3GPP TSG RAN #47
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Status Report RAN WG3

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Outline

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  - Rel-7 UTRAN
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  - Rel-8 E-UTRAN
- Rel-9 Work
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  - TEI-9
- Rel-10 Work: Progress on LTE-A Relays

RAN3 CRs provided to RAN

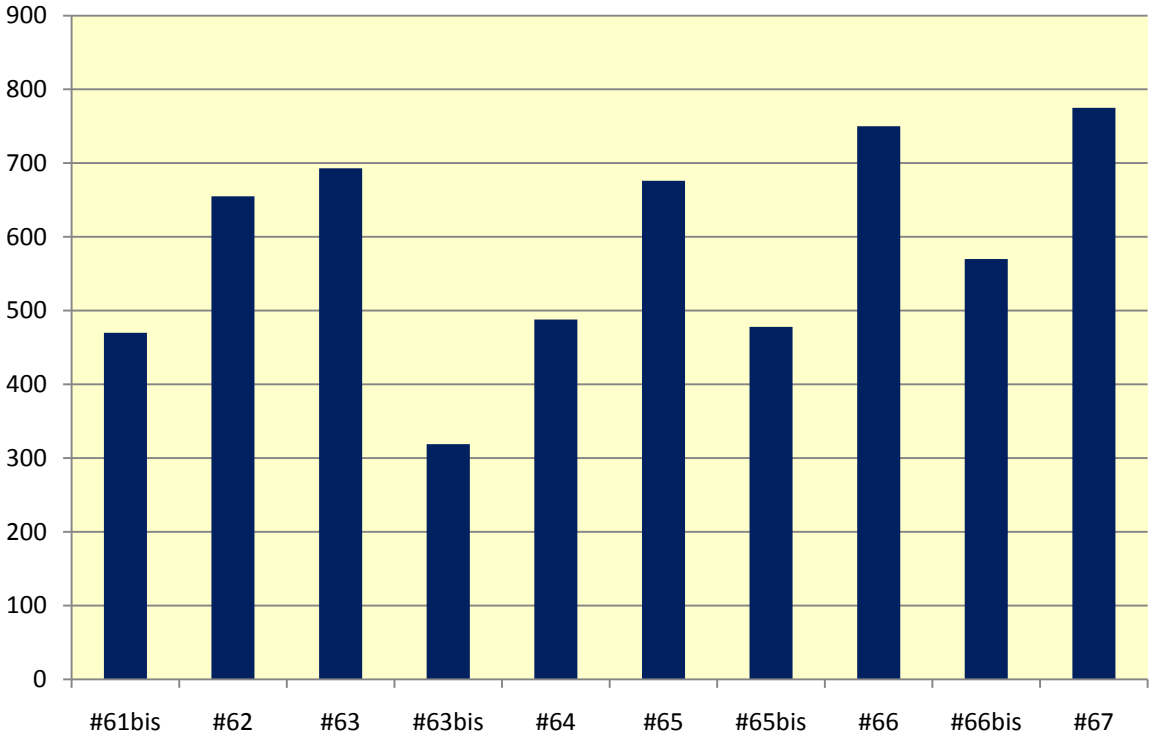
- 188 agreed CRs
  - 49 CRs on Rel-8 or earlier releases
    - 2 Rel-7 UTRAN CR
      - 2 Cat F CRs
    - 38 Rel-8 UTRAN CR
      - 2 Cat A CRs
      - 36 Cat F CRs
    - 9 Rel-8 E-UTRAN CR
      - 9 Cat F CRs
  - 139 CRs for Rel-9
    - 81 Rel-9 UTRAN CRs
      - 34 Cat A CRs
      - 2 Cat B CRs
      - 2 Cat C CRs
      - 43 Cat F CRs
    - 58 Rel-9 E-UTRAN CRs
      - 4 Cat A CRs
      - 5 Cat B CRs
      - 3 Cat C CRs
      - 1 Cat D CRs
      - 45 Cat F CRs

RAN3 CRs provided to RAN (cont'd)

- 32 endorsed CRs for TSs under RAN2 responsibility
  - TS 36.300
    - 3 Cat F Rel-8 CRs
    - 3 Cat A Rel-9 CRs
    - 2 Cat B Rel-9 CRs
    - 20 Cat F Rel-9 CRs
  - TS 25.346
    - 3 Cat F Rel-9 CRs
  - TS 36.305
    - 1 Cat F Rel-9 CR
- 1 endorsed CR for TS under GERAN2 responsibility
  - TS 48.018
    - 1 Cat B CR
- List of RAN3 CRs provided to RAN available in RP-100021

