SwissQual® NetQual NQDI Classic KPI Descriptions

Manual

Release 16.3

5748737748 — 01

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Contents

1 Introduction

This document contains a description of all the KPIs (Key Performance Indicators) measured and reported with Diversity and QualiPoc data in NQDI Classic. This list of KPIs represents a summary from inputs from the Experts within ETSI, SwissQual KPI definitions and various customer requests.

The structure of the KPIs follows the principles of the document ITU P-800 where the accessibility, retainability, and integrity are the key aspects of the assessment of quality in telecommunications.

The concept of accessibility has been enlarged to accommodate customer requests for KPIs considering the completion of a service. It spans from the request of a service to its successful completion. Since the access to the service is essential to its completion these KPIs are regarded as belonging to the accessibility group.

The described KPIs are to be found on the KPI sheet of the "NQDI Analysis" tab and as a report item in the Report Generator. The usage of the Report Generator is described in detail in the `Manual – NQDI.pdf` document.

The calculation of the KPIs is automatically when the trigger points are available. Depending on the data collection application type and mode used (Diversity, QualiPoc) maybe only a limited choice of KPIs is available.

1.1 About NQDI Classic

NQDI Classic 16.3 is a post-processing system that maximizes the potential of data that is collected by QualiPoc and Diversity products for network and service optimization and benchmarking. Based on data from all radio technologies, NQDI Classic provides automated data validation, detailed quality analysis and troubleshooting, and long-term reporting for voice and data services.

NQDI is designed as a client/server application that uses Microsoft SQL Server as a repository for the measurement data. The client application system includes features for data administration, filtering capability, analysis, statistics, map plotting, and KPI report generation.

1.2 Related Documents

- `Manual – NQDI – Database structure.pdf`: Describes the NQDI database structure
- `Manual – NiNA+ Voice Test Result Description.pdf`: Describes voice test measurement results
- `Manual – Diversity Data and Messaging Tests.pdf`: Describes data test measurement results

2 KPI Overview

The following legend is for the KPI tables in this section. The ETSI reference document is `TS 102 250 – 2 V.1.7.1`

Table 2-1: Description of the symbols that are used in this document

Item	Description
*	Not implemented as KPI and not available as Report Item
+	Available In Report Generator but no explicit KPI Item
QP	Only with QualiPoc available
()	ETSI definition almost equivalent
●	IP Protocol
●	Layer 3 Message
●	SwissQual test message
●	Phone (chipset) trace message
●	Scanner

2.1 Accessibility

			Accessibility			Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event	End Trigger Event	Status	Value 1	Success Rate	Time	
10100	Service	Voice (CS)	Telephony	● Channel Request / RRCConnectionRequest/ LTE-RRCConnectionRequest (MTC Dial)	● CC: Alerting	SuccessRate	Duration	6.6.1/6.7.3	6.6.2/6.7.4	
10101	Service	Voice (CS)	Telephony Connect	● Channel Request / RRCConnectionRequest/ LTE-RRCConnectionRequest (MTC Dial)	● CC : Connect	SuccessRate	Duration			
10102	Service	Voice (CS)	Telephony Service	● CM Service Request	● CC: Alerting	SuccessRate	Duration			
10103	Service	Voice (CS)	Telephony Overall	● Channel Request / RRCConnectionRequest/ LTE-RRCConnectionRequest/ INVITE/Origination Message	● CC : Connect	SuccessRate	Duration			
10104	Service	Voice (CS)	Telephony AB	● Same as 10100 (always from calling side)	● Same as 10100 (always from calling side)	SuccessRate	Duration			
10105	Service	Voice (CS)	Video Call Video Setup	● RRCConnectionRequest	● Video Connect marker	SuccessRate	Duration			
10108	Service	Voice	Telephony M2M Connect Net (Dial)	● Dial	● CC Connect	SuccessRate	Duration ("accept delay"			
10109	Service	Voice	Telephony M2M Connect Net	● Channel Request / RRCConnectionRequest/ LTE-RRCConnectionRequest (MTC Dial)	● CC Connect	SuccessRate	Duration ("accept delay"			
10110	Service	Voice (CS)	Telephony Completion	● Channel Request / RRCConnectionRequest	● CC: Disconnect	SuccessRate	Duration			
10120	Service	Voice (CS)	Access state	● RRCConnectionRequest	● Alerting, Disconnect, Release, Idle	SuccessRate	Duration			
10141	Service	Voice (CS)	Paging Delay MTC	● Dial	● Paging/RRC Paging Type 1	SuccessRate	Duration			

			Accessibility			Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event	End Trigger Event	Status	Value 1	Success Rate	Time	
10150	Service	Voice (CS)	Telephony MTC	● Paging	● CC: Alerting	SuccessRate	Duration			
10151	Service	Voice (CS)	Telephony MTC inter-mediate	● Channel Request / RRCConnectionRequest	● CC: Alerting	SuccessRate	Duration			
10152	Service	Voice (CS)	Telephony MTC Request Delay	● Paging	● Channel Request / RRCConnectionRequest	SuccessRate	Duration			
10153	Service	Voice (CS)	Telephony Random Access	● Dial	● Channel Request/ RRCConnection Request	SuccessRate	Duration			
10160	Service	Voice (CS)	Telephony Completion MTC	● Dial	● Channel Release / RRC Connection Release	SuccessRate	Duration			
10165	Service	Voice (CS)	Telephony Completion MTC Paging	● Paging	● Channel Release / RRC Connection Release	SuccessRate	Duration			
10170	Service	Voice (CS)	Voice(LTE CSFB) - Tele-phony	● LTE: RRCConnectionRe-quest with establishment-Cause = mo_Data	● CC: Alering	SuccessRate	Duration			
10175	Service	Voice (CS)	Voice(LTE CSFB) - Tele-phony Fall-back Delay	● LTE: EMM-Extended service Request	● UMTS: RRCConnection-Request GSM: CM Service Request	SuccessRate	Duration			
10178	Service	Voice (CS)	Voice(LTE CSFB) - Tele-phony Service	● LTE: EMM-Extended service Request	● CC: Alering	SuccessRate	Duration			
10180	Service	Voice (CS)	Voice(LTE CSFB) - Radio Fall-back Delay	● LTE: RRCConnectionRe-lease with redirectedCarrier-Info = utra_FDD or utra_TDD	● UMTS: SystemInforma-tion-BCH GSM: first SystemInfor-mation	SuccessRate	Duration			

				Accessibility		Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event	End Trigger Event	Status	Value 1	Success Rate	Time	
10181	Service	Voice (CS)	Voice(LTE CSFB) - Radio Redi-rect	● LTE: EMM-Extended service Request	● LTE: RRCConnection-Release with redirected-CarrierInfo = utra_FDD or utra_TDD	SuccessRate	Duration			
10182	Service	Voice (CS)	Voice(LTE CSFB) - Technology Change Delay	● LTE: RRCConnectionRe-quest with establishment-Cause = mo_Data	● UMTS: SystemInforma-tion-BCH GSM: first SystemInfor-mation	SuccessRate	Duration			
10184	Service	Voice (CS)	Voice (LTE CSFB) - Tele-phony Service AB	● LTE: EMM-Extended service Request (always from calling side)	● CC: Alerting (always from calling side)	Success Rate	Duration			
10200	Service	Data	Email send	● > 25 [SYN]	● Message Body (after CommandReset)	SuccessRate	Duration	(7.2.11)	(7.2.12)	
10201	Service	Data	Email receive	● > 110 [SYN]	● Response:+ OK and octets or bytes	SuccessRate	Duration	7.2.11	7.2.12	
10203	Service	Data	IMAP Email receive LOGIN	● > 143 [SYN]	● IMAP4 Response:OK and user and authenti-cated	SuccessRate	Duration	7.2.11	7.2.12	
10207	Service	Data	Email SSL send	● > PORT [SYN]	● Application Data or End-Trigger of normal EMail KPI ("Message Body" after the Command, HELO, EHOL...)	SuccessRate	Duration			
10208	Service	Data	Email SSL Receive	● > PORT [SYN]	● Application Date	SuccessRate	Duration			
10210	Service	Data	Email send Completion	● > 25 [SYN]	● Message Accepted (or Quit)	SuccessRate	Duration	7.2.6	7.2.7	
10211	Service	Data	Email receive Completion	● > 110 [SYN]	● Last continuation	SuccessRate	Duration	7.2.6	7.2.7	
10300	Service	Data	FTP UL	● > 21 [SYN]	● First FTP Data	SuccessRate	Duration	6.1.3(A)	6.1.4 (A)	

				Accessibility			Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event		End Trigger Event	Status	Value 1	Success Rate	Time	
10301	Service	Data	FTP DL	● > 21 [SYN]	●	First FTP Data	SuccessRate	Duration	6.1.3(A)	6.1.4 (A)	
10302			FTPS UL	● > port [SYN]	○	Internal timing (mtMsgTCPConnection-DataSize)	SuccessRate	Duration			
10303			FTPS DL	● > port [SYN]	○	Internal timing (mtMsgTCPConnection-DataSize)					
10307	Service	Data	FTP UL (B)	● > 21 [SYN]	●	Reception of [Ack] from the [Syn;Ack]	SuccessRate	Duration	6.1.3(A)	6.1.4 (A)	
10308	Service	Data	FTP UL (B)	● > 21 [SYN]	●	Reception of [Ack] from the [Syn;Ack]	SuccessRate	Duration	6.1.3(A)	6.1.4 (A)	
10310	Service	Data	FTP UL Completion	● > 21 [SYN]	●	Reception of [Fin;Ack] for the last FTP data	SuccessRate	Duration	6.1.5	6.1.6	
10311	Service	Data	FTP DL Completion	● > 21 [SYN]		Last FTP Data	SuccessRate	Duration	6.1.5	6.1.6	
10320	Service	Data	Service Access FTP UL (B)	○ Start RAS Dialup	●	Reception of [Ack] from the [Syn;Ack]	SuccessRate	Duration	6.1.1 (B)	6.1.2 (B)	
10321	Service	Data	Service Access FTP DL (B)	○ Start RAS Dialup	●	Reception of [Ack] from the [Syn;Ack]	SuccessRate	Duration	6.1.1 (B)	6.1.2 (B)	
10400	Service	Data	HTTP Browser	● > 80 [SYN]	●	HTTP/1.1200 OK or HTTP/1.0 200 OK or 302 Found/HTTP/1.1 301 Moved Permanantly	SuccessRate	Duration	6.8.3 (A)	6.8.4 (A)	
10401	Service	Data	HTTP Transfer Get	● > 80 [SYN]	●	HTTP/1.1200 OK or HTTP/1.0 200 OK or 302 Found/HTTP/1.1 301 Moved Permanantly	SuccessRate	Duration	6.8.3 (A)	6.8.4 (A)	
10402	Service	Data	HTTP Transfer Put	● > 80 [SYN]	●	PUT	SuccessRate	Duration			

Accessibility						Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event	End Trigger Event	Status	Value 1	Success Rate	Time	
10403	Service	Data	HTTP Browser Page	● > 80 [SYN]	● HTTP/1.1200 OK or HTTP/1.0 200 OK	SuccessRate	Duration	6.8.3 (A)	6.8.4 (A)	
10404	Service	Data	HTTPS Browser	● > 443 [SYN] >HTTPS[SYN]	● Application Data	SuccessRate	Duration			
10406	Service	Data	HTTPS Browser (redirection)	● > 80 [SYN], > 8080 [SYN]	● Application Data	SuccessRate	Duration			
10407	Service	Data	HTTP Browser (B)	● > 80 [SYN]	● Sending of the first GET command	SuccessRate	Duration	6.8.3 (B)	6.8.4 (B)	
10408	Service	Data	HTTP Browser Access Dealy	● DNS, Standard Query	● > 80 [SYN], > 8080 [SYN]	SuccessRate	Duration			
10410	Service	Data	HTTP Browser Completion	● > 80 [SYN]	● Last Continuation	SuccessRate	Duration	6.8.5	6.8.6	
10411	Service	Data	HTTP Transfer GET Completion	● > 80 [SYN]	● Last Continuation	SuccessRate	Duration	6.8.5	6.8.6	
10412	Service	Data	HTTP Transfer PUT Completion	● > 80 [SYN]	● Reception of [Fin;Ack] after the last continuation	SuccessRate	Duration			
10420	Service	Data	Service Access HTTP Browser (B)	● Start RAS Dialup	● Sending of the first GET command	SuccessRate	Duration	6.8.1 (B)	6.8.2 (B)	
10421	Service	Data	Service HTTP Transfer GET (B)	● Start RAS Dialup	● Sending of the first GET command	SuccessRate	Duration	6.8.1 (B)	6.8.2 (B)	
10422	Service	Data	Service HTTP Transfer PUT	● Start RAS Dialup	● Sending of the first PUT command	SuccessRate	Duration			
10425	Service	Data	Network Access HTTP	● Activate PDP Context Request	● HTTP/1.n 200 OK	SuccessRate	Duration			QP

				Accessibility			Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event		End Trigger Event	Status	Value 1	Success Rate	Time	
10430	Service	Data	Network Access WAP Portal	●	Activate PDP Context Request	● Last HTTP/1.n 200 OK	SuccessRate	Duration			QP
10431	Service	Data	HTTPS Transfer Get	●	> 443 [SYN] >HTTPS[SYN]	● Application Data	SuccessRate	Duration			
10432	Service	Data	HTTPS Transfer Put	●	> 443 [SYN] >HTTPS[SYN]	● Application Data	SuccessRate	Duration			
10450	Service	Data	HTTP Net-work DL Cycle	●	Channel Request RRCConnectionRequest HTTP Get	● HTTP/1.n complete	SuccessRate	Duration			QP
10451	Service	Data	HTTP Page DL Cycle	●	HTTP Get	● Last HTTP/1.n complete	SuccessRate	Duration			QP
10452	Service	Data	HTTP File DL Cycle	●	HTTP Get	● Last HTTP/1.n complete before new HTTP Get	SuccessRate	Duration			QP
10461	Service	Data	Capacity Get	●	> 80 [SYN]	● HTTP/1.1200 OK or HTTP/1.0 200 OK	SuccessRate	Duration			
10462	Service	Data	Capacity Put	●	> 80 [SYN]	● HTTP/1.1200 OK or HTTP/1.0 200 OK	SuccessRate	Duration			
10463	Service	Data	Capacity GetandPut	●	> 80 [SYN]	● HTTP/1.0 200 after a GET or PUT / HTTP/1.*	SuccessRate	Duration			
10470	Service	Data	Application	●	mtResultsAppTest	● mtResultsAppTest	SuccessRate	Duration			
10500	Service	Data	UDPDL	●	Request:SQUDPDL	● Source port	SuccessRate	Duration			
10600	Service	Data	Video Stream-ing	●	HTTP: HTTP Get or RTSP continuation RTSP DESCRIBE	● RTSP: RTP Payload Resized, Buffering …	SuccessRate	Duration			
10601	Service	Data	Video Stream-ing Play	●	HTTP: HTTP Get or RTSP continuation RTSP DESCRIBE	● PLAY (RTSP PLAY)	SuccessRate	Duration			

KPI ID	Stratum	Type	Function	Start Trigger Event	End Trigger Event	Status	Value 1	Success Rate	Time	
				Accessibility		**Parameter**		**ETSI Parameter**		
10605	Service	Data	Video Streaming (Setup)	● RTSP: RTSP Setup	● RTSP: RTP Payload Resized, Buffering …	SuccessRate	Duration			
10610	Service	Data	Network Access Video Streaming	● Activate PDP Context Request	● First Packet	SuccessRate	Duration			QP
10620	Service	Data	YouTube - IP Service Access	● > 80 [SYN] (player)	● HTTP/1.n 200 OK (player)	SuccessRate	Duration			
10621	Service	Data	YouTube - Streaming Access	● > 80 [SYN] (video)	● HTTP/1.n 200 OK (video)	SuccessRate	Duration			
10625	Service	Data	YouTube - Video Access	● > 80 [SYN] (player)	● HTTP/1.n 200 OK (video)	SuccessRate	Duration			
10700	Service	Data	WAP	● WSP Connect	● WSP Reply/ WSP Result	SuccessRate	Duration	6.11.1	6.11.2	
10710	Service	Data	WAP Completion	● WSP Connect	● Last WSP Reply/ WSP Result	SuccessRate	Duration			
10800	Service	Message	MMS Send	● START	● TRANSMISSION STARTED	SuccessRate	Duration			
10801	Service	Message	MMS Receive	● NOTIFICATION RECEIVED	● TRANSMISSION STARTED	SuccessRate	Duration			
10805	Service	Message	WAP Gateway connect	● START	● WSP Connect	SuccessRate	Duration			
10900	Service	Message	SMS Send	● START	● SEND SMS START	SuccessRate	Duration			
11000	Service	Message	Post Dial Delay Active State	● SIP INVITE	● 180 RINGING	SuccessRate	Duration	6.12.5	6.12.6	
11001	Service	Message	SIP - Dial Accept Delay	● SIP INVITE	● SIP 100 Trying	SuccessRate	Duration			

				Accessibility		**Parameter**		**ETSI Parameter**		
KPI ID	**Stratum**	**Type**	**Function**	**Start Trigger Event**	**End Trigger Event**	**Status**	**Value 1**	**Success Rate**	**Time**	
11002	Service	Message	SIP - Dial Response Delay	● SIP INVITE	● SIP 18* (Normal) SIP 401 (Reject)	SuccessRate	Duration			
11010	Service	Message	SIP – Call Access	● SIP INVITE	● SIP 200 OK	SuccessRate	Duration	6.12.3	6.12.4	
11011	Service	Message	SIP - Call Access M2M Connect Net	● SIP INVITE (always from calling side)	● SIP 200 OK (always from calling side)	Success Rate	Duration (- 'accept delay')			
11100	Service	Message	SIP - Call Establishment (Setup)	● SIP INVITE	● Request: ACK	SuccessRate	Duration			
11500	Service	EVDO	Post Dial Delay Dormant State	● EVDO Connection Request	● 180 RINGING	SuccessRate	Duration			
15000	Service	Data (CS)	Telephony	● AT-Command	● Valid Server Response	SuccessRate	Duration			*
15100	Layer 3	Data (PS)	Attach	● Attach Request	● Attach Accept or Reject	SuccessRate	Duration	5.3	5.4	
15101	Layer 3	Data (PS)	Detach	● Detach Request	● Detach Accept	SuccessRate	Duration			
15102	Layer 3	Data (PS)	Attach Completion	● Attach Request	● Attach Complete	SuccessRate	Duration			
15105	Layer 3	Data (PS)	Attach (P3)	● [AT+ CGATT=1]	● [OK]	SuccessRate	Duration			
15200	Layer 3	Data (PS)	Activate PDP Context	● Activate PDP Context Request	● Activate PDP Context Accept or Reject	SuccessRate	Duration	5.5	5.6	
15201	Layer 3	Data (PS)	Deactivate PDP Context	● Dectivate PDP Context Request	● Deactivate PDP Context Accept	SuccessRate	Duration			
15202	Layer 3	Data (PS)	Access 3G	● RRCConnectionRequest	● ActivatePDPContext Accept	SuccessRate	Duration			
15203	Layer 3	Data (PS)	Deactivate PDP Context Completion	● Channel Request / RRCConnectionRequest	● Deactivate PDP Context Accept	SuccessRate	Duration			

Accessibility						Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event	End Trigger Event	Status	Value 1	Success Rate	Time	
15205	Layer 3	Data (PS)	Activate PDP Context (P3)	● First IPCP Configuration Request	● Last IPCP Configuration Accept	SuccessRate	Duration			
15210	Layer 3	Data (PS)	3G Data Connection	● Service Request	● RadioBearerSetupcomplete or Activate PDP Context accept	SuccessRate	Duration			
15250	Layer 3	Data (PS)	IP Service Access	● Activate PDP Context Request	● FirstPacket of accessed service	SuccessRate	Duration			
15300	Layer 3	Data (PS)	Authentification	● Authentification and Ciphering Request	● Authentification and Ciphering Response or Failure or Reject	SuccessRate	Duration			
15400	Layer 3	CS	Ciphering	● Ciphering Mode command	● Ciphering Mode complete	SuccessRate	Duration			
15500	Layer 3	CS	Authentification	● Authentification Request	● Authentification Response or Failure or Reject	SuccessRate	Duration			
15550	Layer 3	CS	Identity	● IdentityRequest	● IdentityResponse	SuccessRate	Duration			
15560	Layer 3	CS	Call Setup Signalling 2G	● Immediate Assignment	● Assignment Command	SuccessRate	Duration			
15570	Layer 3	CS	Call Setup Signalling 3G	● RRCConnectionSetupComplete	● RadioBearerSetup	SuccessRate	Duration			
15600	Layer 3	2G	Traffic Channel	● Assignment Command	● Assignment Complete or Failure	SuccessRate	Duration			
15610	Layer 3	2G	Call Access Traffic Channel	● CM Service Request	● Assignment Complete or Failure/ RadioBearerSetupComplete or Failure	SuccessRate	Duration			
16050	Layer 3	2G	Traffic Channel Completion	● Channel Request	● Channel Release	SuccessRate	Duration			
15700	Layer 3	2G	Signal Channel	● Channel Request	● Immediate Assignment or IA Reject	SuccessRate	Duration			

				Accessibility			Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event		End Trigger Event	Status	Value 1	Success Rate	Time	
16310	Layer 3	CDMA	Call Access Traffic Channel	● Origination	●	Service Connect Completion	SuccessRate	Duration			
15800	Layer 3	3G	Traffic Channel	● RadioBearerSetup	●	RadioBearerSetupComplete or Failure	SuccessRate	Duration			
15900	Layer 3	3G	Security	● DCCH-Security Mode Command	●	DCCH-Security Mode Complete or Failure	SuccessRate	Duration			
16000	Layer 3	3G	Signal Channel	● RRCConnectionRequest	●	RRCConnectionSetupComplete	SuccessRate	Duration			
16050	Layer 3	3G	Signal Channel Completion	● RRCConnectionRequest	●	RRCConnectionRelease	SuccessRate	Duration			
18000	Layer 3	4G	Signal Channel	● RRCConnectionRequest	●	RRCConnectionSetupComplete	SuccessRate	Duration			
18020	Layer 3	4G	Security Mode	● Security mode command	●	Security mode complete	SuccessRate	Duration			
18005	Layer 3	Data (EPS)	Attach EPS	● EMM-Attach request	●	EMM-Attach accept	SuccessRate	Duration			
18006	Layer 3	Data (EPS)	Detach EPS	● EMM-Detach request	●	EMM-Detach accept	SuccessRate	Duration			
18010	Layer 3	Data (EPS)	Default EPS Bearer	● ESM-Activate Default EPS Bearer Context	●	EMM-Attach complete	SuccessRate	Duration			
16100	Layer 1	2G	Coverage	● C1 > 0	●		SuccessRate		5.1		*
16200	Layer 1	2G	GPRS Availability	● Selection of new Cell	●	SI 13 on BCCH	SuccessRate		5.1		
		VF YouTube	Video Access (B1)	● > 80 [SYN] (video)/ Clip started	●	Displaying	SuccessRate	Duration			+
		VF YouTube	Video Access (B1.1)	● > 80 [SYN] (player)/ Initialized	●	Displaying	SuccessRate	Duration			+

2.2 Retainability

Retainability						Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event	End Trigger Event	Status	Value 1	Success Rate	Time	
20100	Services	Voice (CS)	Telephony	CC:Alerting	CC:Disconnect	SuccessRate	Duration	6.7.7		
20101	Services	Voice (CS)	Telephony	CC:Connect	CC:Disconnect	SuccessRate	Duration	6.6.5		
20102	Services	Voice (CS)	Telephony (Alert - Status)	CC:Alerting	(Disconnect) Follows call status	SuccessRate	Duration			
20103	Services	Voice (CS)	Telephony (Connect - Status)	CC:Connect	(Disconnect) Follows call status	SuccessRate	Duration			
20104	Services	Voice (CS)	Telephony Overall	Connect Marker	Marker Released, System Release, Break	SuccessRate	Duration			
20120	Services	Voice (CS)	Telephony	RRCConnectionRequest	CC:Disconnect, Release, Idle	SuccessRate	Duration			
20200	Services	Data	Email send	First Message Body	Response: Message accepted - half roundtrip	SuccessRate	Duration	7.2.9		
20201	Services	Data	Email receive	Octets - half roundtrip	Last Continuation	SuccessRate	Duration	7.2.9		
20203	Services	Data	IMAP Email Receive	FETCH 1 (RFC822)	Response: Cx OK FETCH completed (x must match with id from Request)	SuccessRate	Duration	7.2.9	7.2.10	
20205	Services	Data	Email send	First Message Body	Response: Message accepted	SuccessRate	Duration	7.2.9	7.2.10	
20206	Services	Data	Email receive	octets	Last Continuation	SuccessRate	Duration	7.2.9	7.2.10	
20207	Services	Data	Email SSL send	End of 10207	Application Data or Message Body	SuccessRate	Duration			
20208	Services	Data	Email SSL receive	End of 10208	Application Data	SuccessRate	Duration			
20211	Services	Data	IMAP Email Receive Header	FETCH 1 (RFC822.HEADER)	Response: Cx OK FETCH completed (x must match with id from Request)	SuccessRate	Duration	7.2.9	7.2.10	

				Retainability		Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event	End Trigger Event	Status	Value 1	Success Rate	Time	
20300	Services	Data	FTP UL	FTP Data	[FIN;ACK] - half round-trip	SuccessRate	Duration			
20301	Services	Data	FTP DL	FTP Data - half roundtrip	Last FTP DATA	SuccessRate	Duration			
20302			FTPS UL	Internal timing (mtMsgTCPConnectionData-Size)	Internal timing (mtMsgTCPConnection-DataSize)	SuccessRate	Duration			
20303			FTPS DL	Internal timing (mtMsgTCPConnectionData-Size)	Internal timing (mtMsgTCPConnection-DataSize)	SuccessRate	Duration			
20305	Services	Data	FTP UL(V)	FTP Data	First [FIN;ACK] for the last FTP DATA	SuccessRate	Duration	6.1.8 (A)		
20306	Services	Data	FTP DL(V)	FTP Data	Last FTP DATA	SuccessRate	Duration	6.1.8 (A)		
20307	Services	Data	FTP UL(B)	Reception of [ACK] from the [SYN;ACK]	[FIN;ACK]	SuccessRate	Duration	6.1.8 (A)		
20308	Services	Data	FTP DL(B)	Reception of [ACK] from the [SYN;ACK]	Last FTP DATA	SuccessRate	Duration	6.1.8 (A)		
20310	Services	Data	FTP UL Fixed Duration	FTP Data	Test End	SuccessRate	Duration			
20311	Services	Data	FTP DL Fixed Duration	FTP Data - half roundtrip	Test End	SuccessRate	Duration			
20312			FTPS UL Fixed Duration	Internal timing (mtMsgTCPConnectionData-Size)	Test End					
20313			FTPS DL Fixed Duration	Internal timing (mtMsgTCPConnectionData-Size)	Test End					
20317			FTP DLFixed Duration (V)	FTP Data	Test End	SuccessRate	Duration			
20400	Services	Data	HTTP Browser	HTTP/1.1 200 OK (or 301 or 302) - half roundtrip	Last Continuation	SuccessRate	Duration			

				Retainability		Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event	End Trigger Event	Status	Value 1	Success Rate	Time	
20401	Services	Data	HTTP Transfer GET	HTTP/1.1 200 OK (or 301 or 302)- half roundtrip	Last Continuation	SuccessRate	Duration			
20402	Services	Data	HTTP Transfer PUT	PUT	First [FIN;ACK] after Last Continuation	SuccessRate	Duration			
20403			HTTP Browser Page	HTTP/1.x 200 after a GET - HT	Last HTTP/1.x 200 or Continuation					
20404	Services	Data	HTTPS Browser	First Application Data	Last Application Data	SuccessRate	Duration			
20405	Services	Data	HTTP Browser (V)	HTTP/1.1 200 OK	Last Continuation	SuccessRate	Duration	6.8.8		
20407	Services	Data	HTTP Browser (B)	Sending of GET command	Last Continuation	SuccessRate	Duration	6.8.8		
20411	Services	Data	HTTP Transfer GET Fixed Duration	HTTP/1.1 200 OK - half roundtrip	Test End	SuccessRate	Duration			
20412	Services	Data	HTTP Transfer PUT Fixed Duration	PUT	Test End	SuccessRate	Duration			
20415	Services	Data	HTTP Transfer Get(V)	HTTP/1.1 200	Last Continuation	SuccessRate	Duration			
20416	Services	Data	HTTP Transfer Put(V)	PUT	First [FIN;ACK] after last Continuation	SuccessRate	Duration			
20417	Services	Data	HTTP Transfer Get Fixed Duration (V)	HTTP/1.1 200	Test End	SuccessRate	Duration			
20431	Services	Data	HTTPS Transfer Get	First Application Data	Last Application Data	SuccessRate	Duration			
20432	Services	Data	HTTPS Transfer Put	First Application Data	Last Application Data	SuccessRate	Duration			

				Retainability		Parameter		ETSI Parameter		
KPI ID	**Stratum**	**Type**	**Function**	**Start Trigger Event**	**End Trigger Event**	**Status**	**Value 1**	**Success Rate**	**Time**	
20441	Services	Data	HTTPS Transfer Get Fixed Duration	● First Application Data	● Test End (mtDataTestTimeout)	SuccessRate	Duration			
20442	Services	Data	HTTPS Transfer Put Fixed Duration	● First Application Data	● Test End (mtDataTestTimeout)	SuccessRate	Duration			
20461	Services	Data	Capacity Get	● HTTP/1.1 200 OK - half roundtrip	● Test End	SuccessRate	Duration			
20462	Services	Data	Capacity Put	● PUT	● Test End	SuccessRate	Duration			
20463	Services	Data	Capacity GetandPut	● HTTP/1.0 200 after a GET or PUT / HTTP/1.*	● Test End	SuccessRate	Duration			
20470	Services	Data	Application	● mtResultsAppTest	● mtResultsAppTest	SuccessRate	Duration			
20500	Services	Data	UDPDL	● Source port	● Source port	SuccessRate	Duration			
20600	Services	Data	Video Streaming	● RTSP: TDP Payload Resized or Buffering	● HTTP: [FIN; ACK] ; RTSP : TEARDOWN QualiPoc QP TEARDOWN	SuccessRate	Duration	6.5.6		
20601	Services	Data	Video Streaming Play	● PLAY (RTSP PLAY)	● HTTP: [FIN; ACK] ; RTSP : TEARDOWN QualiPoc QP TEARDOWN					
20605	Services	Data	Video Cut off	● Displaying	● RTSP TEARDOWN or PAUSE or [FIN; ACK] QP TEARDOWN	SuccessRate	Duration			
20620	Services	Data	YouTube - Player Download	● HTTP/1.n 200 OK (player)	● Last Continuation (player)	SuccessRate	Duration			

