

October 2000

September 2000

August 2000

July 2000

June 2000

May 2000

April 2000

March 2000

February 2000

January 2000

December 1999

November 1999, Week 4

November 1999, Week 3

November 1999, Week 2

November 1999, Week 1

October 1999

September 1999

August 1999

July 1999

June 1999

May 1999

April 1999

March 1999

February 1999

January 1999

December 1998

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EXHIBIT 6

Agenda item: 7.2.4

Source: LG Electronics Inc.

Title: Proposed Scheduling Request (SR) structure and multiplexing with PUCCH

Document for: discussion and decision

1. Overall description

In last RAN1 meeting, there was a partial agreement on the transmission of Scheduling Request (SR) that SR and CQI should be separated, i.e. embedded SR transmission on CQI channel should be averted so that SR and CQI are not associated with each other. Even though there has not been further agreement, the implication of this agreement is that separate dedicated channel for SR transmission should be designed and provided.

In designing SR channel structure, one should consider various aspects and restrictions that are imposed by the current agreements on PUCCH structure and possible multiplexing mechanisms in order not to violate so-called single carrier property.

In this document, two possible alternative SR structures are proposed that are quite in line with the currently agreed-upon PUCCH structure and do not breach single carrier property when multiplexing with other PUCCH data is required.

2. Proposed Scheduling Request (SR) structure and operational method

In general, SR is predisposed to be transmitted solely without the other control information in many request opportunities. But, one cannot completely rule out the situations where simultaneous transmission with ACK/NAK or CQI is required when SR is to be transmitted. In this section, two types of SR structures (so called 'Alternative 1' and 'Alternative 2') are proposed, and the operational methods of each proposed SR structure are specified.

'Alternative 1' has been designed with the premise that simultaneous transmission of SR and ACK/NACK can be shunned arbitrarily by means of either delaying SR transmission or discarding ACK/NACK transmission, while 'Alternative 2' has been devised, taking into account the simultaneous transmission of SR and ACK/NACK. Each alternative scheme has its own merit and demerit. 'Alternative 1' has the advantage of larger multiplexing capability over 'Alternative 2' at the cost of slight degradation in downlink system throughput. On the contrary, 'Alternative 2' makes it possible for UEs to transmit SR and ACK/NACK simultaneously in one subframe at the cost of reduced multiplexing capability.

In the following sections, the explanation of each scheme will be elaborated in detail together with its own pros and cons.

2.1 Alternative 1 for Scheduling Request

2.1.1 Basic SR structure

Figure 1 shows the proposed SR transmission mechanism where SR from one UE can be multiplexed together with ACK/NACK signal from the other UEs on the same RB reserved for ACK/NACK channel. This can be done by reserving some resources for SR transmission in a dedicated manner. Currently, there is on-going discussion how to simultaneously multiplex ACK/NAK signal and CQI signal from a certain UE with the current PUCCH structure. Several proposals have been introduced, such as joint coding of ACK/NACK and CQI, or symbol by symbol TDM transmission between ACK/NACK signal and CQI signal, but none of which seems to satisfactorily meet the target BER requirement

agreed upon by the group from our perspective. Therefore, our preference is not to allow simultaneous transmission of ACK/NACK signal and CQI signal from one UE during the same subframe. Quite similarly, simultaneous transmission of SR and ACK/NACK transmission from one UE may be prevented by means of priority setting, which makes a lot of aspects simpler and easier when designing SR structure. However, regardless whether simultaneous SR transmission with the other PUCCH signal is supported from one UE or not, it would be quite preferable in terms of flexible RB management for PUCCH that SR from one UE can be multiplexed together with other UEs' ACK/NACK signal on the same RB

Figure 1 and 2 depict a proposed SR structure, which enables SR transmission from one UE to be multiplexed together with ACK/NAK signal from the other UEs on the same RB. It should be also noted that multiplexing with CQI can be possible, but is omitted just for simplicity in these figures. In the figure 1 and 2, ZC_shift_K ($K=1\sim6$) is K -th CAZAC sequence shifted from one root sequence in frequency domain, $OC(i)$, $i=1\sim3$ or 4, denotes i -th orthogonal covering sequence in time domain. Here in these figures, the number in the axis of orthogonal index represents the index of dedicated or shared orthogonal resource that is assigned to each ACK/NACK, SR or CQI.

Proposed SR structure can have 3 different symbols lengths.

