

EXHIBIT 5

3GPP TS 36.300 V8.4.0 (2008-03)

Technical Specification

**3rd Generation Partnership Project;
Technical Specification Group Radio Access Network;
Evolved Universal Terrestrial Radio Access (E-UTRA)
and Evolved Universal Terrestrial Radio Access Network
(E-UTRAN);
Overall description;
Stage 2
(Release 8)**



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

The present document has not been subject to any approval process by the 3GPP Organizational Partners and shall not be implemented.

Keywords

UMTS, stage 2, 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.

© 2008, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TTA, TTC).
All rights reserved.

Contents

Foreword.....	10
1 Scope	11
2 References	11
3 Definitions, symbols and abbreviations	12
3.1 Definitions	12
3.2 Abbreviations.....	12
4 Overall architecture	14
4.1 Functional Split.....	15
4.2 Interfaces	17
4.2.1 S1 Interface	17
4.2.2 X2 Interface.....	17
4.3 Radio Protocol architecture	17
4.3.1 User plane	17
4.3.2 Control plane.....	18
4.4 Synchronization	19
4.5 IP fragmentation	19
5 Physical Layer for E-UTRA.....	19
5.1 Downlink Transmission Scheme	21
5.1.1 Basic transmission scheme based on OFDM	21
5.1.2 Physical-layer processing.....	21
5.1.3 Physical downlink control channel.....	21
5.1.4 Downlink Reference signal	22
5.1.5 Downlink multi-antenna transmission.....	22
5.1.6 MBSFN transmission	22
5.1.7 Physical layer procedure	22
5.1.7.1 Link adaptation	22
5.1.7.2 Power Control.....	23
5.1.7.3 Cell search	23
5.1.8 Physical layer measurements definition	23
5.2 Uplink Transmission Scheme	23
5.2.1 Basic transmission scheme	23
5.2.2 Physical-layer processing.....	24
5.2.3 Physical uplink control channel	24
5.2.4 Uplink Reference signal	24
5.2.5 Random access preamble	25
5.2.6 Uplink multi-antenna transmission	25
5.2.7 Physical channel procedure	25
5.2.7.1 Link adaptation	25
5.2.7.2 Uplink Power control.....	25
5.2.7.3 Uplink timing control	25
5.3 Transport Channels	25
5.3.1 Mapping between transport channels and physical channels	27
5.4 E-UTRA physical layer model.....	27
5.4.1 Void.....	27
5.4.2 Void.....	27
6 Layer 2	27
6.1 MAC Sublayer	28
6.1.1 Services and Functions.....	29
6.1.2 Logical Channels.....	29
6.1.2.1 Control Channels	29
6.1.2.2 Traffic Channels	30
6.1.3 Mapping between logical channels and transport channels.....	30
6.1.3.1 Mapping in Uplink	30

6.1.3.2	Mapping in Downlink.....	30
6.2	RLC Sublayer	31
6.2.1	Services and Functions.....	31
6.2.2	PDU Structure	31
6.3	PDCP Sublayer	32
6.3.1	Services and Functions.....	32
6.3.2	PDU Structure	33
6.4	Data flows through Layer 2	33
7	RRC.....	33
7.1	Services and Functions	33
7.2	RRC protocol states & state transitions	34
7.3	Transport of NAS messages.....	34
7.4	System Information.....	34
7.5	RRC Procedures.....	36
8	E-UTRAN identities.....	36
8.1	E-UTRAN related UE identities	36
8.2	Network entity related Identities.....	36
9	ARQ and HARQ	37
9.1	HARQ principles	37
9.2	ARQ principles	37
9.3	HARQ/ARQ interactions.....	38
10	Mobility.....	38
10.1	Intra E-UTRAN	38
10.1.1	Mobility Management in ECM-IDLE.....	38
10.1.1.1	Cell selection	38
10.1.1.2	Cell reselection	39
10.1.1.3	Handling in eNB.....	40
10.1.1.4	Handling above eNB	40
10.1.1.5	Mobility Management Entity (MME)	40
10.1.2	Mobility Management in ECM-CONNECTED	40
10.1.2.1	Handover	40
10.1.2.1.1	C-plane handling	41
10.1.2.1.2	U-plane handling.....	43
10.1.2.2	Path Switch.....	44
10.1.2.3	Data forwarding.....	44
10.1.2.3.1	For RLC-AM bearers	44
10.1.2.3.2	For RLC-UM bearers.....	45
10.1.2.4	Handling in eNB.....	45
10.1.2.5	Handling above eNB	45
10.1.2.6	Mobility Management Entity (MME)	45
10.1.2.7	Timing Advance	45
10.1.3	Measurements	46
10.1.3.1	Intra-frequency neighbour (cell) measurements	47
10.1.3.2	Inter-frequency neighbour (cell) measurements	47
10.1.4	Paging and C-plane establishment	47
10.1.5	Random Access Procedure.....	48
10.1.5.1	Contention based random access procedure	48
10.1.5.2	Non-contention based random access procedure	50
10.1.5.3	Interaction model between L1 and L2/3 for Random Access Procedure.....	50
10.1.6	Radio Link Failure	51
10.1.7	Radio Access Network Sharing.....	52
10.1.8	Handling of Roaming and Area Restrictions for UEs in ECM-CONNECTED	52
10.2	Inter RAT.....	53
10.2.1	Cell reselection.....	53
10.2.2	Handover.....	53
10.2.2a	Inter-RAT cell change order to GERAN with NACC.....	54
10.2.3	Measurements	54
10.2.3.1	Inter-RAT handovers from E-UTRAN.....	54
10.2.3.2	Inter-RAT handovers to E-UTRAN	54

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.