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TECHNICAL SPECIFICATION

Satellite Earth Stations and Systems (SES); Family SL Satellite Radio Interface (Release 1); Part 1: General Specifications; Sub-part 4: Applicable External Specifications, Symbols and Abbreviations

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00   Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Satellite Earth Stations and Systems (SES).

The present document is part 1, sub-part 4 of a multi-part deliverable. Full details of the entire series can be found in ETSI TS 102 744-1-1 [36].

Modal verbs terminology

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Introduction

This multi-part deliverable (Release 1) defines a satellite radio interface that provides UMTS services to users of mobile terminals via geostationary (GEO) satellites in the frequency range 1 518,000 MHz to 1 559,000 MHz (downlink) and 1 626,500 MHz to 1 660,500 MHz and 1 668,000 MHz to 1 675,000 MHz (uplink).

1   Scope

The present document provides a list of the 3GPP specifications and other external specifications that are referred to in the Family SL document series. The list highlights where an external specification applies and where Family SL documentation supersedes an external specification. The present document also provides a complete list of symbols and abbreviations applicable to this multi-part deliverable.

2   References

2.1   Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

[1]   ETSI TS 122 002: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN) (3GPP TS 22.002 Release 4)".

[2]   ETSI TS 122 011: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Service accessibility (3GPP TS 22.011 Release 4)".

[3]   ETSI TS 122 060: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); General Packet Radio Service (GPRS); Service description; Stage 1 (3GPP TS 22.060 Release 4)".

[4]   ETSI TS 123 003: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Numbering, addressing and identification (3GPP TS 23.003 Release 4)".

[5]   ETSI TS 123 014: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Support of Dual Tone Multi Frequency (DTMF) signalling (3GPP TS 23.014 Release 4)".

[6]   ETSI TS 123 060: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); General Packet Radio Service (GPRS); Service description; Stage 2 (3GPP TS 23.060 Release 4)".

[7]   ETSI TS 123 122: "Universal Mobile Telecommunications System (UMTS); Non-Access-Stratum functions related to Mobile Station (MS) in idle mode (3GPP TS 23.122 Release 4)".

[8]   ETSI TS 123 221: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Architectural requirements (3GPP TS 23.221 Release 4)".

[9]   ETSI TS 124 007: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Mobile radio interface signalling layer 3; General Aspects (3GPP TS 24.007 Release 4)".

[10]   ETSI TS 124 008: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Mobile radio interface Layer 3 specification; Core network protocols; Stage 3 (3GPP TS 24.008 Release 4)".

[11]   ETSI TS 125 304: "Universal Mobile Telecommunications System (UMTS); User Equipment (UE) procedures in idle mode and procedures for cell reselection in connected mode (3GPP TS 25.304 Release 4)".

[12]   ETSI TS 125 323: "Universal Mobile Telecommunications System (UMTS); Packet Data Convergence Protocol (PDCP) specification (3GPP TS 25.323 Release 4)".

[13]   ETSI TS 125 410: "Universal Mobile Telecommunications System (UMTS); UTRAN Iu Interface: General Aspects and Principles (3GPP TS 25.410 Release 4)".

[14]   ETSI TS 125 411: "Universal Mobile Telecommunications System (UMTS); UTRAN Iu Interface Layer 1 (3GPP TS 25.411 Release 4)".

[15]   ETSI TS 125 412: "Universal Mobile Telecommunications System (UMTS); UTRAN Iu interface signalling transport (3GPP TS 25.412 Release 4)".

[16]   ETSI TS 125 413: "Universal Mobile Telecommunications System (UMTS); UTRAN Iu interface Radio Access Network Application Part (RANAP) signalling (3GPP TS 25.413 Release 4)".

[17]   ETSI TS 125 414: "Universal Mobile Telecommunications System (UMTS); UTRAN Iu interface data transport and transport signalling (3GPP TS 25.414 Release 4)".

[18]   ETSI TS 125 415: "Universal Mobile Telecommunications System (UMTS); UTRAN Iu interface user plane protocols (3GPP TS 25.415 Release 4)".

[19]   ETSI TS 125 419: "Universal Mobile Telecommunications System (UMTS); UTRAN Iu-BC interface: Service Area Broadcast Protocol (SABP) (3GPP TS 25.419 Release 4)".

[20]   ETSI TS 126 103: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Speech codec list for GSM and UMTS (3GPP TS 26.103 Release 4)".

[21]   ETSI TS 126 110: "Universal Mobile Telecommunications System (UMTS); Codec for Circuit Switched Multimedia Telephony Service; General Description (3GPP TS 26.110 Release 4)".

[22]   ETSI TS 127 001: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS) (3GPP TS 27.001 Release 4)".

[23]   ETSI TS 127 005: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE-DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS) (3GPP TS 27.005 Release 4)".

[24]   ETSI TS 127 007: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; AT command set for User Equipment (UE) (3GPP TS 27.007 Release 4)".

