

PCG #30
Fukuoka, Japan,
Oct. 30, 2013



RAN Management Report

Dino Flore
TSG-RAN Chairman

Outline

- 📶 TSG RAN leadership
- 📶 Stats
- 📶 UE capabilities
- 📶 Notable discussions on R11 items
- 📶 Notable discussions on R12 items
- 📶 ITU-R activities
- 📶 LS to other external organizations
- 📶 Summary

TSG RAN Leadership

📶	RAN	<ul style="list-style-type: none"> Chairman Vice Chairman Vice Chairman Vice Chairman MCC support 	<p>Dino Flore Sharat Chander Giovanni Romano Takaharu Nakamura Joern Krause</p>	<p>Qualcomm Inc. AT&T Telecom Italia Fujitsu</p>
📶	RAN1	<ul style="list-style-type: none"> Chairman Vice Chairman Vice Chairman MCC support 	<p>Satoshi Nagata Wanshi Chen Matthew Baker Patrick Merias</p>	<p>NTT DOCOMO Inc. Qualcomm Inc. Alcatel Lucent</p>
📶	RAN2:	<ul style="list-style-type: none"> Chairman Vice Chairman Vice Chairman MCC support 	<p>Henning Wiemann YI, SeungJune Diana Pani Joern Krause</p>	<p>Telefon AB LM Ericsson LG Electronics Inc. Interdigital</p>
📶	RAN3:	<ul style="list-style-type: none"> Chairman Vice Chairman Vice Chairman MCC support 	<p>Philippe Reininger Martin Israelson Philippe Godin Juha Korhonen</p>	<p>Huawei Technologies Co. Telefon AB LM Ericsson Alcatel Lucent</p>
📶	RAN4:	<ul style="list-style-type: none"> Chairman ViceChairman ViceChairman MCC support 	<p>Tuomo Säynäjäkangas Tingfang Ji Steven Chen Issam Toufik</p>	<p>NSN Qualcomm Inc. Huawei Technologies Co.</p>
📶	RAN5:	<ul style="list-style-type: none"> Chairman ViceChairman ViceChairman MCC Support 	<p>Nick Baustert Jacob John Fredrik Sundström Ingbert Sigovich</p>	<p>Sprint MOTOROLA Mobility UK, Ltd. Telefon AB LM Ericsson</p>

Congratulations to the new & re-elected leaders!

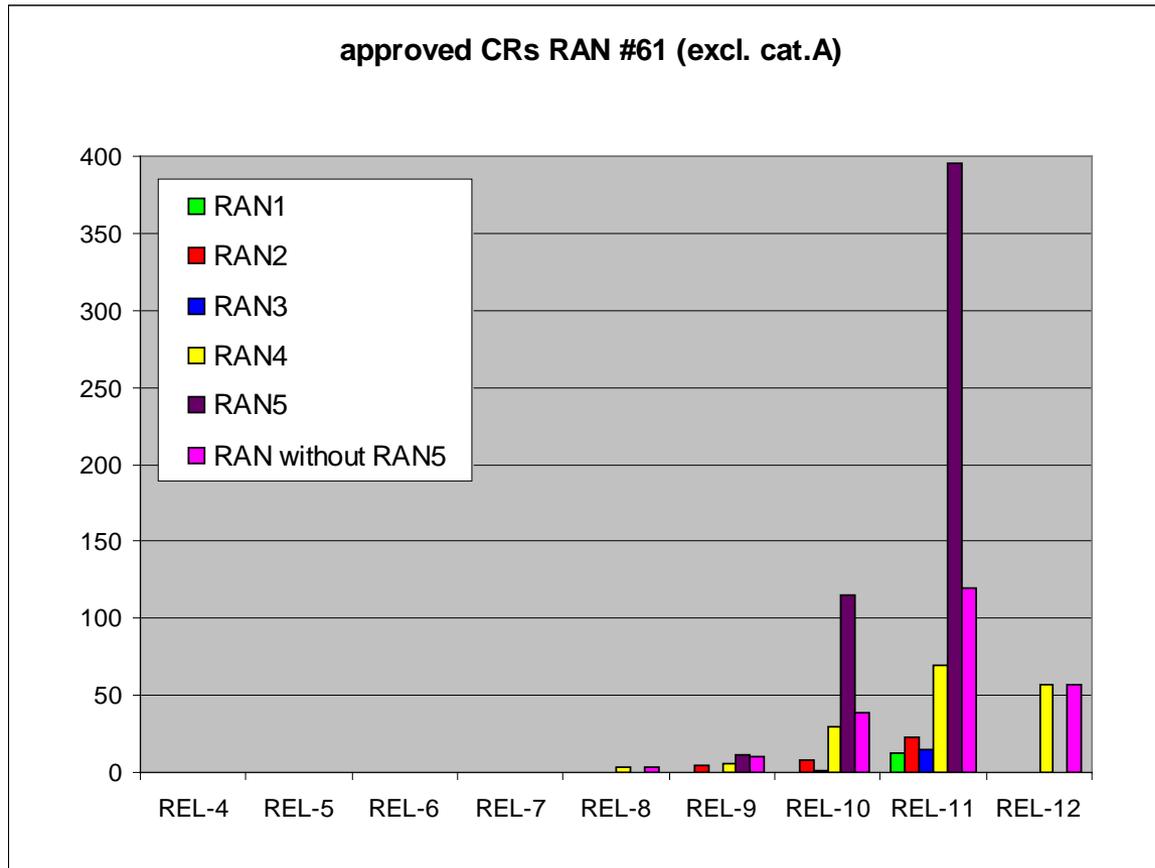
Meetings since PCG #30

April	May	June	Aug.	Sep.	Oct.
RAN1 #72b RAN2 #81b RAN3 #79b RAN4 #66b	RAN1 #73 RAN2 #82 RAN3 #80 RAN4 #67 RAN5 #59	RAN #60	RAN1 #74 RAN2 #83 RAN4#68 RAN5 #60	RAN #61	RAN1 #74b RAN2 #83b RAN3 #81b RAN4 #68b