- (1) SR with length of 4 symbols is spread over 4 SC-FDMA symbols in the same position where ACK/NAK information part is located, i.e. 1st, 2nd, 6th, 7th symbol in case of 1st slot (Block A and B in figure 1 and 2).
- (2) SR with length of 3 symbols is spread over 3 SC-FDMA symbols in the same position where ACK/NAK reference signal part is located, i.e. 3rd, 4th, 5th symbol in case of 1st slot (Block C in figure 1 and 2).
- (3) SR with length of 7 symbols is spread over 7 SC-FDMA symbols. However, spreading sequences of two different lengths are applied to 7 symbols, one is SF4 for 1st, 2nd, 6th, 7th symbol in case of 1st slot, the other is SF3 for 3rd, 4th, 5th symbol in case of 1st slot (Block D in figure 1 and 2).

Considering that SR channel for a specific UE is a dedicated channel for which dedicated resource has to be assigned in terms of sequence or resource block (e.g. sequence, resource block), the dedicated resource management for SR should be made as simple as possible. Therefore, three types of operational methods can be considered for SR transmission as given below.

- (1) Block A, B and C can be used for SR transmission. The eNB can choose where to assign certain UE among block A, B and C depending on UE status and system condition.
- (2) Only Block D is used for SR transmission irrespective of those conditions.
- (3) Block A, B, C, and D can be used for SR transmission. In terms of flexibility in the view point of system operation and management, this option seems to be most promising. However, there may be some increase in operational complexity.

Regardless of the selected operational mode among the above, maximum of 42 UEs' SR can be accommodated together in one RB if this RB is solely utilized for SR transmission.

