Range: 0 – 7

Parameters for iDEN

Name	Type	Description
Att. ch	Integer	Attempted channel number
Att. CC	Integer	Attempted color code Range: 0 – 15
Att. Band	Integer	Attempted band 550001 = iDEN proprietary 550002 = iDEN 800 standard 550003 = iDEN 800 extended 550004 = iDEN 900 550005 = iDEN 1500 559999 = iDEN

Handover/handoff success (HOS)

Event ID	HOS
Cellular systems	All
Record state	Handover attempt state
Description	Recorded based on signaling when a handover is successful. This measurement event ends the handover attempt state.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Handover context ID	Context	Handover context ID

Handover/handoff fail (HOF)

Event ID	HOF
Cellular systems	All
Record state	Handover attempt state
Description	Recorded based on signaling when a handover fails. This measurement event ends the handover attempt state.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
Handover context ID	Context	Handover context ID

Parameters for GSM and GAN WLAN

Name	Type	Description
RR cause	Integer	RR cause See 3GPP TS 144.018 subclause 10.5.2.31. 0 = Normal event 1 = Abnormal release, unspecified 2 = Abnormal release, channel unacceptable 3 = Abnormal release, timer expired 4 = Abnormal release, no activity on the radio path 5 = Pre-emtive release 6 = UTRAN configuration unknown 8 = Handover impossible, timing advance out of range 9 = Channel mode unacceptable 10 = Frequency not implemented 11 = Originator or talker leaving group call area 12 = Lower layer failure 65 = Call already cleared 95 = Semantically incorrect message 96 = Invalid mandatory information 97 = Message type non-existent or not implemented 98 = Message type not compatible with protocol state 100 = Conditional IE error 101 = No cell allocation available 111 = Protocol error unspecified

Parameters for TETRA, DAMPS, and CDMA

Name	Type	Description
Reserved	Integer	Reserved

Parameters for UMTS hard handover and TD-SCDMA baton handover

Name	Type	Description
RRC cause	Integer	RRC cause This is the same as a failure cause defined by 3GPP TS 25.331 subclause 10.3.3.13. 0 = Configuration unsupported 1 = Physical channel failure 2 = Incompatible simultaneous reconfiguration

		4 = Compressed mode runtime error 5 = Cell update occurred 6 = Invalid configuration 7 = Configuration incomplete 8 = Unsupported measurement 9 = MBMS session already received correctly 10 = Lower priority MBMS service

Parameters for UMTS handover between systems

Name	Type	Description
Inter-RAT cause	Integer	Inter-RAT handover failure cause This is the same as a failure cause defined by 3GPP TS 25.331 subclause 10.3.8.6. 0 = Configuration unacceptable 1 = Physical channel failure 2 = Protocol error 3 = Inter-RAT protocol error 4 = Unspecified

Parameters for WiMAX handover between cells

Name	Type	Description
HO cause	Integer	WiMAX HO cause 1 = Dropped 101 = Mobile cancel 102 = Mobile reject 201 = Ranging failure 202 = Ranging abort

Parameters for LTE

Name	Type	Description
Reserved	Integer	Reserved

Parameters for iDEN

Name	Type	Description
Reserved	Integer	Reserved

Handover/handoff information (HOI)

Event ID	HOI
Cellular systems	UMTS FDD,LTE FDD,LTE TDD,WiMAX
Record state	Always
Description	Recorded when additional information is available on the handover.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Handover context ID	Context	Handover context ID
#Header params	Integer	Number of header parameters
HO duration	Integer	Handover duration With the LTE this defines the handover duration containing handover processing and interrupt time. Time from the handover initiating RRC signaling message to the succesfully completed RACH procedure in the new cell. Minimum value: 0 Unit: ms
HO to preamble time	Integer	Handover to preamble time Time from handover attempt (RRC signaling message) to the first random access preamble (MSG1) in the target cell. Only support for LTE to LTE handovers. Minimum value: 0 Unit: ms
HO U-plane interruption	Integer	Handover U-plane interruption time Defines the time from the last packet in the old cell to the first packet in the new cell. Minimum value: 0 Unit: ms

Cell reselection (CREL)

Event ID	CREL
Cellular systems	GSM,TETRA,UMTS FDD,UMTS TD-SCDMA,LTE FDD,LTE TDD,cdmaOne,CDMA 1x,EVDO,GAN WLAN,iDEN
Record state	Always
Description	Recorded after cell reselection. With GSM and UMTS FDD, the measurement event is recorded based on cell ID change in non-TCH state with GSM and in non-CELL_DCH state with UMTS FDD.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name	Type	Description
#Header params	Integer	Number of header parameters
CRS time	Integer	Cell reselection duration Indicates the duration of the cell reselection. Currently this parameter is only implemented for GSM. Unit: ms
CRS reason	Integer	Cell reselection reason Note that currently this parameter is only supported with iDEN. 1001 = iDEN comparison between serving cell and neighbor cell quality 1002 = iDEN serving cell becomes barred 1003 = iDEN serving cell failed

Old system parameters

Name	Type	Description
Old system	Integer	Old cellular system 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO 21 = GAN WLAN 55 = iDEN
#Params	Integer	Number of parameters

Parameters for GSM

Name	Type	Description
Old LAC	Integer	Old location area code Location area code of the old cell. Range: 0 – 65535
Old Cell ID	Integer	Old cell identification Cell identification of the old cell. Range: 0 – 268435455

Old band	Integer	Old band 10850 = GSM 850 Band 850 is also known as band 800. 10900 = GSM 900 11800 = GSM 1800 11900 = GSM 1900 19999 = GSM

Parameters for TETRA

Name	Type	Description
Old LAC	Integer	Old location area code Location area code of the old cell. Range: 0 – 65535
Old Cell ID	Integer	Old cell identification Cell identification of the old cell. Range: 0 – 65535
Old band	Integer	Old band 20001 = TETRA band 1 20002 = TETRA band 2 20003 = TETRA band 3 20004 = TETRA band 4 20005 = TETRA band 5 20006 = TETRA band 6 20007 = TETRA band 7 20008 = TETRA band 8 20009 = TETRA band 9 20010 = TETRA band 10 20011 = TETRA band 11 20012 = TETRA band 12 20013 = TETRA band 13 20014 = TETRA band 14 20015 = TETRA band 15 29999 = TETRA

Parameters for UMTS FDD

Name	Type	Description
Old LAC	Integer	Old location area code Location area code of the old cell. Range: 0 – 65535
Old Cell ID	Integer	Old cell identification Cell identification of the old cell. Range: 0 – 268435455
Old band	Integer	Old band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14

		50020 = UMTS FDD 800 band 20
		50021 = UMTS FDD 1500 band 21
		50022 = UMTS FDD 3500 band 22
		50025 = UMTS FDD 1900 band 25
		50026 = UMTS FDD 850 band 26
		59999 = UMTS FDD

Parameters for UMTS TD-SCDMA

Name	Type	Description
Old LAC	Integer	Old location area code Location area code of the old cell. Range: 0 – 65535
Old Cell ID	Integer	Old cell identification Cell identification of the old cell. Range: 0 – 268435455
Old band	Integer	Old band 60001 = UMTS TD-SCDMA 2000 band a 60002 = UMTS TD-SCDMA 1900 band b 60003 = UMTS TD-SCDMA 1900 band c 60004 = UMTS TD-SCDMA 2600 band d 60005 = UMTS TD-SCDMA 1900 band e 60006 = UMTS TD-SCDMA 2300 band f 69999 = UMTS TD-SCDMA

Parameters for LTE

Name	Type	Description
Old TAC	Integer	Old tracking area code Range: 0 – 65535
Old Cell ID	Integer	Old cell identification Cell identification of the old cell. Range: 0 – 268435455
Old band	Integer	Old band 70001 = LTE FDD 2100 band 1 70002 = LTE FDD 1900 band 2 70003 = LTE FDD 1800 band 3 70004 = LTE FDD 2100 AWS band 4 70005 = LTE FDD 850 band 5 Band 850 is also known as band 800. 70006 = LTE FDD 850 band 6 70007 = LTE FDD 2600 band 7 70008 = LTE FDD 900 band 8 70009 = LTE FDD 1800 band 9 70010 = LTE FDD 2100 band 10 70011 = LTE FDD 1400 band 11 70012 = LTE FDD 700 band 12 70013 = LTE FDD 700 band 13 70014 = LTE FDD 700 band 14 70017 = LTE FDD 700 band 17 70018 = LTE FDD 850 band 18 70019 = LTE FDD 850 band 19 70020 = LTE FDD 800 band 20 70021 = LTE FDD 1500 band 21 70022 = LTE FDD 3500 band 22 70023 = LTE FDD 2200 band 23 70024 = LTE FDD 1500 band 24 70025 = LTE FDD 1900 band 25 70026 = LTE FDD 850 band 26 70027 = LTE FDD 800 band 27