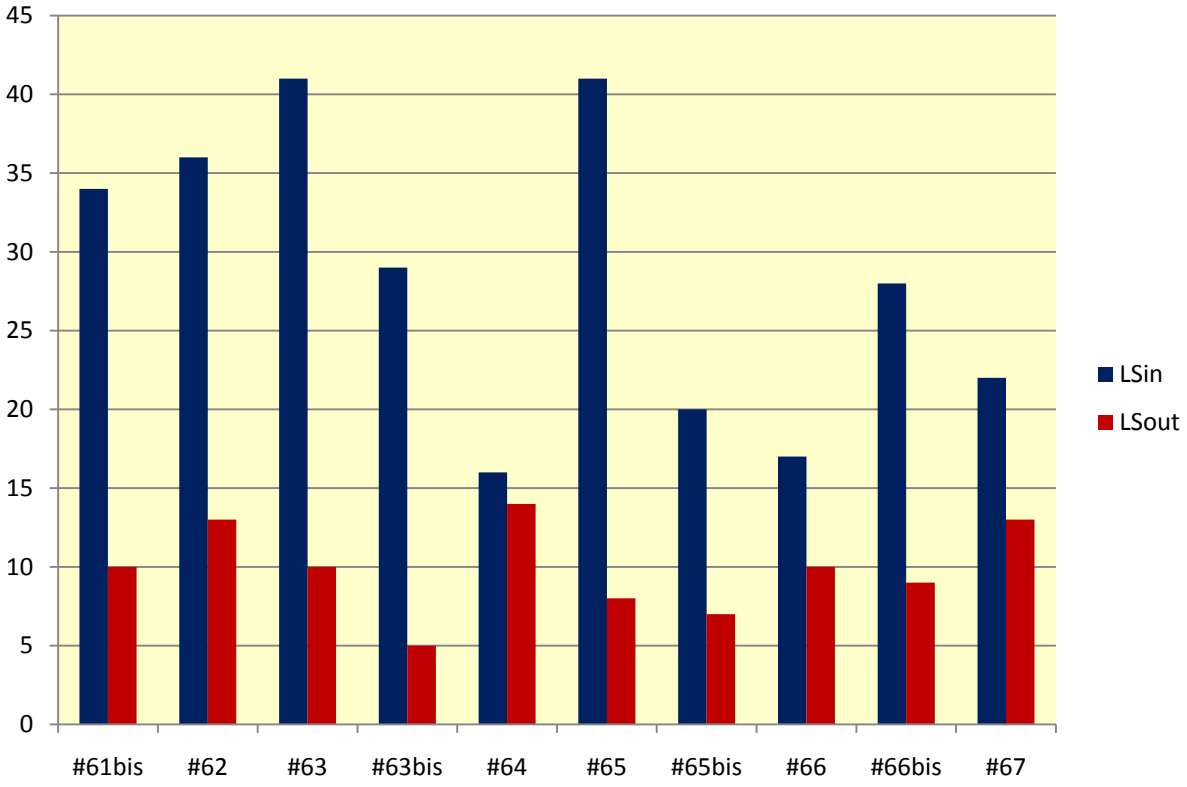
Statistics (1)