[25]   ETSI TS 127 010: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Terminal Equipment to Mobile Station (TE-MS) multiplexer protocol (3GPP TS 27.010 Release 4)".

[26]   ETSI TS 129 016: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Serving GPRS Support Node SGSN - Visitors Location Register (VLR); Gs Interface Network Service Specification (3GPP TS 29.016 Release 4)".

[27]   ETSI TS 129 018: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); General Packet Radio Service (GPRS); Serving GPRS Support Node (SGSN) - Visitors Location Register (VLR); Gs interface layer 3 specification (3GPP TS 29.018 Release 4)".

[28]   ETSI TS 131 101: "Universal Mobile Telecommunications System (UMTS); UICC-terminal interface; Physical and logical characteristics (3GPP TS 31.101 Release 4)".

[29]   ETSI TS 133 102: "Universal Mobile Telecommunications System (UMTS); 3G security; Security architecture (3GPP TS 33.102 Release 4)".

[30]   ETSI TS 133 105: "Universal Mobile Telecommunications System (UMTS); Cryptographic algorithm requirements (3GPP TS 33.105 Release 4)".

[31]   ETSI TS 135 201: "Universal Mobile Telecommunications System (UMTS); Specification of the 3GPP confidentiality and integrity algorithms; Document 1: f8 and f9 specifications (3GPP TS 35.201 Release 4)".

[32]   IETF RFC 1661 (1994): "The Point-to-Point Protocol (PPP)", W. Simpson.

[33]   IETF RFC 1332 (1992): "The PPP Internet Protocol Control Protocol (IPCP)", G. McGregor.

[34]   IETF RFC 3261 (2002): "SIP: Session Initiation Protocol", J. Rosenberg.

[35]   IETF RFC 4733 (2006): "RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals", H. Schulzrinne.

[36]   ETSI TS 102 744-1-1: "Satellite Earth Stations and Systems (SES); Family SL Satellite Radio Interface (Release 1); Part 1: General Specifications; Sub-part 1: Services and Architectures".

[37]   ETSI TS 102 744-1-2: "Satellite Earth Stations and Systems (SES); Family SL Satellite Radio Interface (Release 1); Part 1: General Specifications; Sub-part 2: System Operation Overview".

[38]   ETSI TS 102 744-1-3: "Satellite Earth Stations and Systems (SES); Family SL Satellite Radio Interface (Release 1); Part 1: General Specifications; Sub-part 3: Satellite Radio Interface Overview".

[39]   ETSI TS 102 744-3-1: "Satellite Earth Stations and Systems (SES); Family SL Satellite Radio Interface (Release 1); Part 3: Control Plane and User Plane Specifications; Sub-part 1: Bearer Control Layer Interface".

[40]   ETSI TS 102 744-3-2: "Satellite Earth Stations and Systems (SES); Family SL Satellite Radio Interface (Release 1); Part 3: Control Plane and User Plane Specifications; Sub-part 2: Bearer Control Layer Operation".

[41]   ETSI TS 102 744-3-4: "Satellite Earth Stations and Systems (SES); Family SL Satellite Radio Interface (Release 1); Part 3: Control Plane and User Plane Specifications; Sub-part 4: Bearer Connection Layer Operation".

[42]   ETSI TS 102 744-3-5: "Satellite Earth Stations and Systems (SES); Family SL Satellite Radio Interface (Release 1); Part 3: Control Plane and User Plane Specifications; Sub-part 5: Adaptation Layer Interface".

[43]   ETSI TS 102 744-3-6: "Satellite Earth Stations and Systems (SES); Family SL Satellite Radio Interface (Release 1); Part 3: Control Plane and User Plane Specifications; Sub-part 6: Adaptation Layer Operation".

[44]   ETSI TS 102 744-3-7: "Satellite Earth Stations and Systems (SES); Family SL Satellite Radio Interface (Release 1); Part 3: Control Plane and User Plane Specifications; Sub-part 7: NAS Layer Interface Extensions for MBMS Services".

[45]   ETSI TS 102 744-3-8: "Satellite Earth Stations and Systems (SES); Family SL Satellite Radio Interface (Release 1); Part 3: Control Plane and User Plane Specifications; Sub-part 8: NAS Layer and User Plane Operation for MBMS Services".

[46]   ETSI TS 102 744-3-9: "Satellite Earth Stations and Systems (SES); Family SL Satellite Radio Interface (Release 1); Part 3: Control Plane and User Plane Specifications; Sub-part 9: Initiation and Operation of User Plane".

[47]   ETSI TS 102 744-4-1: "Satellite Earth Stations and Systems (SES); Satellite Component of UMTS (S-UMTS); Family SL satellite radio interface; Part 4: Enhanced Services and Applications; Sub-Part 1: Multiple Voice Services".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI TS 122 003: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Circuit Teleservices supported by a Public Land Mobile Network (PLMN) (3GPP TS 22.003 Release 4)".