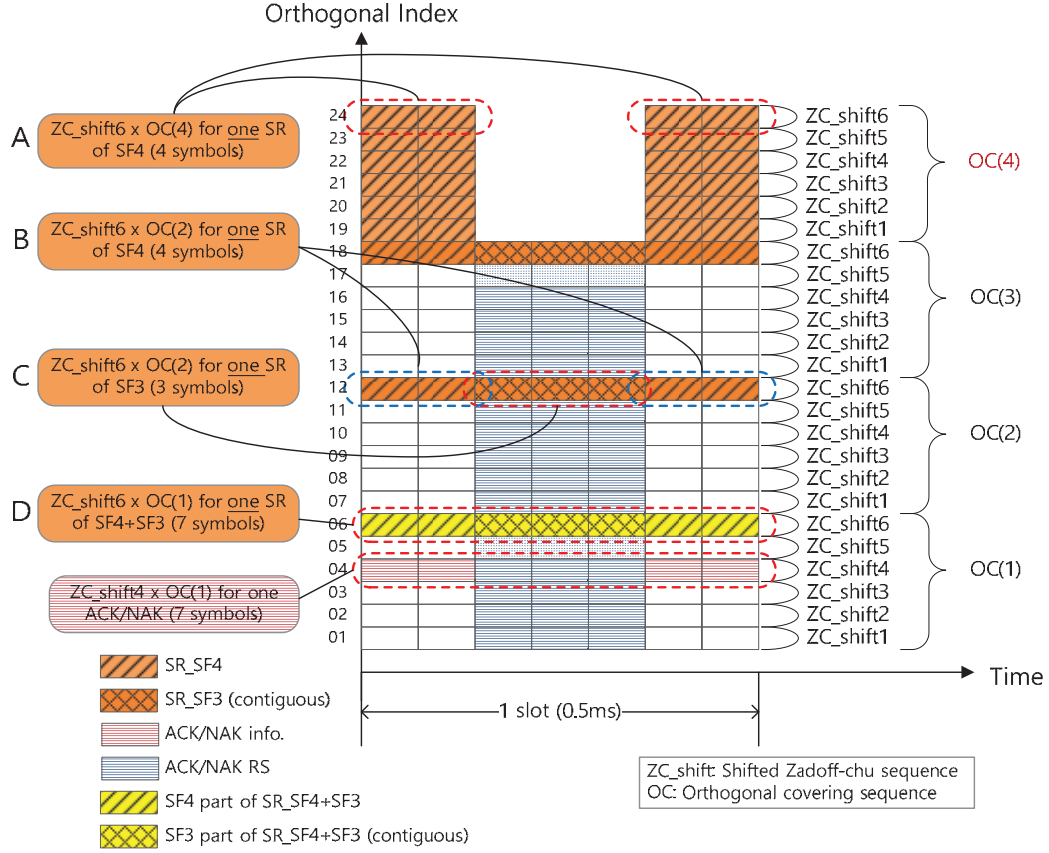


Figure 1: SR structure multiplexed with ACK/NAK

Figure 2 shows similar structure from figure 1 with additional consideration on co-existence with sounding RS. As investigated in the companion contribution [1], sounding RS multiplexing with PUCCH is very important issue to be considered. If it is agreed that sounding RS should be transmitted over one SC-FDMA symbol that is exclusive only for sounding RS, certain PUCCH slot formats for ACK/NACK and CQI should be defined for simultaneous transmission of sounding RS and PUCCH during the same subframe. Similar PUCCH slot format should also be utilized for SR transmission as shown in figure 2.

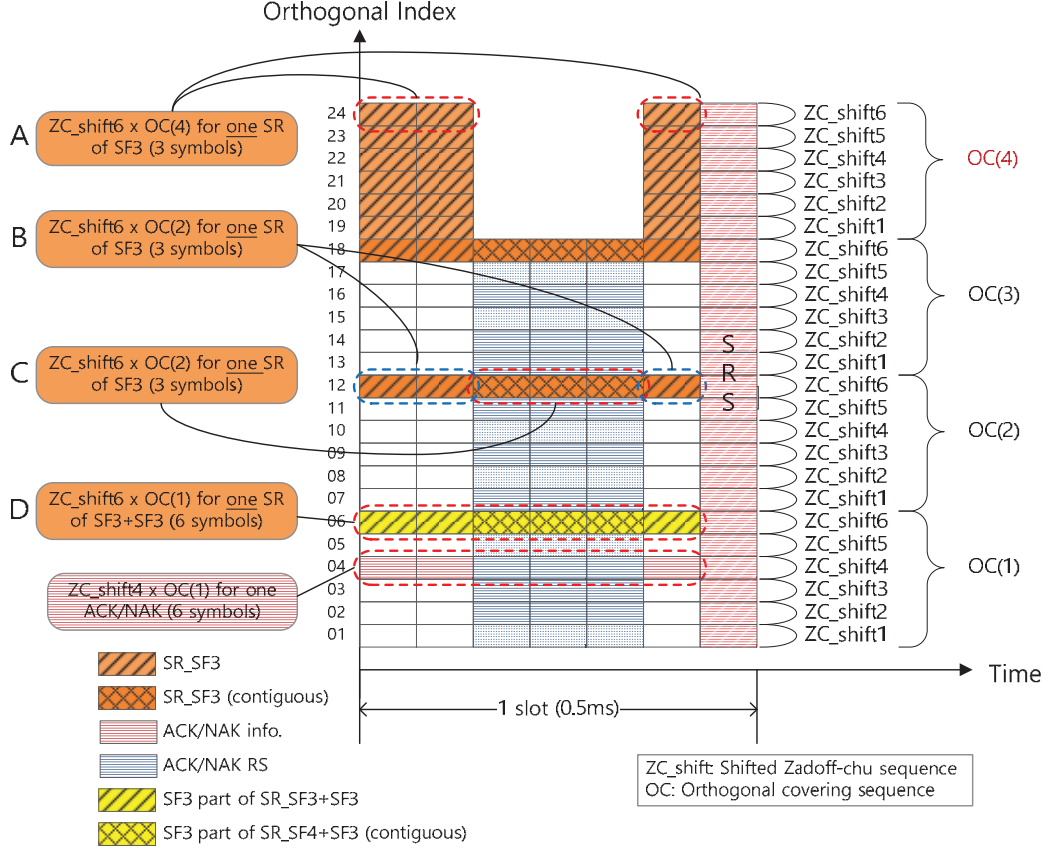


Figure 2: SR structure multiplexed with ACK/NAK and S-RS (Sounding RS)

2.1.2 Scheduling Request transmission in the presence of ACK/NAK transmission

From time to time, UEs would encounter the cases where they want to transmit their SR at the same time when ACK/NACK should be transmitted. In this case, one of two signals should be delayed or discarded in order not to violate single carrier property if SR structure given in figure 1 or figure 2 is used.