Meetings until PCG #32

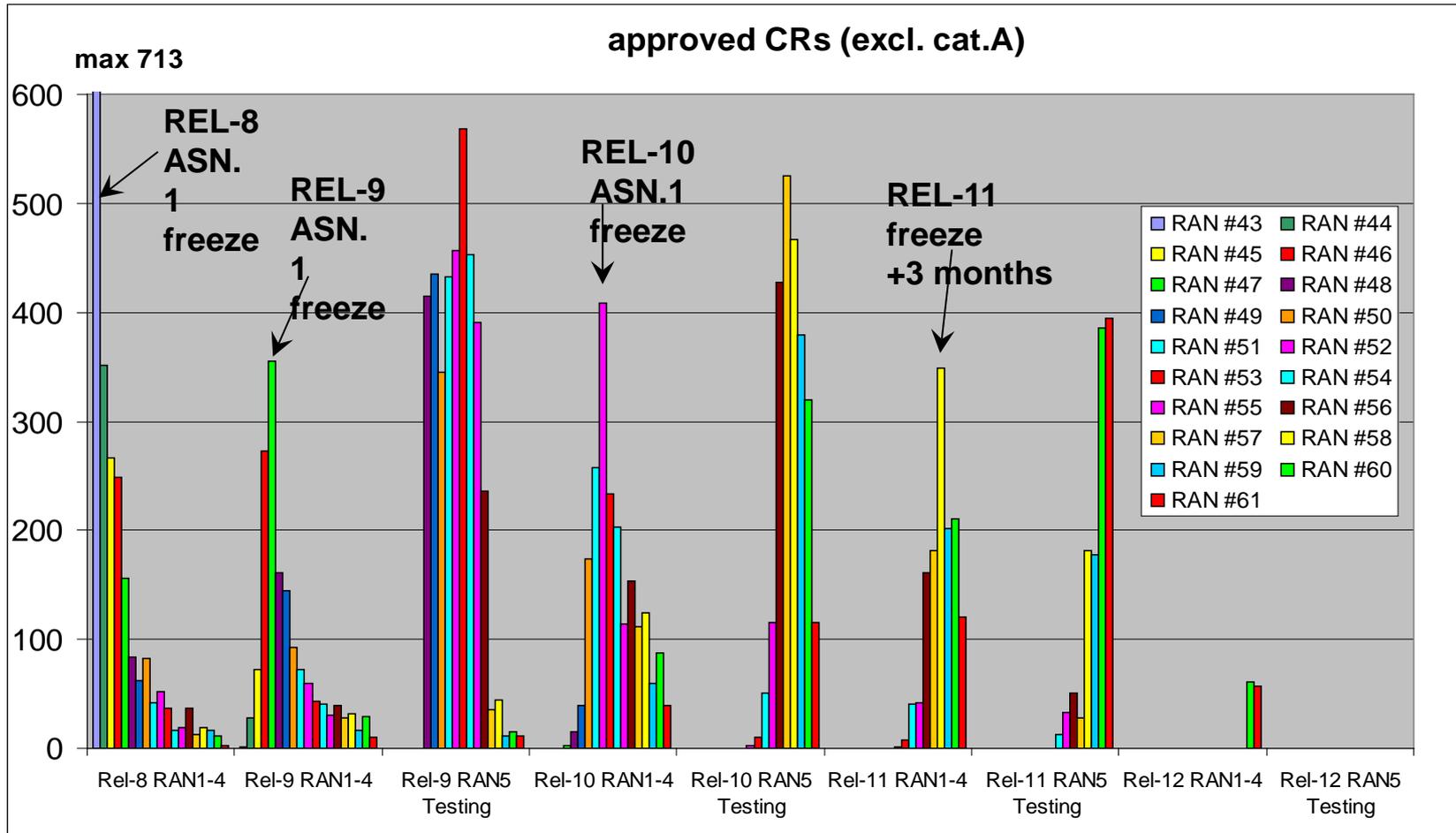
Nov	Dec	Jan	Feb	March
RAN1 #75 RAN2 #84 RAN3 #82 RAN4 #69 RAN5 #61	RAN #62	RAN1 #76 RAN2 #85 RAN3 #83 RAN4 #70 RAN5 #62	RAN #63	RAN1 #75 RAN2 #84 RAN3 #82 RAN4 #69 RAN5 #61

Approved CRs by WG & Release (as of RAN #61/Sep. 2013)



