

3GPP TS 25.301 V7.1.0 (2007-03)

Technical Specification

3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Radio Interface Protocol Architecture (Release 7)



The present document has been developed within the 3rd Generation Partnership Project (3GPP™) and may be further elaborated for the purposes of 3GPP.

The present document has not been subject to any approval process by the 3GPP Organisational Partners and shall not be implemented. This Specification is provided for future development work within 3GPP only. The Organisational Partners accept no liability for any use of this Specification. Specifications and reports for implementation of the 3GPP™ system should be obtained via the 3GPP Organisational Partners' Publications Offices.

Keywords

UMTS, radio, architecture

3GPP

Postal address

3GPP support office address

650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet

<http://www.3gpp.org>

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© 2007, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TTA, TTC).
All rights reserved.

Contents

Foreword	5
1 Scope	6
2 References	6
3 Definitions and abbreviations.....	7
3.1 Definitions	7
3.2 Abbreviations	7
4 Assumed UMTS Architecture	8
5 Radio interface protocol architecture	9
5.1 Overall protocol structure	9
5.1.1 Service access points and service primitives	11
5.2 Layer 1 Services and Functions	12
5.2.1 L1 Services	12
5.2.1.1 Transport channels.....	12
5.2.2 L1 Functions	13
5.3 Layer 2 Services and Functions	14
5.3.1 MAC Services and Functions	14
5.3.1.1 MAC Services to upper layers	14
5.3.1.1.1 Logical channels	14
5.3.1.1.2 Mapping between logical channels and transport channels.....	16
5.3.1.1.2.1 Mapping in Uplink	16
5.3.1.1.2.2 Mapping in Downlink	16
5.3.1.2 MAC functions	18
5.3.2 RLC Services and Functions.....	19
5.3.2.1 Services provided to the upper layer.....	19
5.3.2.2 RLC Functions.....	20
5.3.3 PDCP Services and Function	21
5.3.3.1 PDCP Services provided to upper layers	21
5.3.3.2 PDCP Functions	21
5.3.4 Broadcast/Multicast Control - Services and functions	21
5.3.4.1 BMC Services.....	21
5.3.4.2 BMC Functions.....	21
5.3.5 Data flows through Layer 2.....	21
5.3.5.1 Data flow for BCCH mapped to BCH	25
5.3.5.2 Data flow for BCCH mapped to FACH.....	25
5.3.5.3 Data flow for PCCH mapped to PCH	25
5.3.5.4 Data flow for CCCH mapped to FACH/RACH	25
5.3.5.5 Data flow for SHCCH mapped to USCH	25
5.3.5.6 Data flow for SHCCH mapped to FACH/RACH.....	26
5.3.5.7 Data flow for DCCH mapped to FACH/RACH	26
5.3.5.8 Data flow for DCCH mapped to DSCH.....	26
5.3.5.9 Data flow for DCCH mapped to USCH.....	26
5.3.5.10 Void.....	26
5.3.5.11 Data flow for DTCH (non-transparent RLC) mapped to FACH/RACH	26
5.3.5.12 Data flow for DTCH (non-transparent RLC) mapped to DSCH.....	26
5.3.5.13 Data flow for DTCH (non-transparent RLC) mapped to USCH.....	26
5.3.5.14 Data flow for DTCH (transparent RLC) mapped to DCH	26
5.3.5.15 Data flow for DTCH (non-transparent RLC) mapped to DCH.....	26
5.3.5.16 Void.....	27
5.3.5.17 Data flow for DCCH mapped to DCH.....	27
5.3.5.18 Data flow for CTCH mapped to FACH	27
5.3.5.19 Data flow for DCCH mapped to HS-DSCH.....	27
5.3.5.20 Data flow for DTCH (non-transparent RLC) mapped to HS-DSCH.....	27
5.3.5.21 Data flow for DCCH mapped to E-DCH	27
5.3.5.22 Data flow for DTCH (non-transparent RLC) mapped to E-DCH	27

5.3.5.23	Data flow for MCCH (non-transparent RLC) mapped to FACH.....	27
5.3.5.24	Data flow for MSCH (non-transparent RLC) mapped to FACH.....	27
5.3.5.25	Data flow for MTCH (non-transparent RLC) mapped to FACH.....	27
5.3.6	Transport Channel, Logical Channel and MAC-d flow Numbering.....	27
5.4	Layer 3 - Uu Stratum Services and Functions.....	29
5.4.1	Uu Stratum services.....	29
5.4.1.1	General Control.....	29
5.4.1.2	Notification.....	29
5.4.1.3	Dedicated Control.....	29
5.4.2	RRC functions.....	30
5.5	Interactions between RRC and lower layers in the C plane.....	32
5.6	Protocol termination.....	32
5.6.1	Protocol termination for DCH.....	32
5.6.2	Protocol termination for RACH/FACH.....	33
5.6.3	Void.....	35
5.6.4	Void.....	35
5.6.5	Protocol termination for DSCH.....	35
5.6.5.1	DSCH definition.....	35
5.6.5.2	Resource allocation and UE identification on DSCH.....	36
5.6.5.2.1	Void.....	36
5.6.5.2.2	UE requires a downlink SHCCH.....	36
5.6.5.3	Model of DSCH in UTRAN.....	36
5.6.5.4	Protocol termination.....	37
5.6.6	Protocol termination for transport channel of type USCH.....	38
5.6.6.1	USCH definition.....	38
5.6.6.2	Resource allocation and UE identification on USCH.....	38
5.6.6.3	Model of USCH in UTRAN.....	38
5.6.6.4	Protocol termination.....	39
5.6.7	Protocol termination for transport channel of type BCH.....	40
5.6.8	Protocol termination for transport channel of type PCH.....	40
5.6.9	Protocol termination for HS-DSCH.....	41
5.6.9.1	HS-DSCH definition.....	41
5.6.9.2	Resource allocation and UE identification on HS-DSCH.....	41
5.6.9.3	Protocol termination.....	41
5.6.10	Protocol termination for E-DCH.....	42
5.6.10.1	E-DCH definition.....	42
5.6.10.2	Resource allocation and UE identification related to E-DCH.....	42
5.6.10.3	Protocol termination.....	42
5.6.11	Protocol termination for MBMS.....	43
5.6.11.1	MBMS definition.....	43
5.6.11.2	Resource allocation related to MBMS.....	43
5.6.11.3	Protocol termination.....	43
6	User Identification and RRC Connection Mobility.....	44
6.1	UE identification on the radio interface.....	44
6.2	UE connection to UTRAN.....	45
7	UE modes.....	45
Annex A (informative): Change history.....		47

Foreword

This Technical Specification (TS) has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.