

3GPP TS 25.211 V6.7.0 (2005-12)

Technical Specification

**3rd Generation Partnership Project;
Technical Specification Group Radio Access Network;
Physical channels and mapping of transport channels
onto physical channels (FDD)
(Release 6)**



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.

Keywords

UMTS, radio, layer 1

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.

© 2005, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TTA, TTC).
All rights reserved.

Contents

| | |
|---|----|
| Foreword | 5 |
| 1 Scope | 6 |
| 2 References | 6 |
| 3 Symbols and abbreviations..... | 7 |
| 3.1 Symbols | 7 |
| 3.2 Abbreviations | 7 |
| 4 Services offered to higher layers | 8 |
| 4.1 Transport channels | 8 |
| 4.1.1 Dedicated transport channels | 8 |
| 4.1.1.1 DCH - Dedicated Channel..... | 8 |
| 4.1.1.2 E-DCH – Enhanced Dedicated Channel | 8 |
| 4.1.2 Common transport channels..... | 8 |
| 4.1.2.1 BCH - Broadcast Channel | 8 |
| 4.1.2.2 FACH - Forward Access Channel..... | 8 |
| 4.1.2.3 PCH - Paging Channel..... | 8 |
| 4.1.2.4 RACH - Random Access Channel | 8 |
| 4.1.2.5 Void..... | 9 |
| 4.1.2.6 Void..... | 9 |
| 4.1.2.7 HS-DSCH – High Speed Downlink Shared Channel | 9 |
| 4.2 Indicators | 9 |
| 5 Physical channels and physical signals | 9 |
| 5.1 Physical signals | 9 |
| 5.2 Uplink physical channels | 10 |
| 5.2.1 Dedicated uplink physical channels..... | 10 |
| 5.2.1.1 DPCCCH and DPDCH | 10 |
| 5.2.1.2 HS-DPCCCH..... | 12 |
| 5.2.1.3 E-DPCCCH and E-DPDCH | 13 |
| 5.2.2 Common uplink physical channels | 14 |
| 5.2.2.1 Physical Random Access Channel (PRACH)..... | 14 |
| 5.2.2.1.1 Overall structure of random-access transmission | 14 |
| 5.2.2.1.2 RACH preamble part | 15 |
| 5.2.2.1.3 RACH message part | 15 |
| 5.2.2.2 Void..... | 17 |
| 5.3 Downlink physical channels | 17 |
| 5.3.1 Downlink transmit diversity..... | 17 |
| 5.3.1.1 Open loop transmit diversity | 18 |
| 5.3.1.1.1 Space time block coding based transmit antenna diversity (STTD) | 18 |
| 5.3.1.1.2 Time Switched Transmit Diversity for SCH (TSTD)..... | 19 |
| 5.3.1.2 Closed loop transmit diversity..... | 19 |
| 5.3.2 Dedicated downlink physical channels..... | 19 |
| 5.3.2.1 STTD for DPCH and F-DPCH..... | 23 |
| 5.3.2.2 Dedicated channel pilots with closed loop mode transmit diversity | 24 |
| 5.3.2.3 Void..... | 25 |
| 5.3.2.4 E-DCH Relative Grant Channel..... | 25 |
| 5.3.2.5 E-DCH Hybrid ARQ Indicator Channel..... | 27 |
| 5.3.2.6 Fractional Dedicated Physical Channel (F-DPCH) | 27 |
| 5.3.3 Common downlink physical channels | 28 |
| 5.3.3.1 Common Pilot Channel (CPICH)..... | 28 |
| 5.3.3.1.1 Primary Common Pilot Channel (P-CPICH) | 29 |
| 5.3.3.1.2 Secondary Common Pilot Channel (S-CPICH) | 29 |
| 5.3.3.2 Downlink phase reference | 29 |
| 5.3.3.3 Primary Common Control Physical Channel (P-CCPCH)..... | 30 |
| 5.3.3.3.1 Primary CCPCH structure with STTD encoding | 31 |
| 5.3.3.4 Secondary Common Control Physical Channel (S-CCPCH)..... | 31 |

| | | |
|-------------------------------|--|-----------|
| 5.3.3.4.1 | Secondary CCPCH structure with STTD encoding..... | 33 |
| 5.3.3.5 | Synchronisation Channel (SCH)..... | 33 |
| 5.3.3.5.1 | SCH transmitted by TSTD | 34 |
| 5.3.3.6 | Void..... | 34 |
| 5.3.3.7 | Acquisition Indicator Channel (AICH)..... | 34 |
| 5.3.3.8 | Void..... | 35 |
| 5.3.3.9 | Void..... | 35 |
| 5.3.3.10 | Paging Indicator Channel (PICH) | 35 |
| 5.3.3.11 | Void..... | 36 |
| 5.3.3.12 | Shared Control Channel (HS-SCCH) | 36 |
| 5.3.3.13 | High Speed Physical Downlink Shared Channel (HS-PDSCH) | 36 |
| 5.3.3.14 | E-DCH Absolute Grant Channel (E-AGCH)..... | 37 |
| 5.3.3.15 | MBMS Indicator Channel (MICH)..... | 38 |
| 6 | Mapping and association of physical channels | 39 |
| 6.1 | Mapping of transport channels onto physical channels | 39 |
| 6.2 | Association of physical channels and physical signals | 39 |
| 7 | Timing relationship between physical channels..... | 40 |
| 7.1 | General | 40 |
| 7.2 | PICH/S-CCPCH timing relation..... | 41 |
| 7.3 | PRACH/AICH timing relation..... | 41 |
| 7.4 | Void | 42 |
| 7.5 | Void | 42 |
| 7.6 | DPCCH/DPDCH timing relations | 42 |
| 7.6.1 | Uplink | 42 |
| 7.6.2 | Downlink | 42 |
| 7.6.3 | Uplink/downlink timing at UE..... | 43 |
| 7.7 | Uplink DPCCH/HS-DPCCH/HS-PDSCH timing at the UE | 43 |
| 7.8 | HS-SCCH/HS-PDSCH timing..... | 43 |
| 7.9 | MICH/S-CCPCH timing relation | 44 |
| 7.10 | E-HICH/P-CCPCH/DPCH timing relation | 44 |
| 7.11 | E-RGCH/P-CCPCH/DPCH timing relation | 45 |
| 7.12 | E-AGCH/P-CCPCH timing relation..... | 45 |
| 7.13 | E-DPDCH/E-DPCCH/DPCH timing relation | 46 |
| 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.