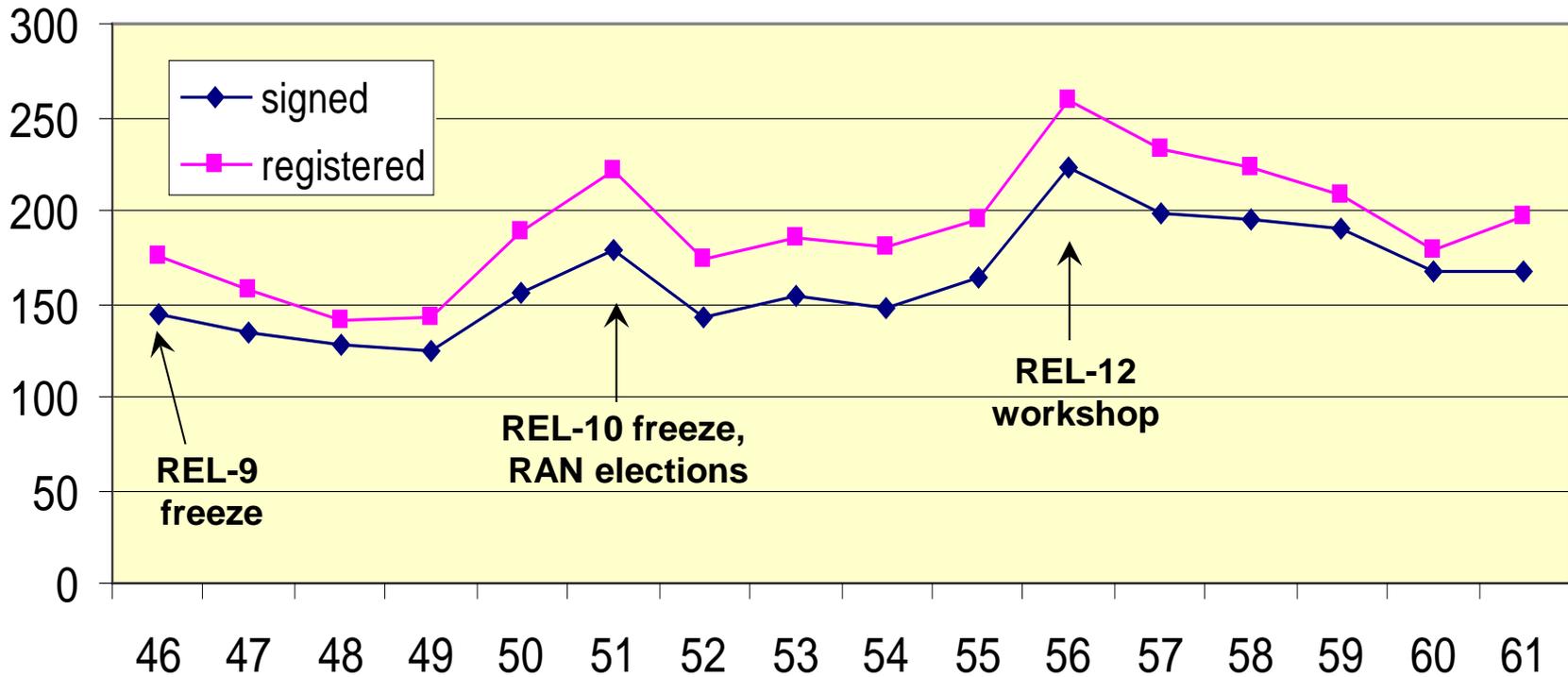
- 📶 No Rel-12 CRs yet for RAN1/RAN2/RAN3
- 📶 RAN4: still a lot of pre-Rel-12 CRs => 80 cat.A Rel-12 CRs due to early Rel-12 specs!

History of approved CRs by Release (as of RAN #61/Sep. 2013)