		70029 = LTE FDD 700 band 29
		    This is downlink only band.
		70030 = LTE FDD 2350 band 30
		70031 = LTE FDD 450 band 31
		70032 = LTE FDD 1500 L-band
		    This is downlink only band.
		70064 = LTE FDD 390-470 band 64
		    This is a non-standard LTE FDD band.
		70065 = LTE FDD 2100 band 65
		70066 = LTE FDD AWS-3 2100 band 66
		70067 = LTE FDD 700 EU band 67
		    This is downlink only band.
		79999 = LTE FDD
		80033 = LTE TDD 1900-1920 band 33
		80034 = LTE TDD 2010-2025 band 34
		80035 = LTE TDD 1850-1910 band 35
		80036 = LTE TDD 1930-1990 band 36
		80037 = LTE TDD 1910-1930 band 37
		80038 = LTE TDD 2570-2620 band 38
		80039 = LTE TDD 1880-1920 band 39
		80040 = LTE TDD 2300-2400 band 40
		80041 = LTE TDD 2496-2690 band 41
		80042 = LTE TDD 3400-3600 band 42
		80043 = LTE TDD 3600-3800 band 43
		80044 = LTE TDD 703-803 band 44
		80045 = LTE TDD 1447-1467 band 45
		80061 = LTE TDD 1447-1467 band 61
		    This is a non-standard LTE TDD band.
		80062 = LTE TDD 1785-1805 band 62
		    This is a non-standard LTE TDD band.
		80087 = LTE TDD 1447-1467 band 87
		    This is a non-standard LTE TDD band.
		80088 = LTE TDD 1785-1805 band 88
		    This is a non-standard LTE TDD band.
		89999 = LTE TDD

Parameters for cdmaOne, CDMA 1x, and EVDO

Name	Type	Description

Old band	Integer	Old band
		100000 = cdmaOne 800
		    North American cellular 800 MHz band, also in Korea, Australia,
		    Hong Kong, China, Taiwan, and others.
		100001 = cdmaOne 1900
		    North American PCS 1900 MHz band.
		100002 = cdmaOne 900 (TACS)
		    Total access communication system (TACS) 900 MHz band.
		100003 = cdmaOne 800 (JTACS)
		    JTACS 800 MHz band (Japanese 800 MHz reversed).
		100004 = cdmaOne 1800 (Korean)
		    Korean PCS 1800 MHz band.
		100005 = cdmaOne 450 (NMT)
		    Nordic mobile telephone (NMT) 450 MHz band.
		100006 = cdmaOne 1900-2100 (IMT)
		    IMT-2000 1900-2100 MHz band.
		100007 = cdmaOne 700
		    North American cellular 700 MHz band.
		100008 = cdmaOne 1800
		    1800 MHz band.
		100009 = cdmaOne 900
		    900 MHz band.
		100010 = cdmaOne 900 (SMR)
		    Specialized mobile radio (SMR) 900 MHz band.

European PAMR 400 MHz band.
100012 = cdmaOne 800 (PAMR)
    European PAMR 800 MHz band.
100013 = cdmaOne 2500
    2.5 GHz IMT-2000 extension.
100014 = cdmaOne 1900 (band 14)
    US PCS 1.9 GHz.
100015 = cdmaOne 2100 (AWS)
100016 = cdmaOne 2500 (band 16)
    US 2.5 GHz.
100018 = cdmaOne 700 (public safety)
100019 = cdmaOne 700 (lower)
100020 = cdmaOne 1500 (L-band)
100021 = cdmaOne 2000 (S-band)
109999 = cdmaOne
110000 = CDMA 1x 800
    North American cellular 800 MHz band, also in Korea, Australia,
    Hong Kong, China, Taiwan, and others.
110001 = CDMA 1x 1900
    North American PCS 1900 MHz band.
110002 = CDMA 1x 900 (TACS)
    Total access communication system (TACS) 900 MHz band.
110003 = CDMA 1x 800 (JTACS)
    JTACS 800 MHz band (Japanese 800 MHz reversed).
110004 = CDMA 1x 1800 (Korean)
    Korean PCS 1800 MHz band.
110005 = CDMA 1x 450 (NMT)
    Nordic mobile telephone (NMT) 450 MHz band.
110006 = CDMA 1x 1900-2100 (IMT)
    IMT-2000 1900-2100 MHz band.
110007 = CDMA 1x 700
    North American cellular 700 MHz band.
110008 = CDMA 1x 1800
    1800 MHz band.
110009 = CDMA 1x 900
    900 MHz band.
110010 = CDMA 1x 900 (SMR)
    Specialized mobile radio (SMR) 900 MHz band.
110011 = CDMA 1x 400 (PAMR)
    European PAMR 400 MHz band.
110012 = CDMA 1x 800 (PAMR)
    European PAMR 800 MHz band.
110013 = CDMA 1x 2500
    2.5 GHz IMT-2000 extension.
110014 = CDMA 1x 1900 (band 14)
    US PCS 1.9 GHz.
110015 = CDMA 1x 2100 (AWS)
110016 = CDMA 1x 2500 (band 16)
    US 2.5 GHz.
110018 = CDMA 1x 700 (public safety)
110019 = CDMA 1x 700 (lower)
110020 = CDMA 1x 1500 (L-band)
110021 = CDMA 1x 2000 (S-band)
119999 = CDMA 1x
120000 = EVDO 800
    North American cellular 800 MHz band. Also in Korea, Australia,
    Hong Kong, China, Taiwan, and others.
120001 = EVDO 1900
    North American PCS 1900 MHz band.
120002 = EVDO 900 (TACS)
    Total access communication system (TACS) 900 MHz band.
120003 = EVDO 800 (JTACS)
    JTACS 800 MHz band (Japanese 800 MHz reversed).
120004 = EVDO 1800 (Korean)
    Korean PCS 1800 MHz band.

		120005 = EVDO 450 (NMT)
		    Nordic mobile telephone (NMT) 450 MHz band.
		120006 = EVDO 1900-2100 (IMT)
		    IMT-2000 1900-2100 MHz band.
		120007 = EVDO 700
		    North American cellular 700 MHz band.
		120008 = EVDO 1800
		    1800 MHz band.
		120009 = EVDO 900
		    900 MHz band.
		120010 = EVDO 900 (SMR)
		    Specialized mobile radio (SMR) 900 MHz band.
		120011 = EVDO 400 (PAMR)
		    European PAMR 400 MHz band.
		120012 = EVDO 800 (PAMR)
		    European PAMR 800 MHz band.
		120013 = EVDO 2500
		    2.5 GHz IMT-2000 extension.
		120014 = EVDO 1900 (band 14)
		    US PCS 1.9 GHz.
		120015 = EVDO 2100 (AWS)
		120016 = EVDO 2500 (band 16)
		    US 2.5 GHz.
		120018 = EVDO 700 (public safety)
		120019 = EVDO 700 (lower)
		120020 = EVDO 1500 (L-band)
		120021 = EVDO 2000 (S-band)
		129999 = EVDO

Old ch	Integer	Old channel number Channel number of the old cell.
Old PN	Integer	Old pilot number Pilot number of the old cell. Range: 0 – 511

Parameters for GAN WLAN

Name	Type	Description
Old LAC	Integer	Old location area code Location area code of the old cell. Range: 0 – 65535
Old Cell ID	Integer	Old cell identification Cell identification of the old cell. Range: 0 – 65535
Old band	Integer	Old band 219999 = GAN WLAN

Parameters for iDEN

Name	Type	Description
Old band	Integer	Old band 550001 = iDEN proprietary 550002 = iDEN 800 standard 550003 = iDEN 800 extended 550004 = iDEN 900 550005 = iDEN 1500 559999 = iDEN
Old ch	Integer	Old channel number Channel number of the old cell.
Old CC	Integer	Old color code

		Range: 0 – 15

Current system parameters

Name	Type	Description
Serving sys.	Integer	Serving system 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO 21 = GAN WLAN 55 = iDEN
#Params	Integer	Number of parameters

Parameters for GSM

Name	Type	Description
LAC	Integer	Location area code Location area code of the new cell. Range: 0 – 65535
Cell ID	Integer	Cell identification Cell identification of the new cell. Range: 0 – 268435455
Band	Integer	Band 10850 = GSM 850 Band 850 is also known as band 800. 10900 = GSM 900 11800 = GSM 1800 11900 = GSM 1900 19999 = GSM

Parameters for TETRA

Name	Type	Description
LAC	Integer	Location area code Location area code of the new cell. Range: 0 – 65535
Cell ID	Integer	Cell identification Cell identification of the new cell. Range: 0 – 65535
Band	Integer	Band 20001 = TETRA band 1 20002 = TETRA band 2 20003 = TETRA band 3 20004 = TETRA band 4 20005 = TETRA band 5 20006 = TETRA band 6 20007 = TETRA band 7 20008 = TETRA band 8 20009 = TETRA band 9 20010 = TETRA band 10 20011 = TETRA band 11 20012 = TETRA band 12 20013 = TETRA band 13