It seems to be common understanding and assumption of many companies that there is certain fixed time relationship between ACK/NACK signal and downlink packet transmission. Therefore, it would be quite intuitive and reasonable to delay SR transmission instead of ACK/NACK signal when a certain UE has both signals to transmit. In other words, ACK/NACK signal is presumed to have higher priority in general.

However, there might be a case once in a while where one should consider the other way around. For example, if large amounts of on-going downlink HARQ processes are in places at time and hence UE should transmit its ACK/NACK signal continuously, UE would have a hard time to find an opportunity to transmit its SR for a while even though UE buffer occupancy rises to a certain level of emergency. Therefore, proper management on the priority would be necessary in order to circumvent this kind of situation.

One possible solution is to make specific rules for the case. For example, if SR transmission concurs with ACK/NACK for the first time, ACK/NACK is transmitted since it has a higher priority over SR. However, if it happens successively N times (e.g. $N=3$ in figure 3), SR is transmitted instead of ACK/NACK at the N -th time. Unlike the case of SR where SR transmission can be delayed, ACK/NACK signal should be discarded in order not to complicate the on-going HARQ procedure if it happens. In order to support this operation, eNB is required to monitor both SR and ACK/NACK signal from a certain UE all the time. If eNB detects that SR has been transmitted from the UE instead of ACK/NACK signal at certain predefined time instant when ACK/NACK signal transmission is expected, eNB should just perform retransmission for the corresponding HARQ process since it has no information whether UE has successfully decoded previous sub-packet or not. Therefore, one retransmission in downlink would be squandered if previous sub-packet has been correctly received by the UE, leading to a slight degradation in downlink performance.

Actually, the successive coincidences of ACK/NACK and SR transmission will seldom happen, and accordingly the impact would be negligible. Hence, discarding ACK/NACK signal instead of delaying SR could be considered as adequate solution when SR transmission becomes imminent, since it won't have any serious impacts on the downlink system throughput.

According to the rule, either one of ACK/NACK or SR is chosen to be transmitted depending on parameter 'N' that would determine the priority at the time of transmission for SR. Of course, other metrics could be considered when determining the priority for signal transmission.

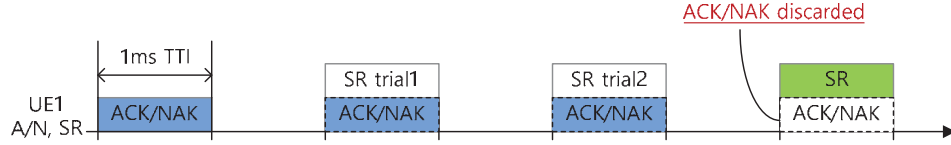


Figure 3: SR transmission when ACK/NACK is scheduled to be transmitted

2.1.3 Scheduling Request transmission in the presence of CQI transmission

From time to time, SR transmission may happen to coincide with CQI transmission. If it happens, it seems to be reasonable that SR (with higher priority in most cases) is mainly transmitted instead of CQI. We can also apply priority based selection method when they coincide at the same time. Figure 4 shows the exemplary case where CQI is skipped or delayed (depending on CQI schemes) when CQI transmission was scheduled at the same time when UE tries to transmit SR to eNB.

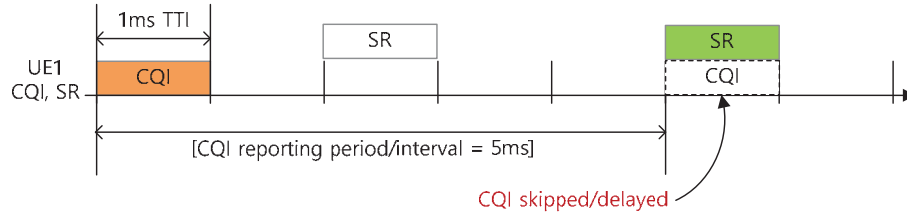


Figure 4: SR transmission when CQI is scheduled to be transmitted

2.2 Alternative 2 for Scheduling Request Structure

In order to transmit the SR and ACK/NACK simultaneously at the same subframe, the alternative SR channels, which reuse the CDM-based structure of ACK/NACK channel with different circular shift(s) of CAZAC code and block-spreading codes (resultantly, the same slot format as for ACK/NACK transmission is used also for SR transmission), can be considered. This dedicated SR channel (i.e., 'Alternative 2') is fully compatible and co-existing with the PUCCH in the same time-frequency resource in a different way from the modified ACK/NACK channel structures for the SR transmission on the PUCCH [2], [3].

