RAN WG1 Status Report

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RP-050368
TSG RAN Meeting #28
June 1-3, 2005, Quebec, Canada

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RAN WG1 Meetings

- RAN1#40bis
  April 04-08 2005
  Beijing, China

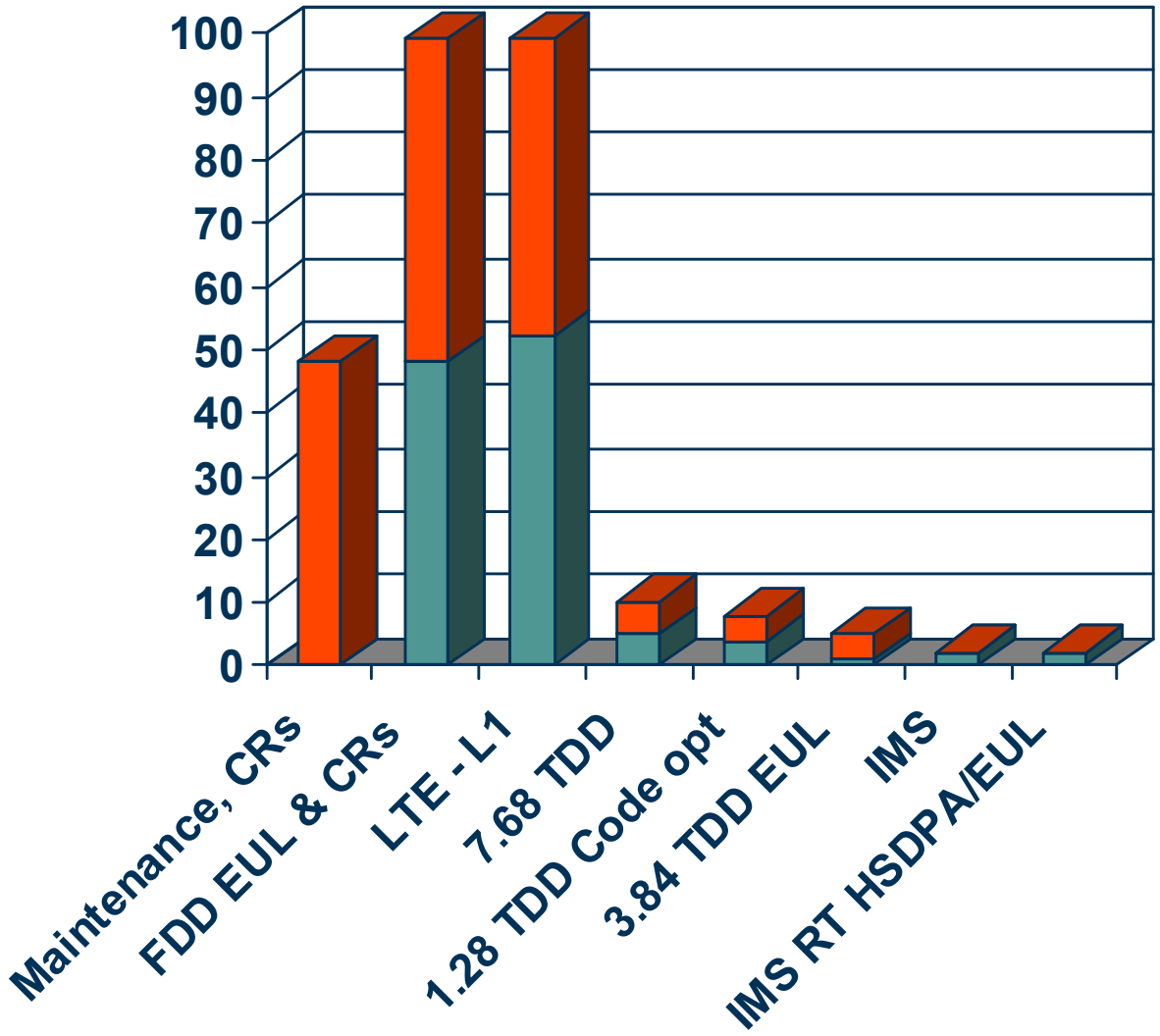
- RAN1#41
  May 09-13 2005
  Athens, Greece

Executive Summary

- Agreed change requests
  - Rel4: 2 CRs (TDD)
  - Rel5: 24 CRs (FDD, including 22 CRs on feature removal)
  - Rel6: 24 CRs (FDD, most for Enhanced UL), 3 CRs (TDD)
- Remaining issues on FDD Enhanced Uplink resolved
  - Compressed mode, gain factors, timing, E-AGCH coding, RRM measurements, ...
- MBMS Rake combining removed
- Feature removal CRs agreed
- Timing maintained HHO and Fast L1 Sync agreed (again)
- RAN1 part of 1.28Mcps Code Optimisation WI ready
- Discussions on LTE multiple access scheme started

Contribution Statistics

- RAN1#40bis
- RAN1#41



Change Requests

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Agreed Change Requests

- Release 4
  - 25.221: Two CRs on transmission of SS and TPC (1.28Mcps TDD)
- Release 5
  - 25.201-25.215: Feature removal
    - DSCH, SSDT, CPCH, TX diversity CL mode 2, Compressed mode by puncturing, 80ms TTI, GSM OTD measurement, dedicated pilot phase reference
  - 25.212: HSDPA bit separation
  - 25.214: HS-SCCH discarding

Agreed Change Requests (cont.)