	20014 = TETRA band 14 20015 = TETRA band 15 29999 = TETRA

Parameters for UMTS FDD

Name	Type	Description
LAC	Integer	Location area code Location area code of the new cell. Range: 0 – 65535
Cell ID	Integer	Cell identification Cell identification of the new cell. Range: 0 – 268435455
Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20 50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD

Parameters for UMTS TD-SCDMA

Name	Type	Description
LAC	Integer	Location area code Location area code of the new cell. Range: 0 – 65535
Cell ID	Integer	Cell identification Cell identification of the new cell. Range: 0 – 268435455
Band	Integer	Band 60001 = UMTS TD-SCDMA 2000 band a 60002 = UMTS TD-SCDMA 1900 band b 60003 = UMTS TD-SCDMA 1900 band c 60004 = UMTS TD-SCDMA 2600 band d 60005 = UMTS TD-SCDMA 1900 band e 60006 = UMTS TD-SCDMA 2300 band f 69999 = UMTS TD-SCDMA

Parameters for LTE

Name	Type	Description
New TAC	Integer	New tracking area code

		Range: 0 – 65535
Cell ID	Integer	Cell identification Cell identification of the new cell. Range: 0 – 268435455

Band	Integer	Band
		70001 = LTE FDD 2100 band 1
		70002 = LTE FDD 1900 band 2
		70003 = LTE FDD 1800 band 3
		70004 = LTE FDD 2100 AWS band 4
		70005 = LTE FDD 850 band 5
		    Band 850 is also known as band 800.
		70006 = LTE FDD 850 band 6
		70007 = LTE FDD 2600 band 7
		70008 = LTE FDD 900 band 8
		70009 = LTE FDD 1800 band 9
		70010 = LTE FDD 2100 band 10
		70011 = LTE FDD 1400 band 11
		70012 = LTE FDD 700 band 12
		70013 = LTE FDD 700 band 13
		70014 = LTE FDD 700 band 14
		70017 = LTE FDD 700 band 17
		70018 = LTE FDD 850 band 18
		70019 = LTE FDD 850 band 19
		70020 = LTE FDD 800 band 20
		70021 = LTE FDD 1500 band 21
		70022 = LTE FDD 3500 band 22
		70023 = LTE FDD 2200 band 23
		70024 = LTE FDD 1500 band 24
		70025 = LTE FDD 1900 band 25
		70026 = LTE FDD 850 band 26
		70027 = LTE FDD 800 band 27
		70028 = LTE FDD 700 band 28
		70029 = LTE FDD 700 band 29
		    This is downlink only band.
		70030 = LTE FDD 2350 band 30
		70031 = LTE FDD 450 band 31
		70032 = LTE FDD 1500 L-band
		    This is downlink only band.
		70064 = LTE FDD 390-470 band 64
		    This is a non-standard LTE FDD band.
		70065 = LTE FDD 2100 band 65
		70066 = LTE FDD AWS-3 2100 band 66
		70067 = LTE FDD 700 EU band 67
		    This is downlink only band.
		79999 = LTE FDD
		80033 = LTE TDD 1900-1920 band 33
		80034 = LTE TDD 2010-2025 band 34
		80035 = LTE TDD 1850-1910 band 35
		80036 = LTE TDD 1930-1990 band 36
		80037 = LTE TDD 1910-1930 band 37
		80038 = LTE TDD 2570-2620 band 38
		80039 = LTE TDD 1880-1920 band 39
		80040 = LTE TDD 2300-2400 band 40
		80041 = LTE TDD 2496-2690 band 41
		80042 = LTE TDD 3400-3600 band 42
		80043 = LTE TDD 3600-3800 band 43
		80044 = LTE TDD 703-803 band 44
		80045 = LTE TDD 1447-1467 band 45
		80061 = LTE TDD 1447-1467 band 61
		    This is a non-standard LTE TDD band.
		80062 = LTE TDD 1785-1805 band 62
		    This is a non-standard LTE TDD band.
		80087 = LTE TDD 1447-1467 band 87

| | | This is a non-standard LTE TDD band.
80088 = LTE TDD 1785-1805 band 88
    This is a non-standard LTE TDD band.
89999 = LTE TDD |

Parameters for cdmaOne, CDMA 1x, and EVDO

Name	Type	Description
Band	Integer	Band 100000 = cdmaOne 800 North American cellular 800 MHz band, also in Korea, Australia, Hong Kong, China, Taiwan, and others. 100001 = cdmaOne 1900 North American PCS 1900 MHz band. 100002 = cdmaOne 900 (TACS) Total access communication system (TACS) 900 MHz band. 100003 = cdmaOne 800 (JTACS) JTACS 800 MHz band (Japanese 800 MHz reversed). 100004 = cdmaOne 1800 (Korean) Korean PCS 1800 MHz band. 100005 = cdmaOne 450 (NMT) Nordic mobile telephone (NMT) 450 MHz band. 100006 = cdmaOne 1900-2100 (IMT) IMT-2000 1900-2100 MHz band. 100007 = cdmaOne 700 North American cellular 700 MHz band. 100008 = cdmaOne 1800 1800 MHz band. 100009 = cdmaOne 900 900 MHz band. 100010 = cdmaOne 900 (SMR) Specialized mobile radio (SMR) 900 MHz band. 100011 = cdmaOne 400 (PAMR) European PAMR 400 MHz band. 100012 = cdmaOne 800 (PAMR) European PAMR 800 MHz band. 100013 = cdmaOne 2500 2.5 GHz IMT-2000 extension. 100014 = cdmaOne 1900 (band 14) US PCS 1.9 GHz. 100015 = cdmaOne 2100 (AWS) 100016 = cdmaOne 2500 (band 16) US 2.5 GHz. 100018 = cdmaOne 700 (public safety) 100019 = cdmaOne 700 (lower) 100020 = cdmaOne 1500 (L-band) 100021 = cdmaOne 2000 (S-band) 109999 = cdmaOne 110000 = CDMA 1x 800 North American cellular 800 MHz band, also in Korea, Australia, Hong Kong, China, Taiwan, and others. 110001 = CDMA 1x 1900 North American PCS 1900 MHz band. 110002 = CDMA 1x 900 (TACS) Total access communication system (TACS) 900 MHz band. 110003 = CDMA 1x 800 (JTACS) JTACS 800 MHz band (Japanese 800 MHz reversed). 110004 = CDMA 1x 1800 (Korean) Korean PCS 1800 MHz band. 110005 = CDMA 1x 450 (NMT) Nordic mobile telephone (NMT) 450 MHz band. 110006 = CDMA 1x 1900-2100 (IMT) IMT-2000 1900-2100 MHz band.

| | | | North American cellular 700 MHz band.
110008 = CDMA 1x 1800
   1800 MHz band.
110009 = CDMA 1x 900
   900 MHz band.
110010 = CDMA 1x 900 (SMR)
   Specialized mobile radio (SMR) 900 MHz band.
110011 = CDMA 1x 400 (PAMR)
   European PAMR 400 MHz band.
110012 = CDMA 1x 800 (PAMR)
   European PAMR 800 MHz band.
110013 = CDMA 1x 2500
   2.5 GHz IMT-2000 extension.
110014 = CDMA 1x 1900 (band 14)
   US PCS 1.9 GHz.
110015 = CDMA 1x 2100 (AWS)
110016 = CDMA 1x 2500 (band 16)
   US 2.5 GHz.
110018 = CDMA 1x 700 (public safety)
110019 = CDMA 1x 700 (lower)
110020 = CDMA 1x 1500 (L-band)
110021 = CDMA 1x 2000 (S-band)
119999 = CDMA 1x
120000 = EVDO 800
   North American cellular 800 MHz band. Also in Korea, Australia,
   Hong Kong, China, Taiwan, and others.
120001 = EVDO 1900
   North American PCS 1900 MHz band.
120002 = EVDO 900 (TACS)
   Total access communication system (TACS) 900 MHz band.
120003 = EVDO 800 (JTACS)
   JTACS 800 MHz band (Japanese 800 MHz reversed).
120004 = EVDO 1800 (Korean)
   Korean PCS 1800 MHz band.
120005 = EVDO 450 (NMT)
   Nordic mobile telephone (NMT) 450 MHz band.
120006 = EVDO 1900-2100 (IMT)
   IMT-2000 1900-2100 MHz band.
120007 = EVDO 700
   North American cellular 700 MHz band.
120008 = EVDO 1800
   1800 MHz band.
120009 = EVDO 900
   900 MHz band.
120010 = EVDO 900 (SMR)
   Specialized mobile radio (SMR) 900 MHz band.
120011 = EVDO 400 (PAMR)
   European PAMR 400 MHz band.
120012 = EVDO 800 (PAMR)
   European PAMR 800 MHz band.
120013 = EVDO 2500
   2.5 GHz IMT-2000 extension.
120014 = EVDO 1900 (band 14)
   US PCS 1.9 GHz.
120015 = EVDO 2100 (AWS)
120016 = EVDO 2500 (band 16)
   US 2.5 GHz.
120018 = EVDO 700 (public safety)
120019 = EVDO 700 (lower)
120020 = EVDO 1500 (L-band)
120021 = EVDO 2000 (S-band)
129999 = EVDO |
| Ch | Integer | Channel number
Channel number of the new cell. |