Figure 5 shows the exemplary operation how to transmit SR and/or ACK/NACK signal with 'Alternative 2' proposal. As can be seen in the figure, two separate channels will be utilized by one UE in order to transmit either one of SR or ACK/NACK signal without multiplexing at a given time. In other words, if SR transmission from certain UE happens to coincide with its ACK/NACK signal transmission at the same subframe, ACK/NACK signal for this UE should be diverted to the dedicated resource which is assigned to the UE for SR transmission from common resource for ACK/NACK signal as shown in figure 5. However, when the UE should transmit its SR and ACK/NACK signal simultaneously, the ACK/NACK information is not transmitted on the ACK/NACK channel, but on the dedicated SR channel ((b) in Figure 5). In this case, the 1-bit SR using on-off keying is detected non-coherently by means of energy detection and then ACK/NACK information is obtained by coherent detection. In case of SR-only transmission ((c) in Figure 2), the SR can be allocated to the dedicated SR channel and detected in a non-coherent or coherent manner. In order to support this operation, eNB is required to monitor both SR channel and ACK/NACK channel at the same time. If eNB detects certain level of energy on SR channel at the time instant when ACK/NACK signal is expected from the UE,

eNB should perform coherent demodulation for ACK/NACK on the dedicated resource for SR, not on the common resource assigned for ACK/NACK transmission.

This approach is appropriate for maintaining the single-carrier property for UL transmission while supporting the simultaneous transmission of SR and ACK/NACK.

The ‘Alternative 2’ has the smaller multiplexing capability than that of ‘Alternative 1’. ‘Alternative 1’ structure has some potential demerit in the view point of downlink system throughput while there is no such an impact in case of ‘Alternative 2’. Therefore, there is apparently a certain trade-off between ‘Alternative 1’ and ‘Alternative 2’, which needs to be carefully scrutinized before final selection.

In addition, the same operational method as described in section 2.1.3 can be exploited when considering the multiplexing with CQI signal also in case of ‘Alternative 2’ structure. Hence, CQI is skipped or delayed (depending on CQI schemes) when CQI and SR transmission timing is overlapped as shown in Figure 4.

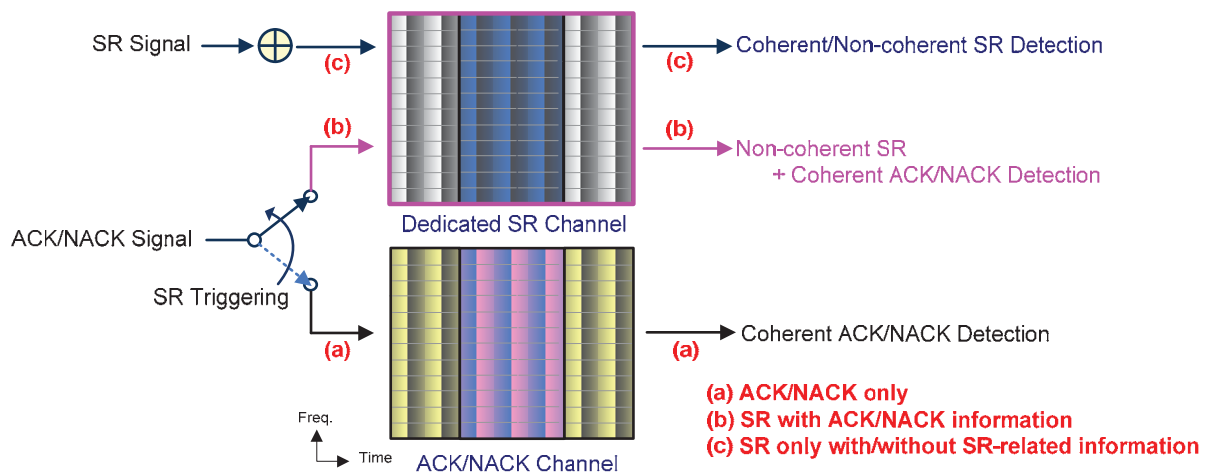


Figure 5: An illustration of multiplexing SR and/or ACK/NACK

3. Conclusion

In this contribution, two possible alternative SR structures (so called ‘Alternative 1’ and ‘Alternative 2’) are proposed that are quite in line with the currently agreed-upon PUCCH structure and do not breach single carrier property when multiplexing with other PUCCH data is required. Each alternative has its own merits and demerits compared with one another as described earlier. That is to say, there is apparently a certain trade-off between ‘Alternative 1’ and ‘Alternative 2’. Especially, ‘Alternative 1’ has an advantage in terms of multiplexing capability, while ‘Alternative 2’ has an advantage in simultaneous transmission of ACK/ANCK and SR aspect. Therefore, two alternative schemes need to be carefully scrutinized before final selection.