Total number of Tdocs per meeting



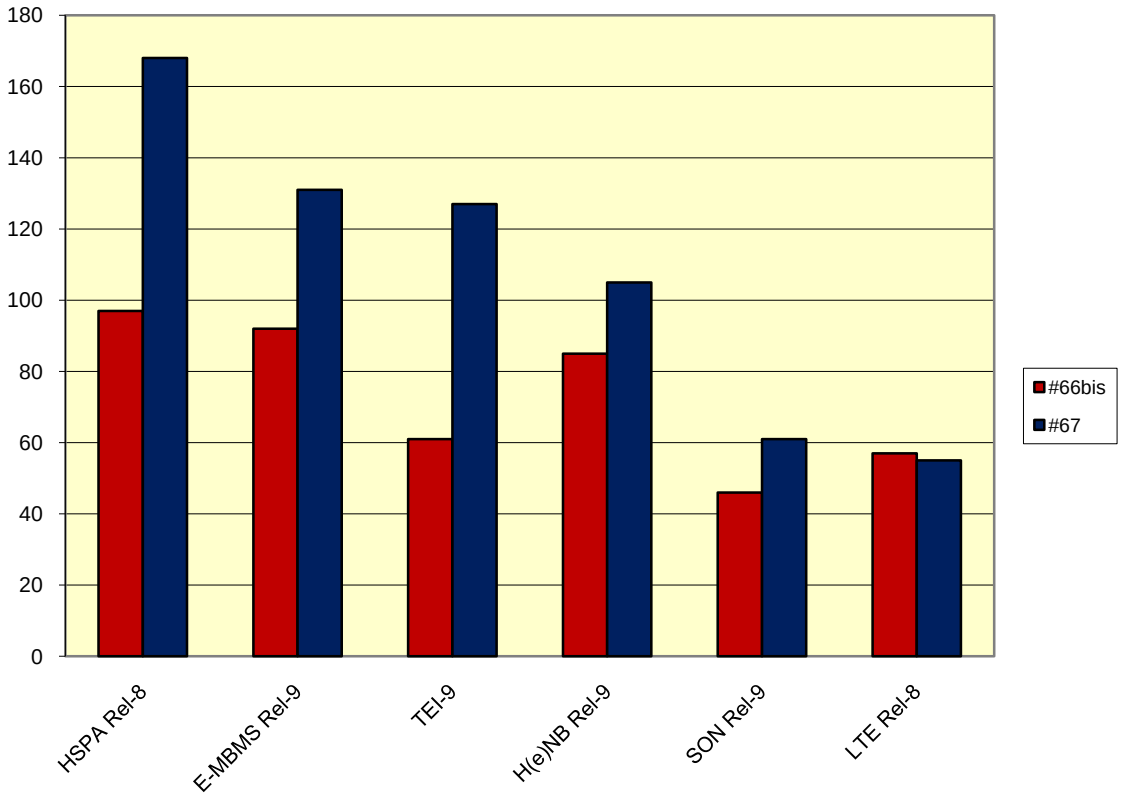
Statistics (2)

Number of liasons per meeting



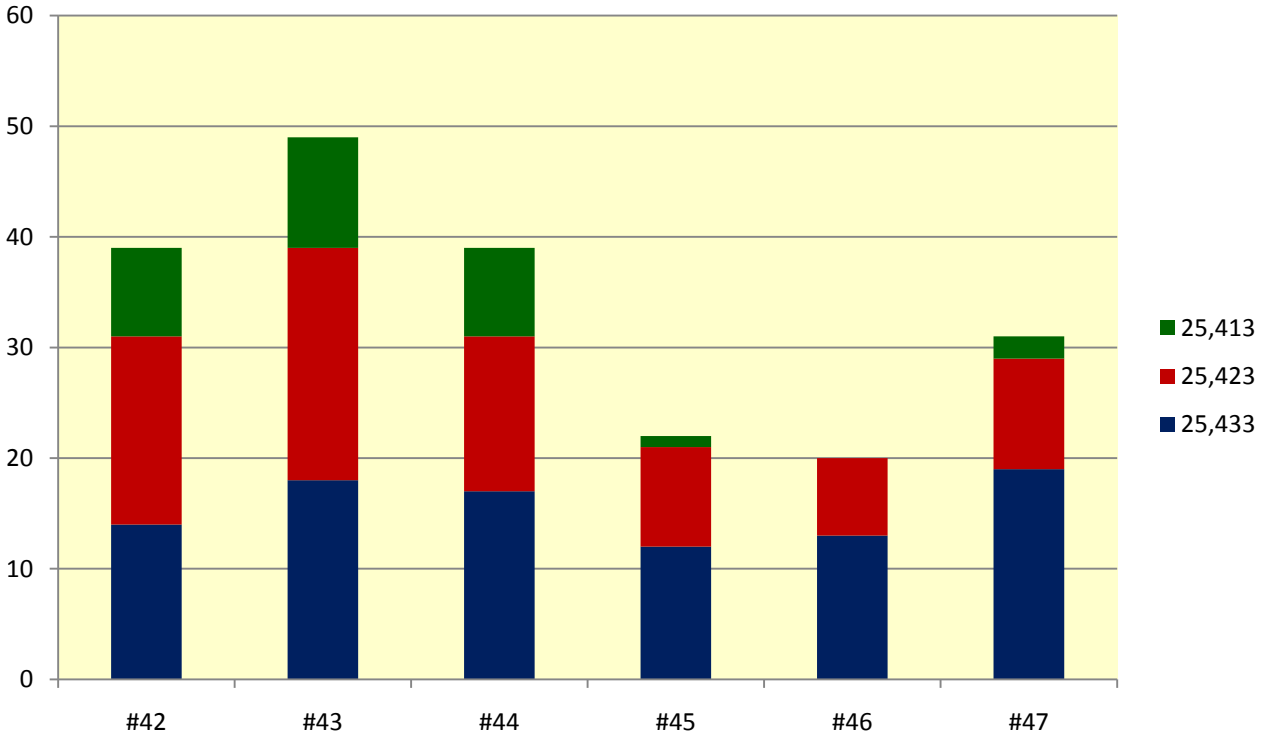
Statistics (3)