				Retainability		Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event	End Trigger Event	Status	Value 1	Success Rate	Time	
20621	Services	Data	YouTube - Playback	Displaying	Clip end reached	SuccessRate	Duration			
20625	Services	Data	YouTube - Video Download	First HTTP packet (video)	Last Continuation (video)	SuccessRate	Duration			
20700	Services	Data	WAP	WSP Reply –half roundtrip	Last WSP Reply	SuccessRate	Duration	6.11.10	6.11.11	
20800	Services	Message	MMS Send	TRANSMISSION STARTED	TRANSMISSION FINISHED	SuccessRate	Duration			
20801	Services	Message	MMS Receive	NOTIFICATION RECEIVED	TRANSMISSION FINISHED	SuccessRate	Duration			
20900	Services	Message	SMS	SEND SMS START	SEND SMS FINISHED	SuccessRate	Duration	7.4.2	7.4.3	
21000	Services	Data	Echo (Ping) request	Test time – RTT	Test time	SuccessRate	Duration		6.3	
21010	Services	Data	SIP Call Completion	SIP 200 OK	SIP Request: BYE	SuccessRate	Duration			
21020	Services	Data	RTP Connection Loss	SIP INVITE 200 OK	SIP Request: BYE (and no RTP 20s timeout expired)	SuccessRate	Duration			
21030	Services	Data	IMS Bearer	Activate Default EPS Bearer with QCI 5	RRCConnectionReconfiguration with release of EPS Bearer with QCI 5	SuccessRate	Duration			
25000	Services	Data (CS)	Telephony (Data CS)	Valid Server Response	Intentional Termination	SuccessRate	Duration			*
25100	Layer 3	Data (PS)	Attach	Attach accept	Detach Request	SuccessRate	Duration			
25200	Layer 3	Data (PS)	PDP Context	Activate PDP Context Accept	Dectivate PDP Context Request	SuccessRate	Duration	5.7		
25201	Layer 3	Data (PS)	PDP Context End	Activate PDP Context Accept	Dectivate PDP Context Accept	SuccessRate	Duration			

	Retainability					Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event	End Trigger Event	Status	Value 1	Success Rate	Time	
25210	Layer 3	Data (PS)	3G Data Connection	RadioBearerSetupComplete or Activate PDP context accept	RadioBearerRelease or RRCConnectionRelease or Deactivate PDP context request	SuccessRate	Duration			
25100	Layer 3	Data (PS)	Attach	Attach accept	Detach Request	SuccessRate	Duration			
25300	Layer 3	2G	Resource	Assignment Complete	Channel Release	SuccessRate	Duration			
25400	Layer 3	3G	Network	RRCConnectionSetupComplete	RRCConnection Release	SuccessRate	Duration			
26100	Layer 3	3.5G	HSDPA Activity	RadioBearerSetup RadioBearerReconfiguration	RRCConnectionRelase, CellChangeOrder formU-TRAN, RadioBearerReconfiguration	SuccessRate	Duration			
26110	Layer 3	3G	3g Radio-BearerRelease	RadioBearerRelease	RadioBearerReleaseComplete or RadioBearerReleaseFailure	SuccessRate	Duration			
28000	Layer 3	4G	Signal Channel	RRCConnectionSetupComplete	RRCConnectionRelease	SuccessRate	Duration			
28005	Layer 3	Data (EPS)	Attach EPS	EMM-Attach accept	EMM-Detach request	SuccessRate	Duration			
		VF YouTube	DL Reproduction without interruption (B2)	> 80 [SYN] (video)/ Clip started	Clip end reached Freezings = 0	SuccessRate	Duration			+

Retainability						Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Start Trigger Event	End Trigger Event	Status	Value 1	Success Rate	Time	
		VF You-Tube	DL Reproduction without interruption (B2.1)	● > 80 [SYN] (player)/ Initialized	● Clip end reached Freezings = 0	SuccessRate	Duration			+
		VF You-Tube	Successful Video Download (B3)	● > 80 [SYN] (video)/ Clip started	● Last Continuation (video) Access Duration < 10s Reproduction Delay < 23s Accumulated Freezing Time < 15s Max single Freezing Time < 8s	SuccessRate	Duration			+

Retainability

2.3 Integrity

Integrity						Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Trigger/Measurement	Trigger/Measurement				Time	
30100	Services	Voice (CS)	Telephony	● Speech Samples	●	SpeechQuality		6.6		
30101	Services	Voice (CS)	Telephony Exit	● CC: Disconnect	● CC:Release					
30130	Services	Voice (CS)	Call Re-establishment	● RR: CM Re-Establishment Request RRC: CellUpdate with specific cause	● RR: Channel Mode Modify Acknowledge or Assignment Complete RRC: • PhysicalChannelReconfigurationComplete • TransportChannel-Reconfiguration-Complete • RadioBearerReconfigurationComplete • RadioBearerRelea-seComplete					
30180	Services	Voice (CS)	Voice(LTE CSFB) - Telephony Return Delay	● CC:Disconnect	● LTE: First RRC message	SuccessRate	Duration			
30185	Services	Voice (CS)	Voice(LTE CSFB) - Telephony Return Delay TAU	● UMTS- RRCConnectionReleaseComplete	● EMM - Tracking area update complete/EMM - Tracking area update reject	SuccessRate	Duration			
30190	Services		Speech Quality Non Sustainability (V)	● Speech Samples (2 MOS < 1.3(WB)/1.7(NB))	●	SuccessRate				
30200	Services	Data	Email send	● Transmission Duration 20200	● Transferred Data	Throughput				
30201	Services	Data	Email receive	● Transmission Duration 20201	● Transferred Data	Throughput				
30203	Services	Data	IMAP Email Receive	● Transmission Duration 20203	● Transferred Data	Throughput		7.2.8		

Integrity						Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Trigger/Measurement	Trigger/Measurement				Time	
30205	Services	Data	Email send	Transmission Duration 20205	Transferred Data	Throughput		7.2.8		
30206	Services	Data	Email receive	Transmission Duration 20206	Transferred Data	Throughput		7.2.8		
30207	Services	Data	Email SSL send	Transmission Duration 10207	Application Data or Message Body	Throughput				
30208	Services	Data	Email SSL receive	Transmission Duration 10208	Application Data	Throughput				
30300	Services	Data	FTP UL	Transmission Duration 20300	Transferred Data	Throughput				
30301	Services	Data	FTP DL	Transmission Duration 20301	Transferred Data	Throughput				
30302	Services	Data	FTPS UL	Transmission Duration 20302	Transferred Data	Throughput				
30303	Services	Data	FTPS DL	Transmission Duration 20303	Transferred Data	Throughput				
30305	Services	Data	FTP UL(V)	Transmission Duration 20305	Transferred Data	Throughput		6.1.7 (A)		
30306	Services	Data	FTP DL(V)	Transmission Duration 20306	Transferred Data	Throughput		6.1.7 (A)		
30307	Services	Data	FTP UL(B)	Transmission Duration 20307	Transferred Data	Throughput		6.1.7 (B)		
30308	Services	Data	FTP DL(B)	Transmission Duration 20308	Transferred Data	Throughput		6.1.7 (B)		
30310	Services	Data	FTP UL Fixed Duration	Transmission Duration 20310	Transferred Data	Throughput				
30311	Services	Data	FTP DL Fixed Duration	Transmission Duration 20311	TransferredData	Throughput				

				Integrity			Parameter		ETSI Parameter		
KPI ID	**Stratum**	**Type**	**Function**	**Trigger/Measurement**		**Trigger/Measurement**				**Time**	
30312	Services	Data	FTPS UL Fixed Duration	● Transmission Duration 20312		● Transferred Data	Throughput				
30313	Services	Data	FTPS DL Fixed Duration	● Transmission Duration 20313		● TransferredData	Throughput				
30317	Services	Data	FTP DL Fixed Duration(V)	● Transmission Duration 20317		● TransferredData	Throughput				
30400	Services	Data	HTTP Browser	● Transmission Duration 20400		● Transferred Data	Throughput		6.8.7 (A)		
30401	Services	Data	HTTP Transfer GET	● Transmission Duration 20401		● Transferred Data	Throughput		6.8.7 (A)		
30402	Services	Data	HTTP Transfer PUT	● Transmission Duration 20402		● Transferred Data	Throughput				
30403	Services	Data	HTTP Browser Page	● Transmission Duration 20403		● Transferred Data	Throughput				
30404	Services	Data	HTTPS Browser	● Transmission Duartion 20404		● Transferred Data	Throughput				
30405	Services	Data	HTTP Browser(V)	● Transmission Duration 20405		● Transferred Data	Throughput		6.8.7 (A)		
30407	Services	Data	HTTP Browser(B)	● Transmission Duration 20407		● Transferred Data	Throughput		6.8.7 (B)		
30411	Services	Data	HTTP Transfer GET Fixed Duration	● Transmission Duration 20411		● Transferred Data	Throughput				
30412	Services	Data	HTTP Transfer PUT Fixed Duration	● Transmission Duration 20412		● Transferred Data	Throughput				
30415	Services	Data	HTTP Transfer Get(V)	● Transmission Duration 20415		● Transferred Data	Throughput				

Integrity

	Integrity					Parameter		ETSI Parameter		
KPI ID	**Stratum**	**Type**	**Function**	**Trigger/Measurement**	**Trigger/Measurement**				**Time**	
30416	Services	Data	HTTP Transfer Put(V)	● Transmission Duration 20416	● Transferred Data	Throughput				
30417	Services	Data	HTTP Transfer GET Fixed Duration(V)	● Transmission Duration 20417	● Transferred Data	Throughput				
30431	Services	Data	HTTPS Transfer Get	● Transmission Duartion 20431	● Transferred Data	Throughput				
30432	Services	Data	HTTPS Transfer Put	● Transmission Duartion 20432	● Transferred Data	Throughput				
30441	Services	Data	HTTPS Transfer Get Fixed Duration	● Transmission Duartion 20441	● Transferred Data	Throughput				
30442	Services	Data	HTTPS Transfer Put Fixed Duration	● Transmission Duartion 20442	● Transferred Data	Throughput				
30461	Services	Data	Capacity Get	● Transmission Duration 20461	● Transferred Data	Throughput				
30462	Services	Data	Capacity Put	● Transmission Duration 20462	● Transferred Data	Throughput				
30463	Services	Data	Capacity GetandPut	● Transmission Duration 20463	● Transferred Data	Throughput				
30470	Services	Data	Application	● mtResultsAppTest	● mtResultsAppTest	Throughput				
30480	Services	Data	Network Performance Put	● mtTestStart	● mtResultsNetworkPerfT-est	Throughput				
30481	Services	Data	Network Performance Get	● mtTestStart	● mtResultsNetworkPerfT-est	Throughput				
30485	Services	Data	NetworkPerformance Sustainable Capacity Put	● End of ramp up (mtResults-NetworkPerfMarker = '10')	● mtResultsNetworkPerfT-est	Throughput				

				Integrity		Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Trigger/Measurement	Trigger/Measurement				Time	
30486	Services	Data	NetworkPerformance Sustainable Capacity Get	End of ramp up (mtResultsNetworkPerfMarker = '10')	mtResultsNetworkPerfTest	Throughput				
30500	Services	Data	UDP	Transmission Duration	Transferred Data	Throughput				
30600	Services	Data	Video Streaming	RTSP: TDP Payload HTTP: Resized or Buffering	Displaying	Success Rate	Duration	6.5.10	6.5.11	
30605	Services	Data	Video Streaming First Frame	[SYN]	Displaying	Success Rate	Duration			
30606	Services	Data	Video Streaming Teardown Time	RTSP : TEARDOWN	RTSP/1.0 200 OK	Success Rate	Duration	6.5.12	6.5.13	
30607	Services	Data	Video Streaming Setup	[SYN]	Resize Buffering	Success Rate	Duration	6.5.4	6.5.5	
30621	Services	Data	YouTube - Reproduction Start Delay	HTTP/1.n 200 OK (video)	Displaying	Success Rate	Duration			
30700	Services	Data	WAP	Transmission Duration	Transferred Data	Throughput		6.11.9		
30800	Services	Message	MMS E2E	START (MO)	TRANSMISSION FINISHED (MT)	Success Rate	Duration	7.3.8	7.3.9	+
30801	Services	Message	MMS Notification	TRANSMISSION FINISHED (MO)	NOTIFICATION RECEIVED (MT)	Success Rate	Duration	7.3.6	7.3.7	+
30803	Services	Message	MMS Sent Time	TRANSMISSION STARTED (MO)	TRANSMISSION FINISHED (MO)	Success Rate	Duration	7.3.2	7.3.4	
30804	Services	Message	MMS Retrieval Time	TRANSMISSION STARTED (MT)	TRANSMISSION FINISHED (MT)	Success Rate	Duration	7.3.3	7.3.5	
30900	Services	Message	SMS E2E	SEND SMS START	SMS RECEIVED	Success Rate	Duration	7.4.4	7.4.5	+

Integrity						Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Trigger/Measurement	Trigger/Measurement				Time	
31000	Services	Message	TCP RTT	● [SYN]	● [SYN,ACK]		Duration			
31010	Services	IP	SIP - Registration	● SIP Request Register	● SIP 200 OK	Success Rate	Duration	6.12.1	6.12.2	
31011	Services	IP	SIP - Subscribe	● SIP Request: SUBSCRIBE	● SIP 200 OK	Success Rate	Duration			
31012	Services	IP	SIP - Publish	● SIP Request: PUBLISH	● SIP 200 OK	Success Rate	Duration			
31101	Services	IP	SIP - Termination Duration	● SIP Request: BYE	● SIP 200 OK	Success Rate	Duration			
31100	Services	IP	DNS Host resolution	● Standard query A%	● Standard response A%	Success Rate	Duration	5.10	5.11	
32000	Services	IP	PS Voice HO Interruption time	● Last "RTP PT=PCMU Audio" before start of 38100	● First "RTP PT=PCMU Audio" after end of 38100	Success Rate	Duration			
33200	Layer 3	2G/3G	PDP Context Exit	● Deactivate PDP Context Request	● Deactivate PDP Context Request	Success Rate	Duration			
34000	Layer 3	2G/3G	Routing Area Update	● Routing Area Update Request	● Routing Area Update Accept or Reject	Success Rate	Duration			
34004	Layer 3	2G/3G	Routing Area Update Access	● Channel Request / RRCConnectionRequest	● Routing Area Update Complete or Reject	Success Rate	Duration			
34010	Layer 3	2G/3G	TMSI	● TMSIReallocationCommand	● TMSIReallocationCommand	Success Rate	Duration			
34050	Layer 3	2G	Handover	● Handover Command	● Handover Complete or Failure	Success Rate	Duration			
34060	Layer 3	2G	Channel Modify 2G	● Channel Mode Modify	● Channel Mode Modify Acknowledge	Success Rate	Duration			
34070	Layer 3	2G	Intracell Handover	● Assignment Command	● Assignment Complete or Failure	Success Rate	Duration			

KPI ID	Stratum	Type	Function	Integrity Trigger/Measurement	Trigger/Measurement	Parameter		ETSI Parameter	Time	
35003	Layer 3	2G	Location	● Location Update Request	● Location Updating Accept or Reject	Success Rate	Duration			
35004	Layer 3	2G/3G	Location Update Access	● Channel Request / RRCConnectionRequest	● Location Updating Accept or Reject	Success Rate	Duration			
35010	Layer 3	2G/3G	Compress Mode	● tgps_Status activate	● All tgps_Status deactivate/HandoverFromUTRANCommand-GSM	Success Rate	Duration			
35020	Layer 3	2G/3G	InterSystemHO	● Inter System to UTRAN Handover Command	● HandoverToUTRAN-Complete or Failure	Success Rate	Duration			
35030	Layer 3	2G/3G	InterSystemHO	● HandoverFromUTRANCommand-GSM	● Handover Complete or HandoverFromUTRAN Failure	Success Rate	Duration			
35040	Layer 3	2G/3G	InterSystemHO	● CellChangeOrderFromUTRAN	● First GSM SystemInformation after CellChange	Success Rate	Duration			
35041	Layer 3	2G/3G	InterSystemHO RAU	● CellChangeOrderFromUTRAN	● Routing Area Update Complete or Reject	Success Rate	Duration			
35042	Layer 3	2G/3G	InterSystemHO Interruption	● CellChangeOrderFromUTRAN	● First IP Packet	Success Rate	Duration			*
35050	Layer 3	2G/3G	InterSystemHO	● Last GSM SystemInformation before CellChange	● CellChange	Success Rate	Duration			
35060	Layer 3	2G/3G	InterSystemHO	● Last GSM SystemInformation or Paging before CellChange	● First UMTS RRC Message	Success Rate	Duration			
35061	Layer 3	2G/3G	InterSystemHO to LU (reselect)	● Last GSM L3 idle (SysInfo 1..4 and Paging)	● Location Updating Accept or Location Updating Reject	Success Rate	Duration			
35070	Layer 3	2G/3G	InterSystemHO	● Last UMTS RRC Message	● First GSM SystemInformation or Paging after CellChange	Success Rate	Duration			

				Integrity		Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Trigger/Measurement	Trigger/Measurement				Time	
35071	Layer 3	2G/3G	InterSystemHO to LU (reselect)	● Last RRC L3 idle (log chan 4), only when RRCState = Disconnected	● Location Updating Accept or Location Updating Reject	Success Rate	Duration			
35080	Layer 3	2G/3G	P-TMSI	● PTMSIReallocationCommand	● PTMSIReallocatioin-Complete	Success Rate	Duration			
35100	Layer 3	3G	Handover	● ActiveSetUpdate	● ActiveSetUpdateComplete or Failure	Success Rate	Duration			
35101	Layer 3	3G	Cell Update	● CellUpdate	● CellUpdateConfirm	Success Rate	Duration			
35106	Layer 3	3G	3G- Inter Frequency Reselection	● Last old UARFCN report	● First new UARFCN report	Success Rate	Duration			
35107	Layer 3	3G	3G – Inter Frequency Handover	● PhysicalChannel/TransportChannel/RadioBeareReconfiguration	● PhysicalChannel/TransportChannel/RadioBeareReconfigurationComplete	Success Rate	Duration			
35110	Layer 3	3G	HSPA Cell Change	● RadioBearerReconfiguration with HSDSCH_RL_indicator falseand true	● RadioBearerReconfigurationComplete	Success Rate	Duration			
35111	Layer 3	3G	HSPA R99 Link Change	● RadioBearerReconfiguration with false HSDSCH_RL_indicator and delete hsdsch channel	● RadioBearerReconfigurationComplete	Success Rate	Duration			
35200	Layer 3	3G	Resource	● RadioBearerReconfiguration	● RadioBearerReconfigurationComplete or Failure	Success Rate	Duration			
35300	Layer 3	3G	Routing Area Update	● URAUpdate	● URAUpdateConfirm	Success Rate	Duration			
35400	Layer 3	3G	Physical Channel	● PhysicalChannelReconfiguration	● PhysicalChannelReconfigurationComplete	Success Rate	Duration			*
35500	Layer 3	3G	Signaling Channel	● SignalingChannelReconfiguration	● SignalingChannelReconfigurationComplete	Success Rate	Duration			*
35600	Layer 3	3G	Transport Channel	● TransportChannelReconfiguration	● TransportChannelReconfigurationComplete	Success Rate	Duration			*

				Integrity			Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Trigger/Measurement		Trigger/Measurement				Time	
35700	Layer 3	3G	UTRAN Mobility	● UTRANMobilityInfo	●	UTRANMobilityInfoConfirm	Success Rate	Duration			*
35800	Layer 3	3G	UE Capability	● UECapabilityInformation	●	UECapabilityInformationConfirm	Success Rate	Duration			*
38000	Layer 3	4G	Tracking Area Update	● Tracking Area Update Request	●	Tracking Area Update Accept	Success Rate	Duration			
38001	Layer 3	4G	Modify EPS Bearer	● ESM-Modify EPS Bearer context request	●	ESM-Modify EPS Bearer context accept	Success Rate	Duration			
38020	Layer 3	4G	IntersystemHO (4G/3G)	● Last LTE RRC Message	●	First WCDMA RRC Message	Success Rate	Duration			
38021	Layer 3	4G	(4G/3G) Rediretion To UARFCN	● RRCConnectionRelease (Redirection to UTRA)	●	New UARFCN	Success Rate	Duration			
38030	Layer 3	4G	IntersystemChange (3G/4G)	● Last WCDMA RRC Message	●	First LTE RRC Message	Success Rate	Duration			
38040	Layer 3	4G	4G/3G – IntersystemHO (SRVCC)	● LTE-RRC MobilityFromEUTRACommand	●	RRC HandoverToUTRANComplete	Success Rate	Duration			
38050	Layer 3	4G	4G/2G – IntersystemHO (SRVCC)	● LTE-RRC MobilityFromEUTRACommand	●	RR: Handover Complete	Success Rate	Duration			*
38060	Layer 3	4G	4G/CDMA IntersystemHO (SRVCC)	● LTE-RRC MobilityFromEUTRACommand	●	Handoff Completion Message (SRVCC)	Success Rate	Duration			
38061	Layer 3	4G	4G/CDMA IntersystemHO CSFB	● LTE-RRC MobilityFromEUTRACommand	●	Handoff Completion Message	Success Rate	Duration			

Integrity						Parameter		ETSI Parameter		
KPI ID	Stratum	Type	Function	Trigger/Measurement	Trigger/Measurement				Time	
38100	Layer 3	4G	Handover	● RRCConnectionReconfiguration (intraLTE)	● RRCConnectionReconfigurationComplete	Success Rate	Duration			
38107	Layer 3	4G	Inter Frequency Handover	● RRCConnectionReconfiguration with DLERAFCN change	● RRCConnectionReestablishmentComplete	SuccessRate	Duration			
38200	Layer 3	4G	Reestablishment	● RRCConnectionReestablishmentRequest	● RRCConnectionReestablishmentComplete or RRCConnectionReestablishmentReject	SuccessRate	Duration			
		VF You Tube	Video Average Resolution	● Successful Video Download (B3)	●	SuccessRate	Average Resolution			+
		VF You Tube	Video HD State	● Successful Video Download (B3)	● Resolution >= 720p	SuccessRate	HDState			+

3 Service KPIs

The chapter describes the service KPIs.

3.1 Voice

The performance KPIs for circuit switched (voice) calls are obtained with the help of a set of trigger points that can be found in the layer 3 communication between the MS and the network or as Call markers in the case of a call from the land unit.

3.1.1 GSM/UMTS

The call setup success rate and time is calculated for UMTS (GSM) by using the RRCConectionRequest (Channel Request in GSM) and the alerting message for the MOCs. The call retained rate and duration is calculated using the alerting and the disconnect message.
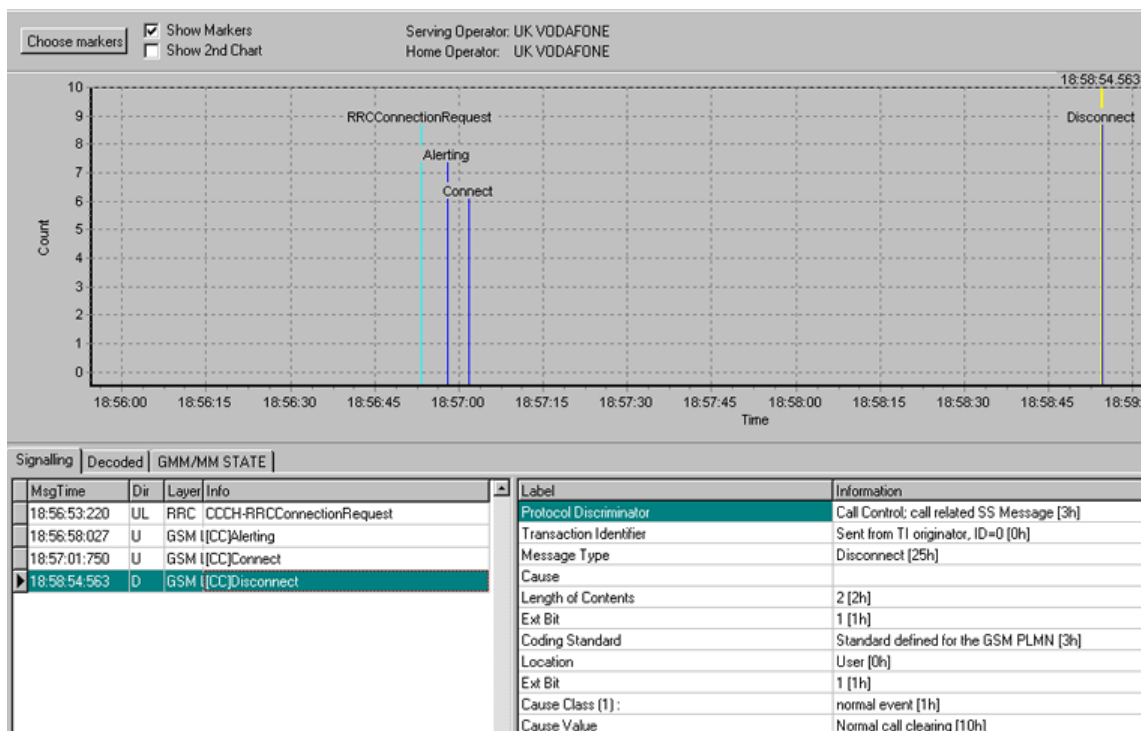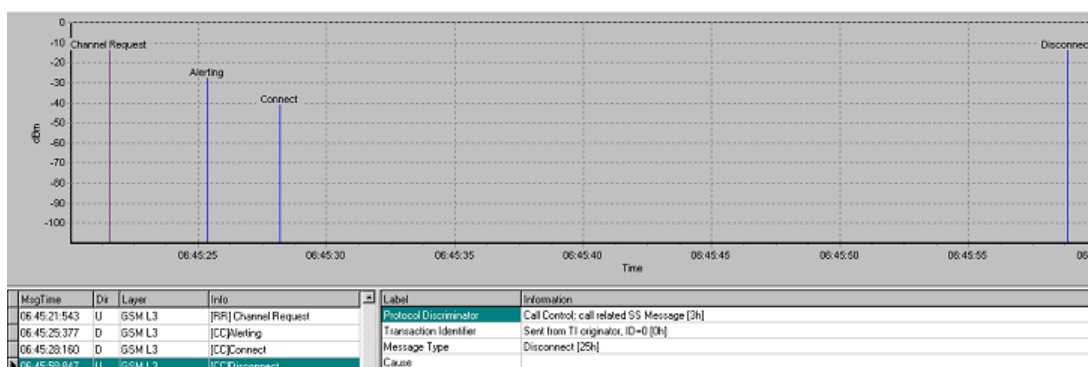

Figure 3-1: Trace and Graph of a CS call on UMTS

The call completion rate is thereby calculated as retained calls divided by the sum of failed and successful setups.

Figure 3-2: Trace and Graph of a CS call on GSM

On the layer 3 plane the 3G and 2G calls are comparable, but the request for a signalization resource is different. The former starts with an RRCConnectionRequest, the latter with Channel Request.

In principle a call starts with the dial command (see overview table) or the user pushing the dial button. In reality this "dial command" is executed in different ways on different phones. There are phones although fully integrated into the measurement system, simulating the manual dialling. As a consequence the times between dial command and first request differ significantly on phones from different vendors. To keep the comparability between different models the start trigger point is the first request for a signalisation channel.
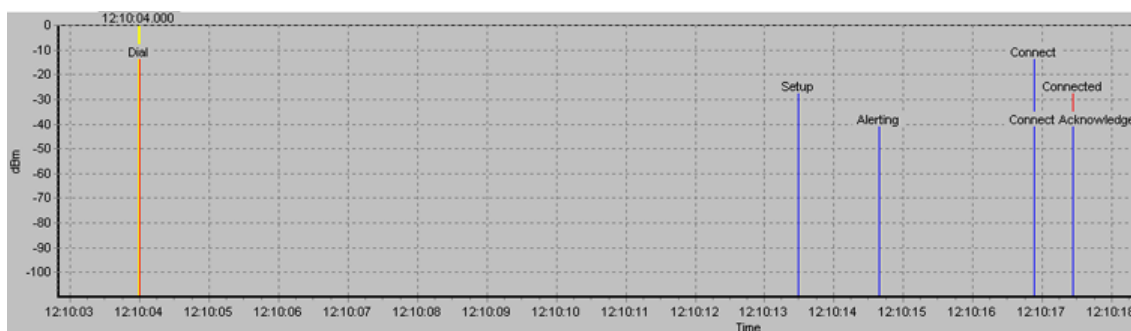
Figure 3-3: Graph of a land originated CS call

For calls originated by the land unit, the trigger point of the call start is represented by the dial command sent to the PSTN or ISDN device.

3.1.2 CDMA

In CDMA there is no layer 3 signalisation that the call is connected with the called party therefore there is no call setup KPI. However there is one for the access. But since the sequence of layer 3 messages in CDMA voice service differs from UMTS/GSM it has separate KPIs with respective it trigger points.
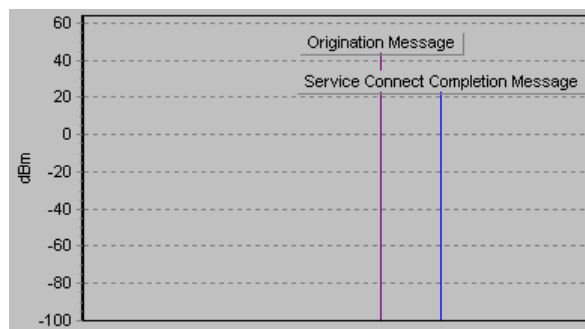
Figure 3-4: CDMA call

3.2 Data

The data tests make use of three different protocols: TCP, UDP and WAP. Predominant is the TCP or TCP/IP protocol that supports various known applications. UDP is tested on the protocol level and with WAP the application and the protocol is identical.