[i.2] ETSI TS 122 101: "Universal Mobile Telecommunications System (UMTS); Service aspects; Service principles (3GPP TS 22.101 Release 4)".

[i.3] ETSI TS 123 002: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Network architecture (3GPP TS 23.002 Release 4)".

[i.4] ETSI TS 123 246: "Universal Mobile Telecommunications System (UMTS); Multimedia Broadcast/Multicast Service (MBMS); Architecture and functional description (3GPP TS 23.246 Release 7)".

[i.5] ETSI TS 125 301: "Universal Mobile Telecommunications System (UMTS); Radio Interface Protocol Architecture (3GPP TS 25.301 Release 4)".

[i.6] ETSI TS 125 322: "Universal Mobile Telecommunications System (UMTS); Radio Link Control (RLC) protocol specification (3GPP TS 25.322 Release 4)".

[i.7] ETSI TS 125 331: "Universal Mobile Telecommunications System (UMTS); Radio Resource Control (RRC) protocol specification (3GPP TS 25.331 Release 4)".

[i.8] ETSI TR 127 901: "Universal Mobile Telecommunications System (UMTS); Report on Terminal Interfaces - An Overview (3GPP TR 27.901 Release 4)".

[i.9] 3GPP TR 29.846: "3rd Generation Partnership Project (3GPP); Technical Specification Group Core Networks; Multimedia Broadcast/Multicast Service (MBMS); CN1 procedure description (Release 6)".

[i.10] IETF RFC 2507 (1999): "IP Header Compression", M. Degermark, B. Nordgren, S. Pink.

[i.11] IETF RFC 3095 (2001): "Robust Header Compression (ROHC): Framework and four profiles: RTP, UDP, ESP, and uncompressed", C. Bormann, C. Burmeister, M. Degermark, H. Fukushima, H. Hannu, L-E. Jonsson, R. Hakenberg, T. Koren, K. Le, Z. Liu, A. Martensson, A. Miyazaki, K. Svanbro, T. Wiebke, T. Yoshimura, H. Zheng.

[i.12] ETSI TR 123 910: "Universal Mobile Telecommunications System (UMTS); Circuit switched data bearer services (3GPP TR 23.910 Release 4)".

3 Symbols and abbreviations

3.1 Symbols

For the purposes of the present document, the following symbols apply.

The following list of symbols applies to the entire Family SL multi-part series.

µs	microseconds
b/s	bits per second
Bd	Baud (symbols per second)

bits/s	bits per second
bits/second	bits per second
bytes	bytes (octets)
bytes/second	bytes per second
C/I	Carrier to Interference ratio
C/M	Carrier to Multipath ratio, in dB
C/N	Carrier to Noise ratio, in dB
C/No	Carrier to Noise spectral density ratio, in dBHz
dB	decibel
dB/Hz	decibel per Hertz
dBHz	decibel Hertz
dBi	dB relative to an isotropic antenna
dBm	power in decibels relative to 1 milliWatt
dBm0	power in decibels relative to 1 milliWatt, measured at zero transmission level point
dBW	Power relative to 1 watt, in dB
dBW/m2	dBW per square metre
G/T	Antenna gain to noise-temperature ratio, in dB/K
GHz	gigahertz
Hz	Hertz
I	In-phase
kBd	kiloBaud (1 000 symbols per second)
kbit/s	kilobits per second (1 000 bits per second)
kHz	kilohertz
km	kilometre
m	metres
m/s	metres per second
MHz	megahertz
ms	milliseconds
Q	Quadrature-phase
s	seconds
sec	seconds
sec/sec	arcseconds per second
sec/sec^2	arcseconds per second squared
semicircles/sec	semicircles per second

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply.

The following list of abbreviations applies to the entire Family SL multi-part series.

3G	Third Generation
3GPP	Third Generation Partnership Project
A	
AAL	ATM Adaptation Layer
ACI	Adjacent Channel Interference
ACK	Acknowledgement
AERO	Aeronautical
AL	Adaptation Layer
ALPD	Adaptation Layer Protocol Discriminator
ALPDU	Adaptation Layer Protocol Data Unit
AM	Acknowledged Mode
AMR	Adaptive Multi-Rate
ANSI	American National Standards Institute
APN	Access Point Name
ARINC	Aeronautical Radio, Incorporated
ARP	Address Resolution Protocol
ARQ	Automatic Repeat reQuest
AS	Access Stratum
ASM	Any Source Multicast
ASN	Abstract Syntax Notation

ATC	Ancillary Terrestrial Component
ATM	Asynchronous Transfer Mode
ATT (flag)	Attach
AVP	Attribute Value Pair
AWGN	Additive White Gaussian Noise