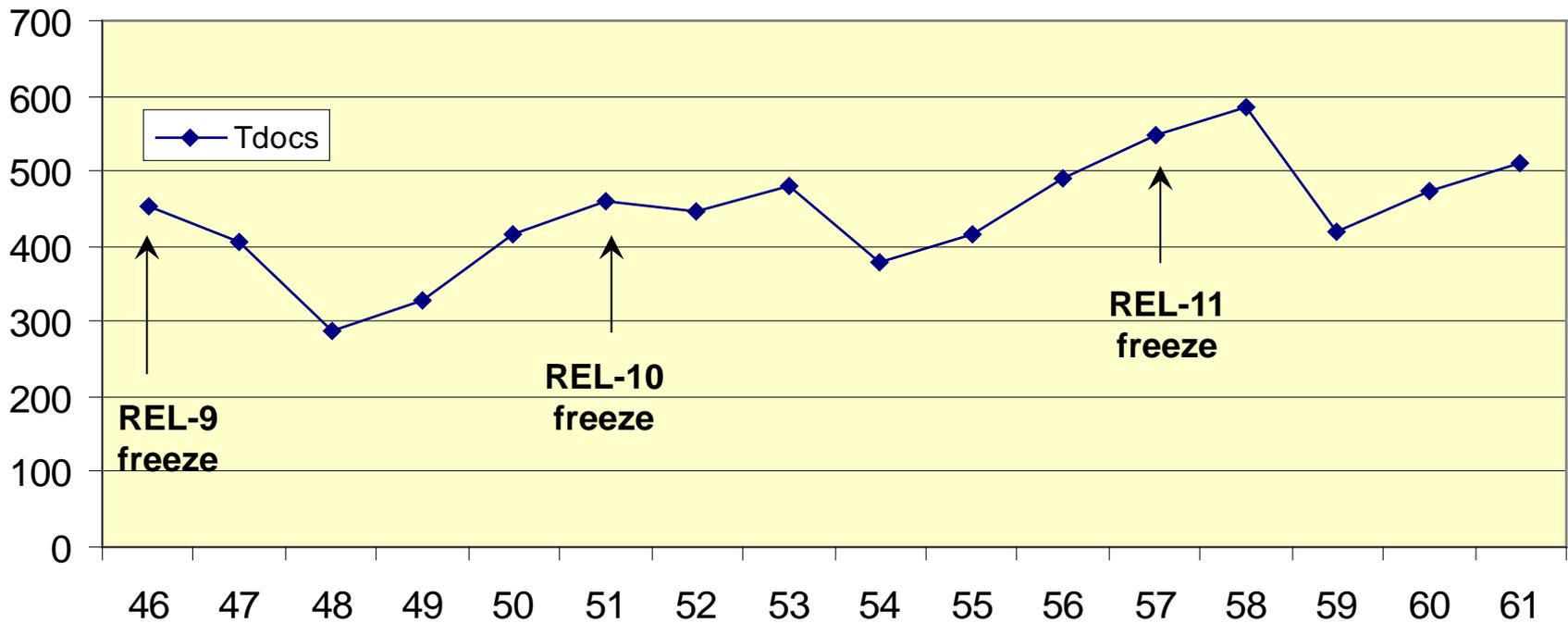
RAN attendance

participants per RAN meeting

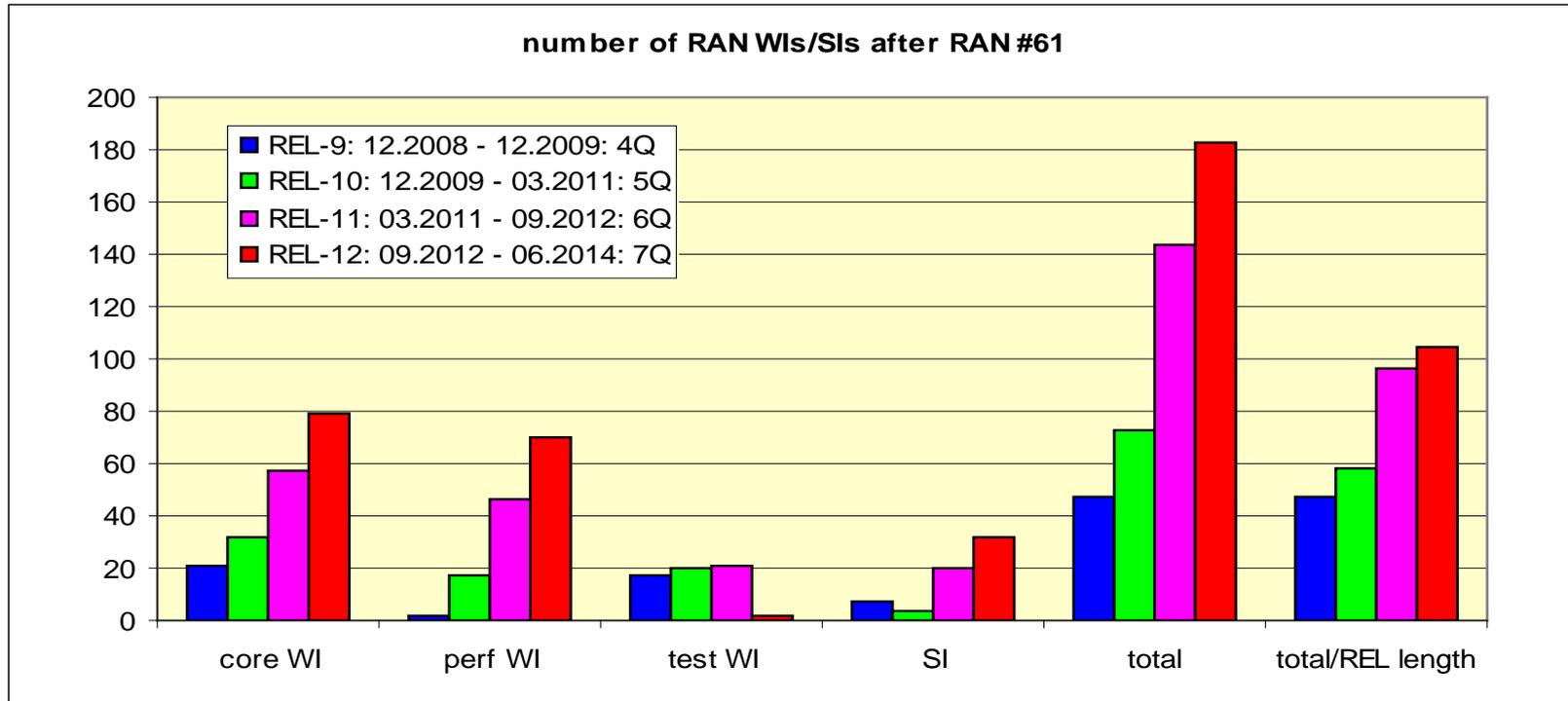


RAN contributions stats

allocated documents per RAN meeting

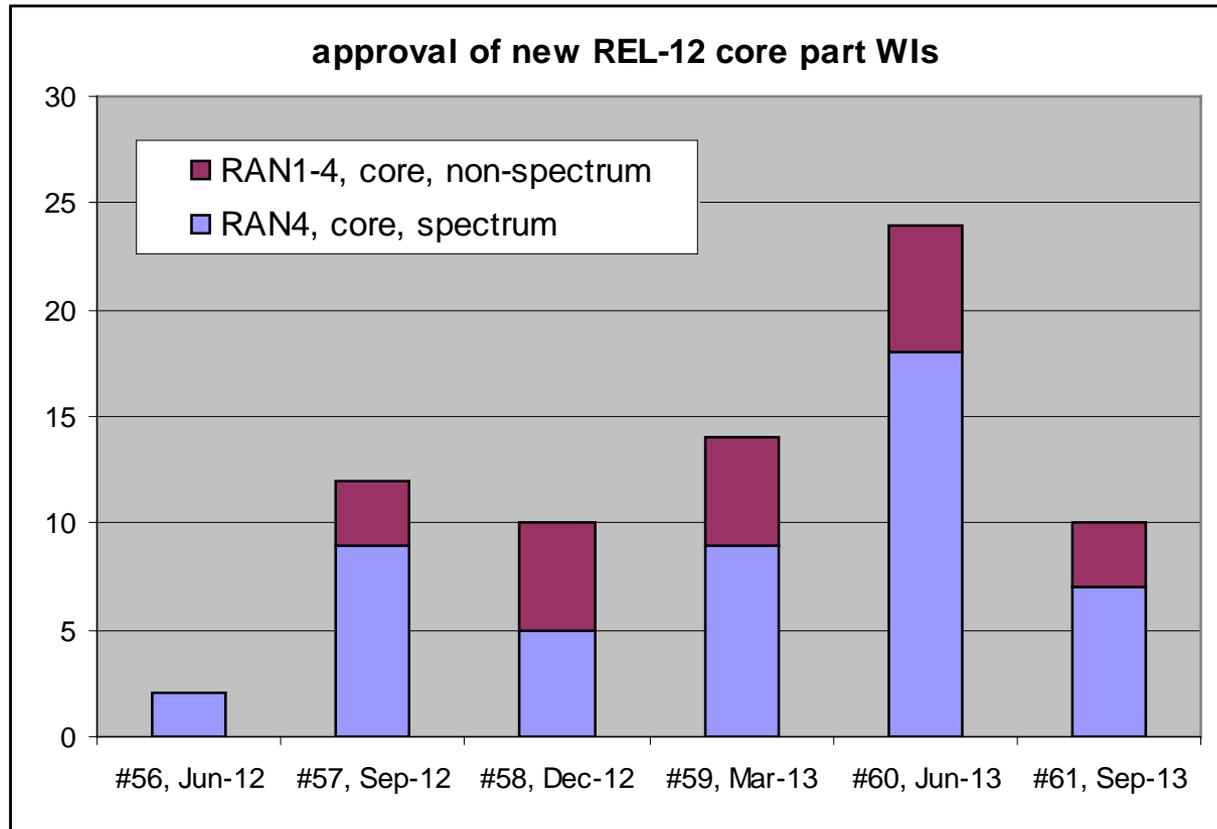


Number of WI/SIs per Release (as of RAN #61/Sep. 2013)



NOTE: The statistic includes open/new/closed WIs/SIs.

Development of new REL-12 WIs/SIs (core functions)



Note:

- Rel-11 functional freeze: Sep.12
- Rel-12 functional freeze: June 14

Overview of open/new WIs/SIs (as of RAN #61/Sep. 2013)

Rel-10:

- Only 1 open RAN5 UE Conf. testing WI: Enh. ICIC for non-CA based deployments of heterogeneous networks for LTE

Rel-11: 9 open +1 new RAN5 UE Conf. testing WIs, but still 8 RAN4 perf. part WIs:

- Further Enhancements to CELL_FACH
- Four Branch MIMO transmission for HSDPA
- RF Requirements for Multi-band and Multi-standard Radio (MB-MSR) Base Station
- Network-Based Positioning Support for LTE
- Further Enhanced Non CA-based ICIC for LTE
- LTE Carrier Aggregation Enhancements
- Coordinated Multi-Point Operation for LTE – Downlink
- Enhanced downlink control channel(s) for LTE