PN	Integer	Pilot number Pilot number of the new cell. Range: 0 – 511

Parameters for GAN WLAN

Name	Type	Description
LAC	Integer	Location area code Location area code of the new cell. Range: 0 – 65535
Cell ID	Integer	Cell identification Cell identification of the new cell. Range: 0 – 65535
Band	Integer	Band 219999 = GAN WLAN

Parameters for iDEN

Name	Type	Description
Band	Integer	Band 550001 = iDEN proprietary 550002 = iDEN 800 standard 550003 = iDEN 800 extended 550004 = iDEN 900 550005 = iDEN 1500 559999 = iDEN
Ch	Integer	Channel number Channel number of the new cell.
CC	Integer	Color code Color code of the new cell. Range: 0 – 15

Cell reselection information (CRELI)

Event ID	CRELI
Cellular systems	UMTS FDD,LTE FDD,LTE TDD
Record state	Always
Description	Recorded during the data transfer for LTE to LTE, LTE to HSPA, and HSPA to LTE cell reselection and redirection.
Tools	Nemo Outdoor, Nemo Handy, Nemo Autonomous, Nemo Q

Parameters

Name		Type	Description
#Header params		Integer	Number of header parameters
	CRS U-plane interruption	Integer	Cell reselection U-plane interruption time The time from the last packet in the old cell to the first packet in the new cell. This parameter is only recorded during the data transfer and only for LTE to LTE, LTE to HSPA, and HSPA to LTE cell reselections and redirections. Minimum value: 0 Unit: ms

Soft handover (SHO)

Event ID	SHO
Cellular systems	UMTS FDD,cdmaOne,CDMA 1x,EVDO
Record state	Call connection and packet active state
Description	Recorded when the active set changes. Event information is based on RRC signaling with UMTS FDD.
Tools	Nemo Outdoor

Parameters

Name	Type	Description
Measured sys.	Integer	Measured system 5 = UMTS FDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO

Parameters for UMTS FDD

Name	Type	Description
SHO status	Integer	Soft handover status 1 = Successful handover 2 = Failed handover
RRC cause	Integer	RRC cause This is the same as a failure cause defined by 3GPP TS 25.331 subclause 10.3.3.13. 0 = Configuration unsupported 1 = Physical channel failure 2 = Incompatible simultaneous reconfiguration 3 = Protocol error 4 = Compressed mode runtime error 5 = Cell update occurred 6 = Invalid configuration 7 = Configuration incomplete 8 = Unsupported measurement 9 = MBMS session already received correctly 10 = Lower priority MBMS service
#SCs added	Integer	Number of scrambling codes added
#SCs removed	Integer	Number of scrambling codes removed
Added SC	Integer	Added scrambling code number
Remove SC	Integer	Removed scrambling code number

Parameters for cdmaOne, CDMA 1x, and EVDO

Name	Type	Description
#Pilot added	Integer	Number of pilots added
#Pilot removed	Integer	Number of pilots removed
Added PN	Integer	Added pilot number
Remove PN	Integer	Removed pilot number
SHO status	Integer	Soft handover status

		1 = Successful handover 2 = Failed handover
SHO type	Integer	Soft handover type 1 = Normal 2 = Virtual

Location area update attempt (LUA)

Event ID	LUA
Cellular systems	GSM,TETRA,UMTS FDD,UMTS TD-SCDMA,GAN WLAN
Record state	Always
Description	Recorded when the mobile starts location area update using MM layer3 signaling message. This measurement event begins the location area update state.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Location area update context ID	Context	Location area update context ID
Measured sys.	Integer	Measured system 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 21 = GAN WLAN
LAU type	Integer	Location area update type 1 = Combined location and routing/tracking area update 2 = Normal location area update 3 = Periodic update 4 = IMSI/ITSI attach 5 = Roaming location updating (TETRA) 6 = Migrating location updating (TETRA) 7 = Call restoration roaming location updating (TETRA) 8 = Call restoration migrating location updating (TETRA) 9 = Demand location updating (TETRA) 10 = Disabled MS updating (TETRA)

Location area update successful (LUS)

Event ID	LUS
Cellular systems	GSM,TETRA,UMTS FDD,UMTS TD-SCDMA,GAN WLAN
Record state	Location area update state
Description	Recorded based on MM layer3 signaling when location area update has been successful. This measurement event terminates the location area update state.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Location area update context ID	Context	Location area update context ID
Measured sys.	Integer	Measured system 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 21 = GAN WLAN
Old LAC	Integer	Old location area code Location area code of the old cell. Range: 0 – 65535
LAC	Integer	Location area code Location area code of the new cell. Range: 0 – 65535
MCC	Integer	Mobile country code See ITU-T recommendation E.212. Range: 0 – 999
MNC	Integer	Mobile network code Range: 0 – 999

Location area update fail (LUF)

Event ID	LUF
Cellular systems	GSM,TETRA,UMTS FDD,UMTS TD-SCDMA,GAN WLAN
Record state	Location area update state
Description	Recorded based on MM layer3 signaling when location area update has failed. This measurement event terminates the location area update state.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Location area update context ID	Context	Location area update context ID
Measured sys.	Integer	Measured system 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 21 = GAN WLAN
LUF status	Integer	Location update failure status 1 = Timeout 2 = Rejected by network 3 = Rejected by network after combined location and routing area update (cause value is GMM cause)
Old LAC	Integer	Old location area code Location area code of the old cell. Range: 0 – 65535

Parameters for GSM, UMTS, and GAN WLAN

Name	Type	Description

MM cause	Integer	Mobily management cause
		1 = Unallocated TMSI
		2 = IMSI unknown HLR
		3 = Illegal MS
		4 = IMSI unknown in VLR
		5 = IMEI not accepted
		6 = Illegal ME
		7 = GPRS services not allowed
		    Combined LAU and RAU only.
		8 = GPRS services and non-GPRS services not allowed
		    Combined LAU and RAU only.
		9 = MS identity cannot be derived by the network
		    Combined LAU and RAU only.
		10 = Implicitly detached
		    Combined LAU and RAU only.
		11 = PLMN not allowed
		12 = Location Area not allowed
		13 = National roaming not allowed in this location area
		14 = GPRS services not allowed in this PLMN
		    Combined LAU and RAU only.
		15 = No suitable cells in location area
		16 = MSC temporarily not reachable
		    Combined LAU and RAU only.

		20 = MAC failure 21 = Synch failure 22 = Congestion 23 = GSM authentication unacceptable 32 = Service option not supported 33 = Requested service option not subscribed 34 = Service option temporarily out of order 38 = Call cannot be identified 40 = No PDP context activated Combined LAU and RAU only. 95 = Semantically incorrect message 96 = Invalid mandatory information 97 = Message type non-existent or not implemented 98 = Message type not compatible with the protocol state 99 = Information element non-existent or not implemented 100 = Conditional IE error 101 = Message not compatible with the protocol state 111 = Protocol error, unspecified

Parameters for TETRA

Name	Type	Description
MM cause	Integer	Mobily management cause 1 = ITSI unknown 2 = Illegal MS 3 = LA not allowed 4 = LA unknown 5 = Network failure 6 = Congestion 7 = Service not supported 8 = Service not subscribed 9 = Mandatory element error 10 = Message consistency error 11 = Roaming not supported 12 = Migration not supported 13 = No cipher KSG 14 = Identified cipher KSG not supported 15 = Requested cipher key type not available 16 = Identified cipher key not available 17 = Incompatible service

Channel info (CHI)

Event ID	CHI
Cellular systems	GSM,TETRA,UMTS FDD,UMTS TD-SCDMA,LTE FDD,LTE TDD,cdmaOne,CDMA 1x,EVDO,GAN WLAN,WiMAX,AMPS,DAMPS,iDEN
Record state	Always
Description	Recorded when channel configuration information changes.
Tools	Nemo Outdoor, Nemo Handy

Parameters

Name	Type	Description
Serving sys.	Integer	Serving system 1 = GSM 2 = TETRA 5 = UMTS FDD 6 = UMTS TD-SCDMA 7 = LTE FDD 8 = LTE TDD 10 = cdmaOne 11 = CDMA 1x 12 = EVDO 21 = GAN WLAN 25 = WiMAX 51 = AMPS 52 = NAMPS 53 = DAMPS 55 = iDEN