B

BB	Bulletin Board
BC	Bearer Capability
BCN HFN	Bearer Connection Hyperframe Number
BCn, BCN	Bearer Connection (Layer)
BCnID	Bearer Connection Identifier
BCnM	Bearer Connection Manager
BCSH	64 kbit/s Circuit Switched Handler
BCt, BCT	Bearer Control (Layer)
BCT HFN	Bearer Control Hyperframe Number
BCtM	Bearer Control Manager
BCtSDU	Bearer Control Signalling Data Units
BER	Bit Error Rate
BLER	BLock Error Rate
BM	Broadcast/Multicast
BMM	Broadcast Multicast Mobility Management
BMMF	Broadcast Multicast Management Function
BMSC	Broadcast Multicast Service Centre
BMSM	Broadcast Multicast Session Management
BMSN	Broadcast Multicast Service Node
BO	Back Off/Backoff
bom	Beginning of Message
BPSK	Binary Phase Shift Keying
BRANAP	Broadcast Radio Access Network Application Part
BS	Bearer Service

C

CBC	Cell Broadcast Centre
CC	Call Control
CCI	Co-Channel Interference
CGC	Complementary Ground Component
CK	Ciphering Key
CM	Connection Management
CN	Core Network
CNF	Confirmation (Request)
CRA	Controlled Random Access
CRC	Cyclic Redundancy Check
CS	Circuit Switched
CSH	Circuit Switched (User Plane) Handler
CSR	CBCn-SAP Router
CTP	Conventional Terrestrial Pole
CW	Continuous Wave

D

DGPS	Differential GPS
DH	Data Handler
DID	Direct Inward Dialling
DL	DownLink
DLNA	Diplexer/Low Noise Amplifier
DNS	Domain Name System
DTMF	Dual Tone Multi-Frequency (signalling)
DTX	Discontinuous Transmission
DUW	Distributed Unique Word

E

ECEF	Earth Centred Earth Fixed
EFR	Enhanced Full Rate
EGNOS	European Geostationary Navigation Overlay Service
EIRP	Effective Isotropic Radiated Power
EoM	End-of-Message
EPDU	Embedded Protocol Data Unit
ESDU	Embedded Signalling Data Unit
ETA	Estimated Time of Arrival
EVM	Error Vector Magnitude

F

FDM	Frequency Division Multiplex
FDMA	Frequency Division Multiple Access
FEC	Forward Error Correction
FIFO	First In First Out
FIR	Finite Impulse Response
FNUR	Fixed Network User Rate
FR	Full Rate (channel)

G

GC	General Control
GEO	Geostationary Earth Orbit
GERAN	GSM/EDGE Radio Access Network
GGSN	Gateway GPRS Support Node
GMDSS	Global Maritime Distress and Safety System
GMLC	Gateway Mobile Location Centre
GMM	GPRS Mobility Management
GMMH	GMM Service Access Point Handler
GMSC	Gateway Mobile Switching Centre
GMSS	Global Mobile Satellite Systems
GNSS	Global Navigation Satellite System
GPRS	General Packet Radio System
GPS	Global Positioning System
GRM	Global Resource Manager
GSM	Global System for Mobile communications
GSMS	GPRS Short Message Service
GSO	Geostationary Orbit
GTP	GPRS Tunnelling Protocol

H

HDLC	High Level Data Link Control
HDOP	Horizontal Dilution Of Precision
HDR	High Data Rate
HFN	HyperFrame Number
HL	Higher Layer
HLR	Home Location Register
HPA	High Power Amplifier
HR	Half Rate

I

ICD	Interface Control Document
ID	IDentifier
IE	Information Element
IEI	Information Element Identifier
IETF	Internet Engineering Task Force
IGMP	Internet Group Management Protocol
IHL	Internet Header Length
IK	Integrity Key
IMEI	International Mobile Equipment Identity
IMEI/IMEISV	International Mobile Station Equipment Identity/Software Version
IMS	Interactive Multimedia Subsystem

IMSI	International Mobile Subscriber Identity
IMT	International Mobile Telecommunications
IND	Indication
IODC	Issue Of Data Clock
IP	Internet Protocol
IPCP	Internet Protocol Control Protocol
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
IRS	Inertial Reference System
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
ITC	Information Transfer Capability
ITU	International Telecommunication Union
IWF	InterWorking Function

L

L1	Layer 1 (Physical Layer)
LAC	Location Area Code
LAI	Location Area Identifier
LAN	Local Area Network
LCD	Liquid Crystal Display
LDR	Low Data Rate
LED	Light Emitting Diode
LGA	Low Gain Antenna
LGID	Lease Group ID
LI	Length Indicator
LLC	Logical Link Control
LNA	Low Noise Amplifier
LOA	Loss Of Acquisition
LRM	Local Resource Manager
LSB	Least Significant Bit
LV	Length and Value