3.2.1 TCP/IP

The TCP/IP connection consists in general of three different phases:

● Establishment

● Transfer

● Disconnect

In the 'Data tests' individual applications are investigated (such as FTP up- and download, Email sent and receive and HTTP). While FTP has an establishment as well as a disconnect phase, the others maybe doesn't have either.

The connection establishment on the TCP level is shown in Figure 3-5 where the three phases are clearly distinguishable. Every TCP connection has an establishment phase. However a HTTP server can end a connection without the exchange of packets with the FIN flag set.
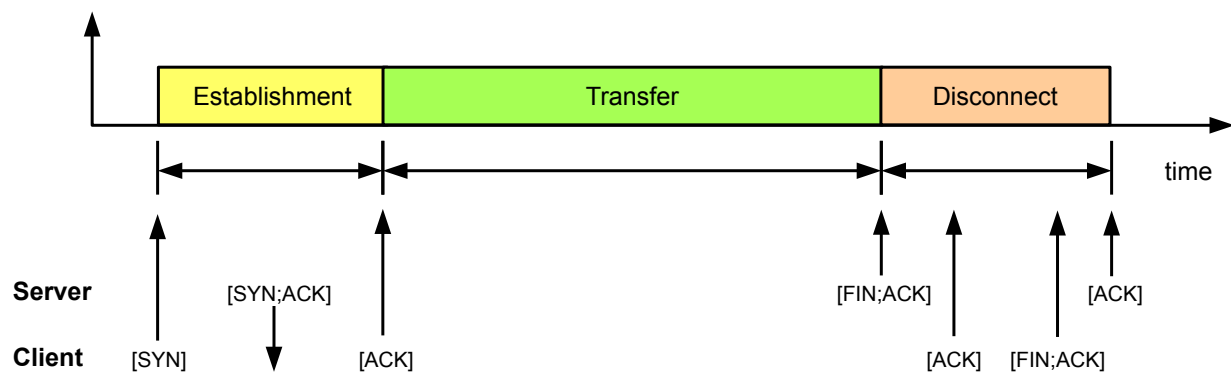
Figure 3-5: Phases of a TCP connection

For performing a HTTP download, the GET command is send right away triggering the establishment of a TCP connection. There is no further exchange of commands on the HTTP protocol level.

The GET command is set in brackets because in the trace, it does not occur at that position. It only shows itself after the connection is established. The starting point of the access duration is the time the [SYN] is sent, triggered by entering the GET command. Therefore the application download duration starts at that time too.

As the figures suggest, there are two different download and upload times indicated. The TCP down- and upload time is the time, the network needs to actually transfer the desired bytes, which reflects the efficiency of the connection. The application transfer duration is actually the time, which the user is experiencing. Its the time the application needs to execute the desired function.

The size of the file on the hard disk, (HD) divided by the time, indicated in the figure as "TCP download time", is the throughput. The calculation for the uplink is analog to the downlink with the difference that an additional time is added, which reflects the duration the last FTP Data packet needs, to arrive at the server.

3.2.2 Email

The process of the test is traced on the protocol level, which is presented in the protocol info tab in NQDI. This trace represents the basis of the evaluation of the test. The steps of the Email send test are shown below.
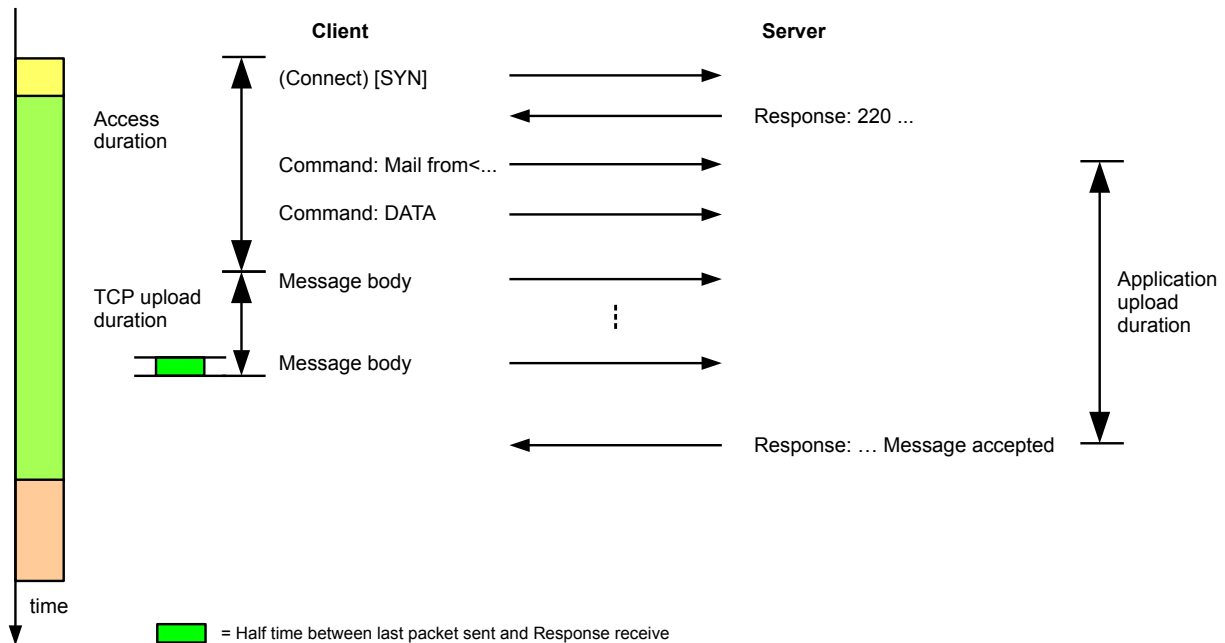
Figure 3-6: Email send procedure

The test of the application is divided into service access, service application and service throughput. The service access is the time between entering the first command and the arrival of the first data packet.

The establishment of the TCP connection is triggered by the invoke of the protocol, for example, > telnet 110

n the contrary because SMTP is running on the server, the start of the application is the actual upload command to the server.

To obtain the correct TCP download duration, it is necessary to add a half-roundtrip time. This is due to the consideration, that the last packet needs a finite time to arrive at its destination. This addition may not match the exact delay of the packet, but it renders the result more accurate as if there were no additional time considered.

For the Email Receive this additional time is half the time between the request and the first packet.
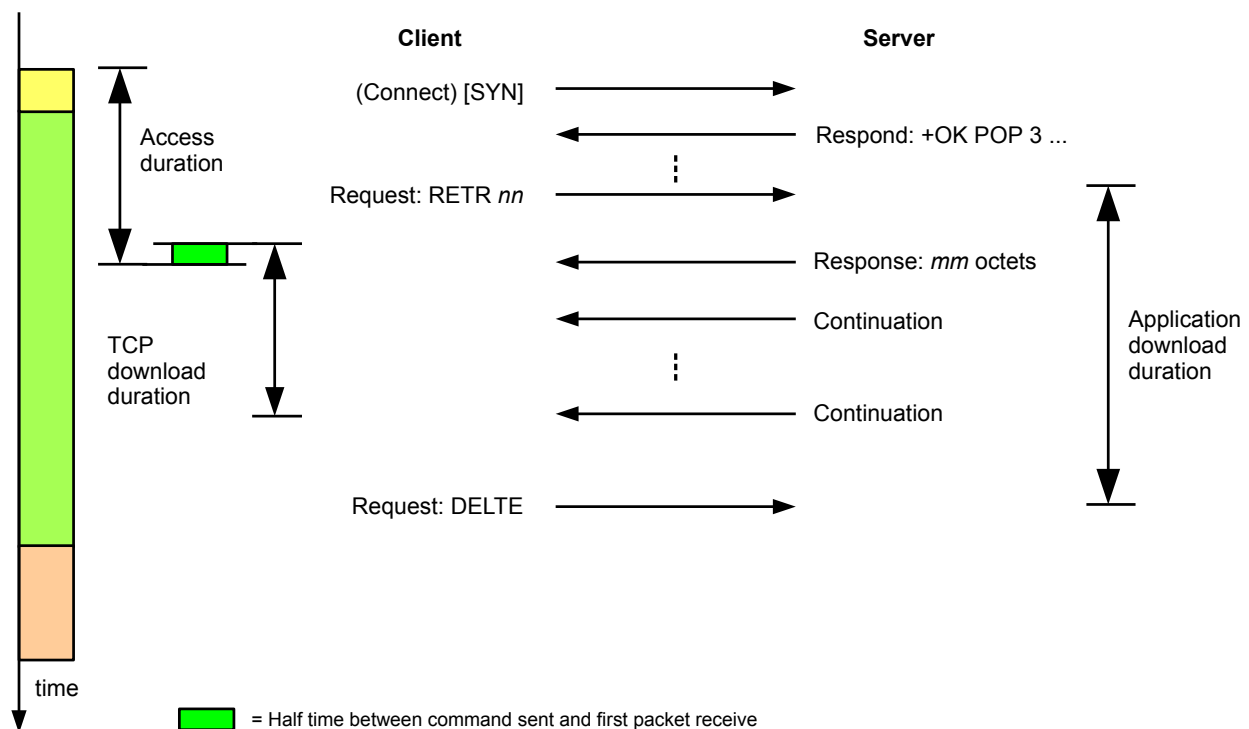
Figure 3-7: Email receive procedure

3.2.3 FTP

During the FTP tests a secondary data connection is established. (In the figure below, the trace of this secondary connection is shown with smaller arrows)

The items in brackets like "(ftp)" reflect commands that may not occur in the trace but have to be executed to trigger the establishment of the TCP connection. In the FTP uplink test the last packet containing data has the FIN flag set. This indicates that the client closes the connection.

The trigger points to calculate the TCP throughput are indicated in the following picture. It is calculated from the first to the last FTP Data packet and in addition the time, which the first packet needs to arrive at the client.
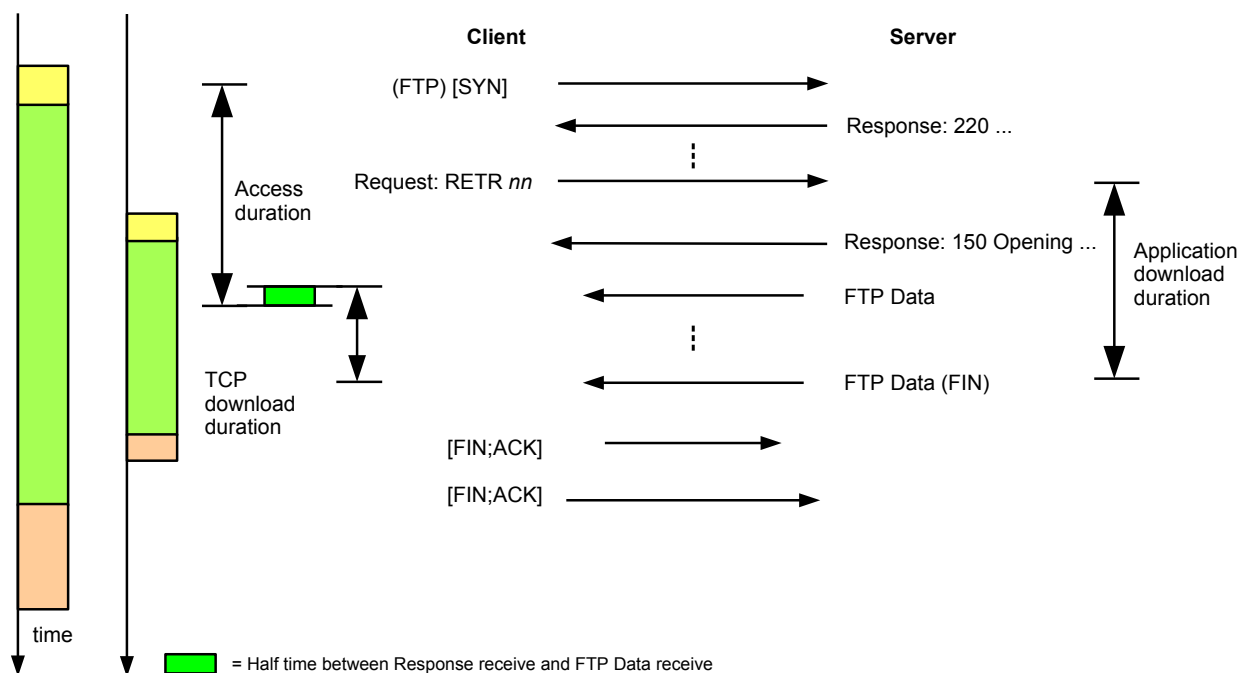
Figure 3-8: FTP downlink procedure

The size of the file on the hard disk, (HD) divided by the time, indicated in the figure Figure 3-8 as "TCP download duration", is the throughput. The calculation for the uplink is analog to the downlink with the difference that an additional time is added, which reflects the duration the last FTP Data packet needs, to arrive at the server.
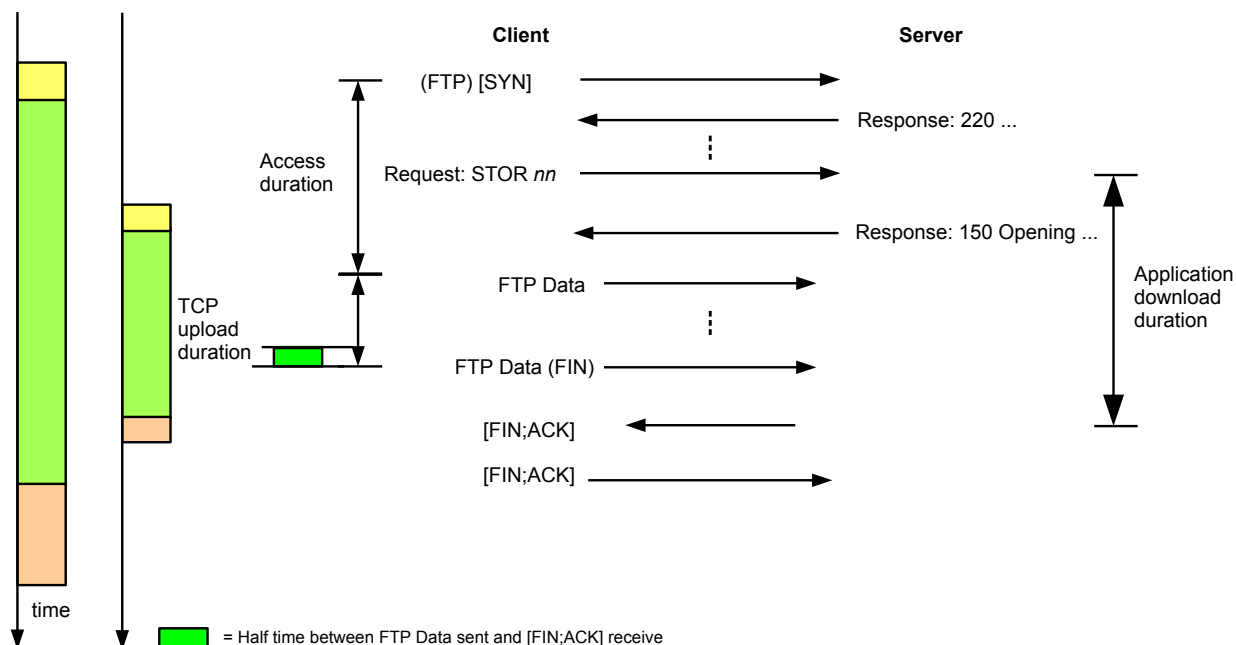
Figure 3-9: FTP uplink procedure

3.2.4 HTTP

According to the RFC 2126 a HTTP server does not need to close the TCP connection with the setting the FIN flag. The browser can identify the end of the HTTP packet sending within the packet itself.
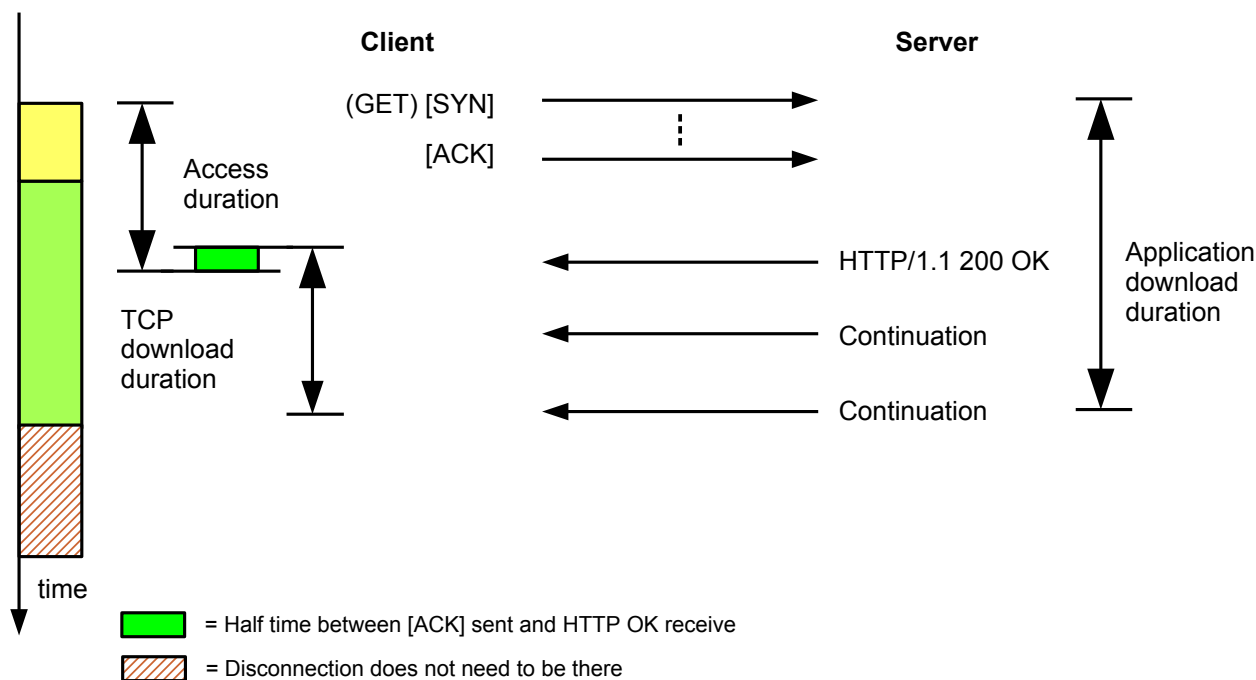
Figure 3-10: HTTP procedure

3.2.5 Ping

The ping does not use the TCP protocol but is a command of the ICMP protocol. The round trip time of a ping represents the time that has elapsed between the sending of an ICMP echo request and the answer of the destination.

MsgTime	Source	Destination	Port	Protocol	Direction	Info
12:47:46:953	10.200.41.223	195.141.101.217	-	ICMP	-	Echo (ping) request
12:47:47:787	195.141.101.217	10.200.41.223	-	ICMP	-	Echo (ping) reply
12:47:48:797	10.200.41.223	195.141.101.217	-	ICMP	-	Echo (ping) request
12:47:49:513	195.141.101.217	10.200.41.223	-	ICMP	-	Echo (ping) reply
12:47:50:523	10.200.41.223	195.141.101.217	-	ICMP	-	Echo (ping) request
12:47:53:177	195.141.101.217	10.200.41.223	-	ICMP	-	Echo (ping) reply
12:47:54:183	10.200.41.223	195.141.101.217	-	ICMP	-	Echo (ping) request
12:47:55:300	195.141.101.217	10.200.41.223	-	ICMP	-	Echo (ping) reply

Figure 3-11: Ping test

3.2.6 UDPDL

The UDPDL test is a pure protocol test. There is no known application used in this test. The access duration is the time between sending the SQUDPDL command to the server and the arrival of the first packet.
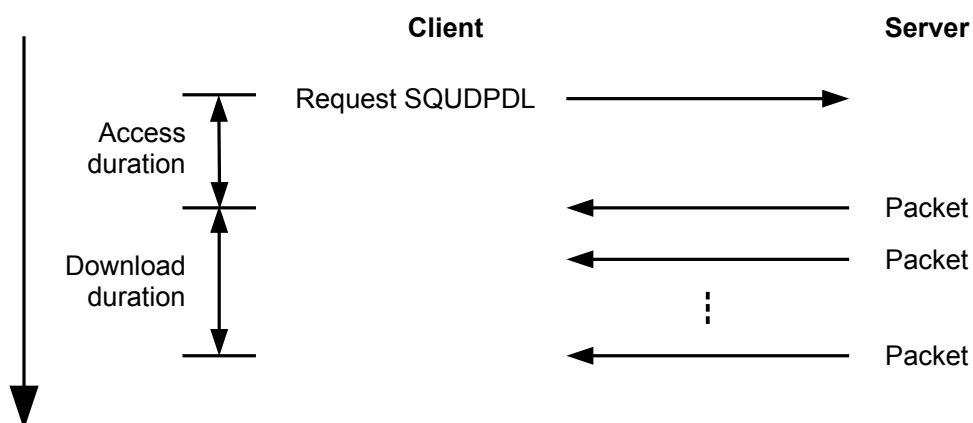
Figure 3-12: UDPDL process

The throughput for this test is calculated by dividing the transferred data in bytes (minus the size of the first packet) and the time elapsed between the arrival of the first and the arrival of the last packet.

3.2.7 WAP

Contrary to the applications described above the WAP (wireless application protocol) test has no separate transport protocol.
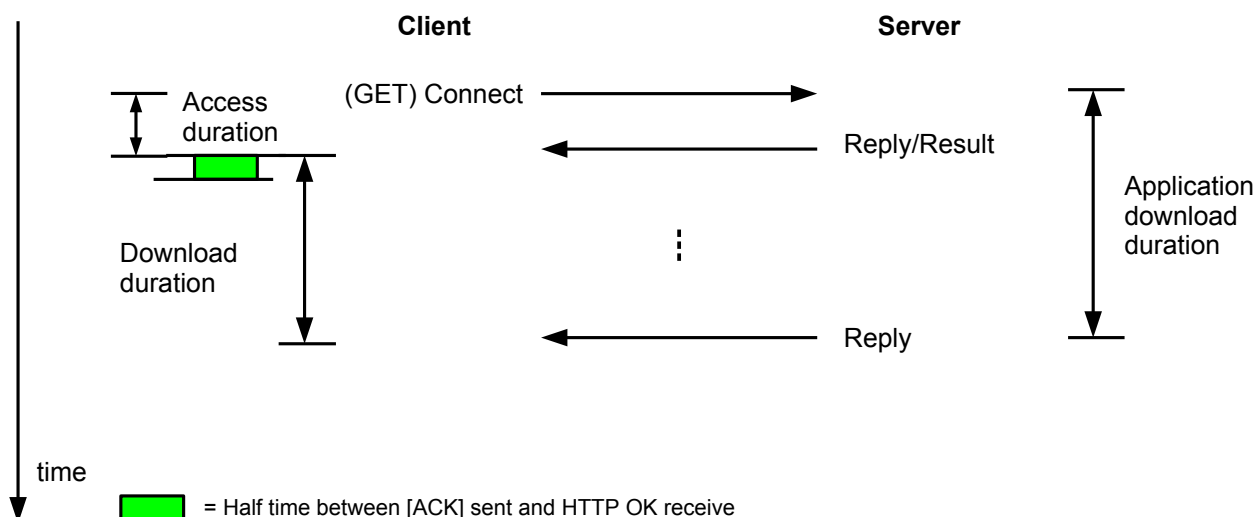
Figure 3-13: WAP test

The application starts with the connect command. The application is successful accessed when the first packet that contains data has arrived. This first packet can either be a result, indicating that there are others to come, or a reply, indicating that all requested information is transferred. The last data packet is always a reply.

3.3 Messages

3.3.1 MMS

The multimedia messaging service (MMS) is an application of WAP and SMS. The WAP capabilities are used to transfer the data of the message while the SMS serves as the notification. Although is consists of known functionalities, this service is highly specific for mobile equipment and is therefore tested individually.

MsgTime	Side	Event	MCC	MNC	LAC	Cld
17.10.2003 14:24:41	Sender	START	228	2	14000	14642
17.10.2003 14:24:54	Sender	GPRS_CONNECTED	228	2	14000	14642
17.10.2003 14:24:55	Sender	WAP CONNECTED	228	2	14000	14642
17.10.2003 14:24:55	Sender	TRANSMISSION STARTED	228	2	14000	14642
17.10.2003 14:25:13	Sender	TRANSMISSION FINISHED	228	2	14000	14642
17.10.2003 14:25:30	Receiver	NOTIFICATION RECEIVED	228	2	14000	14642
17.10.2003 14:25:39	Sender	GPRS_DISCONNECTED	228	2	14000	14642
17.10.2003 14:25:45	Receiver	GPRS_CONNECTED	228	2	14000	14642
17.10.2003 14:25:46	Receiver	WAP CONNECTED	228	2	14000	14642
17.10.2003 14:25:46	Receiver	TRANSMISSION STARTED	228	2	14000	14642
17.10.2003 14:26:03	Receiver	TRANSMISSION FINISHED	228	2	14000	14642
17.10.2003 14:26:30	Receiver	GPRS_DISCONNECTED	228	2	14000	14642

Figure 3-14: MMS trace

3.3.2 SMS

Like MMS, a SMS is separated in a sending and retrieving part. For the reception it is less evident since we cannot speak of a process here. With the indication of a SMS the actual text is retrieved. There is no "download"- time available.

MsgTime	Side	Event	MCC	MNC	LAC	Cld
07.12.2003 12:19:02	Sender	START	228	2	14000	14642
07.12.2003 12:19:06	Sender	SEND SMS START	228	2	14000	14642
07.12.2003 12:19:11	Sender	SEND SMS FINISHED	228	2	14000	14642
07.12.2003 12:19:18	Receiver	INDICATION RECEIVED	228	2	14000	14642
07.12.2003 12:19:18	Receiver	SMS RECEIVED	228	2	14000	14642

Figure 3-15: SMS trace

4 Layer 3 Indicators

The desired times and the success rates calculating the layer 3 KPIs are based on the messages that are exchanged between the MS and the network. The phone gives a time wise and exact trace of these messages as they are sent and received by the mobile station. The messages can be seen in detail in the collection of data as well as in their post processing.