Parameters for GSM

Name	Type	Description
Band	Integer	Band 10850 = GSM 850 Band 850 is also known as band 800. 10900 = GSM 900 11800 = GSM 1800 11900 = GSM 1900 19999 = GSM
Ch type	Integer	GSM channel type 1 = Control channel 2 = Traffic channel
Ch	Integer	Channel number During the active state this is the TCH channel number. If the hopping is enabled the first hopping channel is reported.
Cell ID	Integer	Cell identification Cell identity of the current cell. For GSM this is 16 bit value, for UMTS this is 28 bit value (RNC ID + 16 bit cell ID), and for LTE this is 28 bit value (eNB ID + 8 bit cell ID). Range: 0 – 65535
LAC	Integer	Location area code Range: 0 – 65535
DTX UL	Integer	DTX uplink 0 = DTX not in use

RLT max	Integer	Radiolink timeout maximum Defines the maximum value for the radio link timeout counter. Range: 4 – 64

Ext. ch type	Integer	Extended channel type
		1 = BCCH
		2 = CCCH
		3 = CBCH
		4 = SDCCH
		5 = RACH
		10 = TCH HR/0
		    TCH half rate, first half.
		11 = TCH HR/1
		    TCH half rate, second half.
		12 = TCH FR
		    TCH full rate.
		13 = TCH EFR
		    TCH enhanced full rate.
		14 = TCH FR 14.4 data
		    TCH full rate, 14.4 kbs data.
		15 = TCH FR 9.6 data
		16 = TCH FR 7.2 data
		17 = TCH FR 4.8 data
		18 = TCH FR 2.4 data
		19 = TCH HR/0 4.8 data
		20 = TCH HR/1 4.8 data
		21 = TCH HR/0 2.4 data
		22 = TCH HR/1 2.4 data
		23 = TCH FR FACCH
		24 = TCH HR/0 FACCH
		25 = TCH HR/1 FACCH
		26 = AFS
		    AMR adaptive full rate speech.
		27 = AHS
		    AMR adaptive half rate speech.
		28 = WFS
		    AMR adaptive full rate for wideband speech.
		50 = PBCCH
		51 = PCCCH
		60 = PDTCH

TSL	Integer	Timeslot number
BCCH ch	Integer	BCCH channel
BSIC	Integer	Base station identification code Range: 0 – 63
BCCH band	Integer	BCCH band 10850 = GSM 850 Band 850 is also known as band 800. 10900 = GSM 900 11800 = GSM 1800 11900 = GSM 1900 19999 = GSM

Parameters for TETRA

Name	Type	Description
Band	Integer	Band 20001 = TETRA band 1 20002 = TETRA band 2 20003 = TETRA band 3 20004 = TETRA band 4 20005 = TETRA band 5

		20007 = TETRA band 7
		20008 = TETRA band 8
		20009 = TETRA band 9
		20010 = TETRA band 10
		20011 = TETRA band 11
		20012 = TETRA band 12
		20013 = TETRA band 13
		20014 = TETRA band 14
		20015 = TETRA band 15
		29999 = TETRA
Subchannel	Integer	Subchannel 1 = MCCH (main control channel) 2 = TCH (traffic channel)
Ch	Integer	Channel number
LAC	Integer	Location area code Range: 0 – 65535
Extended subchannel	Integer	Extended subchannel 0 = Speech, TCH / S 1 = Data, Unprotected TCH / 7.2 2 = Data, Low protection, TCH / 4.8, N=1 3 = Data, Low protection, TCH / 4.8, N=4 4 = Data, Low protection, TCH / 4.8, N=8 5 = Data, High protection, TCH / 2.4, N=1 6 = Data, High protection, TCH / 2.4, N=4 7 = Data, High protection, TCH / 2.4, N=8
Encryption	Integer	Encryption 0 = Clear mode 1 = End-to-end encryption
Slot number	Integer	Slot number Range: 1 – 4

Parameters for UMTS FDD

Name	Type	Description
Band	Integer	Band 50001 = UMTS FDD 2100 band 1 50002 = UMTS FDD 1900 band 2 50003 = UMTS FDD 1800 band 3 50004 = UMTS FDD 2100 AWS band 4 50005 = UMTS FDD 850 band 5 Band 850 is also known as band 800. 50006 = UMTS FDD 850 band 6 50007 = UMTS FDD 2600 band 7 50008 = UMTS FDD 900 band 8 50009 = UMTS FDD 1800 band 9 50010 = UMTS FDD 2100 band 10 50011 = UMTS FDD 1400 band 11 50012 = UMTS FDD 700 band 12 50013 = UMTS FDD 700 band 13 50014 = UMTS FDD 700 band 14 50019 = UMTS FDD 850 band 19 50020 = UMTS FDD 800 band 20 50021 = UMTS FDD 1500 band 21 50022 = UMTS FDD 3500 band 22 50025 = UMTS FDD 1900 band 25 50026 = UMTS FDD 850 band 26 59999 = UMTS FDD
RRC state	Integer	RRC state 1 = Idle 2 = URA PCH

		3 = Cell PCH 4 = Cell FACH 5 = Cell DCH
Ch	Integer	Channel number
Cell ID	Integer	Cell identification Cell identity of the current cell. For GSM this is 16 bit value, for UMTS this is 28 bit value (RNC ID + 16 bit cell ID), and for LTE this is 28 bit value (eNB ID + 8 bit cell ID). Range: 0 – 268435455
LAC	Integer	Location area code Range: 0 – 65535
Addition window	Float	Addition window Addition window for event 1A. Cells within addition window range from the best serving CPICH will be added to the active set. The value is calculated using the following formula: R1A - H1A / 2 where R1A is reporting range constant for event 1A and H1A is hysteresis parameter for event 1A. See 3GPP TS 25.331. Range: −2 – 14 Unit: dB
Time to trigger 1A	Integer	Time to trigger 1A Indicates the period of time during which the event condition must be satisfied before sending a Measurement Report with event 1A. See 3GPP TS 25.331. Range: 0 – 5000 Unit: ms
Drop window	Float	Drop window Drop window for event 1B. Cell is removed from the active set if it falls below the drop window range from the best cell in the active set. The value is calculated using the following formula: R1 B + H1 B / 2 where R1B is reporting range constant for event 1B and H1B is hysteresis parameter for event 1B. See 3GPP TS 25.331. Range: 0 – 16 Unit: dB
Time to trigger 1B	Integer	Time to trigger 1B Indicates the period of time during which the event condition must be satisfied before sending a Measurement Report with event 1B. See 3GPP TS 25.331. Range: 0 – 5000 Unit: ms
Replacement window	Float	Replacement window If a monitored-set cell becomes better than a cell in the active set, the active set cell will be replaced with the better one. See 3GPP TS 25.331. Range: 0 – 2 Unit: dB
Time to trigger 1C	Integer	Time to trigger 1C Indicates the period of time during which the event condition must be satisfied before sending a Measurement Report with event 1C. See 3GPP TS 25.331. Range: 0 – 5000 Unit: ms
DL SF	Integer	Spreading factor downlink If multiple CCTrCh channels are used, the reported spreading factor is for CCTrCh with physical control channel. Range: 0 – 512
Min UL SF	Integer	Min spreading factor uplink Minimum allowed uplink spreading factor. Range: 4 – 256
DRX cycle	Integer	DRX cycle length

		Defines how often paging indications are monitored. Range: 0 – 512
Max TX power	Float	Max TX power Maximum allowed uplink power. Range: −50 – 40 Unit: dBm
Treselection	Integer	Treselection The time which the new cell has had to be ranked better than the old cell before cell reselection is possible. See 3GPP TS 25.304 subclause 5.2.6.1.4. Unit: s

Parameters for UMTS TD-SCDMA

Name	Type	Description
Band	Integer	Band 60001 = UMTS TD-SCDMA 2000 band a 60002 = UMTS TD-SCDMA 1900 band b 60003 = UMTS TD-SCDMA 1900 band c 60004 = UMTS TD-SCDMA 2600 band d 60005 = UMTS TD-SCDMA 1900 band e 60006 = UMTS TD-SCDMA 2300 band f 69999 = UMTS TD-SCDMA
RRC state	Integer	RRC state 1 = Idle 2 = URA PCH 3 = Cell PCH 4 = Cell FACH 5 = Cell DCH
Ch	Integer	Channel number
Cell params ID	Integer	Cell parameters ID Range: 0 – 127
Cell ID	Integer	Cell identification Cell identity of the current cell. For GSM this is 16 bit value, for UMTS this is 28 bit value (RNC ID + 16 bit cell ID), and for LTE this is 28 bit value (eNB ID + 8 bit cell ID). Range: 0 – 268435455
LAC	Integer	Location area code Range: 0 – 65535
DRX cycle	Integer	DRX cycle length Defines how often paging indications are monitored. Range: 0 – 512
Max TX power	Float	Max TX power Maximum allowed uplink power. Range: −50 – 40 Unit: dBm
Treselection	Integer	Treselection The time which the new cell has had to be ranked better than the old cell before cell reselection is possible. See 3GPP TS 25.304 subclause 5.2.6.1.4. Unit: s