M

MAC	Media Access Control/Message Authentication Code
MBMS	Multimedia Broadcast Multicast Service
MCC	Mobile Country Code
MGW	Media GateWay
MM	Mobility Management
MMH	Mobility Management Service Access Point Handler
MMS	Multimedia Messaging Service
MNC	Mobile Network Code
MOD	Modulus
MOS	Modulator Output Symbols
MP	Mandatory Presence
MRAB	Multicast Radio Access Bearer
MRABM	Multicast Radio Access Bearer Manager
MRT	Mobile Reachable Timer
MS	Mobile Station (equivalent to UE)
MSB	Most Significant Bit
MSC	Mobile Switching Centre
MSISDN	Mobile Station ISDN
MSN	Message Sequence Number
MSRN	Mobile Station Roaming Number
MSS	Mobile Satellite Service
MTP3	Message Transfer Part layer 3
MUI	Message Unit Identifier

N

NAPT	Network Address Port Translation
NAS	Non Access Stratum
NAV	Navigation

NMEA	National Marine Electronics Association
NMO	Network Mode of Operation
NOC	Network Operations Centre
NS	Sequence Number
NSAPI	Network Service Access Point Identifier
NT	Non Transparent

O

OAEP	Optimal Asymmetric Encryption Padding
OP	Optional Presence
OSI	Open Systems Interconnection

P

PBX	Private Branch Exchange
PCM	Pulse Code Modulation
PD	Protocol Discriminator
PDA	Personal Digital Assistant
PDC	Personal Digital Cellular
PDCP	Packet Data Convergence Protocol
PDOP	Position Dilution Of Precision
PDP	Packet Data Protocol
PDU	Protocol Data Unit
PER	Packed Encoding Rules/Packet Error Rate
PFD	Power Flux Density
PIM	Protocol Independent Multicasting
PL	Physical Layer
PLMN	Public Land Mobile Network
PMM	Packet Mobility Management
POS	Position
PPF	Paging Proceed Flag
PPP	Point-to-Point Protocol
PRN	Pseudo Random Noise
PS	Packet Switched/Pilot Symbol
PSAB	Primary Shared Access Bearer
PSAP	Public Service Access Point
PSD	Power Spectral Density
PSS	Packet Streaming Service
PSTN	Public Switched Telephone Network

Q

QAM	Quadrature Amplitude Modulation
QoS	Quality of Service
QPSK	Quadrature Phase Shift Keying

R

RA	Routing Area
RAB	Radio Access Bearer
RAB ID	Radio Access Bearer Identity
RABM	Radio Access Bearer Manager/Management
RAC	Routing Area Code
RACH	Random Access Channel
RADIUS	Remote Authentication Dial In User Service
RAI	Routing Area Identification
RAN	Radio Access Network
RANAP	Radio Access Network Application Part
RAU	Routing Area Update
RB	Radio Bearer
RBC	Radio Bearer Control
RCTC	Return Channel Timing Control
RDI	Restricted Digital Information
REGM	REGistration Manager
REJ	Reject

REL	Release
REQ	Request
RESP	Response
RF	Radio Frequency
RFC	Request For Comment
RFS	Radio Frequency Subsystem
RI	Radio Interface
RL	Reference Level/Relay
RLC	Radio Link Control
RNC	Radio Network Controller
RNS	Radio Network Subsystem
RO (flag)	Reporting On
ROHC	RObust Header Compression
RR	Receive Ready
RRC	Radio Resource Control/Root Raised Cosine
RRM	Radio Resource Manager
RS	Return Schedule
RSAES	RSA Encryption Scheme
RSP	Response
RSR	RL-SAP Router
RTP	Real-time Transport Protocol
RTT	Round-Trip Time

S

SAC	Service Area Code
SAI	Service Area Identifier
SAP	Service Access Point
SAPI	Service Access Point Identifier
SAS	Satellite Access Station
SCCP	Signalling Connection Control Part
SCPC	Single Channel Per Carrier
SDU	Signalling Data Unit
SGSN	Serving GPRS Support Node
SI	Stream Identifier/System Information
SIBH	System Information Broadcast Handling
SID	Self Imposed Delay
SIG	UE-Specific Signalling (SAP)
SIM	Subscriber Identity Module
SL	Satellite Link
SM	Session Management
SMLC	Serving Mobile Location Centre
SMS	Short Messaging Service
SMSC	Short Messaging Service Centre
SN	Sequence Number
SPI	Security Parameter Index
SRA	Shared Reservation Access
SRCC	Systematic Recursive Convolution Code
SREJ	Selective Reject
SRNC	Serving Radio Network Controller
SRNS	Serving Radio Network Subsystem
SS	Supplementary Services
SSB	Single SideBand
SSC	Specific Signalling Connection
SSM	Single Segment Message
SSN	Send Sequence Number
SSR	SIG-SAP Router
S-UMTS	Satellite component of UMTS
SYNC	Synchronization