Number of Tdocs per topic (last quarter)



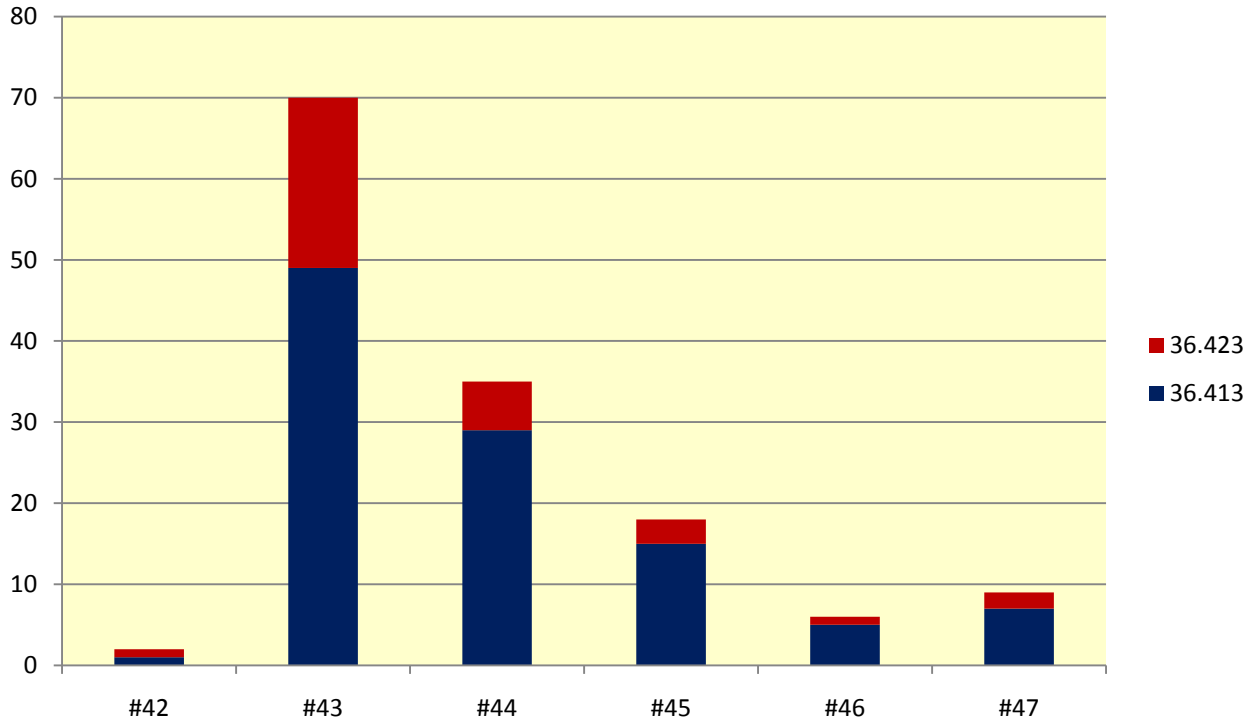
Statistics (4)