Parameters for LTE

Name	Type	Description
Band	Integer	Band 70001 = LTE FDD 2100 band 1

		70003 = LTE FDD 1800 band 3
		70004 = LTE FDD 2100 AWS band 4
		70005 = LTE FDD 850 band 5
		Band 850 is also known as band 800.
		70006 = LTE FDD 850 band 6
		70007 = LTE FDD 2600 band 7
		70008 = LTE FDD 900 band 8
		70009 = LTE FDD 1800 band 9
		70010 = LTE FDD 2100 band 10
		70011 = LTE FDD 1400 band 11
		70012 = LTE FDD 700 band 12
		70013 = LTE FDD 700 band 13
		70014 = LTE FDD 700 band 14
		70017 = LTE FDD 700 band 17
		70018 = LTE FDD 850 band 18
		70019 = LTE FDD 850 band 19
		70020 = LTE FDD 800 band 20
		70021 = LTE FDD 1500 band 21
		70022 = LTE FDD 3500 band 22
		70023 = LTE FDD 2200 band 23
		70024 = LTE FDD 1500 band 24
		70025 = LTE FDD 1900 band 25
		70026 = LTE FDD 850 band 26
		70027 = LTE FDD 800 band 27
		70028 = LTE FDD 700 band 28
		70029 = LTE FDD 700 band 29
		This is downlink only band.
		70030 = LTE FDD 2350 band 30
		70031 = LTE FDD 450 band 31
		70032 = LTE FDD 1500 L-band
		This is downlink only band.
		70064 = LTE FDD 390-470 band 64
		This is a non-standard LTE FDD band.
		70065 = LTE FDD 2100 band 65
		70066 = LTE FDD AWS-3 2100 band 66
		70067 = LTE FDD 700 EU band 67
		This is downlink only band.
		79999 = LTE FDD
		80033 = LTE TDD 1900-1920 band 33
		80034 = LTE TDD 2010-2025 band 34
		80035 = LTE TDD 1850-1910 band 35
		80036 = LTE TDD 1930-1990 band 36
		80037 = LTE TDD 1910-1930 band 37
		80038 = LTE TDD 2570-2620 band 38
		80039 = LTE TDD 1880-1920 band 39
		80040 = LTE TDD 2300-2400 band 40
		80041 = LTE TDD 2496-2690 band 41
		80042 = LTE TDD 3400-3600 band 42
		80043 = LTE TDD 3600-3800 band 43
		80044 = LTE TDD 703-803 band 44
		80045 = LTE TDD 1447-1467 band 45
		80061 = LTE TDD 1447-1467 band 61
		This is a non-standard LTE TDD band.
		80062 = LTE TDD 1785-1805 band 62
		This is a non-standard LTE TDD band.
		80087 = LTE TDD 1447-1467 band 87
		This is a non-standard LTE TDD band.
		80088 = LTE TDD 1785-1805 band 88
		This is a non-standard LTE TDD band.
		89999 = LTE TDD
RRC state	Integer	RRC state See 3GPP TS 136.331 subclause 4.2.1. 1 = Idle This is the same as E-UTRA RRC_IDLE state.

		This is the same as E-UTRA RRC_CONNECTED state.
DL bandwidth	Integer	DL bandwidth 6 = 1.4 MHz 15 = 3 MHz 25 = 5 MHz 50 = 10 MHz 75 = 15 MHz 100 = 20 MHz
Ch	Integer	Channel number
PCI	Integer	Physical cell identity Range: 0 – 503
Cell ID	Integer	Cell identification Cell identity of the current cell. For GSM this is 16 bit value, for UMTS this is 28 bit value (RNC ID + 16 bit cell ID), and for LTE this is 28 bit value (eNB ID + 8 bit cell ID). Range: 0 – 268435455
TAC	Integer	Tracking area code Tracking area code of the current serving cell. See 3GPP TS 124.301 subclause 9.9.3.32. Range: 0 – 65535
Max TX power	Float	Max TX power Maximum allowed uplink power. Range: −50 – 40 Unit: dBm

TM	Integer	Transmission mode
		See 3GPP TS 136.213 subclase 7.1.
		1 = Single antenna (P0)
		    Single-antenna port 0. Same as transmission mode 1.
		2 = Transmit diversity
		    Transmit diversity using SFBC. Same as transmission mode 2.
		3 = Open SM
		    Open-loop spatial multiplexing a.k.a. large delay cyclic delay diversity (CDD) or transmit diversity. Same as transmission mode 3.
		4 = Closed SM
		    Closed-loop spatial multiplexing or transmit diversity. Same as transmission mode 4.
		5 = MU-MIMO
		    Multi-user MIMO or transmit diversity. Same as transmission mode 5.
		6 = Closed SM rank 1
		    Closed-loop spatial multiplexing using single transmission layer (similar with mode 5 with rank fixed to one). Same as transmission mode 6.
		7 = Single antenna (P5)
		    Single-antenna port 5, or port 0 (if one PBCH antenna port) or transmit diversity. Same as transmission mode 7.
		8 = Dual-layer (P7, P8)
		    Dual layer port 7 and 8 or single-antenna port 7 or 8 transmission. Same as tranmsission mode 8.
		9 = 8 layer (P7-P14)
		    Up to 8 layer transmission (P7-P14).

Antenna ports	Integer	Detected TX antenna ports 0 = Port 0 1 = Ports 0-1 3 = Ports 0-3
UL/DL config	Integer	TDD UL/DL configuration 0 = Config 0 Allocated uplink subframes are: 2, 3, 4, 7, 8, 9.

			Allocated uplink subframes are: 2, 3, 7, 8. 2 = Config 2 　　Allocated uplink subframes are: 2, 7. 3 = Config 3 　　Allocated uplink subframes are: 2, 3, 4. 4 = Config 4 　　Allocated uplink subframes are: 2, 3. 5 = Config 5 　　Allocated uplink subframe is: 2. 6 = Config 6 　　Allocated uplink subframes are: 2, 3, 4, 7, 8.
CP		Integer	Cyclic prefix UL Logged value is the uplink cyclic prefix. 1 = Normal 15 kHz 2 = Extended 15 kHz
Root sequence		Integer	RACH logical root sequence index Logical root Zadoff-Chu sequence order number. See 3GPP 136.211 subclause 5.7.2. Range: 0 – 837
C-RNTI		Integer	C-RNTI
#SCells		Integer	Number of secondary serving cells Range: 0 – 3
#Params/SCell		Integer	Number of parameters per secondary serving cell
	Cell type	Integer	Serving cell type The value of this parameter is the same as the serving cell index. 1 = SCell 0 　　The first secondary serving cell. 2 = SCell 1
	Band	Integer	SCell band 70001 = LTE FDD 2100 band 1 70002 = LTE FDD 1900 band 2 70003 = LTE FDD 1800 band 3 70004 = LTE FDD 2100 AWS band 4 70005 = LTE FDD 850 band 5 　　Band 850 is also known as band 800. 70006 = LTE FDD 850 band 6 70007 = LTE FDD 2600 band 7 70008 = LTE FDD 900 band 8 70009 = LTE FDD 1800 band 9 70010 = LTE FDD 2100 band 10 70011 = LTE FDD 1400 band 11 70012 = LTE FDD 700 band 12 70013 = LTE FDD 700 band 13 70014 = LTE FDD 700 band 14 70017 = LTE FDD 700 band 17 70018 = LTE FDD 850 band 18 70019 = LTE FDD 850 band 19 70020 = LTE FDD 800 band 20 70021 = LTE FDD 1500 band 21 70022 = LTE FDD 3500 band 22 70023 = LTE FDD 2200 band 23 70024 = LTE FDD 1500 band 24 70025 = LTE FDD 1900 band 25 70026 = LTE FDD 850 band 26 70027 = LTE FDD 800 band 27 70028 = LTE FDD 700 band 28 70029 = LTE FDD 700 band 29 　　This is downlink only band. 70030 = LTE FDD 2350 band 30 70031 = LTE FDD 450 band 31