4.1 Data (PS)

The KPIs for data calls are obtained by using the resource request (RRCConnection-Request for UMTS and Channel Request for GSM), the PDP context activation accept message and the PDP deactivation accept message. PDP context setup time is the difference between the RRCConnectionRequest and the PDP context activation accept message, while the PDP context holding time is the difference between the occurence of the PDP context activation accept message and the PDP context deactivation accept message.
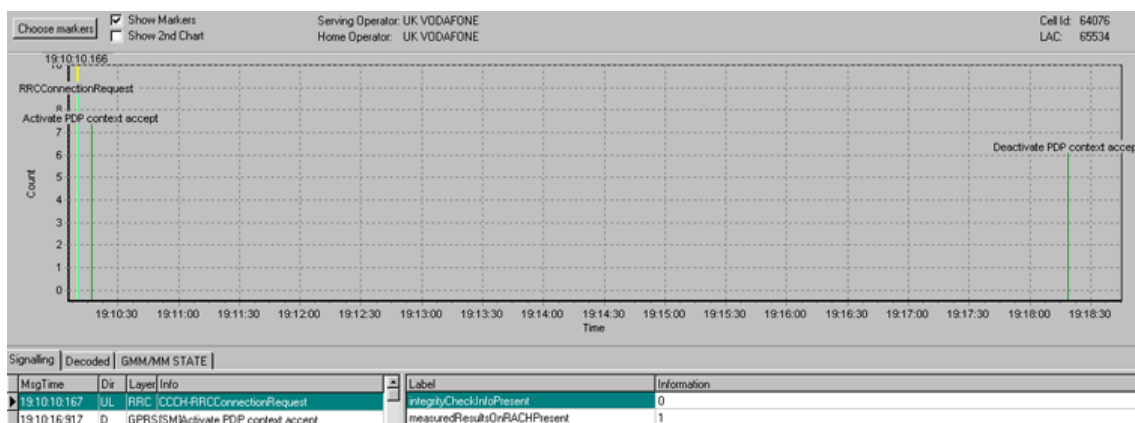
Figure 4-1: Trace and Graph of a data call on UMTS

The information about the activation and deactivation times of the PDP context is extracted from the SM messages, which are embedded in the RRC messages of UMTS.
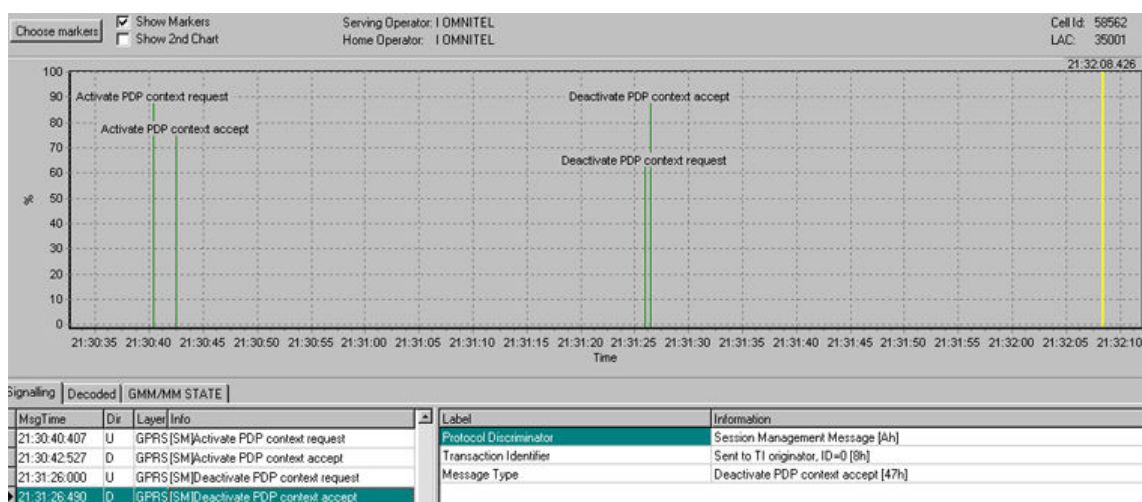
Figure 4-2: PDP context

4.2 Voice (CS)
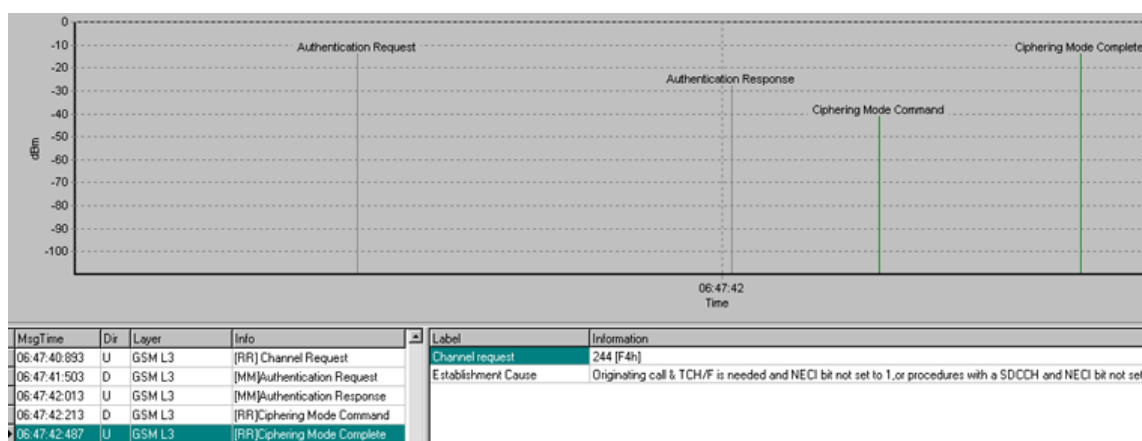
Figure 4-3: Authentication and ciphering

4.2.1 2G

The accessibility parameter for the GSM system is the acquisition of the traffic channel and the Signal channel
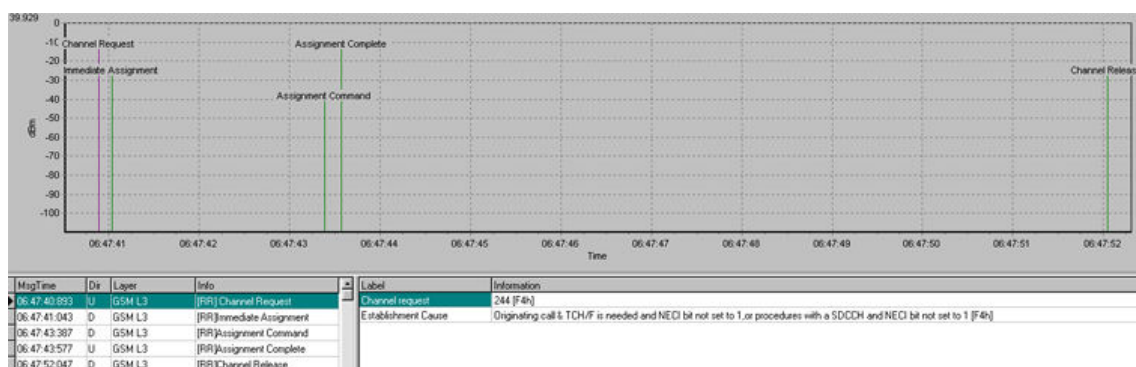
Figure 4-4: Signal channel and traffic channel assignment and release on GSM

Besides the establishment messages and the retain ability indicators there are other KPIs for the integrity of a call.
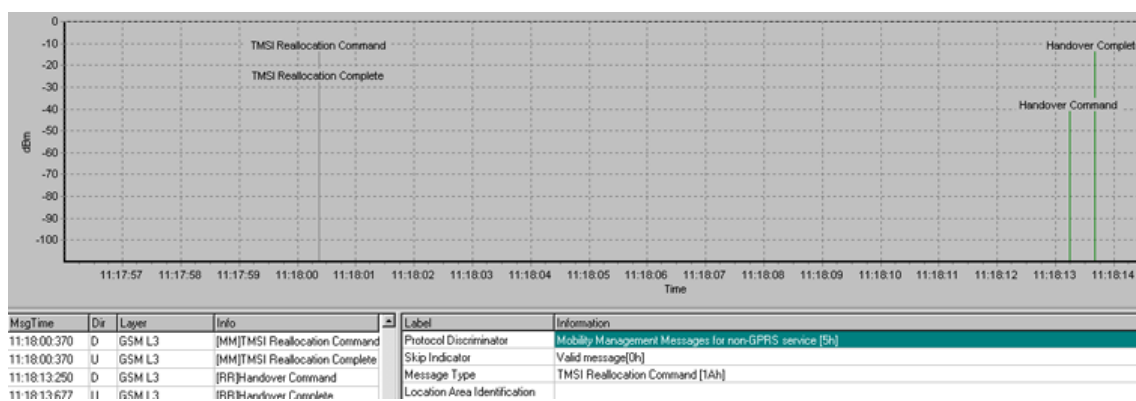
Figure 4-5: TMSI Reallocation and Handover

4.2.2 3G

4.2.2.1 Active Set Update

To change the active set of the MS the network orders an active set update over the DCCH. In case of a successful update the MS station sends an active set update complete.
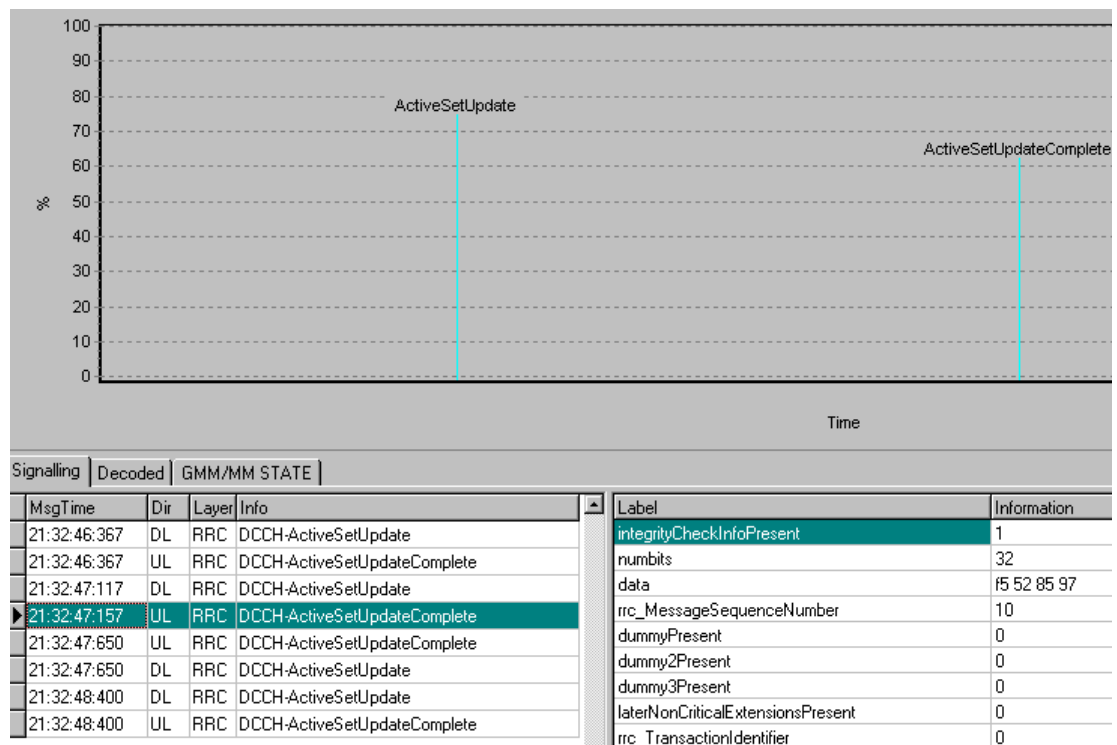
Figure 4-6: Trace of an active set update

The different phases of the call setup on the layer 3 level are shown in the figure below. The occurrence of the message has a timestamp that is used to calculate the times between the occurrences of subsequent messages.
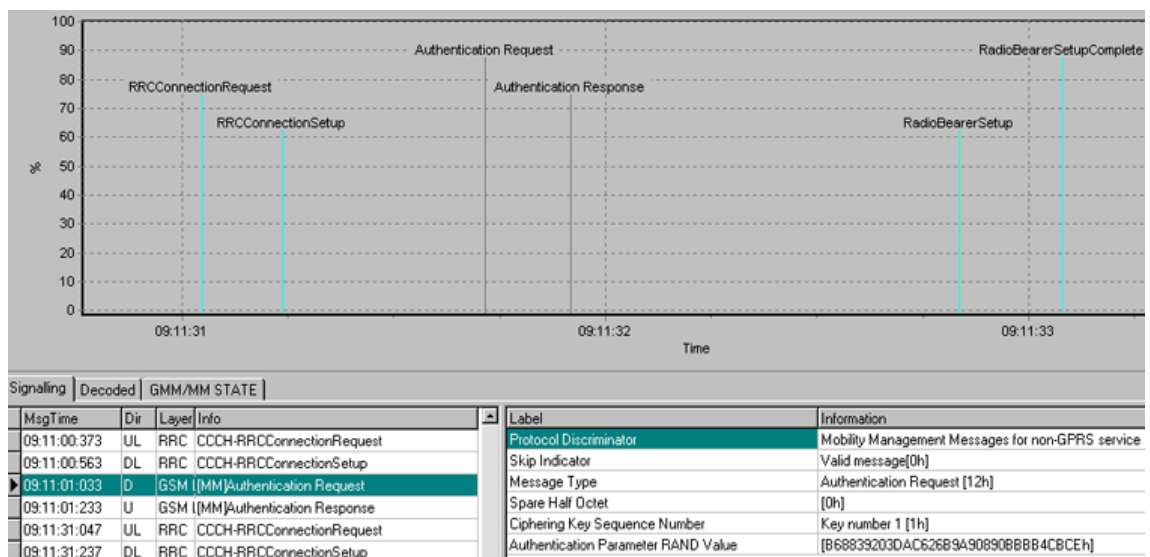
Figure 4-7: Call Setup

The messages for the radio bearer reconfiguration is shown below.
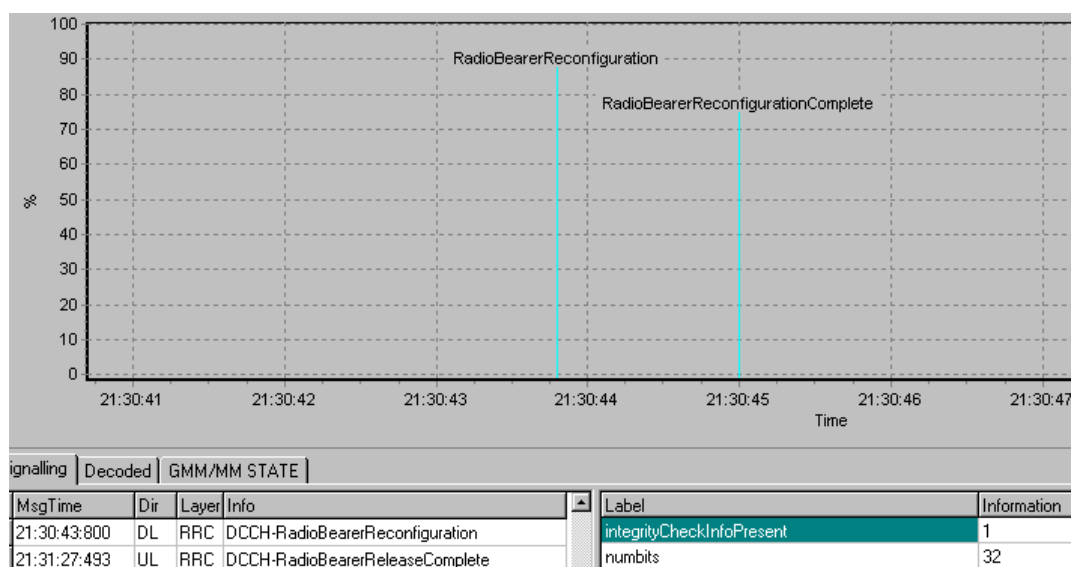
Figure 4-8: RadioBearer reconfiguration

4.2.2.2 Cell Update

The cell update, the location update and the routing area update procedures are also traced via the RRC messages.
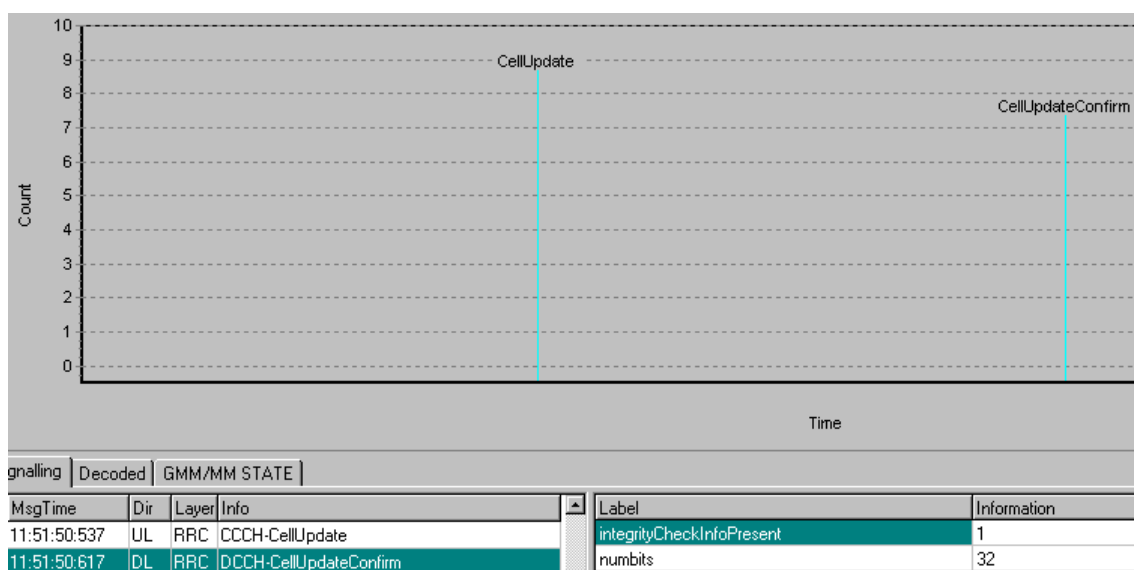
Figure 4-9: Trace of the cell update

5 Layer 1 Indicators

The indicators from layer 1 are used for items of the report generator they are most of the times not explicit KPIs with their own ID but measurements.

5.1 Scanner Based Measurements

The desired values for the CPICHs, pilot pollution and the SC coverage are calculated by means of the data available from the scanner. The phones do not provide sufficient data since they only give the Ec/Io of the cells that are monitored.
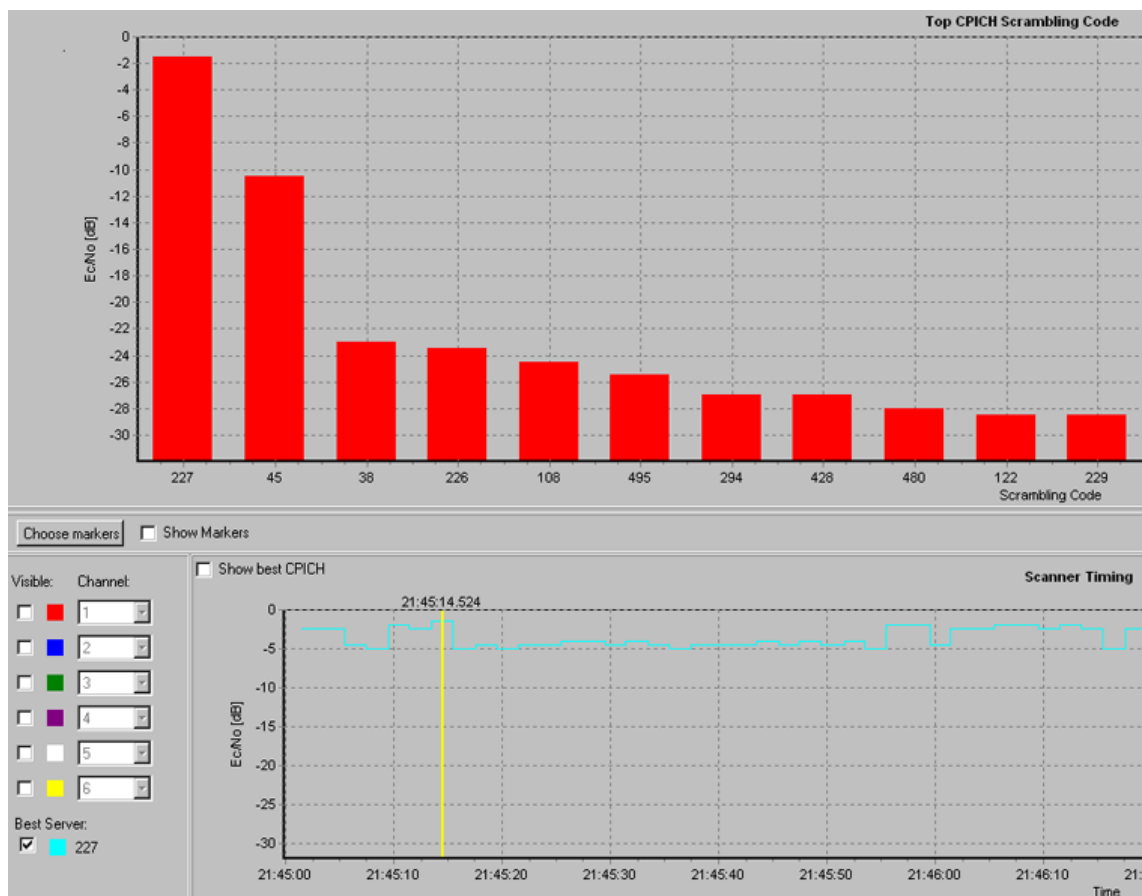
Figure 5-1: Data available from the scanner

5.1.1 Scrambling Code Coverage

The coverage of the scrambling code shows the percentage of the time a cell with that scrambling code was the strongest cell measured by the scanner.

5.1.2 Pilot Pollution

If at a given time more than three CPICHs are stronger than the best CPICH minus a 15 dB threshold the situation is considered pilot pollution. The report item shows the percentage of time there was 'pilot pollution'.

5.2 Radio Based Measurements

5.2.1 Radio Link

Qualcomm phones provide information about the active set about two times a second. In this information the size of the active set is provided indicating the handover state. For the calculation of the distribution all samples that of a call including the set up will be considered.

ACTIVE SET MONITOR				Aggr. Ec/Io [dB]:	-2.5	Active Count		1
Ref	PSC	Ec/Io	Pos	Spread	Sec Pilot	SSC ID	TPC	CPICH Div	Chn Code Id
Yes	227	-2.5 dB	193106	7	not used	0	0	No div	0

Figure 5-2: Active set monitor

The information about the changes in the active set is be found the RRC messages where the ActiveSetUpdate message indicates the type radio link change ordered by the network. In case a addition information list and a removal information list is present in the message the order is a radio link replacement if only the former is present it's a radio link addition if only the latter the network orders a radio link removal.
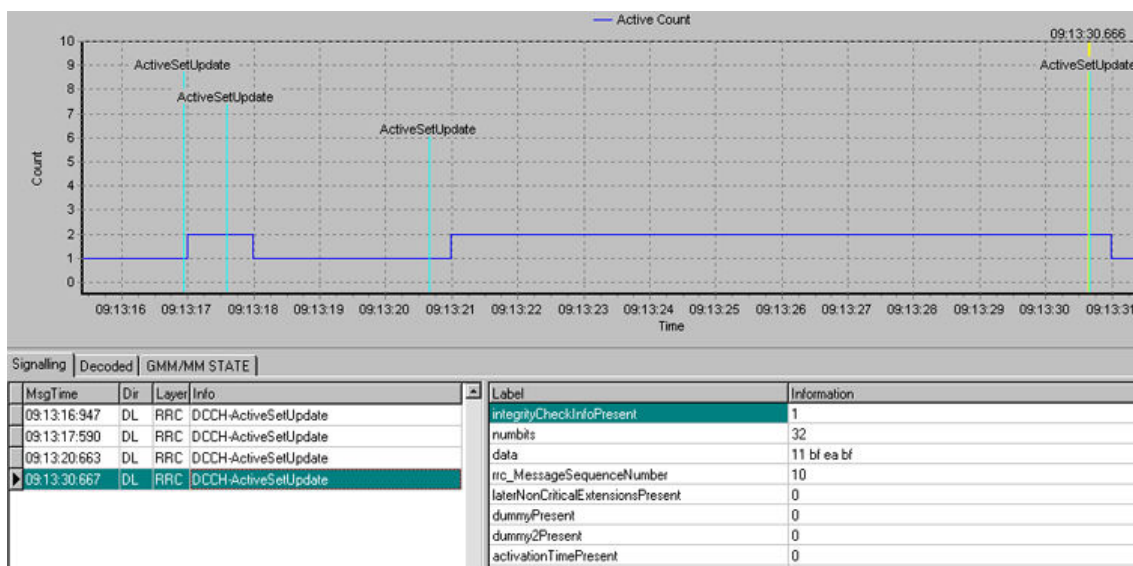
Figure 5-3: Addition and removals of radio links

All successful update orders are considered in the calculation.

5.2.2 Power Control

The phone provides information about the UE Tx Power several times a second and about the block error rate (BLER) in lower frequency. The distribution of the obtained values is calculated using all measured samples.

PHONE PARAMETER MONITOR	21:31:33:923		CELL_DCH
UL ARFCN	9888	UE Rx Pwr [dBm]: -79.2	Rx DecHist:
DL ARFCN	10838	UE Tx Pwr [dBm]: -15.0	Tx DecHist:
UL Freq [MHz]	1977.6	Max Tx Pwr [dBm]: 23.3	
DL Freq [MHz]	2167.6	BLER [%]: 4	
		Target SIR [dB]:	

Figure 5-4: Power control values

Annex

A KPI Values

All KPI values are stored in the NQDI database in the "KPI Result" table.

A.1 KPI Results Table

Column Name SessionId	Type int	Length 4	Description SessionId
TestId	int	4	Link to TestInfo.TestId
NetworkId	int	4	Link to NetworkInfo.NetworkId
PosId	int	4	Link to Position.PosId
KPIId	int	4	Identification of the KPI (see 'KPI Overview')
StartTime	Datetime		Timestamp of the start trigger event
EndTime	Datetime		Timestamp of the end trigger event
Duration	Int	4	Duration in ms
ErrorCode	Int	4	KPI Status field. Used to calculate the success rate
Sum	Float	4	Sum of all the values used for a KPI calculation (like sum of bytes transmitted/received, sum of LQ,…
Counter	Int	4	Number of values of 'Sum'. Used to calculate the avg
Value1	Int	4	Reserved
Value2	Int	4	Reserved
Value3	Varchar	255	
Value4	varchar	255	
Value5	Varchar	255	

A.2 Accessibility Records

A.2.1 Voice

Field	Value	Description
KPIId	10100	Voice(CS) Telephony
StartTime		• GSM: Timestamp of 'Channel Request'. • UMTS: Timestamp of 'RRCConncetionRequest'. (With establishment cause 'originatingconversationalCall') If not available, then 'RRCConnectionSetup'. If not available, then 'RRCConnectionSetupComplete'. If the phone is in a connected state (like Smartphones) the Dial marker is used. • LTE CSFB: LTE-RRCConnectionRequest (With establishment cause 'mo_Data') If not available, then EMM Extended Service Request • ISDN/PSTN: Timestamp of Dial command sent to the board
EndTime		GSM/UMTS: Timestamp of 'CC:Alerting'. If not available, then 'CC:Connect'. If not available, then CC:ConnectAcknowledge'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Name of the Start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	10101	Voice(CS) Telephony
StartTime		• GSM: Timestamp of 'Channel Request'. • UMTS: Timestamp of 'RRCConncetionRequest' (With establishment cause 'originatingconversationalCall') If not available, then 'RRCConnectionSetup'. If not available, then 'RRCConnectionSetupComplete'. If the phone is in a connected state (like Smartphones) the Dial marker is used. • LTE CSFB: LTE-RRCConnectionRequest (With establishment cause 'mo_Data') If not available, then EMM Extended Service Request • ISDN/PSTN: Timestamp of Dial command sent to the board
EndTime		GSM/UMTS: Timestamp of 'CC:Connect'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix

Field	Value	Description
KPIId	**10101**	**Voice(CS) Telephony**
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Name of the Start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**10102**	**Voice (CS) Telephony Service**
StartTime		CM Service Request.
EndTime		GSM/UMTS: Timestamp of 'CC:Alerting'. If not available, then 'CC:Connect'. If not available, then CC:ConnectAcknowledge'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Direction
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	10103	**Voice (CS) Telephony Overall**

StartTime		• GSM:
		  – MOC: Timestamp of 'Channel Request'
		  – MTC: Timestamp of CC:Alerting
		• UMTS:
		  – MOC: Timestamp of RRCConncetionRequest/CellUpdate (With establishment cause 'originatingconversationalCall')
		  – If not available, then 'RRCConnectionSetup'. If not available, then 'RRCConnectionSetupComplete'. If the phone is in a connected state (like Smartphones) the Dial marker is used
		  – MTC: Timestamp of CC:Alerting
		• LTE CSFB:
		  – MOC: LTE-RRCConnectionRequest (With establishment cause 'mo_Data')
		  – If not available, then EMM Extended Service Request
		  – MTC: CC:Alerting
		• IMS SIP:
		  – MOC: Timestamp of SIP:INVITE
		  – MTC: Timestamp of SIP:180 RINGING
		• ISDN/PSTN:
		  – MOC: Timestamp of Dial command sent to the board
		  – MTC: Timestamp of Incomming call indication
		• CDMA:
		  – MOC: Timestamp of the Origination message
		  – MTC: Timestamp of Incoming call indication
		• General Fallback
		  – MOC: Dial Marker
		  – MTC: Incoming Call Marker

EndTime		• GSM/UMTS/LTE CSFB: Timestamp of 'CC:Connect. If not available, then 'CC:Connect Acknowledge' • IMS SIP: Timestamp of SIP:200 OK • ISDN/PSTN: Timestamp of connect indication • CDMA: Timestamp of Service Connect Completion message • General Fallback: Connect Marker
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Name of the start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**10104**	**Voice(CS) Telephony AB**
StartTime		• GSM: Timestamp of 'Channel Request'. • UMTS: Timestamp of 'RRCConncetionRequest'. (With establishment cause 'originatingconversationalCall') If not available, then 'RRCConnectionSetup'. If not available, then 'RRCConnectionSetupComplete'. If the phone is in a connected state (like Smartphones) the Dial marker is used. • LTE CSFB: LTE-RRCConnectionRequest (With establishment cause 'mo_Data') If not available, then EMM Extended Service Request • ISDN/PSTN: Timestamp of Dial command sent to the board (trigger messages always taken from the calling party (active side))
EndTime		GSM/UMTS: Timestamp of 'CC:Alerting'. If not available, then 'CC:Connect'. If not available, then CC:ConnectAcknowledge' (trigger messages always taken from the calling party (active side))
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Name of the Start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	10105	Voice(CS) Telephony Video Setup time
StartTime		Timestamp of 'RRCConncetionRequest'. If not available, then 'RRCConnectionSetupComplete'.
EndTime		Video Connect marker
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Name of the start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	10108	Telephony M2M Connect Net (Dial)
StartTime		Dial Command (Marker)
EndTime		GSM/UMTS: CC : Connect
Duration		Time in ms between StartTime and EndTime minus the 'accept delay' on the called side. This is the time between CC:Alerting to CC:Connect for CS calls or the time between SIP: INVITE RINGING and SIP: INVITE OK for PS calls, for example, VoLTE
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused
Value4		Unused
Value5		Unused

Search scope: Session (covers CS to CS and CS to VoLTE call sessions)

Field	Value	Description
KPIId	10109	Telephony M2M Connect Net
StartTime		• GSM: Timestamp of 'Channel Request'. • UMTS: Timestamp of 'RRCConncetionRequest'. (With establishment cause 'originatingconversationalCall') If not available, then 'RRCConnectionSetup'. If not available, then 'RRCConnectionSetupComplete'. If the phone is in a connected state (like Smartphones) the Dial marker is used. • LTE CSFB: LTE-RRCConnectionRequest (With establishment cause 'mo_Data') If not available, then EMM Extended Service Request • ISDN/PSTN: Timestamp of Dial command sent to the board
EndTime		GSM/UMTS: CC : Connect
Duration		Time in ms between StartTime and EndTime minus the 'accept delay' on the called side. This is the time between CC:Alerting to CC:Connect for CS calls or the time between SIP: INVITE RINGING and SIP: INVITE OK for PS calls, for example, VoLTE
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused

Field	Value	Description
KPIId	10109	Telephony M2M Connect Net
Value4		Unused
Value5		Unused

Search scope: Session (covers CS to CS and CS to VoLTE call sessions)

Field	Value	Description
KPIId	10110	Voice(CS) Telephony Completion
StartTime		• GSM: Timestamp of 'Channel Request'. • UMTS: Timestamp of 'RRCConncetionRequest'. If not available, then 'RRCConnectionSetup'. If not available, then 'RRCConnectionSetupComplete'. • ISDN/PSTN: Timestamp of Dial command sent to the board
EndTime		GSM/UMTS: CC : Disconnect
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Name of the start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Only written on successful access (10100).

Field	Value	Description
KPIId	10120	Access state
StartTime		Timestamp of 'RRCConncetionRequest'.
EndTime		Timestamp of CC :Alerting, Disconnect RRC: Release or Idle
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused

Field	Value	Description
KPIId	10120	Access state
Value2		Unused
Value3		Name of the start event
Value4		Name of the start event If CC: Alerting then successful else • Case A: CC: Disconnect abnormal • Case B: RRC: RRCConnectionRelease abnormal • Case C: IDLE • Case D: RRC:RRCConnectionRelease normal (no Alerting) • Case E: RRC: no RRCConnectionSetupComplete
Value5		Cause (if CC:Disconnect or RRCConnectionRelease in value 4)

Search scope: Session

ℹ This KPI is only written in UMTS.

Field	Value	Description
KPIId	10141	Voice(CS) Paging Delay MTC
StartTime		Dial Command
EndTime		GSM: Paging UMTS: RRC Paging Type1
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused
Value4		Name of the end event
Value5		Unused

Search scope: Session

ℹ MTC only.