Rel-8 UTRAN protocol CRs submitted to RAN

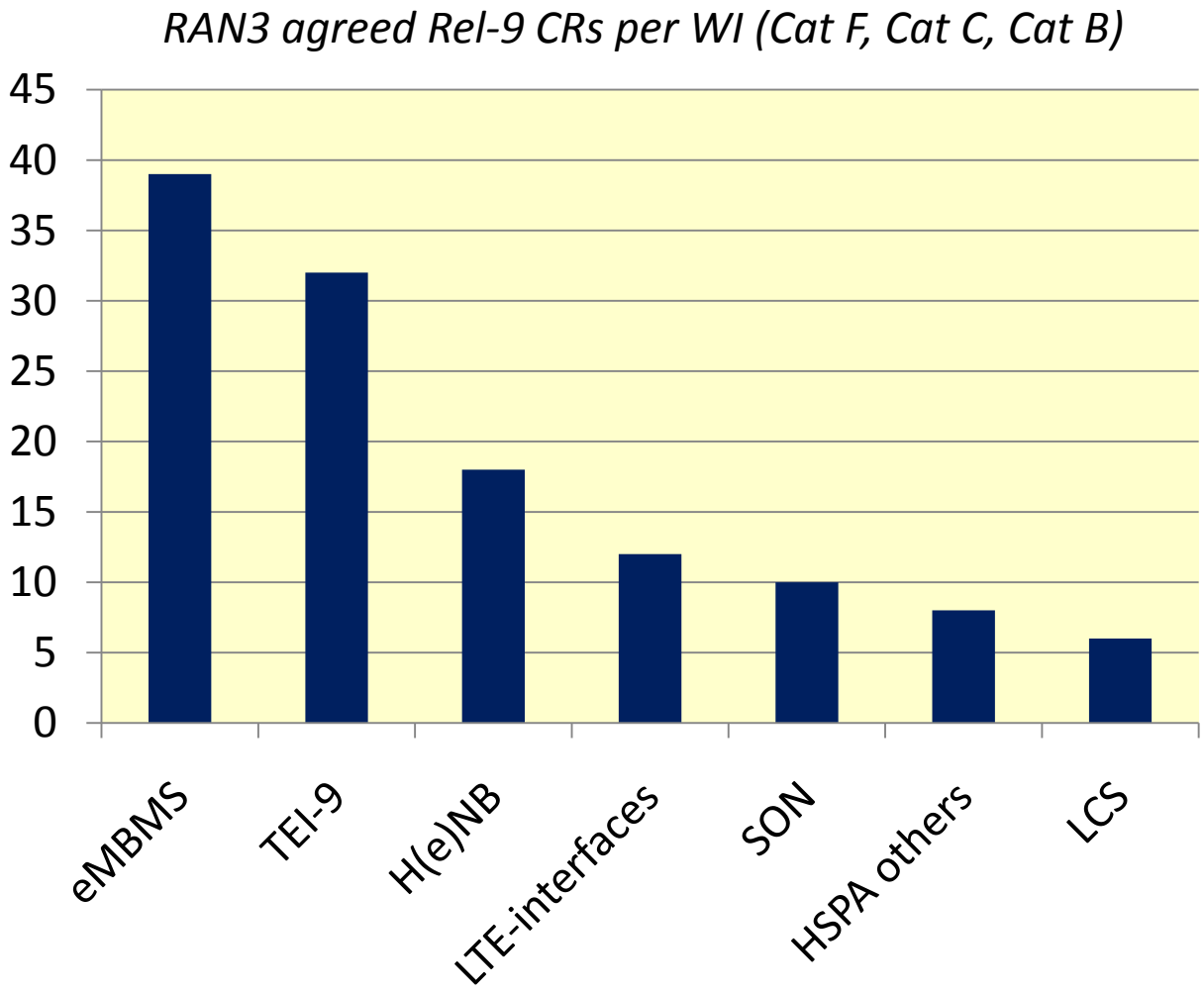


Statistics (5)

RAN3 agreed Rel-9 CRs per WI (Cat B and F)



Statistics (6)



Maintenance: Rel-7 UTRAN

- 2 Rel-7 CRs for UTRAN
  - 25.423/433: introduced *Precoding Weight Set Restriction* IE in AUDIT RESPONSE and RESOURCE STATUS INDICATION messages
    - SRNC needs to know the NodeB preference in terms of Precoding Weight Set Restriction to effecively configure MIMO operations in the UE

Maintenance: Rel-8 UTRAN

- 9 CRs related to TEI-8
  - 25.423/25.433: allowed reconfiguration of some IEs in RL Addition procedure
  - 25.423/25.433: corrected procedural text on E-RNTI allocation at serving cell change
  - 25.423: added HS-DSCH physical layer category over Iur
  - 25.423: clarified procedural text in RL Setup/Addition procedure related to the combining of E-DCH Radio Links within the RLS
  - 25.433: corrected semantic description of *E-DCH RACH Report Information* IE
  - 25.433: added semantic description to *Common E-DCH MAC-d Flow ID* IE
  - 25.413: corrected name of Target eNB ID (to align with 36.413)