This is downlink only band.
70064 = LTE FDD 390-470 band 64
   This is a non-standard LTE FDD band.
70065 = LTE FDD 2100 band 65
70066 = LTE FDD AWS-3 2100 band 66
70067 = LTE FDD 700 EU band 67
   This is downlink only band.
79999 = LTE FDD
80033 = LTE TDD 1900-1920 band 33
80034 = LTE TDD 2010-2025 band 34
80035 = LTE TDD 1850-1910 band 35
80036 = LTE TDD 1930-1990 band 36
80037 = LTE TDD 1910-1930 band 37
80038 = LTE TDD 2570-2620 band 38
80039 = LTE TDD 1880-1920 band 39
80040 = LTE TDD 2300-2400 band 40
80041 = LTE TDD 2496-2690 band 41
80042 = LTE TDD 3400-3600 band 42
80043 = LTE TDD 3600-3800 band 43
80044 = LTE TDD 703-803 band 44
80045 = LTE TDD 1447-1467 band 45
80061 = LTE TDD 1447-1467 band 61
   This is a non-standard LTE TDD band.
80062 = LTE TDD 1785-1805 band 62
   This is a non-standard LTE TDD band.
80087 = LTE TDD 1447-1467 band 87
   This is a non-standard LTE TDD band.
80088 = LTE TDD 1785-1805 band 88
   This is a non-standard LTE TDD band.
89999 = LTE TDD

Bandwidth	Integer	SCell bandwidth 6 = 1.4 MHz 15 = 3 MHz 25 = 5 MHz 50 = 10 MHz 75 = 15 MHz 100 = 20 MHz
Channel	Integer	SCell channel
PCI	Integer	SCell physical cell identity Range: 0 – 503

TM	Integer	SCell transmission mode
		See 3GPP TS 136.213 subclase 7.1.
		1 = Single antenna (P0)
		   Single-antenna port 0. Same as transmission mode 1.
		2 = Transmit diversity
		   Transmit diversity using SFBC. Same as transmission mode 2.
		3 = Open SM
		   Open-loop spatial multiplexing a.k.a. large delay cyclic delay diversity (CDD) or transmit diversity. Same as transmission mode 3.
		4 = Closed SM
		   Closed-loop spatial multiplexing or transmit diversity. Same as transmission mode 4.
		5 = MU-MIMO
		   Multi-user MIMO or transmit diversity. Same as transmission mode 5.
		6 = Closed SM rank 1
		   Closed-loop spatial multiplexing using single transmission layer (similar with mode 5 with rank fixed to one). Same as transmission mode 6.
		7 = Single antenna (P5)
		   Single-antenna port 5, or port 0 (if one PBCH antenna port) or

		8 = Dual-layer (P7, P8)
		   Dual layer port 7 and 8 or single-antenna port 7 or 8
		   transmission. Same as tranmsission mode 8.
		9 = 8 layer (P7-P14)
		   Up to 8 layer transmission (P7-P14).

Antenna ports	Integer	SCell detected TX antenna ports 0 = Port 0 1 = Ports 0-1 3 = Ports 0-3

UL/DL config	Integer	SCell TDD UL/DL configuration
		0 = Config 0
		   Allocated uplink subframes are: 2, 3, 4, 7, 8, 9.
		1 = Config 1
		   Allocated uplink subframes are: 2, 3, 7, 8.
		2 = Config 2
		   Allocated uplink subframes are: 2, 7.
		3 = Config 3
		   Allocated uplink subframes are: 2, 3, 4.
		4 = Config 4
		   Allocated uplink subframes are: 2, 3.
		5 = Config 5
		   Allocated uplink subframe is: 2.
		6 = Config 6
		   Allocated uplink subframes are: 2, 3, 4, 7, 8.

CP	Integer	SCell cyclic prefix Logged value is the uplink cyclic prefix. 1 = Normal 15 kHz 2 = Extended 15 kHz
Special subframe config	Integer	SCell TDD special subframe configuration This parameter defines the duration of special subframes between uplink and downlink switching. See 3GPP 136.211 subclause 4.2. 0 = Config 0 1 = Config 1 2 = Config 2 3 = Config 3 4 = Config 4 5 = Config 5 6 = Config 6 7 = Config 7 8 = Config 8 9 = Config 9
EMM substate	Integer	EMM substate See 3GPP 124.301 subclause 5.1.3. 0 = Null 100 = Deregistered, normal service 101 = Deregistered, attempting to attach 102 = Deregistered, limited service 103 = Deregistered, PLMN search 104 = Deregistered, attach needed 105 = Deregistered, no cell available 106 = Deregistered, no IMSI 200 = Registered initiated 201 = Registered initiated, waiting NW response 202 = Registered initiated, waiting ESM response 300 = Registered, normal service 301 = Registered, attempting to update 302 = Registered, limited service 303 = Registered, PLMN search 304 = Registered, update needed 305 = Registered, no cell available 306 = Registered, IMSI detach initiated 307 = Registered, attempting to update MM

		400 = Deregistered initiated
		500 = TAU initiated, normal service
		    Tracking area update initiated.
		501 = TAU initiated, attempting to update
		502 = TAU initiated, limited service
		503 = TAU initiated, PLMN search
		504 = TAU initiated, update needed
		505 = TAU initiated, no cell available
		506 = TAU initiated, IMSI detach initiated
		507 = TAU initiated, attempting to update MM
		600 = SR initiated, normal service
		    Service request initiated.
		601 = SR initiated, attempting to update
		602 = SR initiated, limited service
		603 = SR initiated, PLMN search
		604 = SR initiated, update needed
		605 = SR initiated, no cell available
		606 = SR initiated, IMSI detach initiated
		607 = SR initiated, attempting to update MM

Periodic RM	Integer	CQI periodic reporting mode
		See 3GPP TS 136.213 subclause 7.2.2.
		1 = Mode 1-0
		    Wideband CQI without PMI. Valid in transmission modes 1-3 and 7.
		2 = Mode 1-1
		    Wideband CQI with PMI. Valid in transmission modes 4-6.
		3 = Mode 2-0
		    UE selected CQI without PMI. Valid in transmission modes 1-3 and 7.
		4 = Mode 2-1
		    UE selected CQI with PMI. Valid in transmission modes 4-6.

Aperiodic RM	Integer	CQI aperiodic reporting mode
		This is the same as cqi-ReportModeAperiodic parameter in CQI-ReportConfig. More information see 3GPP TS 136.213 subclause 7.2.1.
		1 = Mode 1-2
		    Wideband CQI with multiple PMI. Valid in transmission modes 4 and 6.
		2 = Mode 2-0
		    UE selected CQI without PMI. Valid in transmission modes 1-3 and 7.
		3 = Mode 2-2
		    UE selected CQI with multiple PMI. Valid in transmission modes 4 and 6.
		4 = Mode 3-0
		    Higher layer-configured CQI without PMI. Valid in transmission modes 1-3 and 7.
		5 = Mode 3-1
		    Higher layer-configured CQI with single PMI. Valid in transmission modes 4-6.

Special subframe config	Integer	TDD special subframe configuration This parameter defines the duration of special subframes between uplink and downlink switching. See 3GPP 136.211 subclause 4.2. 0 = Config 0 1 = Config 1 2 = Config 2 3 = Config 3 4 = Config 4 5 = Config 5 6 = Config 6 7 = Config 7 8 = Config 8 9 = Config 9

Name	Type	Description
TTI bundling	Integer	TTI bundling See 3GPP TS 136.321 subclause 5.4.2. 0 = Disabled 1 = Enabled

Parameters for cdmaOne and CDMA 1x

Name	Type	Description

Band	Integer	Band
		100000 = cdmaOne 800
		   North American cellular 800 MHz band, also in Korea, Australia,
		   Hong Kong, China, Taiwan, and others.
		100001 = cdmaOne 1900
		   North American PCS 1900 MHz band.
		100002 = cdmaOne 900 (TACS)
		   Total access communication system (TACS) 900 MHz band.
		100003 = cdmaOne 800 (JTACS)
		   JTACS 800 MHz band (Japanese 800 MHz reversed).
		100004 = cdmaOne 1800 (Korean)
		   Korean PCS 1800 MHz band.
		100005 = cdmaOne 450 (NMT)
		   Nordic mobile telephone (NMT) 450 MHz band.
		100006 = cdmaOne 1900-2100 (IMT)
		   IMT-2000 1900-2100 MHz band.
		100007 = cdmaOne 700
		   North American cellular 700 MHz band.
		100008 = cdmaOne 1800
		   1800 MHz band.
		100009 = cdmaOne 900
		   900 MHz band.
		100010 = cdmaOne 900 (SMR)
		   Specialized mobile radio (SMR) 900 MHz band.
		100011 = cdmaOne 400 (PAMR)
		   European PAMR 400 MHz band.
		100012 = cdmaOne 800 (PAMR)
		   European PAMR 800 MHz band.
		100013 = cdmaOne 2500
		   2.5 GHz IMT-2000 extension.
		100014 = cdmaOne 1900 (band 14)
		   US PCS 1.9 GHz.
		100015 = cdmaOne 2100 (AWS)
		100016 = cdmaOne 2500 (band 16)
		   US 2.5 GHz.
		100018 = cdmaOne 700 (public safety)
		100019 = cdmaOne 700 (lower)
		100020 = cdmaOne 1500 (L-band)
		100021 = cdmaOne 2000 (S-band)
		109999 = cdmaOne
		110000 = CDMA 1x 800
		   North American cellular 800 MHz band, also in Korea, Australia,
		   Hong Kong, China, Taiwan, and others.
		110001 = CDMA 1x 1900
		   North American PCS 1900 MHz band.
		110002 = CDMA 1x 900 (TACS)
		   Total access communication system (TACS) 900 MHz band.
		110003 = CDMA 1x 800 (JTACS)
		   JTACS 800 MHz band (Japanese 800 MHz reversed).
		110004 = CDMA 1x 1800 (Korean)
		   Korean PCS 1800 MHz band.
		110005 = CDMA 1x 450 (NMT)
		   Nordic mobile telephone (NMT) 450 MHz band.
		110006 = CDMA 1x 1900-2100 (IMT)
		   IMT-2000 1900-2100 MHz band.