Field	Value	Description
KPIId	10150	**Voice(CS) Telephony MTC**
StartTime		Timestamp when the first Paging occured. GSM: Paging. UMTS: RRC Paging Type 1
EndTime		GSM/UMTS: Timestamp of 'CC:Alerting'. If not available, then 'CC:Connect'. If not available, then CC:ConnectAcknowledge'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	10151	**Voice(CS) Telephony MTC intermediate**
StartTime		GSM: Channel Request UMTS: RRCConnectionRequest
EndTime		GSM/UMTS: Timestamp of 'CC:Alerting'. If not available, then 'CC:Connect'. If not available, then CC:ConnectAcknowledge'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Name of the start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	10152	**Voice(CS) Telephony MTC Request Delay**
StartTime		GSM: Paging UMTS: RRCPaging Type 1
EndTime		GSM: Channel Request UMTS: RRCConnectionRequest
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Name of the start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	10153	**Telephony Random Access**
StartTime		Dial Command
EndTime		GSM: Channel Request UMTS: RRCConnectionRequest/CellUpdate (With establishment cause 'originatingconversationalCall')
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused
Value4		Name of the end event
Value5		Unused

Search scope: Session

MTC only.

Field KPIId	Value 10160	Description Voice(CS) Telephony Completion MTC (Landunit)
StartTime		ISDN/PSTN: Timestamp of Dial command sent to the board
EndTime		GSM: Channel Release UMTS: RRCConnectionRelease or RRCConnectionRelease-CCCH
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Name of the start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field KPIId	Value 10165	Description Voice(CS) Telephony Completion MTC Paging
StartTime		GSM: Paging UMTS RRC Paging Type 1
EndTime		GSM: Channel Release UMTS: RRCConnectionRelease or RRCConnectionRelease-CCCH
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused
Value4		Name of the end event
Value5		Unused

Search scope: Session

A.2.1.1 CSFB from LTE

Currently, the LTE specification does not have a circuit-switched voice service. When a subscriber initiates a call while camping on an LTE cell, the network transfers the device to another radio access technology through process called Circuit Switched Fall Back (CSFB).

Field KPIId	Value	Description
KPIId	**10170**	**Voice(LTE CSFB) - Telephony**
StartTime		LTE: RRCConnectionRequest with establishmentCause = mo_Data
		(Start trigger is only valid after a Dial marker) in case of MTC the establishment cause is mt_Access
EndTime		CC: Alering
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused
Value4		Unused
Value5		Unused

Search scope: Session

Field KPIId	Value	Description
KPIId	**10175**	**Voice(LTE CSFB) - Telephony Fallback Delay**
StartTime		LTE: EMM-Extended service Request
EndTime		UMTS: RRCConnectionRequest
		GSM: CM Service Request/Paging Response
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused
Value4		Unused
Value5		RRCConnection establishment cause

Search scope: Session

Field	Value	Description
KPIId	10178	**Voice(LTE CSFB) - Telephony Service**
StartTime		LTE: EMM-Extended service Request
EndTime		CC: Alering
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused
Value4		Unused
Value5		RRCConnection establishment cause

Search scope: Session

Field	Value	Description
KPIId	10180	**Voice(LTE CSFB) - Radio Fallback Delay**
StartTime		LTE: RRCConnectionRelease with redirectedCarrierInfo = utra_FDD or utra_TDD
EndTime		UMTS: SystemInformation-BCH GSM: first SystemInformation
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused
Value4		End msg
Value5		value of redirectedCarrierInfo in the RRCConnectionRelease message

Search scope: Session

Field	Value	Description
KPIId	10181	**Voice(LTE CSFB) - Radio Redirect**
StartTime		LTE: EMM-Extended service Request
EndTime		LTE: RRCConnectionRelease with redirectedCarrierInfo = utra_FDD or utra_TDD
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused
Value4		End msg
Value5		value of redirectedCarrierInfo in the RRCConnectionRelease message

Search scope: Session

Field	Value	Description
KPIId	10182	**Voice(LTE CSFB) - Radio Fallback Delay**
StartTime		LTE: RRCConnectionRequest with establishmentCause = mo_Data or LTE: EMM-Extended service Request (Start trigger is only valid after a Dial marker)
EndTime		UMTS: SystemInformation-BCH GSM: first SystemInformation
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused
Value4		End msg
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**10184**	**Voice(LTE CSFB) - Telephony Service AB**
StartTime		LTE: EMM-Extended service Request (trigger messages always taken from the calling party (active side))
EndTime		CC: Alering (trigger messages always taken from the calling party (active side))
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Unused
Value4		End msg
Value5		RRCConnection establishment cause

Search scope: Session

A.2.2   Data Services

Field	Value	Description
KPIId	10200	Data, Email Send
StartTime		Timestamp of the TCP message '25 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for SMTP (Port 25)
EndTime		Timestamp of the SMTP command 'Message Body' which indicates the begin of the message transmission
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Figure A-1: IP Trace of Email upload (send)

A.2.3 Data Services

Field	Value	Description
KPIId	10207	**Data, Email SSL Send**
StartTime		Timestamp of the TCP message > 465 [SYN] or > 587 [SYN] or > 993 [SYN] or > 995 [SYN] which is the TCP connection establishment and synchronization of the sequence number for SMTP
EndTime		Timestamp of the SMTP command 'Message Body' or whatever indicates the begin of the transmission of application data
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10210	**Data, Email Send Completion**
StartTime		Timestamp of the TCP message '25 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for SMTP (Port 25)
EndTime		Messages accepted

Field	Value	Description
KPIId	**10210**	**Data, Email Send Completion**
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Not implemented.

Field	Value	Description
KPIId	**10201**	**Data, Email Receive**
StartTime		Timestamp of the TCP message '110 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for POP3 (Port 110)
EndTime		Timestamp of the POP message 'Response: +OK and any number octets or bytes' which indicates the begin of the message reception
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Figure A-2: IP Trace of an Email download (receive)

Field	Value	Description
KPIId	10203	Data, IMAP Email receive LOGIN
StartTime		Timestamp of the TCP message '143 [SYN]' which is the TCP connection establishment and synchronization of the sequence number on port 143
EndTime		Timestamp of the IMAP4 message Response:OK and user and authenticated
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Field	Value	Description
KPIId	10208	Data, Email SSL Receive
StartTime		Timestamp of the TCP message '> 465 [SYN] or > 587 [SYN] or > 993 [SYN] or > 995 [SYN]' which is the TCP connection establishment and synchronization of the sequence number the transmission
EndTime		Timestamp of the message which indicates the begin of the message reception
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused

Field	Value	Description
KPIId	10208	Data, Email SSL Receive
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10211	Data, Email Receive Completion
StartTime		Timestamp of the TCP message '110 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for POP3 (Port 110)
EndTime		Last Continuation
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10300	Data, FTP Uplink
StartTime		Timestamp of the TCP message '21 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for FTP (Port 21)
EndTime		Timestamp of the first 'FTP Data' message which indicates the first transmitted data packet
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event

Field	Value	Description
KPIId	10300	Data, FTP Uplink
Value4	Varchar	Name of the end event
Value5		IP Address

<div align="center">Search scope: Test</div>

Field	Value	Description
KPIId	10302	Data, FTPS Uplink
StartTime		> port [SYN] (protocol = TCP, port defined in parameter message
EndTime		time given in mtMsgTCPConnectionDataSize message
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Unused
Value5		Unused

<div align="center">Search scope: Test</div>

Field	Value	Description
KPIId	10307	Data, FTP Uplink (B)
StartTime		Timestamp of the TCP message '21 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for FTP (Port 21)
EndTime		Reception of [ACK] from the [SYN;ACK]
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10310	Data, FTP Uplink Completion
StartTime		Timestamp of the TCP message '21 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for FTP (Port 21)
EndTime		Reception of [FIN;ACK] for the last FTP Data
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10320	Data, FTP Uplink Service Access
StartTime		Start RAS Dialup (ATD Command)
EndTime		Reception of [ACK] from the [SYN;ACK]
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10301	Data, FTP Downlink
StartTime		Timestamp of the TCP message '21 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for FTP (Port 21)
EndTime		Timestamp of the first 'FTP Data' message which indicates the first transmitted data packet
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Figure A-3: IP Trace of a FTP Downlink

Field	Value	Description
KPIId	10303	Data, FTPS Downlink
StartTime		> port [SYN] (protocol = TCP, port defined in parameter message
EndTime		time given in mtMsgTCPConnectionDataSize message
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10308	Data, FTP Downlink (B)
StartTime		Timestamp of the TCP message '21 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for FTP (Port 21)
EndTime		Reception of [ACK] from the [SYN;ACK]
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10311	Data, FTP Downlink Completion
StartTime		Timestamp of the TCP message '21 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for FTP (Port 21)
EndTime		Timestamp of the last 'FTP Data' message which indicates the last transmitted data packet

Field	Value	Description
KPIId	**10311**	**Data, FTP Downlink Completion**
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**10321**	**Data, FTP Downlink Service Access**
StartTime		Start RAS Dialup (ATD Command)
EndTime		Reception of [ACK] from the [SYN;ACK]
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Figure A-4: HTTPBrowser test with HTTP URL

Field	Value	Description
KPIId	10400	Data, HTTP Browser
StartTime		Timestamp of the TCP message '80 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for HTTP (Port 80)
EndTime		Timestamp of the 'HTTP/1.1 200 OK' or HTTP/1.1 302 Found or HTTP/1.1 301 Moved permanently message which indicates the successful response of the HTTP Server to the request
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5	Varchar	URL

Search scope: Test

MsgTime	Source	Destination	Port	Protocol	Direction	Info
12:48:22:863	10.200.41.223	81.221.255.22	-	TCP	-	3019 > 80 [SYN] Seq=2073987116 Ack=0 Win=8760 Len=0
12:48:23:613	81.221.255.22	10.200.41.223	-	TCP	-	80 > 3019 [SYN; ACK] Seq=2917011066 Ack=2073987117 Win=64240 Len=0
12:48:23:617	10.200.41.223	81.221.255.22	-	HTTP	-	GET / HTTP/1.1
12:48:23:617	10.200.41.223	81.221.255.22	-	TCP	-	3019 > 80 [ACK] Seq=2073987117 Ack=2917011067 Win=9660 Len=0
12:48:24:873	81.221.255.22	10.200.41.223	-	TCP	-	80 > 3019 [ACK] Seq=2917011067 Ack=2073987336 Win=64021 Len=0
12:48:26:187	81.221.255.22	10.200.41.223	-	HTTP	-	HTTP/1.1 200 OK
12:48:26:330	10.200.41.223	81.221.255.22	-	TCP	-	3019 > 80 [ACK] Seq=2073987336 Ack=2917012447 Win=9660 Len=0
12:48:27:127	81.221.255.22	10.200.41.223	-	HTTP	-	Continuation
12:48:27:233	10.200.41.223	81.221.255.22	-	TCP	-	3019 > 80 [ACK] Seq=2073987336 Ack=2917013827 Win=9660 Len=0
12:48:27:567	10.200.41.223	81.221.255.22	-	TCP	-	3020 > 80 [SYN] Seq=2075195950 Ack=0 Win=8760 Len=0
12:48:27:777	81.221.255.22	10.200.41.223	-	HTTP	-	Continuation
12:48:27:937	10.200.41.223	81.221.255.22	-	TCP	-	3019 > 80 [ACK] Seq=2073987336 Ack=2917015207 Win=9660 Len=0
12:48:28:137	81.221.255.22	10.200.41.223	-	HTTP	-	Continuation
12:48:28:337	10.200.41.223	81.221.255.22	-	TCP	-	3019 > 80 [ACK] Seq=2073987336 Ack=2917016587 Win=9660 Len=0
12:48:28:513	81.221.255.22	10.200.41.223	-	HTTP	-	Continuation
12:48:28:637	10.200.41.223	81.221.255.22	-	TCP	-	3019 > 80 [ACK] Seq=2073987336 Ack=2917017967 Win=9660 Len=0
12:48:28:647	81.221.255.22	10.200.41.223	-	HTTP	-	Continuation
12:48:28:653	10.200.41.223	81.221.255.22	-	TCP	-	3020 > 80 [ACK] Seq=2075195951 Ack=2610191104 Win=9660 Len=0

Figure A-5: IP Trace of a HTTP download

KPI

[SYN] 80/8080

GET

HTTP 200; 301; 302

Last Continuation,
HTTP 200; 301; 302

10401

10411

20401,
20415
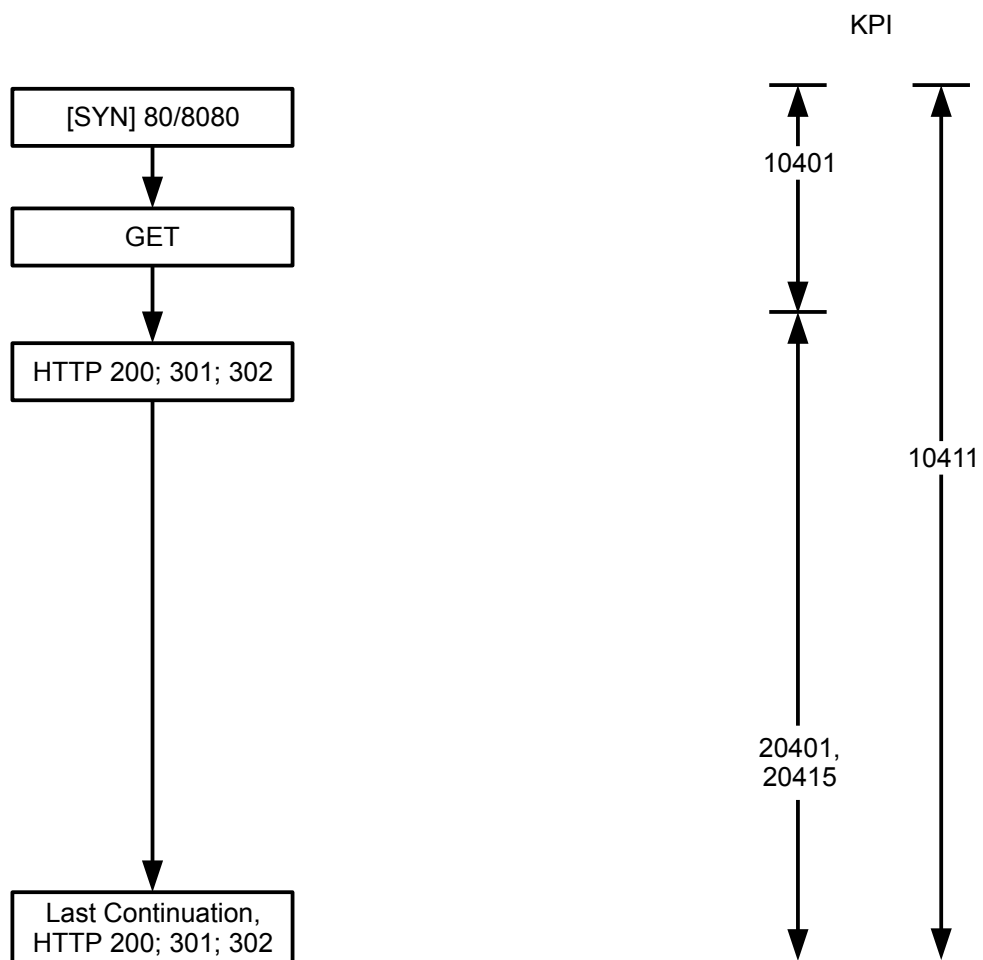
Figure A-6: HTTPTransfer GET

Field	Value	Description
KPIId	10401	Data, HTTP Transfer Get
StartTime		Timestamp of the TCP connection establishment and synchronization of the sequence number for HTTP (Port 80) > 80 [SYN] > http [SYN] QP: 'TCP Socket Connecting'
EndTime		Timestamp of the message which indicates the successful connection to the HTTP Server HTTP/1.1 200 OK HTTP/1.0 200 OK HTTP/1.1 301 HTTP/1.1 302 after a GET QP: 200 OK, 301 or 302
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5	Varchar	URL

Search scope: Test

KPI

Figure A-7: HTTPTransfer PUT

Field	Value	Description
KPIId	**10402**	**Data, HTTP Transfer Put**
StartTime		Timestamp of the TCP connection establishment and synchronization of the sequence number for HTTP (Port 80) > 80 [SYN] > http [SYN] QP: 'TCP Socket Connecting'
EndTime		Timestamp of the message which indicates the successful connection to the HTTP Server PUT or POST
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused

Field	Value	Description
KPIId	10402	Data, HTTP Transfer Put
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	10403	Data, HTTP Browser Page
StartTime		Timestamp of the TCP message '80 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for HTTP (Port 80)
EndTime		Timestamp of the 'HTTP/1.1 200 OK' message which indicates the successful connection to the HTTP Server (KPI fails if response is HTTP/1.1 302 Found or 301)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5	Varchar	Unused

Search scope: Test
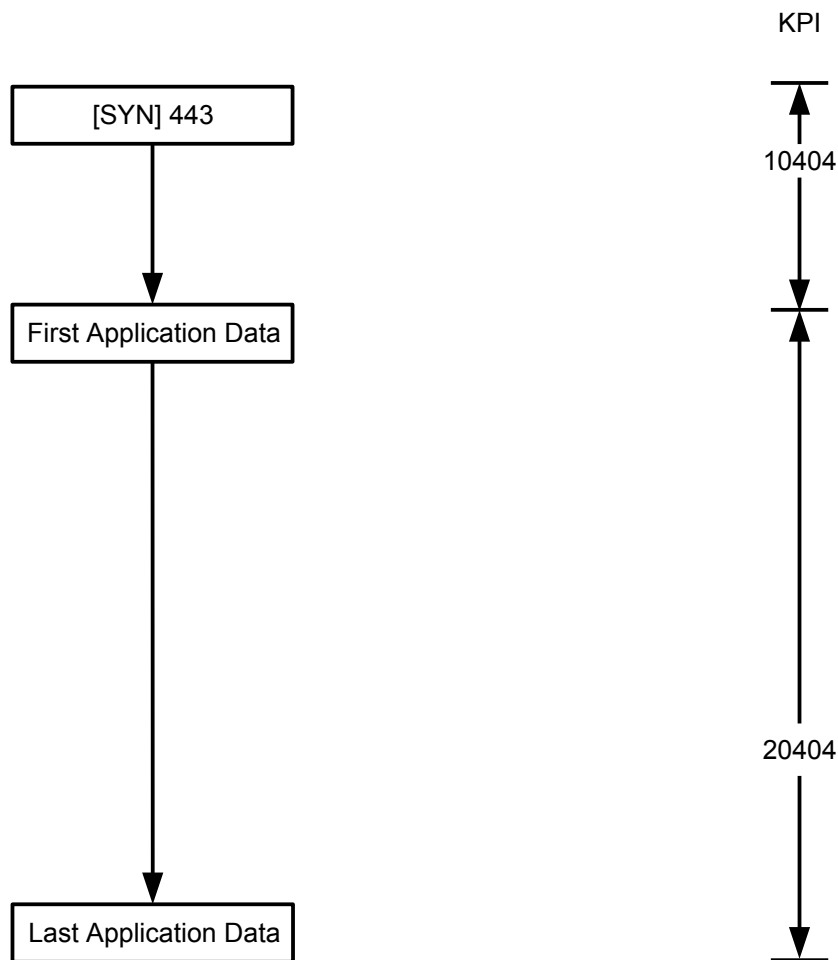
Figure A-8: HTTPBrowser with HTTPS URL

Field **KPIId**	Value **10404**	Description **Data, HTTPS Browser**
StartTime		Timestamp of the TCP message > 443 [SYN]' of '> https [SYN]' which is the TCP connection establishment and synchronization of the sequence number for HTTPS
EndTime		Timestamp of the first Application Data
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event

Field	Value	Description
KPIId	10404	Data, HTTPS Browser
Value4	Varchar	Name of the end event
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	10406	Data, HTTPS Browser (redirection)
StartTime		Timestamp of the TCP message '80 [SYN] > 8080 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for HTTP
EndTime		Timestamp of the first Application Data
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	10407	Data, HTTP Browser (B)
StartTime		Timestamp of the TCP message '80 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for HTTP (Port 80)
EndTime		Timestamp of the first GET Command
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	**10408**	**Data, HTTP Browser Access Delay**
StartTime		Timestamp of the DNS message Standard Query…
EndTime		Timestamp of the TCP message '80 [SYN] > 8080 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for HTTP
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	10410	Data, HTTP Browser Completion
StartTime		Timestamp of the TCP message '80 [SYN]' which is the TCP connection establishment and synchronization of the sequence number for HTTP (Port 80)
EndTime		Timestamp of the last 'Continuation' message of the connection or the 'HTTP/1.1 % OK' or 'HTTP/1.1 301 ' or 'HTTP/1.1 302' message if no continuation is present. (The download is successful if the test as such is marked as successful by the browser)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	10411	Data, HTTP Transfer Get Completion
StartTime		Timestamp of the TCP connection establishment and synchronization of the sequence number for HTTP (Port 80) > 80 [SYN] > http [SYN] QP: 'TCP Socket Connecting'
EndTime		Timestamp of the message which indicates the last packet has been received HTTP/1.1 200 OK HTTP/1.0 200 OK HTTP/1.1 301 or 302 Last Continuation QP: HTTP Data
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	10412	Data, HTTP Transfer Put Completion
StartTime		Timestamp of the TCP connection establishment and synchronization of the sequence number for HTTP (Port 80): • > 80 [SYN] • > http [SYN] • QP: 'TCP Socket Connecting'
EndTime		Timestamp of the message which indicates the last packet has been sent successfully to the HTTP Server First 80> [FIN;ACK] or 80> [RST;ACK] after last Continuation QP: Last packet sent
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused

Field	Value	Description
KPIId	10412	Data, HTTP Transfer Put Completion
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	10420	Data, HTTP Browser Service Access
StartTime		Start RAS Dialup (ATD Command)
EndTime		Timestamp of the first Get Command
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10421	Data, HTTP Transfer Get Service Access
StartTime		Start RAS Dialup (ATD Command) QP: GPRS Dial
EndTime		Timestamp of the first GET Command
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused

Field	Value	Description
KPIId	**10421**	**Data, HTTP Transfer Get Service Access**
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**10422**	**Data, HTTP Transfer Put Service Access**
StartTime		Start RAS Dialup (ATD Command) QP: GPRS Dial
EndTime		Timestamp of the first PUT Command
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Figure A-9: HTTPS Transfer GET

Field	Value	Description
KPIId	**10431**	**Data, HTTPS Transfer Get**
StartTime		Timestamp of the TCP message > 443 [SYN]' of '> https [SYN]' which is the TCP connection establishment and synchronization of the sequence number for HTTPS
EndTime		Timestamp of the first Application Data
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event

Field	Value	Description
KPIId	**10431**	**Data, HTTPS Transfer Get**
Value4	Varchar	Name of the end event
Value5	Varchar	URL

Search scope: Test
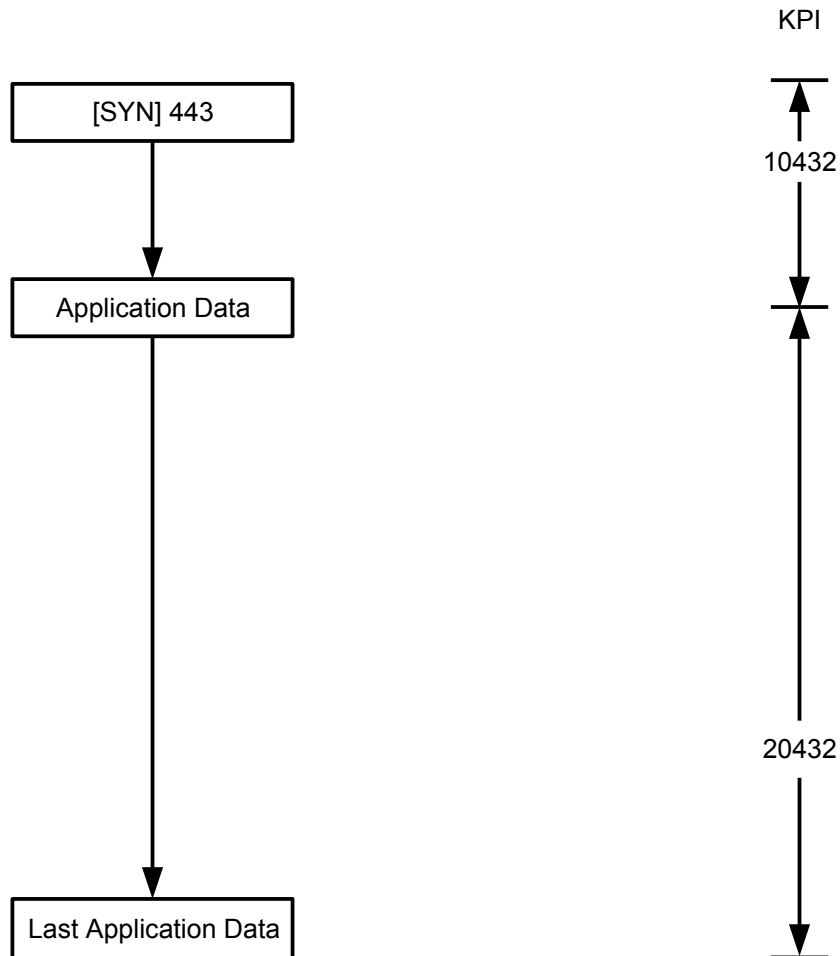
Figure A-10: HTTPS Transfer PUT

Field	Value	Description
KPIId	**10432**	**Data, HTTPS Transfer Put**
StartTime		Timestamp of the TCP message > 443 [SYN]' of '> https [SYN]' which is the TCP connection establishment and synchronization of the sequence number for HTTPS
EndTime		Timestamp of the first Application Data
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused

Field	Value	Description
KPIId	10432	Data, HTTPS Transfer Put
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	10461	Data, Capacity Get
StartTime		Timestamp of the TCP connection establishment and synchronization of the sequence number for HTTP (Port 80) > 80 [SYN] > http [SYN]
EndTime		Timestamp of the HTTP/1.1 200 HTTP/1.0 200 or HTTP/1.1 302 after the GET
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start message
Value4	Varchar	End message
Value5		(First) URL

Search scope: Test

Field	Value	Description
KPIId	10462	Data, Capacity Put
StartTime		Timestamp of the TCP connection establishment and synchronization of the sequence number for HTTP (Port 80) > 80 [SYN] > http [SYN]
EndTime		Timestamp of the PUT / HTTP/1.* (string must follow some conditions)
Duration		Time in ms between StartTime and EndTime

Field	Value	Description
KPIId	**10462**	**Data, Capacity Put**
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start message
Value4	Varchar	End message
Value5		(First) URL

Search scope: Test

Field	Value	Description
KPIId	**10463**	**Data, Capacity GetandPut**
StartTime		Timestamp of the TCP connection establishment and synchronization of the sequence number for HTTP (Port 80) > 80 [SYN] > http [SYN]
EndTime		Timestamp of the HTTP/1.1 200 HTTP/1.0 200 or HTTP/1.1 302 after a GET or PUT / HTTP/1.* (string must follow some conditions)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start message
Value4	Varchar	End message
Value5		(First) URL

Search scope: Test

Field	Value	Description
KPIId	**10470**	**Data, Application**
StartTime		Timestamp of the message mtResultsAppTest
EndTime		Timestamp of the message mtResultsAppTest
Duration		Time in ms between StartTime and EndTime

Field	Value	Description
KPIId	**10470**	**Data, Application**
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of messages
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		(First) URL

Search scope: Test

Field	Value	Description
KPIId	**10500**	**Data, UDP DL**
StartTime		Timestamp of the message 'Request: SQUDPDL%' which the connect request message for the SwissQual UDP Downlink test
EndTime		Timestamp of first packet (Source port) after the 'ACK' message which is the connect ack message for the SwissQual UDPDL test
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Figure A-11: IP Trace of an UDPDL test

Field	Value	Description
KPIId	**10600**	**Data, Video Streaming**
StartTime		According to the used protocol the timestamp of the RTSP: RTSP DESCRIBE', 'HTTP: HTTP GET'
EndTime		According to the used protocol the timestamp of the 'RTSP: TDP Payload', 'HTTP: Resized or Buffering'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**10605**	**Data, Video Streaming (Setup)**
StartTime		According to the used protocol the timestamp of the RTSP: RTSP SETUP', message
EndTime		According to the used protocol the timestamp of the 'RTSP: TDP Payload' or 'TCP: Loading' message
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused

Field	Value	Description
KPIId	10605	Data, Video Streaming (Setup)
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10620	Data, YouTube - IP Service Access
StartTime		Timestamp of the TCP connection establishment and synchronization of the sequence number (Port 80) > 80 [SYN] to download the player (IPTraceVideoStreaming: playerAccess, synSent)
EndTime		Timestamp of the message which indicates the successful connection to the server and containing first payload HTTP/1.1 200 OK HTTP/1.0 200 OK after the GET to download the player (IPTraceVideoStreaming: playerAccess, firstPayloadPacket)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of StartTrigger
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**10621**	**Data, YouTube - Streaming Access**
StartTime		Timestamp of the TCP connection establishment and synchronization of the sequence number (Port 80) > 80 [SYN] to download the movie (IPTraceVideoStreaming: videoAccess, synSent)
EndTime		Timestamp of the message which indicates the successful connection to the video server and containing first video payload HTTP/1.1 200 OK HTTP/1.0 200 OK after the GET to download the movie (IPTraceVideoStreaming: videoAccess, firstPayloadPacket)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of StartTrigger
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**10625**	**Data, YouTube - Video Access**
StartTime		Timestamp of the TCP connection establishment and synchronization of the sequence number (Port 80) > 80 [SYN] to download the player (IPTraceVideoStreaming: playerAccess, synSent)
EndTime		Timestamp of the message which indicates the successful connection to the (video) server and containing first payload HTTP/1.1 200 OK HTTP/1.0 200 OK after a GET to download the movie (IPTraceVideoStreaming: videoAccess, firstPayloadPacket)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of StartTrigger
Value1		Unused

Field	Value	Description
KPIId	10625	Data, YouTube - Video Access
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10700	Data, WAP
StartTime		Timestamp of the message 'WSP: Connect' which is the connect request message on the WSP/WTP protocol
EndTime		Timestamp of the first 'WSP: Reply' or 'WSP:Result' message which is the first packet containing application data on the WSP/WTP port
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

MsgTime	Source	Destination	Port	Protocol	Direction	Info
12:29:32:247	10.201.139.130	224.0.0.22	-	IGMP	-	V3 Membership Report
12:29:32:687	10.201.139.130	212.35.34.70	-	WTP+WSP	-	WSP Connect
12:29:33:243	212.35.34.70	10.201.139.130	-	WTP+WSP	-	WSP ConnectReply
12:29:33:263	10.201.139.130	212.35.34.70	-	WTP+WSP	-	WTP Ack
12:29:33:267	10.201.139.130	212.35.34.70	-	WTP+WSP	-	WSP Get http://www.eidelen.ch/wap/waptest.wml
12:29:34:070	212.35.34.70	10.201.139.130	-	WTP+WSP	-	WSP Reply
12:29:34:073	10.201.139.130	212.35.34.70	-	WTP+WSP	-	WTP Ack
12:29:34:157	10.201.139.130	212.35.34.70	-	WTP+WSP	-	WSP Get http://www.eidelen.ch/wap/wapBild.jpg
12:29:34:340	10.201.139.130	239.255.255.250	-	SSDP	-	M-SEARCH * HTTP/1.1

Figure A-12: IP Trace of a WAP download

Field	Value	Description
KPIId	10710	Data, WAP Completion
StartTime		Timestamp of the message 'WSP: Connect' which is the connect request message on the WSP/WTP protocol
EndTime		Timestamp of the last 'WSP: Reply' or 'WSP:Result' message which is the last packet containing application data on the WSP/WTP port

Field	Value	Description
KPIId	10710	Data, WAP Completion
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

A.2.4   Messages

For the detailed mapping between the events in the log and the trigger points in the application see Data and Video Test Scenario Manual section MMS send and MMS receive.