Maintenance: Rel-8 UTRAN (cont'd)

- 3 CRs related to closed FDD/TDD WIs
  - 25.433: corrected presence of *Sixtyfour QAM DL and MIMO Combined Capability* IE in RESOURCE STATUS INDICATION message
  - 25.413: added missing *IP Source Address* IE in MBMS Session Start message
  - 25.446: corrected definition of Packet Number
- 4 CRs related to closed FDD WIs
  - 25.423/25.433: enabled E-RNTI allocation at the C-RNC for UE moving to Cell_FACH from Cell_DCH
  - 25.423: corrected the DC-HSDPA capability reporting in Uplink Signalling Transfer procedure
  - 25.433: added missing F-DPCH TX power info to *Common E-DCH System Information* IE

Maintenance: Rel-8 UTRAN (cont'd)

- 17 CRs related to closed Rel-8 TDD WIs
  - 25.423/24.433: corrected type related to E-DCH semi-persistent operation
  - 25.423/24.433: added UTRAN support for the synchronization detection scheme defined by RAN1
  - 25.423: corrected state transition for Enhanced CELL_FACH UEs
  - 25.433: added semantic description to *DTCH/DCCH Reception window size* IE
  - 25.433: added missing *HS-DSCH Semi-Persistent scheduling operation Indicator* IE in ASN.1
  - 25.433: added power control and synchronization configurations info for enhanced CELL_FACH
  - 25.433: corrected description in the Resource Status Indication procedure related to change of Enhanced PCH capability or Enhanced UE DRX capability
  - 25.433: changed max number of Non-HS-SCCH Associated HS-SICHs from 4 to 48
  - 25.433: added *HS-SCCH TPC step size* IE in RL Setup/Addition/Reconfiguration procedures
  - 25.433: corrected The mapping between common E-RNTI sets and E-RUCCHs is not clear and may leading misunderstanding between RNC and Node B
  - 25.433: corrected the PHYSICAL SHARED CHANNEL RECONFIGURATION FAILURE
  - 25.433: removed procedural text for DPC Mode IE in Common E-DCH System Information
  - 25.435: corrected the value range of *RACH Measurement Result* IE
  - 25.435: clarified text related to the DCCH/DTCH transmission mechanism in enhanced CELL-PCH state
  - 25.425: clarified that the eDRX Indication is only applicable to FDD

Maintenance: Rel-8 UTRAN (cont'd)

- 3 CRs related to closed Rel-8 WI on 3G HNB
  - 25.467: corrections to the non-CSG UEs registration and Iuh Disconnect Procedure
  - 25.468/ 25.469 : Clean-up of RUA/HNBAP (from the Rapporteur)

Maintenance: Rel-8 E-UTRAN

- 7 CRs to S1-AP
  - CDMA2000-related
    - Correction to the Downlink S1 CDMA2000 Tunneling procedure related to the handling of *E-RABs Subject to Forwarding Items* IE
    - Correction to the Uplink S1 CDMA2000 Tunneling procedure related to the handling for SRVCC to 1xRTT
    - Revised the semantic description of *CDMA2000 1xRTT RAND* IE to clarify how the IE is encoded by the eNB
  - ETWS-related
    - Removed restriction on Primary Notification (so that it can be repeated)
    - Clarified eNB's behavior in case *Number of Broadcast Requested* IE is set to '0'
  - Correction to the Path-switch failure
  - S1-AP clean-up (by Rapporteur)
- 2 CRs to X2-AP
  - Correction to the Resource Status Reporting Initiation procedure
  - X2-AP clean-up (by Rapporteur)
- 2 endorsed CRs to 36.300
  - Revised text on Area Restrictions to clarify that E-UTRAN supports X2 Inter-PLMN handovers
  - Clarified that the eNB should queue concurrent NAS messages for the same UE in order to ensure in-sequence delivery