		110007 = CDMA 1x 700
		  North American cellular 700 MHz band.
		110008 = CDMA 1x 1800
		  1800 MHz band.
		110009 = CDMA 1x 900
		  900 MHz band.
		110010 = CDMA 1x 900 (SMR)
		  Specialized mobile radio (SMR) 900 MHz band.
		110011 = CDMA 1x 400 (PAMR)
		  European PAMR 400 MHz band.
		110012 = CDMA 1x 800 (PAMR)
		  European PAMR 800 MHz band.
		110013 = CDMA 1x 2500
		  2.5 GHz IMT-2000 extension.
		110014 = CDMA 1x 1900 (band 14)
		  US PCS 1.9 GHz.
		110015 = CDMA 1x 2100 (AWS)
		110016 = CDMA 1x 2500 (band 16)
		  US 2.5 GHz.
		110018 = CDMA 1x 700 (public safety)
		110019 = CDMA 1x 700 (lower)
		110020 = CDMA 1x 1500 (L-band)
		110021 = CDMA 1x 2000 (S-band)
		119999 = CDMA 1x

Ch type	Integer	CDMA channel type 1 = Control channel 2 = Traffic channel 3 = Synch channel 4 = Access channel
Ch	Integer	Channel number
MCC (CDMA)	Integer	MCC (CDMA) See ITU-T recommendation E.212. Range: 0 – 999
SID (System ID)	Integer	SID (System ID) Range: 0 – 32767
NID (Network ID)	Integer	NID (Network ID)
Slotted mode	Integer	Slotted mode 0 = Disabled 1 = Enabled
SEARCH_WIN_A	Integer	SEARCH_WIN_A (Size of active search window) Size of active search window.
SEARCH_WIN_N	Integer	SEARCH_WIN_N (Size of neighbor search window) Size of neighbor search window.
SEARCH_WIN_R	Integer	SEARCH_WIN_R (Size of remaining search window) Size of remaining search window.
T_ADD	Integer	T_ADD (Pilot detection threshold) To get the actual T_ADD value, divide the value by two and change the sign.
T_DROP	Integer	T_DROP (Pilot drop threshold) To get the actual T_ADD value, divide the value by two and change the sign.
T_TDROP	Integer	T_TDROP (Pilot drop timer threshold)
T_COMP	Integer	T_COMP (Comparison threshold) Active set versus candidate set comparison threshold (L3 value). To get the actual T_ADD value, divide the value by two and change the sign.
P_REV	Integer	P_REV (protocol revision level) 1 = I STD 008 in PCS Band Only

		2 = IS-95 in Cellular Band Only 3 = IS-95A + TSB74 4 = IS-95B Partial 5 = IS-95B Full 6 = IS-2000 Release 0 7 = IS-2000 Release A 8 = IS-2000 Release B Partial 9 = IS-2000 Release B Full 10 = IS-2000 Release C 11 = IS-2000 Release D (1xEV-DV)
MIN_P_REV	Integer	MIN_P_REV (Minimum protocol revision level) 1 = J-STD-008 in PCS Band Only 2 = IS-95 in Cellular Band Only 3 = IS-95A + TSB74 4 = IS-95B Partial 5 = IS-95B Full 6 = IS-2000 Release 0 7 = IS-2000 Release A 8 = IS-2000 Release B Partial 9 = IS-2000 Release B Full 10 = IS-2000 Release C 11 = IS-2000 Release D (1xEV-DV)
MNC (CDMA)	Integer	MNC (CDMA) Range: 0 – 999

Parameters for EVDO

Name	Type	Description

Band	Integer	Band
		120000 = EVDO 800
		    North American cellular 800 MHz band. Also in Korea, Australia, Hong Kong, China, Taiwan, and others.
		120001 = EVDO 1900
		    North American PCS 1900 MHz band.
		120002 = EVDO 900 (TACS)
		    Total access communication system (TACS) 900 MHz band.
		120003 = EVDO 800 (JTACS)
		    JTACS 800 MHz band (Japanese 800 MHz reversed).
		120004 = EVDO 1800 (Korean)
		    Korean PCS 1800 MHz band.
		120005 = EVDO 450 (NMT)
		    Nordic mobile telephone (NMT) 450 MHz band.
		120006 = EVDO 1900-2100 (IMT)
		    IMT-2000 1900-2100 MHz band.
		120007 = EVDO 700
		    North American cellular 700 MHz band.
		120008 = EVDO 1800
		    1800 MHz band.
		120009 = EVDO 900
		    900 MHz band.
		120010 = EVDO 900 (SMR)
		    Specialized mobile radio (SMR) 900 MHz band.
		120011 = EVDO 400 (PAMR)
		    European PAMR 400 MHz band.
		120012 = EVDO 800 (PAMR)
		    European PAMR 800 MHz band.
		120013 = EVDO 2500
		    2.5 GHz IMT-2000 extension.
		120014 = EVDO 1900 (band 14)
		    US PCS 1.9 GHz.
		120015 = EVDO 2100 (AWS)
		120016 = EVDO 2500 (band 16)

		120018 = EVDO 700 (public safety) 120019 = EVDO 700 (lower) 120020 = EVDO 1500 (L-band) 120021 = EVDO 2000 (S-band) 129999 = EVDO
SID (System ID)	Integer	SID (System ID) Range: 0 – 32767

Parameters for GAN WLAN

Name	Type	Description
Band	Integer	Band 219999 = GAN WLAN
Cell ID	Integer	Cell identification Cell identity of the current cell. For GSM this is 16 bit value, for UMTS this is 28 bit value (RNC ID + 16 bit cell ID), and for LTE this is 28 bit value (eNB ID + 8 bit cell ID). Range: 0 – 268435455
LAC	Integer	Location area code Range: 0 – 65535

Parameters for WiMAX

Name	Type	Description
Band	Integer	Band 259999 = WiMAX
MAC state	Integer	WiMAX MAC state 0 = Not initialized 1 = Physical failure 2 = MAC failure 10 = Network entry initial synchronization 11 = Network entry initial DCD 12 = Network entry initial UCD 13 = Network entry initial ranging 14 = Network entry initial sign-on 15 = Network entry initial negotiation 16 = Network entry initial registration 17 = Network entry initial PKM 30 = Normal operation 31 = Sleep mode 40 = Handover periodic scan 41 = Handover transition 42 = Handover network entry 60 = Idle mode 61 = Idle mode location update 62 = Idle mode paging 63 = Idle mode network entry
Frequency	Float	WiMAX frequency Unit: MHz
BS ID	String	WiMAX base station ID Six colon separated hex values.
FFT Size	Integer	WiMAX FFT size
Bandwidth	Float	WiMAX bandwidth Unit: MHz
Frame ratio DL	Integer	WiMAX frame ratio downlink Range: 0 – 100
Frame ratio UL	Integer	WiMAX frame ratio uplink

		Range: 0 – 100
~~MAP coding~~	Integer	WiMAX coding type used on DL-MAP 1 = Tail biting convolutional code (CC) 2 = Block turbo code (BTC) 3 = Convolutional turbo code (CTC) 4 = Zero tail convolutional code (ZTCC) 5 = Low density parity check code (LDPC)
MAP repetition	Integer	WiMAX repetition coding used on DL-MAP 1 = No repetition 2 = Repetition coding 2 4 = Repetition coding 4 6 = Repetition coding 6

Parameters for AMPS and NAMPS

Name	Type	Description
Band	Integer	Band 510800 = AMPS 800 519999 = AMPS 520800 = NAMPS 800 529999 = NAMPS
Ch type	Integer	AMPS channel type 1 = Analog control channel 2 = Analog traffic channel
Ch	Integer	Channel number

Parameters for DAMPS

Name	Type	Description
Band	Integer	Band 530800 = DAMPS 800 531900 = DAMPS 1900 539999 = DAMPS
Ch type	Integer	TDMA channel type 1 = Digital control channel 2 = Digital traffic channel 3 = Data channel
Ch	Integer	Channel number
NW type	Integer	NW type