Rel-12: 109 open/new WIs (58 core, 49 perf., 2 test) and 23 open/new SIs

- RAN1: core WIs: 6 open + 1 new ; SIs: 7 open
- RAN2: core WIs: 3 open + 2 new ; SIs: 3 open + 3 new
- RAN3: core WIs: 6 open + 0 new ; SIs: 5 open
- RAN4: core WIs: 33 open + 7 new ; perf. WIs: 40 open + 9 new SIs: 5 open
- RAN5: test WIs: 1 open + 1 new ; SIs: 0 open

UE capabilities

Rel-9 Feature Group Indicators

FGI #28 (TTI bundling)

- RAN approved the CR mandating the feature, [RP-130718](#)

FGI #9 (SRVCC to GSM) and #23 (GERAN measurements)

- After lengthy discussions RAN postponed the CRs mandating the two features with the intention to approve them in RAN#62
- RAN5 was tasked to prepare the corresponding testing CRs for approval at RAN#62 as well

In general, RAN decided that when dealing with FGI bits it will approve CRs mandating features **6 months after** IOT availability has been declared in RAN

- The current approach (to approve CRs **within 6 months** IOT availability has been declared) was generating lengthy, and unnecessary, discussions

Rel-11 UE capabilities

📶 The operator survey in [RP-131263](#) was used as an input to decide which main Rel-11 features will be made mandatory