Rel-9 work: SON

- Finalized inter-RAT Mobility Load Balancing (MLB) framework
  - Agreed to use RIM to exchange load information across RATs
    - Extended RIM-related routing info in RANAP/S1-AP in order to enable RIM transfers between UTRAN and EUTRAN
    - Defined a new transparent SON container in S1-AP that can be transferred across RATs by RIM (R3-101247)
      - The corresponding CR to TS 48.018 was just agreed by GERAN2 (GP-100444)
      - The new container currently supports exchange of load information
        - » In future, the container can be easiliy extended by RAN3 to transfer other SON related information across RATs (w/out need to involve GERAN2)
    - Clarified in stage-2 that the procedure shall be used infrequently and with lower priority with respect to UE-dedicated signalling
  - Added cell pair identification in MOBILITY CHANGE ACKNOWLEDGE/FAILURE messages
    - Needed in case of parallell Mobility Settings Change procedures involving different cell pairs belonging to the same eNBs

Rel-9 work: SON (cont'd)

- Finalized Mobility Robustness Optimization (MRO) framework
  - Introduced network handling for UE-originated RLF reports when the target eNB is prepared to accept the UE re-establishment request
    - UE-originated RLF reports transferred from target eNB to source eNB over X2 in the RLF INDICATION message
      - Added *UE RLF Report Container* IE in the RLF INDICATION message
    - Sent LS to inform RAN2 of the above
- Cleanups of 36.300 & 36.902 based on latest agreements

Rel-9 Work: HNB/HeNB

- Further discussions on mobility to CSG/hybrid cell
  - Introduced network handling in case of CSD ID validation failure at a target hybrid cell
    - Addresses the case when the source cell is out-of-sync w.r.t. the CSG ID actually used by the target cell
  - Principles of the solution:
    - Handover accepted at the target cell
    - Target cell reports its actual CSD ID to the CN in the handover acknowledge message
      - This information may be needed in the CN for charging purposes

- Handling of CSG expiry
  - Case of CSG-capable UEs
    - MME/SGSN informs the HeNB/HNB that the UE's CSG subscription expired
      - S1AP UE Context Modification/Common ID procedure is used
    - If the UE is served by a CSG cell, then the HeNB/HNB may try to handover the UE to another cell or request the release of S1/Iu in case the it is unable to handover the UE
      - MME/SGSN initiates the S1 release/Iu release after a configurable time, if the UE is not handed over or released by the cell
    - If the UE is served by a hybrid cell, the HeNB/HNB uses this information for appropriate QoS handling
  - Case of non CSG-capable UEs (3G only)
    - HNB-GW informs the HNB that the UE's CSG subscription expired
      - New class 2 procedure introduced in HNBAP: CSG Membership Update
    - After the CSG expiry notification is sent to HNB, the HNB/HNB-GW handling is similar to the H(e)NB/CN handling for the case of CSG-capable UE (see above)

Rel-9 Work: HNB/HeNB (cont'd)

- Optimized HNB-to-HNB mobility (Intra-CSG, intra-GW)
  - Originally introduced as stage-2 only solution (& deemed complete in RAN#45)
  - Issues regarding the solution were raised and discussed in the last two meetings, which ultimately led to the following alternative proposals:
    1. Fix the solution (w/ a stage-3 CR or in alternative w/ a stage-2 CR)
    2. Remove the solution from Rel-9 (and address the optimized HNB-to-HNB mobility in Rel-10)
  - Status of the discussion: it was not possible to agree (or even technically endorse) neither the fix(es) nor the removal of the feature

    => Plenary guidance might be needed

Rel-9 work: eMBMS

- Progress on stage-2:
  - Agreed rule for packet dropping at the eNB in case the SYNC protocol delivers more data for an MCH than the air interface can transport
  - Decided to not support pre-emption based on Allocation and Retention Priority for MBMS E-RABs in Rel-9
    - LS sent to SA2, CT3 and CT4 (R3-101318)
  - Additional clarifications provided to the SYNC protocol

- Progress on stage-3:
  - Introduced MBMS Session Update procedure for M3-AP and M2-AP
  - Clean up of M2-AP and M3-AP

- Remark: M2-AP and M3-AP ready for ASN.1 freeze!

Rel-9 Work: LTE positioning

- Finalized LPPa
  - Agreed to base routing of LPPa PDUs over S1 on the E-SMLC ID
    - Applies to both connection-oriented and connection-less transfers
  - Added Access Point position information reporting
    - Applies to both E-CID Measurement Result and Cell OTDOA Information messages
    - Includes position, altitude and orientation of the antenna
  - Added two new cause values
    - *Requested Item not Supported*, *Requested Item Temporarily not Available*
    - Allows the eNB to provide more information to the E-SMLC in case of failure
      - E-SMLC can avoid to (unecessary) repeat positioning requests in these cases
  - Included E-ARFCN information in the E-CID MEASUREMENT REPORT message
    - Allows disambiguate the cell at the E-SMLC when the E-CGI is not reported
- Remark: LPPa ready for ASN.1 freeze!