4. Reference

- [1] R1-072887 Investigation on problems in case of PUCCH and S-RS simultaneous transmission, LG Electronics, RAN1#49bis Orlando meeting.
- [2] R1-073011, “Multiplexing of scheduling request and ACK/NACK and/or CQI,” NSN, Nokia
- [3] R1-073066, “Multiplexing the scheduling request in the uplink,” Alcatel-Lucent

Contact person: Hak-Seong KIM (bryakim@lge.com)

EXHIBIT 7

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Meetings

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Click on any TSG or WG in the chart to go to that Group's home page to find information on its elected officials, its meeting schedule, the Work Items and Specifications for which it is responsible, etc.

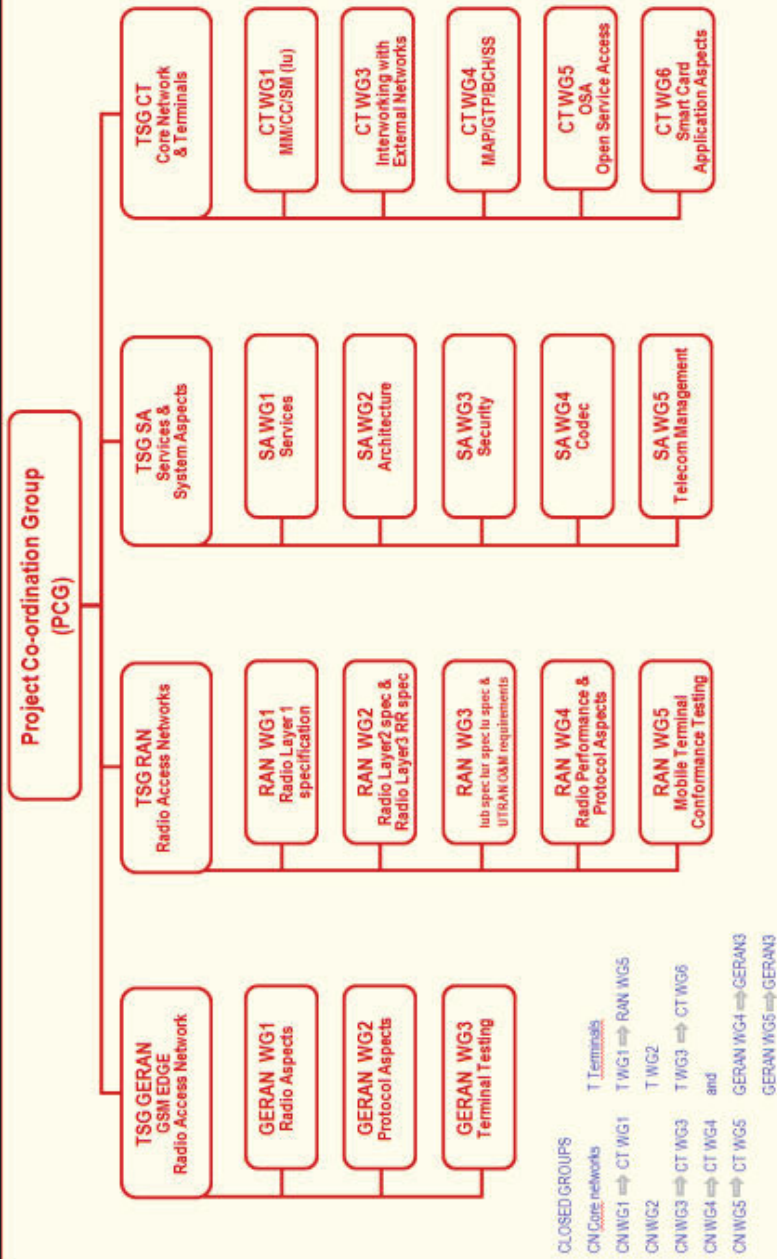
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Powerpoint™ version of the chart above

MCC Task Forces

Last updated:

- 2007-05-03: Updated link for TSG GERAN and GERAN WG1 where pointing to wrong page
- 2007-04-24: New orgchart removing closed working groups from the main body of chart, closed groups update
- 2006-07-21: Guidance note added above chart, link to Powerpoint version moved to below chart
- 2005-06-22: New org chart removing closed working groups from main body of chart
- 2005-03-14: Complete update
- 2005-01-31: New TSG structure.