T

TAF	Terminal Adaptation Function
tBCnID/TBCNID	Translated Bearer Connection Identifier

TCP   Transmission Control Protocol
TDM   Time Division Multiplex
TDMA   Time Division Multiple Access
TE   Terminal Equipment
TEID   Tunnel Endpoint Identifier
TFT   Traffic Flow Template
TI   Transaction Identifier
TLV   Type, Length and Value
TM   Transparent Mode
TMGI   Temporary Mobile Group Identifier
TMSI   Temporary Mobile Subscriber Identity
TS   Technical Specification
TSG   Technical Specification Group
TTI   Transmission Timing Interval
TTL   Time To Live
TTN   Time-To-Next
TV   Type and Value
TX   Transmit

U
UDI   Unrestricted Digital Information
UDP   User Datagram Protocol
UE   User Equipment
UEA   UMTS Encryption Algorithm
UERE   User Equivalent Range Error
UESS   UE Specific Signalling
UIA   UMTS Integrity Algorithm
UICC   Universal Integrated Circuit Card
UL   UpLink
UM   Unacknowledged Mode
UMTS   Universal Mobile Telecommunications System
UP   User Plane
UPH   User Plane Handler
UR   User Rate
URA   User Range Accuracy
USB   Universal Serial Bus
USIM   UMTS Subscriber Identity Module
UT   User Terminal
UTC   Universal Coordinated Time
UTRAN   UMTS Terrestrial Radio Access Network
UW   Unique Word

V
VC   Voice Codec
VCSH   Voice Circuit Switched Handler
VLR   Visitor Location Register
VPN   Virtual Private Network

W
WAAS   Wide Area Augmentation System
WCDMA   Wideband Code Division Multiple Access
WGS   World Geodetic System

4   Overview of 3GPP References

4.0   General

The following tables list all the 3GPP references used in the Family SL specification, indicating which 3GPP specification applies or is replaced by a Family SL technical specification for the satellite radio interface.

4.1   Normative references

Table 4.1: Normative 3GPP References

3GPP Specification Reference	3GPP Specification Short Title	Referenced in Family-SL Part-subpart	3GPP Applicability or Indication of Replacement by Family SL Specification (see note)
3GPP TS 22.002 [1]	Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)	ETSI TS 102 744-1-1 [36] ETSI TS 102 744-3-9 [46]	The 3GPP Specification applies
3GPP TS 22.011 [2]	Service accessibility	ETSI TS 102 744-1-2 [37] ETSI TS 102 744-3-6 [43]	The 3GPP Specification applies
3GPP TS 22.060 [3]	General Packet Radio Service (GPRS); Service description, Stage 1	ETSI TS 102 744-1-2 [37]	The 3GPP Specification applies
3GPP TS 23.003 [4]	Numbering, Addressing and Identification	ETSI TS 102 744-1-2 [37] ETSI TS 102 744-3-1 [39] ETSI TS 102 744-3-7 [44]	The 3GPP Specification applies
3GPP TS 23.014 [5]	Support of Dual Tone Multi-Frequency (DTMF) signalling	ETSI TS 102 744-3-9 [46]	The 3GPP Specification applies
3GPP TS 23.060 [6]	General Packet Radio Service (GPRS), Service Description; Stage 2	ETSI TS 102 744-1-1 [36] ETSI TS 102 744-1-2 [37]	The 3GPP Specification applies
3GPP TS 23.122 [7]	NAS Functions related to Mobile Station (UE) in idle mode	ETSI TS 102 744-1-2 [37]	3GPP Specification applies
3GPP TS 23.221 [8]	Architectural requirements	ETSI TS 102 744-1-2 [37]	The 3GPP Specification applies
3GPP TS 24.007 [9]	Mobile radio interface signalling layer 3; General aspects	ETSI TS 102 744-1-2 [37] ETSI TS 102 744-3-6 [43] ETSI TS 102 744-3-7 [44] ETSI TS 102 744-3-8 [45] ETSI TS 102 744-3-9 [46]	The Release 4 of the 3GPP Specification is considered normative for Circuit Switched and unicast Packet Switched services. The extensions for MBMS services (as defined in Release 6 and later releases) are replaced with the specifications defined in Family-SL ETSI TS 102 744-3-7 [44] and ETSI TS 102 744-3-8 [45].
3GPP TS 24.008 [10]	Mobile radio interface layer 3 specification, Core Network protocols - Stage 3	ETSI TS 102 744-1-2 [37] ETSI TS 102 744-3-1 [39] ETSI TS 102 744-3-6 [43] ETSI TS 102 744-3-9 [46]	The 3GPP Specification applies
		ETSI TS 102 744-1-1 [36] ETSI TS 102 744-3-7 [44] ETSI TS 102 744-3-8 [45]	The Release 4 of the 3GPP Specification is considered normative for Circuit Switched and unicast Packet Switched services. The Traffic Flow Template specifications for bi-directional MBMS services as defined in Family-SL ETSI TS 102 744-3-7 [44] and ETSI TS 102 744-3-8 [45] are based upon Release 7 clause 10.5.6.12.