📶 RAN decisions are summarized in the table below

#	FDD	Proposal	#	TDD	Proposal
1 st	CRS interference handling	Mandatory	1 st	CRS interference handling	Mandatory
2 nd	Multiple-TA	Mandatory	2 nd	SS and common channel interference handling	FFS
3 rd	EPDCCH	Optional		DL CoMP with 1 CSI process	Optional
4 th	SS and common channel interference handling	Optional	4 th	Multiple-TA	Optional
5 th	DL CoMP with 1 CSI process	Optional	5 th	EPDCCH	Optional
6 th	Wideband RSRQ measurements	Optional	6 th	Wideband RSRQ measurements	Optional

NOTE: mandatory features will have a corresponding FGI bit to be turned to TRUE once IOT availability is declared in RAN

New UE categories

-  A proposal to standardize new UE categories was presented in [RP-131162](#), including:
 - New UE categories to take into account the new peak rates achievable with Carrier Aggregation (e.g. 3 DL CA) or with techniques being studied for Rel-12 (e.g. 256 QAM)
 - Decoupling of UL / DL categories to take into account that DL and UL are not necessarily evolving at the same time and may have differ requirements depending on the specific applications
-  As companies needed more time to check internally, the proposal was postponed to RAN#62

Rel-11 items

Rel-11 items

Network-based positioning WI

- Completed core specification work for Rel-11 in RAN#60
- Performance specification work being finalized

Rel-12 items

Rel-12 items (1)

New Carrier Type WI

- RAN1 concluded the evaluation phase without being able to reach any agreement, [RP-130921](#)
- After some discussion, in RAN#61 it was decided to:
 - Close current WI (hence stop NCT work in RAN1)
 - Continue the discussion in RAN on usecases and requirements for a New Carrier Type in LTE (beyond Rel-12)
- This is a particularly important discussion given that we are discussing possible non-backward compatible evolutions of LTE

Small Cells – PHY SI

- In RAN#61 the SI was extended by one quarter, now targeting completion at RAN#62, as some companies questioned the level of completion of the study
- It was also decided to focus the study on the completion of the following (high priority) areas
 - Higher order modulation, i.e., 256QAM, in the downlink transmission
 - Support of semi-static small cell on/off mechanisms for interference avoidance and coordination among small cells adapting to varying traffic
 - Evaluation of radio interface based inter-cell synchronization techniques

Rel-12 items (2)

Small Cells – Upper Layers SI

- In RAN#61 the SI was extended by one quarter, now targeting completion at RAN#62, to complete the evaluation of U-plane architecture solutions for the dual connectivity feature

MTC signaling enhancements SI

- In RAN#61 the SI was completed (approved TR in [RP-131150](#))
- A WI proposal in [RP-131356](#) was noted, covering
 - UE Power Consumption Optimizations
 - Signalling Overhead Reduction
- Some companies felt that more progress from SA2 on corresponding items would be beneficial, before RAN can proceed with a WI

Rel-12 items (3)

Joint FDD/TDD operations WI, **new**

- New item started in RAN#60 (WID: [RP-131399](#)), involving two parallel efforts:
 1. Evaluation of scenarios and solutions for joint FDD-TDD operations (to be documented in TR 36.847)
 2. Normative work to support LTE TDD-FDD CA in Rel-12, given the following high level requirements:
 - Either FDD or TDD carrier can be configured as Primary Cell (Pcell)
 - UEs supporting FDD and TDD carrier aggregation operation shall be able to access both legacy FDD and legacy TDD single mode carriers
 - Legacy FDD UEs and UEs supporting FDD and TDD CA operation may camp on and connect the FDD carrier, which is part of the jointly operated FDD/TDD network
 - Legacy TDD UEs and UEs supporting FDD and TDD CA operation may camp on and connect the TDD carrier, which is part of the jointly operated FDD/TDD network

3GPP/WiFi Radio Interworking SI

- In RAN#61 the SI was extended by one quarter, now targeting completion at RAN#62, to allow further convergence among the three identified solutions
- RAN agreed the following guidance for RAN2:
 - Deployments scenarios with and without ANDSF shall be addressed by WLAN/3GPP Radio Interworking SI
 - RAN recommends that RAN2 communicate with SA2/CT1 once solutions details that may have CN impact have been worked out sufficiently
 - The solution for WLAN/3GPP Radio Interworking should be testable
 - RAN2 should complete the work in the Study Item for each of the 3 solutions

Rel-12 items (4)

UMTS Heterogeneous Networks SI

- In RAN#61 the SI was extended till RAN#62 to close few open issues (Combined Cells, NAIC and E-DCH decoupling). Approved TR in [RP-131186](#)
- A follow-up WI was approved in [RP-131348](#) with focus on mobility improvements

DCH enhancements SI

- In RAN#61 the SI was closed; See approved TR in [RP-131344](#)
- A follow-up WI was approved in [RP-131357](#), with focus on DCH enhancements toward UL & DL Early Frame Terminations

Scalable UMTS SI

- In RAN#61 the SI was extended by one quarter, now targeting completion at RAN#62, to complete the remaining open issues

Rel-12 items (3)

Inter-TSG coord: ProSe, GCSE and UPCON

- In [RP-130924](#) RAN was requested to provide input for SA#61 regarding which of the listed features (of ProSe, GCSE and UPCON) RAN would target to complete in Rel-12
- After discussion on existing items as well the approval of new items, RAN#61 endorsed the response document in [RP-131335](#)

Public Safety priorities for Rel-12

- RAN endorsed the Public Safety related usecase priorities for Rel-12 in [RP-131377](#)
- RAN WGs were asked to take these priorities into consideration in their study and design work on LTE Device to Device Proximity Services

New items

New items – core features (I)