Field	Value	Description
KPIId	10800	Messaging, MMS Send
StartTime		Timestamp of the log message 'START', which indicates the begin of an MMS Send Test.
EndTime		Timestamp of the log message 'TRANSMISSION STARTED', which indicates the begin of an MMS transmission
Duration		Time in ms between StartTime and EndTime
Status		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	StartTime event message
Value4	Varchar	EndTime event message
Value5		Unused

Search scope: Test

MsgTime	Side	Event	MCC	MNC	LAC	Cld
03.12.2003 16:29:47	Sender	START	228	2	14000	14642
03.12.2003 16:30:00	Sender	GPRS_CONNECTED	228	2	14000	14642
03.12.2003 16:30:02	Sender	WAP CONNECTED	228	2	14000	14642
03.12.2003 16:30:02	Sender	TRANSMISSION STARTED	228	2	14000	14642
03.12.2003 16:30:22	Sender	TRANSMISSION FINISHED	228	2	14000	14642
03.12.2003 16:30:49	Sender	GPRS_DISCONNECTED	228	2	14000	14642

Figure A-13: Application trace of a MMS upload (sent)

```
      MO                                                              Network

       1        o------------activate pdp context REQUEST----------->>>    2


       4        <<<--------activate pdp context ACCEPT----------------o     3


       5        o----------------wsp connect REQUEST--------------->>>      6


       8        <<<----------------wsp connect REPLY------------------o     7


       9        o--------------------------wtp ACK---------------------->>>  10


      11        o----------------------MMS m-send.req------------------>>>  12


      14        <<<-----------------------wtp ACK------------------------o  13


      15        o----------------------MMS m-send.req----------------->>>   16


      18        <<<-------------------MMS m-send.conf------------------o    17
```

Field	Value	Description
KPIId	10801	**Messaging, MMS Receive**
StartTime		Timestamp of the log message 'NOTIFICATION RECEIVED', which indicates the time of the reception of the notification.
EndTime		Timestamp of the log message 'TRANSMISSION STARTED', which indicates the begin of an MMS download
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused

Field	Value	Description
KPIId	10801	Messaging, MMS Receive
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10805	Messaging, MMS Send WAP Gateway connect
StartTime		Timestamp of the log message 'START', which indicates the begin of an MMS Send Test.
EndTime		Timestamp of the log message 'WSP Connect'
Duration		Time in ms between StartTime and EndTime
Status		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	10900	Messaging, SMS Send
StartTime		Timestamp of the log message 'START', which indicates the begin of an SMS Send Test.
EndTime		Timestamp of the log message 'SEND SMS START', which indicates the begin of an SMS transmission
Duration		Time in ms between StartTime and EndTime
Status		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Figure A-14: Application trace of an SMS upload (sent)

Field	Value	Description
KPIId	**11000**	**PostDialDelay Active State**
StartTime		SIP: INVITE
EndTime		180 RINGING
Duration		Time in ms between StartTime and EndTime
Status		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Post Dial Delay (Active State)
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**11001**	**SIP - Dial Accept Delay**
StartTime		SIP: INVITE
EndTime		SIP 100 Trying
Duration		Time in ms between StartTime and EndTime
Status		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	11002	SIP - Dial Accept Delay
StartTime		SIP: INVITE
EndTime		SIP 18* (Normal) SIP 401 (Reject)
Duration		Time in ms between StartTime and EndTime
Status		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	11010	SIP – Call Access
StartTime		SIP: INVITE
EndTime		SIP: 200 OK
Duration		Time in ms between StartTime and EndTime
Status		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start Message
Value4	Varchar	End Message
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	11011	SIP – Call Access M2M Connect Net
StartTime		SIP: INVITE (trigger messages always taken from the calling party (active side))

Field	Value	Description
EndTime		SIP: 200 OK (trigger messages always taken from the calling party (active side))
Duration		Time in ms between StartTime and EndTime minus the 'accept delay' on the called side. This is the time between CC:Alerting and CC:Connect for CS calls or SIP:INVITE Ringing and SIP:INVITE 200 OK for PS calls, for example, VoLTE
Status		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start Message
Value4	Varchar	End Message
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	11100	SIP - Call Establishment (Setup)
StartTime		SIP: INVITE
EndTime		SIP: Request ACK
Duration		Time in ms between StartTime and EndTime
Status		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	11500	EVDO, PostDialDelay Dormant State
StartTime		EvDO Connection Request
EndTime		180 RINGING
Duration		Time in ms between StartTime and EndTime
Status		0 = OK, see 'Status' in the appendix

Field	Value	Description
KPIId	**11500**	**EVDO, PostDialDelay Dormant State**
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Post Dial Delay (Dormant State)
Value5		Unused

Search scope: Test

A.2.5   Data Call Setup

Field	Value	Description
KPIId	**15100**	**Data (PS), Attach**
StartTime		Timestamp of the GMM message 'Attach Request'
EndTime		Timestamp of the GMM message 'Attach Accept' or GMM message 'Attach reject' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of 'Attach Requests' before the accept
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout within Session

Field	Value	Description
KPIId	**15101**	**Data (PS), Detach**
StartTime		Timestamp of the GMM message 'Detach Request'
EndTime		Timestamp of the GMM message 'Detach Accept' or Timeout whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix

Field	Value	Description
KPIId	15101	Data (PS), Detach
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout within Session

Field	Value	Description
KPIId	15102	Data (PS), Attach completion
StartTime		Timestamp of the GMM message 'Attach Request'
EndTime		Timestamp of the GMM message 'Detach Accept' or Timeout whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout within Session

Field	Value	Description
KPIId	15105	Data (PS), Attach (P3)
StartTime		Timestamp of the attach command [AT+CGATT=1]
EndTime		Timestamp of [OK] to attach command received/ (check success with Attach accept)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused

Field KPIId	Value 15105	Description Data (PS), Attach (P3)
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout within Session

Field KPIId	Value 15200	Description Data (PS), Activate PDP Context
StartTime		Timestamp of the SM message 'Activate PDP Context request'
EndTime		Timestamp of the SM message ' Activate PDP Context accept' or ' Activate PDP Context reject' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of requests
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout within Session

Field KPIId	Value 15201	Description Data (PS), Deactivate PDP Context
StartTime		Timestamp of the SM message 'Deactivate PDP Context request'
EndTime		Timestamp of the SM message ' Deactivate PDP Context accept' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of 'Deactivate Requests' before the accept
Value1		Unused
Value2		Unused
Value3	Varchar	Unused

Field	Value	Description
KPIId	15201	**Data (PS), Deactivate PDP Context**
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout within Session

Field	Value	Description
KPIId	15202	**Data (PS), Activate PDP Context (Dial up)**
StartTime		Timestamp of the Channel Request on GSM or RRCConnectionRequest on UMTS.
EndTime		Timestamp of the SM message ' Activate PDP Context accept' or ' Activate PDP Context reject' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout within Session

Field	Value	Description
KPIId	15203	**Data (PS), Deactivate PDP Context Completion**
StartTime		Timestamp of the Channel Request on GSM or RRCConnectionRequest on UMTS.
EndTime		Timestamp of the SM message ' Deactivate PDP Context accept' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout within Session

Field	Value	Description
KPIId	**15205**	**Data (PS), PDP Context (P3)**
StartTime		First IPCP Configuration Request message
EndTime		Last IPCP Configuration Ack message
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout within Session

Field	Value	Description
KPIId	**15210**	**Data (PS), 3G Data Connection**
StartTime		Time Stamp of the GMM Service Request
EndTime		Time Stamp of the RRC RadioBearerSetupComplete or SM Activate PDP context accept message
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout within Session

Field	Value	Description
KPIId	15250	Data (PS), IP Service Access
StartTime		Timestamp of the SM message 'Activate PDP Context request'
EndTime		First Packet of the accessed service, this is the EndTime trigger of the following KPIs: 10200, 10201, 10300, 10301, 10400, 10500, 10700
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Id of the KPI of the end trigger event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session (see EndTime KPIs)

Field	Value	Description
KPIId	15300	Data (PS), Authentication
StartTime		Timestamp of the GMM message 'Authentication and ciphering req'
EndTime		Timestamp of the GMM message 'Authentication and ciphering resp' or GMM message 'Authentication and ciphering rej' or GMM message 'Authentication and ciphering failure' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

A.2.6   Security (CS)

Field	Value	Description
KPIId	15400	CS Ciphering
StartTime		Timestamp of the RR message ' Ciphering Mode Command'
EndTime		Timestamp of the RR message ' Ciphering Mode Complete' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	15500	CS Authentication
StartTime		Timestamp of the MM message ' Authentication Request'
EndTime		Timestamp of the MM message ' Authentication Response' or MM message 'Authentication Reject' or MM message 'Authentication Failure' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	15550	CS Identity
StartTime		Timestamp of the MM message ' Identity request'
EndTime		Timestamp of the MM/GMM message Identity response' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	15560	Call Setup Signalling 2G
StartTime		Timestamp of the RR message ' Immediate Assignment'
EndTime		Timestamp of the RR message 'Assignment Command'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start Message
Value4	Varchar	End Message
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	15570	Call Setup Signalling 3G
StartTime		Timestamp of the RRC message 'RRCConnectionSetupComplete'
EndTime		Timestamp of the RRC message 'RadioBearerSetup'
Duration		Time in ms between StartTime and EndTime

Field	Value	Description
KPIId	**15570**	**Call Setup Signalling 3G**
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start Message
Value4	Varchar	End Message
Value5		Unused

Search scope: Timeout

A.2.7   Channels

Field	Value	Description
KPIId	**15600**	**2G, Traffic Channel**
StartTime		Timestamp of the RR message ' Assignment Command'
EndTime		Timestamp of the RR message ' Assignment Complete' or 'Assignment Failure' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**15610**	**2G/3g , Call Access Traffic Channel**
StartTime		Timestamp of the CM Service Request message '
EndTime		Timestamp of the RR message ' Assignment Complete' or 'Assignment Failure' or the RRC message 'RadioBearerSetupComplete' or 'RadioBearerSetupFailure' depending on the technology or Timeout, whatever comes first

Field	Value	Description
KPIId	15610	2G/3g , Call Access Traffic Channel
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	15700	2G, Signal Channel
StartTime		Timestamp of 'Channel Request'.
EndTime		Timestamp of 'Immediate Assignment' or 'Immediate Assignment Reject' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of Channel Requests within scope
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search Scope: Timeout

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The two messages are associated via the random number. The only byte (cause and random number) of the channel request must be identical with the 8th byte in the immediate assignment message.

Field	Value	Description
KPIId	15800	3G, Traffic Channel
StartTime		Timestamp of the RRC message ' RadioBearerSetup'
EndTime		Timestamp of the RRC message 'RadioBearerSetupComplete' or 'RadioBearerSetupFailure' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search Scope: Timeout

Field	Value	Description
KPIId	15900	3G, Security
StartTime		Timestamp of the RRC message 'SecurityModeCommand'
EndTime		Timestamp of the RRC message 'SecurityModeComplete' or 'SecurityModeFailure' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search Scope: Timeout

Field	Value	Description
KPIId	16000	3G, Signalling Channel
StartTime		Timestamp of the RRC message 'RRCConnectionRequest'
EndTime		Timestamp of the RRC message RRCConnectionSetupComplete' or Timeout, whatever comes first

Field KPIId	Value 16000	Description 3G, Signalling Channel
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of requests for one complete
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search Scope: Timeout

Field KPIId	Value 16050	Description Signaling Channel Completion
StartTime		Timestamp of the following message: • GSM: 'Channel Request' • UMTS: 'RRCConnectionRequest'
EndTime		Timestamp of the following message: • GSM: 'Channel Release' • UMTS: 'RRCConnectionRelease' or RRCConnectionRelease-CCCH
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of requests for one complete
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search Scope: Session

A.2.8 Coverage

Field	Value	Description
KPIId	**16200**	**GPRS Availability**
StartTime		Selection of new cell
EndTime		SI 13 sent on BCCH of new cell or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search Scope: Timeout

Field	Value	Description
KPIId	**16310**	**CDMA , Call Access Traffic Channel**
StartTime		Timestamp of the 'Origination' message
EndTime		Timestamp of the 'Service Connect Completion 'message.
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	18000	4G Signal Channel
StartTime		Timestamp of the RRC message 'RRCConnectionRequest'
EndTime		Timestamp of the RRC message 'RRCConnectionSetupComplete' or 'RRCConnectionSetupReject' Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of requests for one complete
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search Scope: Timeout/Session

Field	Value	Description
KPIId	18005	4G Attach EPS
StartTime		Timestamp of the EPS NAS message 'EMM-Attach request'
EndTime		Timestamp of the EPS NAS message 'EMM-Attach accept' or 'EMM-Attach reject' Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of requests for one complete
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		APN of accept

Search Scope: Timeout/Session

Field	Value	Description
KPIId	18006	4G Detach EPS
StartTime		Timestamp of the EPS NAS message 'EMM-Detach request'
EndTime		Timestamp of the EPS NAS message 'EMM-Detach accept' or Timeout, whatever comes first

Field	Value	Description
KPIId	18006	**4G Detach EPS**
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of requests for one complete
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search Scope: Timeout/Session

Field	Value	Description
KPIId	18010	**4G Activate Default EPS bearer context**
StartTime		Timestamp of the EPS NAS message 'ESM-Activate Default EPS bearer context'
EndTime		Timestamp of the EPS NAS message 'EMM-Attach complete' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of requests for one complete
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search Scope: Timeout/Session

Field	Value	Description
KPIId	18020	**4G Security**
StartTime		Timestamp of the RRC message 'SecurityModeCommand'
EndTime		Timestamp of the RRC message 'SecurityModeComplete' or 'SecurityModeReject' Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused

Field	Value	Description
KPIId	18020	4G Security
Counter	0	Number of requests for one complete
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search Scope: Timeout/Session

A.3　Retainability Records

A.3.1　Voice

Field	Value	Description
KPIId	20100	Voice(CS) Telephony
StartTime		GSM/UMTS: Timestamp of 'CC:Alerting'. If not available, then 'CC:Connect'. If not available, then CC:ConnectAcknowledge'
EndTime		GSM/UMTS: Timestamp of 'CC: Disconnect'. If not available, then 'CC: Release'. If not available, then CC: Release Complete'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Name of the start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	20101	**Voice(CS) Call Holding Time**
StartTime		GSM/UMTS: 'CC:Connect'. If not available, then CC:ConnectAcknowledge'
EndTime		GSM/UMTS: Timestamp of 'CC: Disconnect'. If not available, then 'CC: Release'. If not available, then CC: Release Complete'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Name of the start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**20102**	**Voice(CS) Telephony (Alert - Status)**
StartTime		GSM/UMTS: Timestamp of 'CC:Alerting'. If not available, then 'CC:Connect'. If not available, then CC:ConnectAcknowledge'
EndTime		(CC: Disconnect. If not present Release, Release Complete respectively) (Follows Diversity Call Status) Not present when status is Failed
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK when Call is completed, = 108002 when Call is Dropped
Sum	0	Unused
Counter	0	
Value1		Unused
Value2		Unused
Value3		Name of the start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**20103**	**Voice(CS) Telephony (Connect - Status)**
StartTime		GSM/UMTS: 'CC:Connect'. If not available, then CC:ConnectAcknowledge'
EndTime		CC: Disconnect. If not present Release, Release Complete respectively (Follows Diversity Call Status) Not present when status is Failed
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK when Call is completed, = 108002 when Call is Dropped
Sum	0	Unused
Counter	0	
Value1		Unused
Value2		Unused
Value3		Name of the start event
Value4		Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	20120	Disconnect state
StartTime		Timestamp of 'Alerting'.
EndTime		Timestamp of : CC Disconnect, RRC: Release, Idle
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3		Name of the start event
Value4		Name of the start event If RCC: 'RRCConnectionRelease normal' then successful else • Case A: CC: 'Disconnect abnormal' • Case B: RRC: 'RRCConnectionRelease abnormal (no Disconnect)' • Case C: 'IDLE' • Case D: 'RRC:RRCConnectionRelease abnormal'
Value5		Cause (if CC:Disconnect or RRCConnectionRelease in value 4)

Search scope: Session

> (i) KPI written only in UMTS and KPI 10120 successful.

A.3.2 Data Services

Field	Value	Description
KPIId	**20200**	**Data, Email Send**
StartTime		Timestamp of the SMTP command Message Body which indicates the begin of the message transmission
EndTime		Timestamp of the last 'Message Body' before 'Response: … Message accepted' which indicates the upload is done plus half time between 'Message Body' and 'Response: … Message accepted' messages (half roundtrip)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the half time message
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**20201**	**Data, Email Receive**
StartTime		Halftime between the POP message 'Request retrieve and 'Response: any number octets' which indicates the begin of the message reception
EndTime		Timestamp of the TCP last 'Continuation' before message '110 [FIN;ACK]' which indicates the last packed sent for the current TCP connection for POP3 (Port 110)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the half time message

Field	Value	Description
KPIId	20201	Data, Email Receive
Value4	Varchar	Name of the end event
Value5		Unused

<div align="center">Search scope: Test</div>

Field	Value	Description
KPIId	20203	Data, IMAP Email Receive
StartTime		Timestamp of the FETCH 1 (RFC822) IMAP4 message
EndTime		Timestamp of the Response: Cx OK FETCH completed IMAP4 message x must match with id from Request
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

<div align="center">Search scope: Test</div>

Field	Value	Description
KPIId	20205	Data, Email Send
StartTime		Timestamp of the SMTP command Message Body which indicates the begin of the message transmission
EndTime		Timestamp of the 'Response: … Message accepted' which indicates the upload is done.
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	20206	Data, Email Receive
StartTime		Timestamp of 'Response: any number octets' which indicates the begin of the message reception
EndTime		Timestamp of the TCP last 'Continuation' before message '110 [FIN;ACK]' which indicates the last packed sent for the current TCP connection for POP3 (Port 110)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Figure A-15: Trace of an Email Receive test

Field	Value	Description
KPIId	20207	Data, Email SSL Send
StartTime		Timestamp of the message which indicates the begin of the transmission of application data
EndTime		Timestamp of the last application data or message body
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused

Field	Value	Description
KPIId	**20207**	**Data, Email SSL Send**
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**20208**	**Data, Email SSL Receive**
StartTime		Timestamp of the message which indicates the begin of the transmission of application data
EndTime		Timestamp of the last application data
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**20211**	**Data, IMAP Email Receive Header**
StartTime		Timestamp of the FETCH 1 IMAP4 message (RFC822.HEADER)
EndTime		Timestamp of the Response: Cx OK FETCH completed IMAP4 message where x must match the id from Request
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event

Field	Value	Description
KPIId	20211	Data, IMAP Email Receive Header
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	20300	Data, FTP Uplink
StartTime		Timestamp of the first 'FTP Data' message which indicates the first transmitted data packet
EndTime		Timestamp of the last 'FTP Data' plus the halftime between last 'FTP Data' is sent and message '[FIN;ACK]'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter		Number of [FIN;ACK] packets
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the half time message
Value4	Varchar	Name of the end event
Value5		Host name

Search scope: Test

Not written if the transfer has fixed duration checked in the test.

Field	Value	Description
KPIId	20301	Data, FTP Downlink
StartTime		Timestamp of the 'Response opening' message plus the halftime between 'Response opening' and the first 'FTP Data'
EndTime		Timestamp of the last 'FTP Data' message that coincides with a TCP message 'a port Number [FIN;ACK]' and is before '>21[FIN;ACK]' which indicates the that the connection was successfully concluded
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter		Number of FTP Data packets
Value1		Unused

Field	Value	Description
KPIId	20301	Data, FTP Downlink
Value2		Unused
Value3	Varchar	Name of the half time message
Value4	Varchar	Name of the end event
Value5		Host name

Search scope: Test

ⓘ Not written if the transfer has fixed duration checked in the test.

MsgTime	Source	Destination	Port	Protocol	Direction	Info
12:00:01:177	195.141.101.217	10.216.128.211	-	FTP-DATA	-	FTP Data: 1460 bytes
12:00:01:180	10.216.128.211	195.141.101.217	-	TCP	-	3088 > 41167 [ACK] Seq=254517371 Ack=3242982860 Win=17520 Len=0
12:00:01:180	195.141.101.217	10.216.128.211	-	FTP-DATA	-	FTP Data: 1460 bytes
12:00:01:190	10.216.128.211	195.141.101.217	-	TCP	-	3088 > 41167 [ACK] Seq=254517371 Ack=3242984320 Win=17520 Len=0
12:00:01:190	195.141.101.217	10.216.128.211	-	FTP-DATA	-	FTP Data: 1460 bytes
12:00:01:197	195.141.101.217	10.216.128.211	-	FTP-DATA	-	FTP Data: 1460 bytes
12:00:01:207	10.216.128.211	195.141.101.217	-	TCP	-	3088 > 41167 [ACK] Seq=254517371 Ack=3242987240 Win=17520 Len=0
12:00:01:207	195.141.101.217	10.216.128.211	-	FTP	-	Response: 226 File send OK.
12:00:01:207	195.141.101.217	10.216.128.211	-	FTP-DATA	-	FTP Data: 1460 bytes
12:00:01:217	195.141.101.217	10.216.128.211	-	FTP-DATA	-	FTP Data: 1460 bytes
12:00:01:233	10.216.128.211	195.141.101.217	-	TCP	-	3088 > 41167 [ACK] Seq=254517371 Ack=3242990160 Win=17520 Len=0
12:00:01:233	195.141.101.217	10.216.128.211	-	FTP-DATA	-	FTP Data: 1460 bytes
12:00:01:267	195.141.101.217	10.216.128.211	-	FTP-DATA	-	FTP Data: 1460 bytes
12:00:01:377	10.216.128.211	195.141.101.217	-	TCP	-	3087 > 21 [ACK] Seq=251931504 Ack=3244012690 Win=17240 Len=0
12:00:01:377	10.216.128.211	195.141.101.217	-	TCP	-	3088 > 41167 [ACK] Seq=254517371 Ack=3242991620 Win=17520 Len=0
12:00:01:500	195.141.101.217	10.216.128.211	-	FTP-DATA	-	FTP Data: 1460 bytes
12:00:01:510	10.216.128.211	195.141.101.217	-	TCP	-	3088 > 41167 [ACK] Seq=254517371 Ack=3242993884 Win=17520 Len=0
12:00:01:510	10.216.128.211	195.141.101.217	-	TCP	-	3088 > 41167 [FIN; ACK] Seq=254517371 Ack=3242993884 Win=17520 Len=0
12:00:01:510	195.141.101.217	10.216.128.211	-	FTP-DATA	-	FTP Data: 803 bytes
12:00:01:513	10.216.128.211	195.141.101.217	21	FTP	DL	226 File send OK.
12:00:01:583	10.216.128.211	195.141.101.217	21	FTP		Disconnected (TCP)
12:00:01:600	10.216.128.211	195.141.101.217	-	TCP	-	3087 > 21 [FIN; ACK] Seq=251931504 Ack=3244012690 Win=17240 Len=0
12:00:01:757	195.141.101.217	10.216.128.211	-	TCP	-	41167 > 3088 [ACK] Seq=3242993884 Ack=254517372 Win=5840 Len=0
12:00:01:810	10.216.128.211	195.141.101.217	-	TCP	-	3087 > 21 [ACK] Seq=251931505 Ack=3244012690 Win=17240 Len=0
12:00:01:810	195.141.101.217	10.216.128.211	-	FTP	-	Response:
12:00:02:017	195.141.101.217	10.216.128.211	-	TCP	-	21 > 3087 [RST] Seq=3244012690 Ack=0 Win=0 Len=0

Figure A-16: IP Trace of a FTP download

Field	Value	Description
KPIId	20302	Data, FTPS Uplink
StartTime		time given in mtMsgTCPConnectionDataSize
EndTime		time given in mtMsgTCPConnectionDataSize
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter		Unused

Field	Value	Description
KPIId	20302	Data, FTPS Uplink
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Not written if the transfer has fixed duration checked in the test

Field	Value	Description
KPIId	20303	Data, FTPS Downlink
StartTime		time given in mtMsgTCPConnectionDataSize
EndTime		time given in mtMsgTCPConnectionDataSize
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter		Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Not written if the transfer has fixed duration checked in the test

Field	Value	Description
KPIId	20305	Data, FTP Uplink
StartTime		Timestamp of the first 'FTP Data' message which indicates the first transmitted data packet
EndTime		Timestamp of the message '[FIN;ACK]' for last FTP Data

Field	Value	Description
KPIId	20305	Data, FTP Uplink
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter		Number of [FIN;ACK] packets
Value1		Unused
Value2		Unused
Value3	Varchar	Name of start event
Value4	Varchar	Name of the end event
Value5		Host name

Search scope: Test

> ℹ Not written if the transfer has fixed duration checked in the test.

Field	Value	Description
KPIId	20306	Data, FTP Downlink
StartTime		Timestamp of the first 'FTP Data'
EndTime		Timestamp of the last 'FTP Data' message that coincides with a TCP message 'a port Number [FIN;ACK]' and is before '> 21 [FIN;ACK]' which indicates the that the connection was successfully concluded
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter		Number of FTP Data packets
Value1		Unused
Value2		Unused
Value3	Varchar	Name of start event
Value4	Varchar	Name of the end event
Value5		Host name

Search scope: Test

> ℹ Not written if the transfer has fixed duration checked in the test.

Field	Value	Description
KPIId	20307	Data, FTP Uplink (B)
StartTime		Timestamp of the reception of [ACK] from the [SYN;ACK]
EndTime		Timestamp of the message '[FIN;ACK]' for the last FTP DATA
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter		Number of [FIN;ACK] packets
Value1		Unused
Value2		Unused
Value3	Varchar	Name of start event
Value4	Varchar	Name of the end event
Value5		Host name

Search scope: Test

Not written if the transfer has fixed duration checked in the test.

Field	Value	Description
KPIId	20308	Data, FTP Downlink (B)
StartTime		Timestamp of the Reception of [ACK] from the [SYN;ACK]
EndTime		Timestamp of the last 'FTP Data' message that coincides with a TCP message 'a port Number [FIN;ACK]' and is before '> 21 [FIN;ACK]' which indicates the that the connection was successfully concluded
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of FTP Data packets
Value1		Unused
Value2		Unused
Value3	Varchar	Name of start event
Value4	Varchar	Name of the end event
Value5		Host name

Search scope: Test

Not written if the transfer has fixed duration checked in the test.

Field	Value	Description
KPIId	20310	Data, FTP Uplink Fixed Duration
StartTime		Timestamp of the first 'FTP Data' message which indicates the first transmitted data packet
EndTime		Timestamp when the fixed duration has expired (Test End)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of [FIN;ACK] messages
Value1		Unused
Value2		Unused
Value3	Varchar	Name of start event
Value4	Varchar	Name of the end event
Value5		Host name

Search scope: Test

Only written if the transfer has fixed duration checked in the test.

Field	Value	Description
KPIId	20311	Data, FTP Download Fixed Duration
StartTime		Timestamp of the 'Response opening' message plus the halftime between 'Response opening' and the first 'FTP Data'
EndTime		Timestamp when the fixed duration has expired (Test End)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter		Number of FTP Data
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Host name

Search scope: Test

Only written if the transfer has fixed duration checked in the test.

Field	Value	Description
KPIId	**20312**	**Data, FTPS Uplink Fixed Duration**
StartTime		Time given in mtMsgTCPConnectionDataSize
EndTime		Time given by mtDataTestTimeout
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter		Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**20313**	**Data, FTPS Downlink Fixed Duration**
StartTime		Time given in mtMsgTCPConnectionDataSize
EndTime		Time given by mtDataTestTimeout
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter		Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	20317	**Data, FTP Download Fixed Duration (V)**
StartTime		Timestamp of the first 'FTP Data'
EndTime		Timestamp when the fixed duration has expired (Test End)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter		Number of FTP Data
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	'Test Timeout' or Last message collected
Value5		Host name

Search scope: Test

i Only written if the transfer has fixed duration checked in the test.

Field	Value	Description
KPIId	20400	**Data, HTTP Browser**
StartTime		Timestamp of the last message sent to the server ([ACK] or GET) plus the halftime between last message sent to the server ([ACK] or GET) and the 'HTTP/1.1 % OK' or HTTP/1.1 302 or HTTP/1.1 301 message which indicates the successful connection to the HTTP Server
EndTime		Timestamp of the last 'Continuation' message of the connection or the 'HTTP/1.1 % OK' or HTTP/1.1 302 or HTTP/1.1 301 message if no continuation is present. (The download is successful if the test as such is marked as successful by the browser)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the half time message
Value4	Varchar	Name of the end event
Value5		URL

Search scope: Test

Field	Value	Description
KPIId	20401	Data, HTTP Transfer Get
StartTime		Timestamp of the last message sent to the server ([ACK] or GET) plus the halftime between last message sent to the server ([ACK] or GET) and the message which indicates the successful connection to the HTTP Server:
		HTTP/1.1 200 OK,HTTP/1.0 200 OK or HTTP/1.1 302 or HTTP/1.1 301 after a GET - HT
		QP: 200 OK, 301 or 302
EndTime		Timestamp of the last message of the connection or the 'HTTP/1.1 % OK' message if no continuation is present: HTTP/1.1 200 OK
		HTTP/1.0 200 OK or HTTP/1.1 301 or HTTP/1.1 302
		Continuation
		QP: HTTP Data
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the half time message
Value4	Varchar	Name of the end event
Value5		URL

ⓘ   Not written if the transfer has fixed duration checked in the test.