EXHIBIT 9

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TSG RAN WG1 (Radio layer 1)

Overview:

TSG RAN WG1 works on the physical layer of the radio Interface for UE and UTRAN. This includes the specification of the physical channel structures, the mapping of transport channels to physical channels, spreading, modulation, physical layer multiplexing, channel coding and error detection. The physical layer procedures and the measurements provided to upper layers are specified in WG1 as well.

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- 2007-06-28: Election information added
- 2006-01-09: Election information removed
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EXHIBIT 10

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Yes	R1-073241	Draft report of RAN1#49b meeting	MCC Support	3	Approval		Revised
Yes	R1-073242	Receiver performance and enhanced CELL_FACH state	RAN2, LGE	5	LS_in	= R2-072334	Noted
Yes	R1-073243	Reply LS on physical layer aspects of Enhanced CELL_FACH state in FDD from WG1	RAN2, Alcatel-Lucent	5	LS_in	= R2-072335	Noted
Yes	R1-073244	LS on Introduction of Very low bitrate WB-AMR Combinations into 25.993	RAN2, NSN	5	LS_in	= R2-072987, R1-073816	Revised
Yes	R1-073245	LS on HS-SCCH less + MIMO	RAN2, Qualcomm	5	LS_in	= R2-072999	Noted
Yes	R1-073246	Physical Layer Aspects of eMBMS Counting	RAN2, IPWireless	5	LS_in	= R2-073003	Noted
Yes	R1-073247	[DRAFT] LS on Complementary Time Domain Filter for Neighbour Cell Measurements	RAN4, Ericsson	5	LS_in	= R4-071119	Noted
Yes	R1-073248	Update on Relevant RAN5 Agreed CRs to TS 34.108	RAN5, NTT DoCoMo	5	LS_in	= R5-071545	Noted
Yes	R1-073249	TS 36.212 v1.3.1	Qualcomm Europe	7.1	TS	R1-073821	Revised
Yes	R1-073250	OS for DL RS	Qualcomm Europe	7.2.1	Discussion/D ecision		Noted
No	R1-073251	Dedicated RS for FS1	Qualcomm Europe	7.2.1	Discussion/D ecision		Missing
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Yes	R1-073253	Details on UL DM RS	Qualcomm Europe	7.2.2	Discussion/D ecision		Noted
Yes	R1-073254	SRS multiplexing structure	Qualcomm Europe	7.2.2	Discussion/D ecision		Not treated
Yes	R1-073255	PDCCH structure	Qualcomm Europe	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073256	Subband based allocation for PDSCH	Qualcomm Europe	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073257	PDCCH format for transmission of TPC commands	Qualcomm Europe	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073258	PHICH structure and multiplexing	Qualcomm Europe	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073259	Details on CQI format	Qualcomm Europe	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073260	Joint coding of CQI and ACK	Qualcomm Europe	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073261	Support of ACK repetition in the UL of E-UTRA	Qualcomm Europe	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073262	Details on scheduling requests	Qualcomm Europe	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073263	UL control details for TDD	Qualcomm Europe	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073264	PUSCH and PUCCH hopping patterns	Qualcomm Europe	7.2.5	Discussion/D ecision		Not treated
Yes	R1-073265	Pseudo-random hopping pattern for PDSCH	Qualcomm Europe	7.2.5	Discussion/D ecision		Not treated
Yes	R1-073266	Calibration procedures for TDD beamforming	Qualcomm Europe	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073267	Scrambling of SSC	Qualcomm Europe	7.2.7	Discussion/D ecision		Not treated
Yes	R1-073268	CRC for multiple code block transmissions	Qualcomm Europe	7.3	Discussion/D ecision		Not treated
Yes	R1-073269	Rate matching details for control and data multiplexing	Qualcomm Europe	7.3	Discussion/D ecision		Not treated