WID	Title	Target	Lead WG
RP-130847	CoMP for LTE with Non-Ideal Backhaul SI	RAN#62	RAN1
RP-131399	LTE TDD-FDD Joint Operation WI	RAN#64	RAN1
RP-130833	LTE Coverage Enhancements WI*	RAN#63	RAN1
RP-130848	Low cost & enhanced coverage MTC UE for LTE WI	RAN#63	RAN1
RP-131382	Group Communication for LTE SI	RAN#63	RAN2
RP-131397	Smart Congestion Mitigation in E-UTRAN SI	RAN#63	RAN2
RP-131369	Further MBMS Operations Support for E-UTRAN WI*	RAN#64	RAN2
RP-130831	LTE-HRPD inter RAT SON WI	RAN#63	RAN3
RP-130680	Positioning enhancements for E-UTRA SI	RAN#64	RAN4

* *Approved only RAN1 tasks/allocations*



On the approval process

- 📶 RAN remains overloaded as the number of new proposals is significantly larger than the number of items that can be accommodated by WGs
- 📶 This is especially true for new LTE proposals competing for RAN1 and RAN2 time, where for instance less than 50% of the proposals could be approved in the last two plenaries
- 📶 The above resulted in complex discussions and the need to prioritize among new proposals
- 📶 An additional complication comes also from the wide variety of proposals and the need to establish what is most important for the industry
 - This is especially the case for RAN2, being the crossroad of different features (RAN2-led vs. RAN1-led vs. System-level features)
 - To avoid slaving RAN2 to RAN1 (as sometime happened in the past), during the approval of new RAN1-led items in RAN#60 we decided to put on hold any new RAN2 requests so that in RAN#61 we could look at all proposals with RAN2 impact



On the approval process (cont'd)

-  The approach used in the last two plenaries has been to:
 - Review and discuss online and offline all new proposals in order to get them in an agreeable state by the end of the week
 - Ask interested companies to converge during the week on an agreeable “way forward” on which items to select
 - Otherwise use an informal “show of hands” as an additional input in the approval process i.e. by discussing the final approval of new proposals one-by-one based on their support and until capacity is reached

-  Using this approach: in RAN#60 convergence was reached based on “way forward” documents from the interested companies; in RAN#61 convergence was reached through an informal “show of hands” taken at the end of the week

-  Given the difficult discussions we had in RAN#61 and the variety of requirements coming from the industry, RAN#62 will also discuss the possibility to increase WG processing power to help address more items that are relevant to the industry
 - But it needs to be understood that this could only mitigate the issue. In the end we need to cope with the fact that RAN is resource constrained and hence we need to constantly prioritize among new proposals

New items – core features (II)

HSPA

WID	Title	Target	Lead WG
RP-130868	HNB Positioning for UTRA WI	RAN#62	RAN3
RP-130859	HNB Emergency Warning Area for UTRA SI	RAN#63	RAN3
RP-131348	UMTS Heterogeneous Networks WI	RAN#64	RAN2
RP-131357	DCH Enhancements for UMTS WI	RAN#64	RAN1
RP-131386	Enhanced Broadcast of System Information SI	RAN#62	RAN2

Others

WID	Title	Target	Lead WG
RP-130851	New Base Station specification structure WI	RAN#63	RAN4

New items- spectrum related (1)

LTE CA combination specification – 2DL

WID	Title	Target	Rapporteur
RP-130652	2DL/1UL CA in Band 23 (contiguous)	RAN#62	DISH
RP-130653	2DL/1UL CA in Band 23 (non-contiguous)	RAN#62	DISH
RP-130832	2DL/1UL CA for Bands {12, 25}	RAN#62	US Cellular
RP-130669	2DL/1UL CA for Bands {1, 18} - additional combination set – already completed	RAN#61	KDDI
RP-130675	2DL/1UL CA for Bands {2, 5} – already completed	RAN#61	AT&T
RP-131354	2DL/1UL CA for Bands {1, 11}	RAN#64	SoftBank
RP-131355	2DL/1UL CA for Bands {8, 11}	RAN#64	SoftBank
RP-131365	2DL/1UL CA for Bands {5, 7}	RAN#64	LG UPlus
RP-131343	2DL/1UL CA for Bands {5, 25}	RAN#64	US Cellular
RP-131307	2DL/1UL CA for Bands {7, 28}	RAN#64	Huawei
RP-131366	2DL/1UL CA in Band 2 (non-contiguous)	RAN#64	Verizon

New items- spectrum related (2)

LTE CA combination specification – 3DL

WID	Title	Target	Rapporteur
RP-130882	3DL/1UL CA for Bands {2, 5, 30}	RAN#64	AT&T
RP-130883	3DL/1UL CA for Bands {2, 17, 30}	RAN#64	AT&T
RP-130884	3DL/1UL CA for Bands {2, 29, 30}	RAN#64	AT&T
RP-130885	3DL/1UL CA for Bands {4, 5, 30}	RAN#64	AT&T
RP-130886	3DL/1UL CA for Bands {4, 17, 30}	RAN#64	AT&T
RP-130887	3DL/1UL CA for Bands {4, 29, 30}	RAN#64	AT&T
RP-130697	3DL/1UL CA for Bands {2, 4, 13}	RAN#64	Verizon
RP-130891	3DL/1UL CA for Bands {2, 2, 13}	RAN#64	Verizon
RP-130699	3DL/1UL CA for Bands {4, 4, 13}	RAN#64	Verizon
RP-131244	3DL/1UL CA for Band 41 (contiguous)	RAN#64	ALU