Field	Value	Description
KPIId	20402	Data, HTTP Transfer Put
StartTime		Timestamp of the PUT or POST message sent to the server
EndTime		Timestamp of the last message sent: First [FIN;ACK] after last Continuation - HT
		QP: Last packet sent
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the half time message

Field	Value	Description
KPIId	**20402**	**Data, HTTP Transfer Put**
Value4	Varchar	Name of the end event
Value5		URL

> ℹ️ Not written if the transfer has fixed duration checked in the test.

Field	Value	Description
KPIId	**20403**	**Data, HTTP Browser**
StartTime		Timestamp of the last message sent to the server ([ACK] or GET) plus the halftime between last message sent to the server ([ACK] or GET) and the 'HTTP/1.1 % OK' message which indicates the successful connection to the HTTP Server (this KPI does not accept the HTTP/1.1 302 or HTTP/1.1 301 response)
EndTime		Timestamp of the last 'Continuation' message of the connection or the 'HTTP/1.1 % OK' message if no continuation is present. (The download is successful if the test as such is marked as successful by the browser)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the half time message
Value4	Varchar	Name of the end event
Value5		URL

Search scope: Test

Field	Value	Description
KPIId	**20404**	**Data, HTTPS Browser**
StartTime		Timestamp of the first Application Data message which indicates the successful connection to the HTTPS Server
EndTime		Timestamp of the last Application Data (The download is successful if the test as such is marked as successful by the browser)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused

Field	Value	Description
KPIId	20404	Data, HTTPS Browser
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		URL

Search scope: Test

Field	Value	Description
KPIId	20405	Data, HTTP Browser (V)
StartTime		Timestamp of the 'HTTP/1.1 % OK' or HTTP/1.1 302 or HTTP/1.1 301 message which indicates the successful connection to the HTTP Server
EndTime		Timestamp of the last 'Continuation' message of the connection or the 'HTTP/1.1 % OK' or HTTP/1.1 301 or HTTP/1.1 302 message if no continuation is present. (The download is successful if the test as such is marked as successful by the browser)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		URL

Search scope: Test

Field	Value	Description
KPIId	20407	Data, HTTP Browser (B)
StartTime		Timestamp of the first GET command
EndTime		Timestamp of the last 'Continuation' message of the connection or the 'HTTP/1.1 % OK' or HTTP/1.1 301 or HTTP/1.1 302 message if no continuation is present. (The download is successful if the test as such is marked as successful by the browser)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused

Field	Value	Description
KPIId	20407	Data, HTTP Browser (B)
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		URL

Search scope: Test

Field	Value	Description
KPIId	20411	Data, HTTP Transfer GET Fixed Duration
StartTime		Timestamp of the last message sent to the server ([ACK] or GET) plus the halftime between last message sent to the server ([ACK] or GET) and the message which indicates the successful connection to the HTTP Server: HTTP/1.1 200 OK,HTTP/1.0 200 OK or HTTP/1.1 302 after a GET - HT QP: 200 OK, 301 or 302
EndTime		Timestamp of Test End (mtDataTestTimeout)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start message
Value4	Varchar	End message
Value5		URL

Search scope: Test

Only written if the transfer has fixed duration checked in the test.

Field	Value	Description
KPIId	20412	Data, HTTP Transfer PUT Fixed Duration
StartTime		Timestamp of the PUT message sent to the server
EndTime		Timestamp of Test End (mtDataTestTimeout)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix

Field	Value	Description
KPIId	20412	Data, HTTP Transfer PUT Fixed Duration
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start message
Value4	Varchar	End message
Value5		URL

Search scope: Test

Only written if the transfer has fixed duration checked in the test.

Field	Value	Description
KPIId	20415	Data, HTTP Transfer Get(V)
StartTime		Timestamp of the message which indicates the successful connection to the HTTP Server: • HTTP/1.1 200 OK • HTTP/1.0 200 OK • HTTP/1.1 301 • HTTP/1.1 302 after a GET • QP: 200 OK, 301 or 302
EndTime		HTTP/1.1 200, HTTP/1.0 200 or HTTP/1.1 301 or HTTP/1.1 302, Last Continuation before [FIN; ACK] with correct IP
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		URL

Field	Value	Description
KPIId	20416	Data, HTTP Transfer Put(V)
StartTime		Put, Post
EndTime		HTTP/1.1 200, HTTP/1.0 200, First [FIN;ACK] after last Continuation

Field	Value	Description
KPIId	20416	Data, HTTP Transfer Put(V)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		URL

Search scope: Test

KPIId	20417	Data, HTTP Transfer Get Fixed Duration(V)
StartTime		Timestamp of the message which indicates the successful connection to the HTTP Server • HTTP/1.1 200 OK • HTTP/1.0 200 OK • HTTP/1.1 302 after a GET • QP: 200 OK, 301 or 302
EndTime		End of test (mtDataTestTimeout)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	'Test Timeout'
Value5		URL

Field	Value	Description
KPIId	20431	Data, HTTPS Transfer Get
StartTime		Timestamp of the first Application Data message which indicates the connection to the HTTPS Server and the successful establishment of a HTTPS connection
EndTime		Timestamp of the last Application Data (The download is successful if the test as such is marked as successful by the application)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix

Field	Value	Description
KPIId	20431	Data, HTTPS Transfer Get
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	20432	Data, HTTPS Transfer Put
StartTime		Timestamp of the first Application Data message which indicates the connection to the HTTPS Server and the successful establishment of a HTTPS connection
EndTime		Timestamp of the last Application Data (The download is successful if the test as such is marked as successful by the application)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	20441	Data, HTTPS Transfer Get Fixed Duration
StartTime		Timestamp of the first Application Data message which indicates the connection to the HTTPS Server and the successful establishment of a HTTPS connection
EndTime		End of Test (mtDataTestTimeout)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused

Field	Value	Description
KPIId	20441	**Data, HTTPS Transfer Get Fixed Duration**
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event (Test Timeout)
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	20442	**Data, HTTPS Transfer Put Fixed Duration**
StartTime		Timestamp of the first Application Data message which indicates the connection to the HTTPS Server and the successful establishment of a HTTPS connection
EndTime		End of Test (mtDataTestTimeout)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event (Test Timeout)
Value5	Varchar	URL

Search scope: Test

Field	Value	Description
KPIId	20461	**Data, Capacity Get**
StartTime		Timestamp of the last message sent to the server ([ACK] or GET) plus the halftime between last message sent to the server ([ACK] or GET) and the message which indicates the successful connection to the HTTP Server:
		HTTP/1.1 200 OK,HTTP/1.0 200 OK or HTTP/1.1 302 after a GET - HT
		QP: 200 OK, 301 or 302
EndTime		TestEnd as mtDataTestTimeout
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused

Field	Value	Description
KPIId	20461	Data, Capacity Get
Value1		Unused
Value2		Unused
Value3	Varchar	Start message
Value4	Varchar	End message (Timeout when successful)
Value5		(First) URL

Search scope: Test

Field	Value	Description
KPIId	20462	Data, Capacity Put
StartTime		Timestamp of the PUT message sent to the server
EndTime		TestEnd as mtDataTestTimeout
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start message
Value4	Varchar	End message (Timeout when successful)
Value5		(First) URL

Search scope: Test

Field	Value	Description
KPIId	20463	Data, Capacity GetandPut
StartTime		Timestamp of the HTTP/1.1 200 HTTP/1.0 200 or HTTP/1.1 302 after a GET or PUT / HTTP/1.* (string must follow some conditions)
EndTime		TestEnd as mtDataTestTimeout
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused

Field	Value	Description
KPIId	20463	Data, Capacity GetandPut
Value3	Varchar	Start message
Value4	Varchar	End message (Timeout when successful)
Value5		(First) URL

Search scope: Test

Field	Value	Description
KPIId	20470	Data, Application
StartTime		Timestamp of the message mtResultsAppTest
EndTime		Timestamp of the message mtResultsAppTest
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of messages
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	20500	Data, UDP DL
StartTime		Timestamp of the first 'Source port' message which is the connect ack message for the SwissQual UDPDL test
EndTime		Reception of the last packet 'Source port' of the test or timeout exceeded
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event

Field	Value	Description
KPIId	20500	Data, UDP DL
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

MsgTime	Source	Destination	Port	Protocol	Direction	Info
12:49:12:927	10.200.41.223	195.141.101.217	8021	Custom	UL	Request: SQUDPDL.1.50.5000.512.3000.
12:49:12:930	10.200.41.223	195.141.101.217	-	UDP	-	Source port: 8021 Destination port: 8021
12:49:13:730	10.200.41.223	195.141.101.217	8021	Custom	DL	ACK
12:49:13:733	195.141.101.217	10.200.41.223	-	UDP	-	Source port: 8021 Destination port: 8021
12:49:15:050	195.141.101.217	10.200.41.223	-	UDP	-	Source port: 8021 Destination port: 8021
12:49:15:437	195.141.101.217	10.200.41.223	-	UDP	-	Source port: 8021 Destination port: 8021
12:49:15:877	195.141.101.217	10.200.41.223	-	UDP	-	Source port: 8021 Destination port: 8021
12:49:16:220	195.141.101.217	10.200.41.223	-	UDP	-	Source port: 8021 Destination port: 8021
12:49:16:617	195.141.101.217	10.200.41.223	-	UDP	-	Source port: 8021 Destination port: 8021
12:49:17:013	195.141.101.217	10.200.41.223	-	UDP	-	Source port: 8021 Destination port: 8021
12:49:17:413	195.141.101.217	10.200.41.223	-	UDP	-	Source port: 8021 Destination port: 8021
12:49:17:767	195.141.101.217	10.200.41.223	-	UDP	-	Source port: 8021 Destination port: 8021

Figure A-17: Trace of a UDP DL test

Field	Value	Description
KPIId	20600	Data, Video Streaming Cut off
StartTime		According to the used protocol the timestamp of the 'RTSP: RTP Payload', 'HTTP: Resized or Buffering' or 'TCP: Loading' message
EndTime		According to the used protocol the timestamp of the last 'HTTP: • RTSP: RTSP TEARDOWN / PAUSE • HTTP: TCP [RST] or [FIN; ACK] • TCP: RTSP TEARDOWN / PAUSE • QP: QP TEARDOWN
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	20601	Data, Video Streaming Cut off
StartTime		According to the used protocol the timestamp of the 'RTSP: PLAY (Etheral) or RTSP Play (Video-Trace) (taken from Video Status Trace)
EndTime		According to the used protocol the timestamp of the last 'HTTP: • RTSP: RTSP TEARDOWN / PAUSE • HTTP: TCP [RST] or [FIN; ACK] • TCP: RTSP TEARDOWN / PAUSE • QP: QP TEARDOWN
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	20605	Data, Video Cut off
StartTime		Displaying
EndTime		According to the used protocol the timestamp of the last 'HTTP: • RTSP: RTSP TEARDOWN / PAUSE • HTTP: TCP [RST] or [FIN; ACK] • TCP: RTSP TEARDOWN / PAUSE • QP: QP TEARDOWN
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**20620**	**Data, YouTube - Player Download**
StartTime		Timestamp of the message which indicates the successful connection to the server and containing first payload
		HTTP/1.1 200 OK
		HTTP/1.0 200 OK after the GET
		to download the player (IPTraceVideoStreaming: playerAccess, firstPayloadPacket)
EndTime		Timestamp of the message which indicates the last packet has been received
		HTTP/1.1 200 OK
		HTTP/1.0 200 OK
		Last Continuation
		to download the player (IPTraceVideoStreaming: playerAccess, lastPayloadPacket on VideoTrace, MovieInfoReady)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of StartTrigger
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**20621**	**Data, YouTube - Playback**
StartTime		Timestamp of the Video Trace message Displaying
EndTime		Timestamp of the Video Trace message, Stream, Clip end
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of StartTrigger
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**20625**	**Data, YouTube - Video Download**
StartTime		Timestamp of the message which indicates the successful connection to the (video) server and containing first payload HTTP/1.1 200 OK HTTP/1.0 200 OK after a GET to download the movie (IPTraceVideoStreaming: videoAccess, firstPayloadPacket)
EndTime		Timestamp of the message which indicates the last packet has been received HTTP/1.1 200 OK HTTP/1.0 200 OK Last Continuation to download the movie (IPTraceVideoStreaming: videoAccess, lastPayloadPacket on Video-Trace, MovieDownloadComplete)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of StartTrigger
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**20700**	**Data, WAP**
StartTime		Timestamp of the 'WSP Get' message plus the halftime between 'WSP Get' and the 'WSP: Reply' or 'WSP: Result' message which is the connect ack message on the WSP/WTP port
EndTime		Timestamp of the last 'WSP Reply' message
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the half time message

Field	Value	Description
KPIId	20700	Data, WAP
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Figure A-18: Trace of a WAP test

Field	Value	Description
KPIId	21000	Data, Ping
StartTime		Timestamp of the Test – duration (RTT)
EndTime		Timestamp of the Test
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Ping packet size
Value3	Varchar	sequence number

Field	Value	Description
KPIId	21000	Data, Ping
Value4	Varchar	Name of the end event
Value5		Host

Search scope: Test

Figure A-19: Trace of a ping test

Field	Value	Description
KPIId	21010	Data, SIP Call Completion
StartTime		Timestamp of the 'SIP 200 Ok'message
EndTime		Timestamp of the 'SIP Request:BYE' message
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	21020	Data, SIP Call RTP Connection Loss
StartTime		Timestamp of the 'SIP INVITE 200 Ok'message
EndTime		Timestamp of the 'SIP Request:BYE' message
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, Failed when 20s timeout with no RTP traffic is expired (see 'Status' in the appendix)

Field	Value	Description
KPIId	**21020**	**Data, SIP Call RTP Connection Loss**
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**21030**	**Data, SIP Cal IMS Bearer**
StartTime		Timestamp of the ESM message Activate Default EPS Bearer context with QCI 5
EndTime		Timestamp of the LTE RRC message RRCConnectionReconfiguration with the release of the QCI 5 bearer
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

A.3.3 Messages

For the detailed mapping between the events in the log and the trigger points in the application see Data and Video Test Scenario Manual section MMS send and MMS receive.

Field	Value	Description
KPIId	20800	**Messaging, MMS Send**
StartTime		Timestamp of the log message 'START', which indicates the begin of an MMS Send Test.
EndTime		Timestamp of the log message 'TRANSMISSION FINISHED' or 'TRANSMISSION TIMEOUT', which indicates the end of an MMS transmission
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

MsgTime	Side	Event	MCC	MNC	LAC	CId
03.12.2003 16:29:47	Sender	START	228	2	14000	14642
03.12.2003 16:30:00	Sender	GPRS_CONNECTED	228	2	14000	14642
03.12.2003 16:30:02	Sender	WAP CONNECTED	228	2	14000	14642
03.12.2003 16:30:02	Sender	TRANSMISSION STARTED	228	2	14000	14642
03.12.2003 16:30:22	Sender	TRANSMISSION FINISHED	228	2	14000	14642
03.12.2003 16:30:49	Sender	GPRS_DISCONNECTED	228	2	14000	14642

Figure A-20: Trace of a MMS Send test

Field	Value	Description
KPIId	20801	**Messaging, MMS Receive**
StartTime		Timestamp of the log message 'NOTIFICATION RECEIVED', which indicates the time of the reception of the notification.
EndTime		Timestamp of the log message 'TRANSMISSION FINISHED' or 'TRANSMISSION TIMEOUT', which indicates the end of an MMS download
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event

Field KPIId	Value 20801	Description Messaging, MMS Receive
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field KPIId	Value 20900	Description Messaging, SMS Send
StartTime		Timestamp of the log message 'SEND SMS START', which indicates the begin of an SMS transmission
EndTime		Timestamp of the log message 'SEND SMS FINISHED', which indicates the end of an SMS transmission
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Figure A-21: Trace of a SMS Send test

A.3.4 Data Call

Field KPIId	Value 25100	Description Data (PS), Attach
StartTime		Timestamp of the GMM message 'Attach Accept'
EndTime		Timestamp of the GMM message 'Detach Request'
Duration		Time in ms between StartTime and EndTime

Field	Value	Description
KPIId	**25100**	**Data (PS), Attach**
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**25200**	**Data (PS), Activate PDP Context**
StartTime		Timestamp of the SM message 'Activate PDP Context accept' or message
EndTime		Timestamp of the SM message 'Deactivate PDP Context request'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**25201**	**Data (PS), PDP Context**
StartTime		Timestamp of the SM message 'Activate PDP Context accept' or message
EndTime		Timestamp of the SM message 'Deactivate PDP Context accept'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused

Field	Value	Description
KPIId	25201	Data (PS), PDP Context
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

<div align="center">Search scope: Session</div>

Field	Value	Description
KPIId	**25210**	**Data (PS), 3G Data Connection**
StartTime		Timestamp of the SM message 'Activate PDP Context accept' or the RRC message RadioBearerSetupComplete
EndTime		Timestamp of the SM message 'Deactivate PDP Context accept' or the RRC message RadioBearerRelease or the RRC message RRCConnectionRelease
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

<div align="center">Search scope: Session</div>

A.3.5   Resource

Field	Value	Description
KPIId	25300	2G, Resource
StartTime		Timestamp of the RR message 'Assignment Complete'
EndTime		Timestamp of the RR message 'Channel Release'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused

Field	Value	Description
KPIId	**25300**	**2G, Resource**
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**25400**	**3G, Network**
StartTime		Timestamp of the RRC message 'RRCConnectionSetupComplete'
EndTime		Timestamp of the RRC message 'RRCConnectionRelease' or 'RRCConnectionRelease-CCCH'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**26100**	**3G, HSDPA Activity**
StartTime		Timestamp of the RRC message that establishes a HSDPA Link : PhysicalChannelReconfiguration-Complete RadioBearerReconfigurationComplete RadioBearerSetupComplete TransportChannelReconfigurationComplete (if at least one servingHSDSCH_RL_indicator is set to true)
EndTime		Timestamp of the RRC message that indicates the termination of a HSDPA Link : RRCConnectionReleaseComplete CellChangeOrderFromUTRAN RadioBearerRelease or one of the start triggers if no servingHSDSCH_RL_indicator is set to true

Field	Value	Description
KPIId	**26100**	**3G, HSDPA Activity**
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	26110	3G, RadioBearerRelease
StartTime		Timestamp of the RRC message 'RadioBearerRelease'
EndTime		Timestamp of the RRC message 'RadioBearerReleaseComplete' or 'RadioBearerReleaseFailure'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**28000**	**4G Signal Channel**
StartTime		Timestamp of the RRC message 'RRCConnectionSetupComplete'
EndTime		Timestamp of the RRC message 'RRCConnectionRelease'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix

Field	Value	Description
KPIId	**28000**	**4G Signal Channel**
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**28005**	**4G Attach EPS**
StartTime		Timestamp of the EPS NAS message 'EMM-Attach accept'
EndTime		Timestamp of the EPS NAS message 'EMM-Detach request'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

A.4 Integrity Records

A.4.1 Telephony

Field	Value	Description
KPIId	30101	Telephony, Call Exit
StartTime		CC: Disconnect
EndTime		CC: Release
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum		Unused
Counter		Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	30130	Telephony, Call Re-establishment
StartTime		GSM-MM: CM Re-Establishment Request UMTS-RRC: CellUpdate with cause radio link failure or RLC unrecoverable error
EndTime		GSM-RR: • Channel Mode Modify Acknowledge • Assignment Complete UMTS RRC: • After CellUpdate confirm et al • PhysicalChannelReconfigurationComplete • TransportChannelReconfigurationComplete • RadioBearerReconfigurationComplete • RadioBearerReleaseComplete
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum		Unused
Counter		Unused
Value1		Unused
Value2		Unused

Field	Value	Description
KPIId	30130	**Telephony, Call Re-establishment**
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

A.4.1.1 CSFB

Field	Value	Description
KPIId	30180	**Voice(LTE CSFB) - Telephony Return Delay**
StartTime		CC: Disconnect
EndTime		LTE: First RRC message
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum		Unused
Counter		Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

A.4.1.2 CSFB

Field	Value	Description
KPIId	30185	**Voice(LTE CSFB) - Telephony Return Delay TAU**
StartTime		UMTS-RRCConnectionReleaseComplete
EndTime		EMM - Tracking area update complete EMM - Tracking area update reject
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum		Unused
Counter		Num of RRCConnectionReleaseComplete messages

Field	Value	Description
KPIId	30185	**Voice(LTE CSFB) - Telephony Return Delay TAU**
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	End-Trigger message
Value5		Unused

Search scope: Timeout

A.4.1.3 Speech quality

Field	Value	Description
KPIId	30190	**Voice - Speech Quality Non Sustainability (V)**
StartTime		Start of first speech sample
EndTime		End of last speech sample
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix (Calculated only for Completed calls. Failed if two consecutive samples are below 1.7 MOS for narrowband (NB) or 1.3 MOS for wideband (WB). Silence counts as below threshold)
Sum		Unused
Counter		Number of evaluated samples
Value1		Average LQ of samples
Value2		Unused
Value3	Varchar	Bandwidth (NB/WB)
Value4	Varchar	Unused
Value5		Unused

A.4.2 Data

Field	Value	Description
KPIId	30200	**Data, Email Send (TCP Throughput)**
StartTime		See KPIID 20200
EndTime		See KPIID 20200
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum		Unused

Field	Value	Description
KPIId	**30200**	**Data, Email Send (TCP Throughput)**
Counter		Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of email
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**30201**	**Data, Email Receive (TCP Throughput)**
StartTime		See KPIId 20201
EndTime		See KPIId 20201
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of email
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**30203**	**Data, IMAP Email Receive (TCP Throughput)**
StartTime		See KPIID 20203
EndTime		See KPIID 20203
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum		Unused
Counter		Unused
Value1		Throughput [Bytes/sec]
Value2		Unused

Field	Value	Description
KPIId	**30203**	**Data, IMAP Email Receive (TCP Throughput)**
Value3	Varchar	Size of email
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**30205**	**Data, Email Send (TCP Throughput)**
StartTime		See KPIID 20205
EndTime		See KPIID 20205
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum		Unused
Counter		Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of email
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**30206**	**Data, Email Receive (TCP Throughput)**
StartTime		See KPIId 20206
EndTime		See KPIId 20206
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of email
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**30207**	**Data, Email SSL Send (TCP Throughput)**
StartTime		See KPIID 20207
EndTime		See KPIID 20207
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum		Unused
Counter		Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of email
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**30208**	**Data, Email SSL Receive (TCP Throughput)**
StartTime		See KPIId 20208
EndTime		See KPIId 20208
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of email
Value4	Varchar	Unused
Value5		Unused

Field	Value	Description
KPIId	**30300**	**Data, FTP Uplink (TCP Throughput)**
StartTime		See KPIId 20300
EndTime		See KPIId 20300
Duration		Time in ms between StartTime and EndTime

Field	Value	Description
KPIId	**30300**	**Data, FTP Uplink (TCP Throughput)**
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		Host Name

Only written if the transfer was successful.

Field	Value	Description
KPIId	**30301**	**Data, FTP Downlink (TCP Throughput)**
StartTime		See KPIId 20301
EndTime		See KPIId 20301
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		Host Name

Search scope: Test

Only written if the transfer was successful.

Field	Value	Description
KPIId	**30302**	**Data, FTPS Uplink (TCP Throughput)**
StartTime		See KPIId 20302
EndTime		See KPIId 20302
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

ℹ Only written if the transfer was successful.

Field	Value	Description
KPIId	30303	Data, FTPS Downlink (TCP Throughput)
StartTime		See KPIId 20303
EndTime		See KPIId 20303
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Only written if the transfer was successful.

Field	Value	Description
KPIId	**30305**	**Data, FTP Uplink (TCP Throughput)**
StartTime		See KPIId 20305
EndTime		See KPIId 20305
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		Host Name

Search scope: Test

Only written if the transfer was successful.

Field	Value	Description
KPIId	**30306**	**Data, FTP Downlink (TCP Throughput)**
StartTime		See KPIId 20306
EndTime		See KPIId 20306
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		Host Name

Search scope: Test

ⓘ Only written if the transfer was successful.

Field	Value	Description
KPIId	**30307**	**Data, FTP Uplink (B) (TCP Throughput)**
StartTime		See KPIId 20307
EndTime		See KPIId 20307
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		Host Name

Search scope: Test

ⓘ Only written if the transfer was successful.

Field	Value	Description
KPIId	**30308**	**Data, FTP Downlink (B) (TCP Throughput)**
StartTime		See KPIId 20308
EndTime		See KPIId 20308
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file

Field	Value	Description
KPIId	30308	Data, FTP Downlink (B) (TCP Throughput)
Value4	Varchar	Unused
Value5		Host Name

Search scope: Test

Only written if the transfer was successful.

Field	Value	Description
KPIId	30310	Data, FTP Uplink Fixed Duration (TCP Throughput)
StartTime		See KPIId 20310
EndTime		See KPIId 20310
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		Host Name

Search scope: Test

Only written if the test was successful.

Field	Value	Description
KPIId	30311	Data, FTP Downlink Fixed Duration (TCP Throughput)
StartTime		See KPIId 20311
EndTime		See KPIId 20311
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused

Field	Value	Description
KPIId	**30311**	**Data, FTP Downlink Fixed Duration (TCP Throughput)**
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		Host Name

Search scope: Test

Only written if the test was successful.

Field	Value	Description
KPIId	**30312**	**Data, FTPS Uplink Fixed Duration (TCP Throughput)**
StartTime		See KPIId 20312
EndTime		See KPIId 20312
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		Host Name

Search scope: Test

Only written if the test was successful.

Field	Value	Description
KPIId	30313	Data, FTPS Downlink Fixed Duration (TCP Throughput)
StartTime		See KPIId 20313
EndTime		See KPIId 20313
Duration		Time in ms between StartTime and EndTime

Field	Value	Description
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		Host Name

Search scope: Test

Only written if the test was successful.

| Field | Value | Description |
KPIId	**30317**	**Data, FTP Downlink Fixed Duration (V) (TCP Throughput)**
StartTime		See KPIId 20317
EndTime		See KPIId 20317
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		Host Name

Search scope: Test

Only written if the test was successful.

Field	Value	Description
KPIId	**30400**	**Data, HTTP Browser (TCP Throughput)**
StartTime		See KPIId 20400
EndTime		See KPIId 20400
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		URL

Search scope: Test

Only written if the transfer was successful.

Field	Value	Description
KPIId	**30401**	**Data, HTTP Transfer Get (TCP Throughput)**
StartTime		See KPIId 20401
EndTime		See KPIId 20401
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		URL

Search scope: Test

ⓘ Only written if the transfer was successful.

Field	Value	Description
KPIId	**30402**	**Data, HTTP Transfer Put (TCP Throughput)**
StartTime		See KPIId 20402
EndTime		See KPIId 20402
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		URL

Search scope: Test

ⓘ Only written if the transfer was successful.

Field	Value	Description
KPIId	**30403**	
StartTime		See KPIId 20403
EndTime		See KPIId 20403
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		URL

ⓘ Only written if the transfer was successful.

Field	Value	Description
KPIId	**30404**	**Data, HTTPS Browser (TCP Throughput)**
StartTime		See KPIId 20404
EndTime		See KPIId 20404
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		URL

Search scope: Test

Field	Value	Description
KPIId	**30405**	**Data, HTTP Browser (TCP Throughput)**
StartTime		See KPIId 20405
EndTime		See KPIId 20405
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		URL

Search scope: Test

ⓘ Only written if the transfer was successful.

Field	Value	Description
KPIId	**30407**	**Data, HTTP Browser (B) (TCP Throughput)**
StartTime		See KPIId 20407
EndTime		See KPIId 20407
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		URL

Search scope: Test

ⓘ Only written if the transfer was successful.

Field	Value	Description
KPIId	**30411**	**Data, HTTP Transfer Get Fixed Duration (TCP Throughput)**
StartTime		See KPIId 20411
EndTime		See KPIId 20411
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Number of transferred bytes
Value4	Varchar	Unused
Value5		URL

Search scope: Test

ⓘ Only written if the test was successful.

Field	Value	Description
KPIId	**30412**	**Data, HTTP Transfer Put Fixed Duration (TCP Throughput)**
StartTime		See KPIId 20412
EndTime		See KPIId 20412
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Number of transferred bytes
Value4	Varchar	Unused
Value5		URL

Search scope: Test

ⓘ Only written if the test was successful.

Field	Value	Description
KPIId	**30415**	**Data, HTTP Transfer Get(V) (TCP Throughput)**
StartTime		See KPIId 20415
EndTime		See KPIId 20415
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Number of transferred bytes
Value4	Varchar	Unused
Value5		URL

Search scope: Test

ⓘ Only written if the test was successful.

Field	Value	Description
KPIId	30416	Data, HTTP Transfer Put(V) (TCP Throughput)
StartTime		See KPIId 20416
EndTime		See KPIId 20416
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Number of transferred bytes
Value4	Varchar	Unused
Value5		URL

Search scope: Test

ⓘ Only written if the test was successful.

KPIId	30416	Data, HTTP Transfer Put(V) (TCP Throughput)
StartTime		See KPIId 20416
EndTime		See KPIId 20416
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Number of transferred bytes
Value4	Varchar	Unused
Value5		URL

Search scope: Test

ⓘ Only written if the test was successful.

KPIId	30417	Data, HTTP Transfer Get Fixed Duration (V) (TCP Throughput)
StartTime		See KPIId 20417
EndTime		See KPIId 20417
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Number of transferred bytes
Value4	Varchar	Unused
Value5		URL

Search scope: Test

ⓘ Only written if the test was successful.