- Release 6
  - 25.211, 25.212, 25.213, 25.214:
    - FDD Enhanced Uplink (17CRs), MBMS Rake combining removal, MBMS soft combining, Uplink SSC, Downlink phase references, Timing maintained HHO, Fast L1 Sync, Clarifications…
  - 25.221:
    - Two CRs on informative annex (1.28Mcps TDD)
  - 25.224:
    - UpPCH subchannel clarification (1.28Mcps TDD)

  - CRs agreed via email before RAN#28
    - ✓ 25.214: F-DPCH TPC in SHO
    - ✓ 25.214: E-DCH timing

Work Items & Study Items

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WI/SI where RAN WG1 is the Leading Group

- MIMO
  - No discussion (in line with decision from RAN#26)
- Optimisation of channelisation code utilisation for 1.28Mcps TDD
  - RAN1 part finished, set of draft CRs (Rel7) presented
- 3.84Mcps TDD Enhanced Uplink
  - RAN1 TR structure agreed
  - Text proposals on uplink signaling structure, PhCH structure, NodeB scheduling agreed
- 7.68Mcps TDD option
  - Structure of RAN1 TR and Stage 2 TS agreed together with first text proposals for the TR and Stage 2 TS

WI/SI where RAN WG1 is not the Leading Group

- IMS RAB Support Enhancements
  - Discussion on usage of SSC concluded and summarized in an LS to RAN2
- Improved Support for IMS Realtime Services using HSDPA/HSUPA
  - Two proposals presented at RAN1#40bis, no conclusions yet

UTRA/UTRAN Long Term Evolution

- LTE was discussed during two days at the RAN1#40bis meeting April, and during two days at the RAN1#41 meeting in May
  - Total of around 100 contributions
  - High attendance (150 delegates)
- Good news is that the number of fundamentally different multiple access proposals is small
  - Clear majority of companies proposes an OFDM based downlink
  - For the uplink, FDMA based proposals have the largest support, followed by OFDM based proposals
    - PAPR increase is an important issue to consider
- Macro-diversity (uplink only or uplink/downlink) was discussed and is related to discussion on EUTRAN architecture
  - Can be addressed during one of the joint WG Meeting sessions
- Issues as EVM, phase noise and Doppler were touched upon
  - Can be addressed together with RAN4 during one of the joint WG Meeting sessions

LTE at RAN1#40bis in April

- Two days spent on presenting the different proposals for the physical layer multiple access for Uplink and Downlink
  - Useful discussion during the Q&A parts after each presentation increased mutual understanding of commonalities and differences
- Agreement on a creation of a RAN1 specific TR
  - Purpose is to document the L1 aspects of the multiple access scheme proposals that are evaluated within RAN1
  - TR skeleton has been endorsed in RAN1 (see REV-05067)
  - Editor is Mr. Sadayuki Abeta (NTT DoCoMo)
  - TR number still needs to be assigned
- Agreement on a simplified simulation approach within RAN1
  - Details worked on until RAN1#41
- Agreement that new multiple access scheme proposals should be proposed for inclusion in the RAN1 TR latest at the Ad Hoc meeting 20-21 June
  - This is to allow other companies to start simulating proposed multiple access schemes, based on their description in the TR

LTE at RAN1#41 in May

- Two days spent with LTE on:
  - Presenting more proposals and elaborating on existing proposals for the physical layer multiple access for Uplink and Downlink
  - Deeper technical discussion, e.g. addressing
    - OFDM/FDMA numerology
    - Interference coordination/mitigation
    - MIMO, Pilots, Macro-diversity,…
    - Reference performance of (MC-)WCDMA based multiple access
  - A document summarizing the common view points on basic principles for uplink and downlink multiple access is gaining increased support from many companies, and is likely to form the basis for consolidated text proposals to the RAN1 TR
- Agreement on a document describing the simulation assumptions in RAN1
  - Waiting for inclusion in the RAN1 TR, once a TR number is assigned

Tentative Workplan for LTE in RAN1

- June 20-21 (RAN1 AH on LTE, ETSI)
  - Inclusion of text proposals with descriptions of multiple access schemes into the RAN1 TR
- August 29 – Sept 02 (RAN1#42, London) & October 03-07 (RAN1#42bis, TBD)
  - Progress discussion on deeper technical issues
    - Numerology, MIMO, HARQ, Scheduling, …
  - First evaluation results
- November 07-11 (RAN1#43, Korea)
  - Agreement on Physical layer basics
    - Multiple access scheme, Macro-diversity, Measurements
  - Additional Ad Hoc around November might be necessary if risk that agreements will not be reached at RAN1#43
- January and/or February 2006
  - Agreement on all remaining parts of the concept
    - MIMO scheme, channel structure, signalling, mobility

➔ Discussions have to start long before January to achieve this.
➔ Earlier conclusion on multiple access scheme would ease this work a lot!

RAN WG1 Meeting Schedule 2005

Meeting	Date	Location	Host
RAN1#40	14-18 February 2005	Scottsdale, USA	North Am. Friends
RAN1#40bis	04-08 April 2005	Beijing, China	Huawei
RAN1#41	09-13 May 2005	Athens, Greece	European Friends
RAN1 LTE	20-21 June 2005	Sophia Antipolis, FR	ETSI
RAN1#42	29 Aug – 02 Sept 2005	London, UK	European Friends
RAN1#42bis	03-07 October 2005	TBD	TBD
RAN1#43	07-11 November 2005	Seoul(TBC), Korea	Samsung