Novelty: start of the specification work on 3DL LTE CA combinations

New items- spectrum related (3)

LTE CA combination specification – 2UL

WID	Title	Target	Rapporteur
RP-130871	Non-contiguous intra-band CA frame-work requirements	RAN#64	Nokia
RP-130873	2DL/2UL CA for Band 41 (non-contiguous)	RAN#65	Clearwire
RP-130602	2DL/2UL CA for Band 4 (non-contiguous)	RAN#65	TMO USA

Novelty: start of the specification work on 2UL LTE CA combinations

New band for supplemental downlink operation

WID	Title	Target	Rapporteur
RP-130829	L-band for SDL in E-UTRA and UTRA	RAN#63	Orange

New items – conformance tests

WID	Title	Target	Rapporteur
RP-130644	Further Enhancements to CELL-FACH	RAN#63	Ericsson
RP-130646	LTE 450MHz band in Brazil	RAN#62	Huawei
RP-130649	Further Enhanced Non-CA based ICIC for LTE	RAN#64	ZTE
RP-130660	Improved Minimum Performance Requirements for E-UTRA: Interference Rejection	RAN#64	Renesas
RP-130702	LTE Carrier Aggregation Enhancements	RAN#64	Nokia
RP-131341	System Improvements for Machine-Type Communications	RAN#63	Ericsson
RP-131210	Further Configurations for LTE CA of Intra-band and Inter-band	RAN#65	Nokia

ITU-R related activities

LSs to ITU-R WP5D

- 📶 LS on the completion of the submission of LTE-Advanced toward Revision 1 of Rec. ITU-R M.2012, [RP-130854](#)
 - Approved then by SA and submitted to PCG via ATIS;
 - Approved then by correspondence by PCG on June 26th (PCG31_10) and submitted to ITU-R

- 📶 LS on Revision of the Recommendations ITU-R M.1580 and M.1581, [RP-130853](#)
 - Approved then by SA and submitted to PCG;
 - Approved then by correspondence by PCG on June 26th (PCG31_08) and submitted to ITU-R

- 📶 LS on Technical and Operational Aspects of Passive and Active Base Station Antennas for IMT Systems, [RP-130855](#)
 - Approved then by SA and submitted to PCG
 - Approved then by correspondence by PCG on June 26th (PCG31_09) and submitted to ITU-R

LSs to ITU-R WP5D (cont'd)

- 📶 LS on STUDY ON IMT VISION FOR 2020 AND BEYOND, [RP-131395](#)
 - With the understanding that 3GPP is working on mid-term technology RAN answered in TSG#61 that “3GPP is not going to contribute”
 - Approved then by SA and submitted to PCG
 - Approved then by correspondence by PCG on Sept 27th (PCG31_14) and submitted to ITU-R

- 📶 LS on STUDY ON FUTURE TECHNOLOGY TRENDS FOR TERRESTRIAL IMT SYSTEMS, [RP-131393](#)
 - Provide to ITU-R a description of approved Rel-12 RAN features
 - Approved then by SA and submitted to PCG
 - Approved then by correspondence by PCG on Sept 27th (PCG31_12) and submitted to ITU-R

- 📶 LS ON THE TECHNOLOGIES FOR PUBLIC PROTECTION AND DISASTER RELIEF COMMUNICATIONS ASSOCIATED WITH WORK ON WRC-15 AGENDA ITEM 1.3, [RP-131394](#)
 - Approved then by SA with slight modifications, [SP-130497](#)
 - Approved then by SA and submitted to PCG
 - Approved then by correspondence by PCG on Sept 27th (PCG31_13) and submitted to ITU-R

- 📶 LS on Update submission for IMT-2000 CDMA DS and IMT-2000 CDMA TDD toward Rev. 12 of Rec. ITU-R M.1457, [RP-131363](#)
 - Description of 3GPP activities defined in Release 11 to be submitted to ITU-R for inclusion in Revision 12 of the Recommendation
 - Approved then by SA and submitted to PCG via ATIS
 - Approved then by correspondence by PCG on Sept 27th (PCG31_11) and submitted to ITU-R

Others

-  Reply LS to WBA on Carrier Wi-Fi, [RP-131367](#)
 - Listing areas of work on 3GPP/WLAN radio integration

-  Reply LS to BBF on MPLS in Mobile Backhaul Networks, [RP-131368](#)
 - No specific feedback

-  RAN endorsed the TF160 funding proposal for the next year, as per request in [RP-130937](#) (slide 10)
 - PCG is asked to approve the proposal

-  Workplan:
 - Endorsed timeplan for ongoing RAN1-4 activities on core features is available in [RP-131408](#)

Summary

- 📶 Very complex discussions for the approval of new items
- 📶 Finalized the discussion on UE R11 capabilities
- 📶 Good Rel-12 progress with the start of some normative items
 - The bulk normative items to be approved in RAN#62 and RAN#63
- 📶 Notable evolution of LTE CA technology with the start of normative work on:
 - LTE CA combinations with 2UL carriers
 - LTE CA combinations with 3DL carriers
 - LTE FDD/TDD carrier aggregation
- 📶 RAN to continue the discussion on usecases and requirements for a New Carrier Type in LTE (beyond Rel-12)
- 📶 Action to PCG:
 - Approve the TF160 funding proposal in [RP-130937](#) (slide 10)
- 📶 Thanks to the RAN management team for the excellent support