Rel-9 work: HSPA topics

- Dual Band HSDPA (R4 WI):
  - RNSAP: Correction of Multi-cell Capability Report
- Dual Cell HSUPA (R1 WI):
  - RNSAP/NBAP: Small Corrections/Improvements for DC-HSUPA
- Combination of DC-HSDPA with MIMO (R1 WI):
  - RNSAP: Remove Cell Specific HARQ memory partitioning for DC HSDPA+MIMO and additional corrections for DC HSDSCH preconfiguration
  - NBAP: Remove Cell Specific HARQ memory partitioning for DC HSDPA+MIMO
- All Rel-9 HSPA topics are now stable

Rel-10 work: HSPA topics

- Four carrier HSDPA (R1 WI)
  - Discussed Dynamic Load Balancing for 4C-HSDPA
    - Concluded that RAN3 will wait for RAN1 discussion on this topic
  - Discussed network protocol aspects for the introduction of 4C-HSDPA
    - Focus on cell capability handling
    - Agreed principle {1, 2, 3, 5} proposed in R3-100960

Rel-9 work: TEI-9

- ASN.1 freeze
  - Rel-9 ASN.1 review of signaling specs
    => Remark: RANAP, RNSAP, NBAP, S1AP, X2AP ready for ASN.1 freeze!
- Self-synchronization of TDD HeNBs
  - Introduced optional backhaul signaling support for synchronization of TDD HeNB using network listening (based on feedback received from RAN4 in R3-101212)
- Energy saving for LTE
  - Introduced mechansim over X2 allowing to switch-on/off capacity booster cells depending on network load
    - Autonomous switch-off decisions; neighbour eNBs informed about the decision
    - Switch-on performed upon request by one neighbour eNB
      - Requesting neighbour eNB is informed about outcome of the request. Other neighbours eNB informed in case switch-on is performed
    - Preserved the distributed nature of E-UTRAN (no master-slave relations)
- CSFB enhancements
  - Endorsed CR for 48.018 that enables UTRA SI transfer from UTRAN to E-UTRAN via RIM
    - Relates to the RAN2 technically endorsed CRs on release with redirection to UMTS (R2-101940/R2-101890)
    - LS sent to GERAN2
- Other small improvements/corrections

Rel-10 work: LTE-A Relays

- Progress in RAN3#66bis (Jan 2010)
  - Completed comparison table between architecture alternatives
    - The work helped RAN3 to gain a deep understanding of the various alternatives
  - Performed an initial show of hands showing a preference for alt-2

- Progress in joint RAN2-RAN3 session in San Francisco (Feb 2010)
  - Conclusion: *during the study of LTE-Advanced many architecture alternatives for relays were investigated, four of which are described in this TR. It is concluded that architecture alternative 2 herein has most benefits overall and is selected for Rel-10*
  - TR36.806 v2.0.0. submitted to RAN for approval

- Moving forward (into the WI phase)
  - Assumption that we will keep the same RAN2/3 worksplit in the WI phase

Future meeting dates

Title	Dates	Venue	Host
2010			
RAN3#68	10 – 14 May	Montreal (Canada)	RIM
RAN#48	1 – 4 Jun	Seoul (Korea)	
RAN3#69	23 - 27 Aug	Madrid (Spain)	EF3
RAN#49	14 – 17 Sep	San Antonio (US)	NAF3
RAN3#69bis	11 - 15 Oct	Xi'an (China)	ZTE
RAN3#70	15 – 19 Nov	US	NAF3
RAN#50	2 – 5 Dec	Istanbul (Turkey)	EF3
2011			
RAN3#70bis	17 – 21 Jan	EU	EF3
RAN3#71	21 – 25 Feb	Taipei (Taiwan)	HTC
RAN#51	15 – 18 Mar	US	

Acknowledgements

- To Juha for the excellent support
- To Philippe and Martin for chairing eMBMS and HSPA sessions, respectively
- To all companies that contributed to the Rel-9 ASN.1 review process and allowed to keep up the quality of RAN3 specs!