3GPP Specification Reference	3GPP Specification Short Title	Referenced in Family-SL Part-subpart	3GPP Applicability or Indication of Replacement by Family SL Specification (see note)
3GPP TS 25.304 [11]	UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode	ETSI TS 102 744-1-2 [37] ETSI TS 102 744-3-6 [43]	The 3GPP Specification is replaced by ETSI TS 102 744-1-2 [37] and ETSI TS 102 744-3-6 [43]
3GPP TS 25.323 [12]	Packet Data Convergence Protocol (PDCP) Specification	ETSI TS 102 744-1-1 [36] ETSI TS 102 744-3-9 [46]	The 3GPP Specification applies
3GPP TS 25.410 [13]	UTRAN Iu Interface: general aspects and principles	ETSI TS 102 744-1-1 [36]	The 3GPP Specification applies
3GPP TS 25.411 [14]	UTRAN Iu interface layer 1	ETSI TS 102 744-1-1 [36]	The 3GPP Specification applies
3GPP TS 25.412 [15]	UTRAN Iu interface signalling transport	ETSI TS 102 744-1-1 [36]	The 3GPP Specification applies
3GPP TS 25.413 [16]	UTRAN Iu Interface RANAP Signalling	ETSI TS 102 744-1-1 [36] ETSI TS 102 744-1-2 [37] ETSI TS 102 744-1-3 [38]	The 3GPP Specification applies
3GPP TS 25.414 [17]	UTRAN Iu interface data transport and transport signalling	ETSI TS 102 744-1-1 [36]	The 3GPP Specification applies
3GPP TS 25.415 [18]	UTRAN Iu interface user plane protocols	ETSI TS 102 744-1-1 [36] ETSI TS 102 744-3-9 [46]	The 3GPP Specification applies
3GPP TS 25.419 [19]	UTRAN Iu Interface: Service Area Broadcast Protocol SABP	ETSI TS 102 744-1-1 [36]	The 3GPP Specification applies
3GPP TS 26.103 [20]	Speech Codec List for GSM and UMTS	ETSI TS 102 744-3-9 [46]	The 3GPP Specification applies
3GPP TS 26.110 [21]	Codec for circuit switched multimedia telephony service; General description	ETSI TS 102 744-1-1 [36]	The 3GPP Specification applies
3GPP TS 27.001 [22]	General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)	ETSI TS 102 744-3-9 [46]	The 3GPP Specification applies
3GPP TS 27.005 [23]	Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE - DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)	ETSI TS 102 744-1-1 [36]	The 3GPP Specification applies
3GPP TS 27.007 [24]	AT command set for User Equipment (UE)	ETSI TS 102 744-1-1 [36] ETSI TS 102 744-3-9 [46]	The 3GPP Specification applies
3GPP TS 27.010 [25]	Terminal Equipment to User Equipment (TE-UE) multiplexer protocol	ETSI TS 102 744-1-1 [36]	The 3GPP Specification applies
3GPP TS 29.016 [26]	General Packet Radio Service (GPRS); Serving GPRS Support Node (SGSN) - Visitors Location Register (VLR); Gs interface network service specification	ETSI TS 102 744-1-1 [36]	The 3GPP Specification applies
3GPP TS 29.018 [27]	General Packet Radio Service (GPRS); Serving GPRS Support Node (SGSN) - Visitors Location Register (VLR) Gs interface layer 3 specification	ETSI TS 102 744-1-1 [36]	The 3GPP Specification applies
3GPP TS 31.101 [28]	UICC-Terminal Interface; Physical and Logical Characteristics	ETSI TS 102 744-1-1 [36]	The 3GPP Specification applies

3GPP Specification Reference	3GPP Specification Short Title	Referenced in Family-SL Part-subpart	3GPP Applicability or Indication of Replacement by Family SL Specification (see note)
3GPP TS 33.102 [29]	3G Security; Security Architecture	ETSI TS 102 744-1-2 [37] ETSI TS 102 744-3-2 [40] ETSI TS 102 744-3-4 [41] ETSI TS 102 744-3-5 [42] ETSI TS 102 744-3-6 [43]	The 3GPP Specification applies
3GPP TS 33.105 [30]	3G Security; Cryptographic Algorithm Requirements	ETSI TS 102 744-3-2 [40] ETSI TS 102 744-3-4 [41] ETSI TS 102 744-3-5 [42] ETSI TS 102 744-3-6 [43]	The 3GPP Specification applies
3GPP TS 35.201 [31]	3G Security; Specification of the 3GPP confidentiality and integrity algorithms; Document 1: f8 and f9 specifications	ETSI TS 102 744-3-2 [40] ETSI TS 102 744-3-4 [41]	The 3GPP Specification applies
NOTE: The latest version of Release 4 of each 3GPP specification applies unless stated otherwise.			