Field	Value	Description
KPIId	30431	Data, HTTPS Transfer Get
StartTime		See KPIId 20431
EndTime		See KPIId 20431
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		URL

Search scope: Test

Field	Value	Description
KPIId	**30432**	**Data, HTTPS Transfer Put**
StartTime		See KPIId 20432
EndTime		See KPIId 20432
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		URL

Search scope: Test

Field	Value	Description
KPIId	**30441**	**Data, HTTPS Transfer Get Fixed Duration**
StartTime		See KPIId 20441
EndTime		See KPIId 20441
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		URL

Search scope: Test

Field	Value	Description
KPIId	**30442**	**Data, HTTPS Transfer Put Fixed Duration**
StartTime		See KPIId 20442
EndTime		See KPIId 20442

Field	Value	Description
KPIId	**30442**	**Data, HTTPS Transfer Put Fixed Duration**
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of file
Value4	Varchar	Unused
Value5		URL

Search scope: Test

Field	Value	Description
KPIId	**30461**	**Data, Capacity Get**
StartTime		See KPIId 20461
EndTime		See KPIId 20461
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Number of transferred bytes
Value4	Varchar	Unused
Value5		(First) URL

Search scope: Test

Only written if the test was successful.

Field	Value	Description
KPIId	**30462**	**Data, Capacity Put**
StartTime		See KPIId 20462
EndTime		See KPIId 20462

Field	Value	Description
KPIId	**30462**	**Data, Capacity Put**
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Number of transferred bytes
Value4	Varchar	Unused
Value5		(First) URL

Search scope: Test

ⓘ Only written if the test was successful.

Field	Value	Description
KPIId	**30463**	**Data, Capacity Put**
StartTime		See KPIId 20463
EndTime		See KPIId 20463
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Number of transferred bytes
Value4	Varchar	Unused
Value5		(First) URL

Search scope: Test

ⓘ Only written if the test was successful.

Field	Value	Description
KPIId	**30470**	**Data, Application**
StartTime		See KPIId 20470
EndTime		See KPIId 20470
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Number of messages
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Number of transferred bytes
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**30480**	**Data, Network Performance Put**
StartTime		Timestamp of the message mtTestStart
EndTime		Timestamp of the message mtResultsNetworkPerfTest
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum		Percentage of normal connection
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Indicated limited connnection

Search scope: Test

Field	Value	Description
KPIId	30481	Data, Network Performance Get
StartTime		Timestamp of the message mtTestStart
EndTime		Timestamp of the message mtResultsNetworkPerfTest

Field	Value	Description
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum		Percentage of normal connection
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Indicated limited connnection

Search scope: Test

Field	Value	Description
KPIId	**30485**	**Data, NetworkPerformance Sustainable Capacity Put**
StartTime		Timestamp of the End of the ramp up (mtResultsNetworkPerfMarker = '10')
EndTime		Timestamp of the message mtResultsNetworkPerfTest
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Number of transferred bytes
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**30486**	**Data, NetworkPerformance Sustainable Capacity Get**
StartTime		Timestamp of the End of the ramp up (mtResultsNetworkPerfMarker = '10')
EndTime		Timestamp of the message mtResultsNetworkPerfTest
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused

Field	Value	Description
KPIId	**30486**	**Data, NetworkPerformance Sustainable Capacity Get**
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Number of transferred bytes
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field KPIId	Value 30500	Description Data, UDP DL
KPIId	30500	Data, UDP DL
StartTime		See KPIId 20500
EndTime		See KPIId 20500
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of Packets
Value4	Varchar	Unused
Value5		Unused

Field KPIId	Value 30600	Description Data, Video Streaming Reproduction Delay
StartTime		See KPIId 20600
EndTime		According to the used player the timestamp of Quicktime: Displaying or Real: Playing
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused]
Value2		Unused

Field	Value	Description
KPIId	30600	**Data, Video Streaming Reproduction Delay**
Value3	Varchar	Start Message
Value4	Varchar	End Message
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	30605	**Data, Video First Frame Delay**
StartTime		554 [SYN]
EndTime		According to the used player the timestamp of Quicktime: Displaying or Real: Playing
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused]
Value2		Unused
Value3	Varchar	Start Message
Value4	Varchar	End Message
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	30606	**Data, Video Streaming Teardown Time**
StartTime		RTSP: RTSP TEARDOWN / PAUSE HTTP: TCP[RST] or [FIN;ACK] TCP: RTSP TEARDOWN / PAUSE QP: TEARDOWN
EndTime		RTSP/1.0 200 OK or RTSP RTSP/1.0 200 OK Errors: HTTP: HTTP GET or RTSP Continuation all others: RTSP DESCRIBE QP: GPRS PDP Context Activating or GPRS Dial (second choice)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused

Field	Value	Description
KPIId	30606	Data, Video Streaming Teardown Time
Counter	0	Unused
Value1		Unused]
Value2		Unused
Value3	Varchar	Start Message
Value4	Varchar	End Message
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	30607	Data, Video Streaming Streaming Session Time
StartTime		554[SYN]
EndTime		Resized or Buffering or Loading or Recording
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused]
Value2		Unused
Value3	Varchar	Start Message
Value4	Varchar	End Message
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	30621	Data, YouTube - Reproduction Start Delay
StartTime		Timestamp of the message which indicates the successful connection to the (video) server and containing first payload HTTP/1.1 200 OK HTTP/1.0 200 OK after the GET to download the movie (IPTraceVideoStreaming: videoAccess, firstPayloadPacket)
EndTime		Timestamp of the Video Trace message Displaying
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused

Field	Value	Description
KPIId	**30621**	**Data, YouTube - Reproduction Start Delay**
Counter	0	Number of StartTrigger
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	**30700**	**Data, WAP**
StartTime		See KPIId 20700
EndTime		See KPIId 20700
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Throughput [Bytes/sec]
Value2		Unused
Value3	Varchar	Size of WAP
Value4	Varchar	Unused
Value5		Unused

A.4.3 Messages

The following Messages KPIs are not implemented as explicit KPIs but calculated on the respective tab sheet and report. For the detailed mapping between the events in the log and the trigger points in the application see Data and Video Test Scenario Manual section MMS send and MMS receive.

Field	Value	Description
KPIId	**30800**	**Messaging, MMS E2E**
StartTime		Timestamp of the log message 'START' on the MO side, which indicates the begin of an MMS Send Test.
EndTime		Timestamp of the log message 'TRANSMISSION FINISHED' or 'TRANSMISSION TIMEOUT' on the MT side, which indicates the end of an MMS transmission
Duration		Time in ms between StartTime and EndTime

Field	Value	Description
KPIId	30800	Messaging, MMS E2E
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	30801	Messaging, MMS Notification
StartTime		Timestamp of the log message on the MO side 'TRANSMISSION FINISHED' which indicates the end of an MMS upload
EndTime		Timestamp of the log message on the MT side 'NOTIFICATION RECEIVED', which indicates the time of the reception of the notification.
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	30803	Messaging, MMS Sent Time
StartTime		Timestamp of the log message on the MO side 'TRANSMISSION STARTED' which indicates the start of an MMS upload
EndTime		Timestamp of the log message on the MO side 'TRANSMISSION FINISHED' which indicates the end of an MMS upload
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix

Field	Value	Description
KPIId	30803	Messaging, MMS Sent Time
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	30804	Messaging, MMS Retrieval Time
StartTime		Timestamp of the log message on the MT side 'TRANSMISSION STARTED' which indicates the start of an MMS upload
EndTime		Timestamp of the log message on the MO side 'TRANSMISSION FINISHED' which indicates the end of an MMS upload
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	30900	Messaging, SMS E2E
StartTime		Timestamp of the log message 'START', which indicates the begin of an SMS test
EndTime		Timestamp of the log message 'SMS RECEIVED', which indicates the end of an SMS transmission
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused

Field	Value	Description
KPIId	30900	Messaging, SMS E2E
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Test

MsgTime	Side	Event	MCC	MNC	LAC	Cid
07.12.2003 12:22:24	Sender	START	228	2	14000	14642
07.12.2003 12:22:31	Sender	SEND SMS START	228	2	14000	14642
07.12.2003 12:22:36	Sender	SEND SMS FINISHED	228	2	14000	14642
07.12.2003 12:22:43	Receiver	INDICATION RECEIVED	228	2	14000	14642
07.12.2003 12:22:43	Receiver	SMS RECEIVED	228	2	14000	14642

Figure A-22: SMS Trace

Field	Value	Description
KPIId	31000	Data, TCP Roundtrip
StartTime		[SYN]
EndTime		[SYN;ACK]
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	31010	Data, SIP Call Completion
StartTime		Timestamp of SIP - Request: REGISTER
EndTime		Timestamp SIP 200 OK
Duration		Time in ms between StartTime and EndTime

Field	Value	Description
KPIId	**31010**	**Data, SIP Call Completion**
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**31011**	**Data, SIP - Subscribe**
StartTime		Timestamp of SIP Request: SUBSCRIBE
EndTime		Timestamp SIP 200 OK
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	**31012**	**Data, SIP - Publish**
StartTime		Timestamp of SIP Request: PUBLISH
EndTime		Timestamp SIP 200 OK
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused

Field	Value	Description
KPIId	31012	**Data, SIP - Publish**
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

Field	Value	Description
KPIId	31100	**Data, DNS Host Resolution**
StartTime		Timestamp of Standard query%
EndTime		Timestamp of Standard query reponse%
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start event
Value4	Varchar	End event
Value5		Unused

Search scope: Test

Field	Value	Description
KPIId	31101	**Data, SIP – Termination Duration**
StartTime		Timestamp of SIP Request: BYE
EndTime		Timestamp SIP 200 OK
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start event

Field	Value	Description
KPIId	31101	Data, SIP – Termination Duration
Value4	Varchar	Name of the end event
Value5		Unused

<div align="center">Search scope: Session</div>

Field	Value	Description
KPIId	32000	Data, SIP – Termination Duration
StartTime		Last "RTP PT=PCMU Audio" before start of 38100
EndTime		First "RTP PT=PCMU Audio" after end of 38100
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	lost packets DL
Counter	0	Unused
Value1		lost packets UL
Value2		Unused
Value3	Varchar	last Seq number (DL/UL)
Value4	Varchar	first Seq number (DL/UL)
Value5		Unused

<div align="center">Search scope: Timeout (Reset after 5s or 38100 still active)</div>

A.4.4　Handover

Field	Value	Description
KPIId	34050	2G, Handover
StartTime		Timestamp of the message 'Handover Command'
EndTime		Timestamp of the message 'Handover Complete' or 'HandoverFailure' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused

Field	Value	Description
KPIId	34050	2G, Handover
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	34060	2G, Channel Modify
StartTime		Channel Mode Modify
EndTime		Channel Mode Modify Acknowledge
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	34070	2G, Intra Cell Handover
StartTime		Assignment Command (Only when 25300 is active)
EndTime		Assignment Complete
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	35010	3G Compress Mode
StartTime		Timestamp of the RRC message MeasurementControl with the information element: tgps_Status activate
EndTime		Timestamp of the occurance of any of the following events: MeasurementControl: all tgps_Status deact.
		HandoverFromUTRANCommand-GSM
		Session end
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Session

Only after event 2d has occurred.

Field	Value	Description
KPIId	35020	InterSystemHO, GSM->UMTS
StartTime		Timestamp of the CC message 'Inter System to UTRAN Handover Command'
EndTime		Timestamp of the log message 'HandoverToUTRANComplete' or 'Handover Failure' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**35030**	**InterSystemHO, UMTS->GSM**
StartTime		Timestamp of the message 'HandoverFromUTRANCommand-GSM'
EndTime		Timestamp of the message 'Handover Complete' or 'HandoverFromUTRANFailure' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**35040**	**InterSystemHO, UMTS->GSM during Transfer**
StartTime		Timestamp of the message 'CellChangeOrderFromUTRAN'
EndTime		Timestamp of the first GSM SystemInformation message after CellChange
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	35041	**InterSystemHO, UMTS->GSM RAU**
StartTime		Timestamp of the message 'CellChangeOrderFromUTRAN'
EndTime		Timestamp of the first Routing Area Updating Complete or Routing Area Updating Rejectfirst GSM SystemInformation message after CellChange
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	35060	**InterSystemHO, GSM->UMTS (Idle reselect)**
StartTime		Timestamp of the last GSM RR message
EndTime		Timestamp of the first UMTS RRC message or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	35061	**InterSystemHO to Location Update, GSM->UMTS (Idle reselect)**
StartTime		Timestamp the last GSM L3 idle (SysInfo 1..4 and Paging) message
EndTime		Timestamp of the Location Updating Accept or Location Updating Reject message

Field	Value	Description
KPIId	35061	**InterSystemHO to Location Update, GSM->UMTS (Idle reselect)**
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	End Trigger
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	35070	**InterSystemHO, UMTS->GSM (Idle reselect)**
StartTime		Timestamp of the last UMTS RRC message
EndTime		Timestamp of the first GSM RR message or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	35071	**InterSystemHO to Location Update, UMTS->GSM (Idle reselect)**
StartTime		Timestamp of the last RRC L3 idle message (log chan 4), only triggered when RRCState = Disconnected
EndTime		Timestamp of the Location Updating Accept or Location Updating Reject message
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused

Field	Value	Description
KPIId	35071	**InterSystemHO to Location Update, UMTS->GSM (Idle reselect)**
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	End Trigger
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	35080	**3G, P-TMSI Reallocation**
StartTime		P-TMSI Reallocation Command
EndTime		P-TMSI Reallocation Complete
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	End Message
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	35100	**3G, Handover**
StartTime		Timestamp of the RRC message 'ActiveSetUpdate'
EndTime		Timestamp of the message 'ActiveSetUpdateComplete' or 'ActiveSetUpdateFailure' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused

Field	Value	Description
KPIId	35100	3G, Handover
Value3	Varchar	UpdateType (Addition,Removal,Replace)
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Figure A-23: WCDMA Layer 3 Signalling (filtered)

Update type:

- **Addition**: AdditionInformationList = 1 and RemovalInformationList = 0
- **Removal**: AdditionInformationList = 0 and RemovalInformationList = 1
- **Replace**: AdditionInformationList = 1 and RemovalInformationList = 1

Field	Value	Description
KPIId	35101	3G, Cell Update
StartTime		CellUpdate
EndTime		CellUpdateConfirm or CellUpdateConfirm-CCCH
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused

Field	Value	Description
KPIId	35101	3G, Cell Update
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	35106	3G, Inter Frequency Reselection
StartTime		Timestamp of Last UARFCN reporting in old cell (RRC State Disconnected or CELL_FACH)
EndTime		Timestamp of First UARFCN reporting in new cell (RRC State Disconnected or CELL_FACH)
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Old UARFCN
Value4	Varchar	New UARFCN
Value5		Unused

Field	Value	Description
KPIId	35107	3G, Inter Frequency Handover
StartTime		Timestamp of the RRC message indicating frequency change PhysicalChannelReconfiguration TransportChannelReconfiguration RadioBearerReconfiguration RadioBearerSetup: if UARFCN is different than current UARFCN
EndTime		Timestamp indicating successful frequency change PhysicalChannelReconfigurationComplete RadioBearerReconfigurationComplete TransportChannelReconfigurationComplete RadioBearerSetupComplete
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Old UARFCN

Field	Value	Description
KPIId	35107	3G, Inter Frequency Handover
Value4	Varchar	New UARFCN
Value5		Unused

Field	Value	Description
KPIId	35110	3G, HSPA Cell Change
StartTime		Timestamp of message indicating cell change PhysicalChannelReconfiguration
		RadioBearerReconfiguration
		TransportChannelReconfiguration
		only when at least one servingHSDSCH_RL_indicator true
EndTime		Timestamp of message indicating successful cell change
		PhysicalChannelReconfigurationComplete
		RadioBearerReconfigurationComplete
		TransportChannelReconfigurationComplete
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start Message
Value4	Varchar	End Message
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	35111	3G, HSPA R99 Link Change
StartTime		PhysicalChannelReconfiguration
		RadioBearerReconfiguration
		TransportChannelReconfiguration
		only when all servingHSDSCH_RL_indicator are false, but the servingHSDSCH_RL_indicator is present or a delete hsdsch is found
EndTime		PhysicalChannelReconfigurationComplete
		RadioBearerReconfigurationComplete
		TransportChannelReconfigurationComplete
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix

Field	Value	Description
KPIId	**35111**	**3G, HSPA R99 Link Change**
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Start Message
Value4	Varchar	End Message
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**38020**	**4G/3G InterSystemHO, LTE->UMTS (Idle reselect)**
StartTime		Timestamp of the last LTE RRC Message
EndTime		Timestamp of the first UMTS RRC message or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**38021**	**4G/3G Redirection To UARFCN**
StartTime		Timestamp of the LTE RRC Message RRCConnectionRelease with redirectedCarrierInfo
EndTime		Timestamp of the first UMTS messag containing the information of the new UARFCN
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused

Field	Value	Description
KPIId	**38021**	**4G/3G Redirection To UARFCN**
Value2		Unused
Value3	Varchar	Target UARFCN (from redirectedCarrierInfo)
Value4	Varchar	Actual new UARFCN
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	38030	3G/4G InterSystemHO, UMTS->LTE (Idle reselect)
StartTime		Timestamp of the last UMTS RRC Message
EndTime		Timestamp of the first LTE RRC message or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	38040	4G/3G – IntersystemHO (SRVCC)
StartTime		Timestamp of the MobilityFromEUTRACommand message
EndTime		Timestamp of the HandoverToUTRANComplete message or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start trigger

Field	Value	Description
KPIId	**38040**	**4G/3G – IntersystemHO (SRVCC)**
Value4	Varchar	Name of the end trigger
Value5		Unused

<div align="center">Search scope: Timeout</div>

Field	Value	Description
KPIId	**38050**	**4G/2G – IntersystemHO (SRVCC)**
StartTime		Timestamp of the MobilityFromEUTRACommand message
EndTime		Timestamp of the RR: Handover Complete message or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start trigger
Value4	Varchar	Name of the end trigger
Value5		Unused

<div align="center">Search scope: Timeout</div>

Field	Value	Description
KPIId	**38060**	**4G/CDMA – IntersystemHO (SRVCC)**
StartTime		Timestamp of the MobilityFromEUTRACommand message
EndTime		Timestamp of the CDMA: Handoff Completion Message (SRVCC) or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start trigger
Value4	Varchar	Name of the end trigger
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	38061	4G/CDMA – IntersystemHO CSFB
StartTime		Timestamp of the MobilityFromEUTRACommand message
EndTime		Timestamp of the CDMA: Handoff Completion Message or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Name of the start trigger
Value4	Varchar	Name of the end trigger
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**38100**	**4G Handover**
StartTime		Timestamp of the RRC Message 'RRCConnectionReconfiguration' with (handoverType = intraLTE)
EndTime		Timestamp of the of the RRC Message 'RRCConnectionReconfigurationComplete' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Physical CID found in start trigger

Search scope: Timeout

A.4.5 Resource

Field	Value	Description
KPIId	33200	Data, PDP Context Exit
StartTime		Timestamp of the message 'Deactivate PDP context Request'
EndTime		Timestamp of the UMTS message RRCConnectionReleaseComplete
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

A.4.6 Mobility

Field	Value	Description
KPIId	34000	2G, Routing Area Update
StartTime		Timestamp of the message 'Routing area update request'
EndTime		Timestamp of the message 'Routing area update accept' or 'Routing area update reject' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**34004**	**2G/3G, Routing Area Update Access**
StartTime		GSM: Channel Request UMTS:RRCConnectionRequest
EndTime		Timestamp of the message 'Routing area update accept' or 'Routing area update reject' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**34010**	**2G/3G, TMSI Reallocation**
StartTime		TMSI Reallocation Command
EndTime		TMSI Reallocation Complete
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**35003**	**2G/3G, Location Update**
StartTime		Timestamp of the message 'Location Updating Request'
EndTime		Timestamp of the message 'Location Updating Accept' or 'Location Updating Reject' or Timeout or Timeout, whatever comes first

Field	Value	Description
KPIId	35003	**2G/3G, Location Update**
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Num of start events
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	35004	**2G/3G, Location Update Access**
StartTime		GSM: Channel Request UMTS:RRCConnectionRequest
EndTime		Timestamp of the message 'Location Updating Accept' or 'Location Updating Reject' or Timeout or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Num of start events
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	35101	**3G, Cell update**
StartTime		Timestamp of the RRC message 'CellUpdate'
EndTime		Timestamp of the message 'CellUpdateConfirm-CCCH' or 'CellUpdateConfirm' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix

Field	Value	Description
KPIId	**35101**	**3G, Cell update**
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**35300**	**3G, URA Update**
StartTime		Timestamp of the RRC message 'URAUpdate'
EndTime		Timestamp of the message 'URAUpdateConfirm-CCCH' or 'URAUpdateConfirm' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**38000**	**4G, Tracking Area Update**
StartTime		Timestamp of the EPS NAS message 'EMM-Tracking area update request'
EndTime		Timestamp of the EPS NAS message 'EMM-Tracking area update accept' or 'EMM-Tracking area update reject' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused

Field	Value	Description
KPIId	**38000**	**4G, Tracking Area Update**
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Accept: TAC, Reject: Cause value

Search scope: Timeout

A.4.7   Resource

Field	Value	Description
KPIId	**35200**	**3G, Resource**
StartTime		Timestamp of the RRC message 'RadioBearerReconfiguration'
EndTime		Timestamp of the message 'RadioBearerReconfigurationComplete' or 'RadioBearerReconfigurationFailure' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**38001**	**4G, Modify EPS Bearer**
StartTime		Timestamp of the EPS NAS message 'ESM- Modify EPS bearer context request'
EndTime		Timestamp of the EPS NAS message 'ESM- Modify EPS bearer context accept' or 'ESM- Modify EPS bearer context reject' or Timeout, whatever comes first
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused

Field	Value	Description
KPIId	38001	4G, Modify EPS Bearer
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Unused
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	**38107**	**4G, Inter Frequency Handover**
StartTime		Timestamp of the RRC message 'RRCConnectionReconfiguration' with DL ERAFCN change
EndTime		Timestamp of the RRC message 'RRCConnectionReconfigurationComplete'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused
Value1		Unused
Value2		Unused
Value3	Varchar	DL EARFCN
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

Field	Value	Description
KPIId	38200	4G, Reestablishment
StartTime		Timestamp of the RRC message 'RRCConnectionReestablishmentRequest'
EndTime		Timestamp of the RRC message 'RRCConnectionReestablishmentComplete' or 'RRCConnectionReestablishmentReject'
Duration		Time in ms between StartTime and EndTime
ErrorCode		0 = OK, see 'Status' in the appendix
Sum	0	Unused
Counter	0	Unused

Field	Value	Description
Value1		Unused
Value2		Unused
Value3	Varchar	Unused
Value4	Varchar	Name of the end event
Value5		Unused

Search scope: Timeout

A.4.8 WCDMA

This KPI is not implemented in the current version.

Field	Value	Description
KPIId	32000	WCDMA, BestServer
StartTime		Timestamp of the UPMM Scanner message
EndTime		Unused
Duration		unused
ErrorCode		unused
Sum	0	Ec/Io of BestServer
Counter	0	Unused
Value1		RxLev
Value2		Unused
Value3	Varchar	ScramblingCode of BestServer
Value4	Varchar	unused
Value5		Unused

A.5 Status

The result of the KPI measurements can to be found in the ErrorCode field of the record. The status is OK or successful whenever the service or a resource is obtained as expected. Otherwise, if that is not the case e.g. a PDP context request rejected then the status field will show 108001. Also, if there is, for example, an ActiveSetUpdateFailure sent then the status field is set to 108002. Some end trigger points are expected to come within a limited time (this is a time based trigger). If that time is exceeded and no end trigger point is detected then the status field is set to 108003. In the reports, the last three cases described above are all marked as 'Failed' since the process was not successfully concluded.

If a KPI measurement is based on session or test and one of the trigger point is missing then the status field is set to 108004 or 108005 depending on what is missing the Status field in the report will show 'Incomplete'.

(With the Qualcomm trace phone the rate of missing layer 3 messages is particularly high at this time so that whenever a message is missing for a complete procedure the status is set to 108100, 108101, 108102 or 108103 to mark that as a special event. The different types are listed in the table below).

Table A-1: Error Codes and Status field

Code	Message	Status
0	OK	Successful
108001	Rejected	Failed
108002	Failure	Failed
108003	TimeOut	Failed
108004	StartTime missing (at Session/ Test end)	Failed
108005	End Time missing (at Session/ Test end)	Failed
108006	Timing mismatch	Failed
108010	No Start Trigger	Failed

B KPI Calculation

For a description on how to use the KPI Report Generator, see the `Manual – NQDI.pdf` document.

B.1 Success Rate

The success rate is in general the number of successful attempts divided by the total number of attempts expressed in percent:

SuccessRate = # successful attempts/ total # of attempts * 100%

Status	Data	Operator UK VODAFONE
Failed	Count	14
	%	5.53%
	Mean	1138.00
	Min	761.00
	Max	1582.00
	StDev	228.70
Successful	Count	239
	%	94.47%
	Mean	625.00
	Min	240.00
	Max	1482.00
	StDev	147.98

Figure B-1: Table for rates and averages

This rule is applied throughout with the exception of RRC Connection Request where sometimes a second request occurs although the first is successful. In such a case the success rate calculated as if there is only one attempt.

B.2 Rejection Rate

The rejection rate is only required for the PDP context activation where it is defined as the number of rejected attempts divided by the total number of attempts expressed in percent.

RejectionRate = # rejected attempts/ total # of attempts * 100%

B.3 Time

The time that is given for the individual processes is the time elapsed between two trigger points given in Section 2 and 3. With the exception of retainability durations with time in seconds (s) the time is given in milliseconds (ms).

B.4 PDF

The probability density diagram is a histogram where the frequency of occurrence of the values in the given intervals is shown.
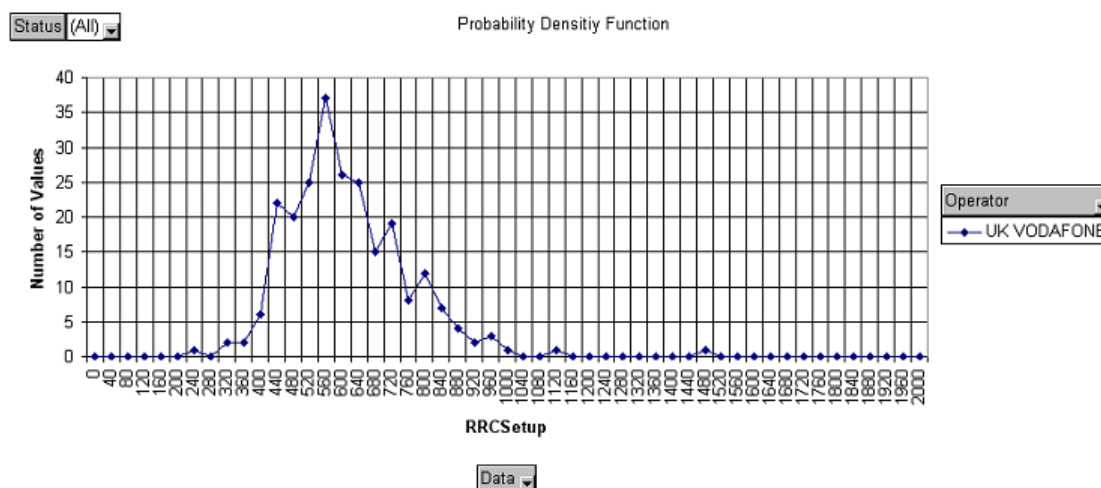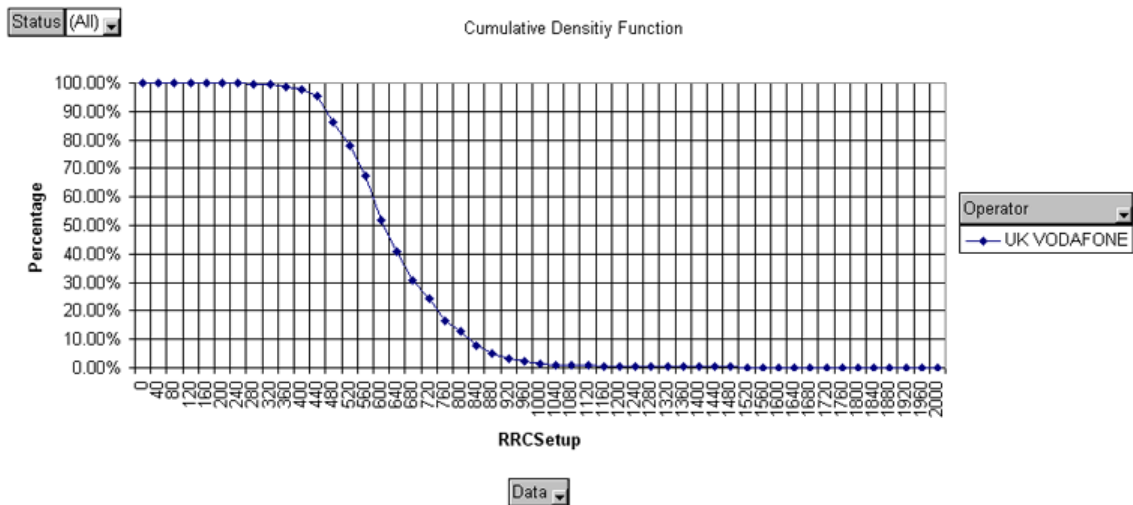

Figure B-2: Probability Density Function (PDF)

The desired values that are to be shown in such a fashion are given in the Section 2. While the range for time can vary between 2000ms and 20 minutes it is divided up into fifty intervals. For the Ec/Io (0-32 dB) and RSCP (-30 - -110 dBm) as well as for UE Tx Power (-30 - -110 dBm) and BLER (0 –100 %) the range is different and the number of intervals is chosen appropriately.

B.5 CDF

The cumulative density function is a histogram where the percentages of the measured values that are equal or bigger than the respective value point on the x – axis is shown.

Figure B-3: Cumulative Density Function (CDF)

The desired values that are to be shown in such a fashion are given in the Section 2. While the range for time can vary between 2000ms and 20 minutes it is divided up into fifty intervals. For the Ec/Io (0-32 dB) and RSCP (-30 - -120 dBm) as well as for UE Tx Power (-30 - -110 dBm) and BLER (0 –100 %) the range is different and the number of intervals is chosen appropriately.

B.6   95% Cut-Off point

Ninety-five per cent of the measured values are smaller or equal than the value denoted by the 95% cut-off point. This value is calculated from the gradient of the CDF histogram.

C References

ETSI TS 102 250 -2