4.2   Informative references

Table 4.2: Informative 3GPP References

3GPP Specification Reference	3GPP Specification Short Title	Referenced in Family-SL Part-subpart	3GPP Reference for Information or Indication of Replacement by Family SL Specification (See note)
3GPP TS 22.003 [i.1]	Circuit Teleservices supported by a Public Land Mobile Network (PLMN)	ETSI TS 102 744-1-1 [36]	The 3GPP Specification is referenced for information only
3GPP TS 22.101 [i.2]	Service aspects; Service principles	ETSI TS 102 744-1-2 [37]	The 3GPP Specification is referenced for information only
3GPP TS 23.002 [i.3]	Network architecture	ETSI TS 102 744-1-1 [36]	The 3GPP Specification is referenced for information only
3GPP TS 23.246 [i.4]	Multimedia Broadcast/Multicast Service (MBMS); Architecture and functional description	ETSI TS 102 744-1-1 [36] ETSI TS 102 744-3-8 [45]	The 3GPP Specification is referenced for information only
3GPP TS 25.301 [i.5]	Radio interface protocol architecture	ETSI TS 102 744-1-3 [38]	The 3GPP Specification is replaced by ETSI TS 102 744-1-3 [38] and is referenced for information only
3GPP TS 25.322 [i.6]	Radio Link Control (RLC) protocol specification	ETSI TS 102 744-1-3 [38] ETSI TS 102 744-3-4 [41]	The 3GPP Specification is replaced by ETSI TS 102 744-1-3 [38] and ETSI TS 102 744-3-4 [41] and is referenced for information only
3GPP TS 25.331 [i.7]	Radio Resource Control (RRC); Protocol Specification	ETSI TS 102 744-1-2 [37] ETSI TS 102 744-3-1 [39] ETSI TS 102 744-3-5 [42]	The 3GPP Specification is replaced by ETSI TS 102 744-1-2 [37] and by ETSI TS 102 744-3-1 [39] ETSI TS 102 744-3-5 [42] and is referenced for information only
3GPP TR 27.901 [i.8]	Report on terminal interfaces - an overview	ETSI TS 102 744-1-1 [36]	The 3GPP Specification is referenced for information only

3GPP Specification Reference	3GPP Specification Short Title	Referenced in Family-SL Part-subpart	3GPP Reference for Information or Indication of Replacement by Family SL Specification (See note)
3GPP TR 29.846 [i.9]	Multimedia Broadcast/Multicast Service (MBMS); CN1 procedure description	ETSI TS 102 744-3-7 [44]	The 3GPP Release 6 specifications for MBMS services are considered informative for background purposes, these being replaced by Family-SL ETSI TS 102 744-3-8 [45]
3GPP TR 23.910 [i.12]	Circuit Switched Data Bearer Services	ETSI TS 102 744-3-9 [46]	The 3GPP Specification is referenced for information only
NOTE: The latest version of Release 4 of each 3GPP specification applies unless stated otherwise.			

5 Overview of IETF RFC References

5.0 General

The following tables list all the IETF RFC references used in the Family SL specification, indicating which IETF RFC specification applies or is replaced by a Family SL technical specification for the satellite radio interface.

5.1 Normative references

Table 5.1: Normative IETF RFC References

IETF RFC Specification Reference	IETF RFC Specification Short Title	Referenced in Family-SL Part-subpart	IETF RFC Applicability or Indication of Replacement by Family SL Specification
RFC 1661 (1994) [32]	The Point-to-Point Protocol (PPP)	ETSI TS 102 744-1-1 [36] ETSI TS 102 744-3-7 [44]	The RFC Specification applies
RFC 1332 (1992) [33]	The PPP Internet Protocol Control Protocol (IPCP)	ETSI TS 102 744-3-7 [44]	The RFC Specification applies
RFC 3261 (2002) [34]	SIP: Session Initiation Protocol	ETSI TS 102 744-4-1 [47]	The RFC Specification applies
RFC 4733 (2006) [35]	RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals	ETSI TS 102 744-4-1 [47]	The RFC Specification applies

5.2 Informative references

Table 5.2: Informative IETF RFC References

IETF RFC Specification Reference	IETF RFC Specification Short Title	Referenced in Family-SL Part-subpart	IETF RFC Applicability or Indication of Replacement by Family SL Specification
RFC 2507 (1999) [i.10]	IP Header Compression	ETSI TS 102 744-3-5 [42]	The RFC Specification is referenced for information only
RFC 3095 (2001) [i.11]	Robust Header Compression (ROHC): Framework and four profiles: RTP, UDP, ESP, and uncompressed	ETSI TS 102 744-3-5 [42]	The RFC Specification is referenced for information only

History

Document history		
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