Yes	R1-073270	Number of HARQ processes		Qualcomm Europe	7.3	Discussion/D ecision		Not treated
No	R1-073271	UL power control details		Qualcomm Europe	7.4.2	Discussion/D ecision		Missing
Yes	R1-073272	Details on UL antenna switching		Qualcomm Europe	7.4.5	Discussion/D ecision		Not treated
Yes	R1-073273	D-BCH capacity		Qualcomm Europe	7	Information		Not treated
Yes	R1-073274	Final details on CDD precoding		Qualcomm Europe	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073275	Details for SSC specification		Qualcomm Europe	7.2.7	Discussion/D ecision		Not treated
Yes	R1-073276	Transmission of coded bits from circular buffer		Qualcomm Europe	7.3	Discussion/D ecision		Not treated
Yes	R1-073277	Transmission of coded blocks within the TTI		Qualcomm Europe	7.3	Discussion/D ecision		Not treated
Yes	R1-073278	On the size of the CCE		Qualcomm Europe	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073279	Dimensioning of TDD PHICH		IPWireless	7.2.3	Discussion		Not treated
Yes	R1-073280	Dimensioning of TDD DL control signalling		IPWireless	7.2.3	Discussion		Not treated
Yes	R1-073281	Frame configurations for TDD frame structure type 1		IPWireless	7.2	Decision		Not treated
Yes	R1-073282	RACH for TDD frame structure type 1		IPWireless	7.2.9	Decision		Not treated
Yes	R1-073283	TDD PUCCH		IPWireless	7.2.4	Discussion		Not treated
No	R1-073284	Coding for TDD PUCCH		IPWireless	7.3	Discussion		Withdrawn
Yes	R1-073285	Measurements for power control		IPWireless, Nextwave Wireless	7.5	Discussion		Noted
Yes	R1-073286	TDD HARQ timing		IPWireless	7.3	Discussion		Not treated
Yes	R1-073287	Liaison Statement to RAN1 on LTE Transmission of SU-1 of System Information		RAN2, Ericsson	5	LS_in	= R2-072926	Noted
Yes	R1-073288	RS Structure Supporting Spatial Multiplexing for MBSFN		Nortel	7.2.1	Discussion/D ecision		Not treated
Yes	R1-073289	Discussion on the Dedicated Demodulation RS		Nortel	7.2.1	Discussion/D ecision		Noted
Yes	R1-073290	The Resource Element Mapping of PDCCH, PCFICH and PHICH		Nortel	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073291	Uplink Signaling Support for DL Rank Adaptation with Fixed Precoding		Nortel	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073292	Further Discussion on the Differential Feedback of PMI for LTE Downlink Closed-Loop MIMO		Nortel	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073293	Further Discussion on the Diversity VRB Mapping Schemes		Nortel	7.2.5	Discussion/D ecision		Not treated
Yes	R1-073294	RB Hopping for Uplink Data Transmission		Nortel	7.2.5	Discussion/D ecision		Not treated
Yes	R1-073295	Further Simulation Evaluation of 2x2 Pre-coding Gain		Nortel	7.2.6	Discussion		Not treated
Yes	R1-073296	Discussion on Rank Adaptation Based on Shadowing for High Speed UEs		Nortel	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073297	Rank Adaptation for Fixed Pre-coding		Nortel	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073298	Further discussion on Spatial Multiplexing for MBSFN		Nortel	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073299	Update on HARQ Performance Enhancement		Nortel	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073300	Precoding Matrix Verification Based on Beacon RS in E-UTRA Downlink		Nortel	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073301	UL MU-MIMO Performance Improvement for E-UTRA with SIC Receiver		Nortel	7.2.6	Discussion		Not treated
Yes	R1-073302	Further Discussion on RE Mapping of SFBC+FSTD Based TXD for Shared Data Channel		Nortel	7.2.6	Discussion/D ecision		Not treated

Yes	R1-073303	RE Mapping of SFBC+FSTD Based TxD for PDCCH	Nortel		7.2.6	Discussion/D ecision	Not treated
Yes	R1-073304	Performance Evaluation of Rate-2 SFBC versus Fixed Precoding with and without Long-delay CDD	Nortel		7.2.6	Discussion/D ecision	Not treated
Yes	R1-073305	Discussion on Beamforming	Nortel		7.2.6	Discussion/D ecision	Not treated
Yes	R1-073306	Link Level Evaluation on Fixed Beamforming plus MIMO Precoding versus Adaptive Beamforming	Nortel		7.2.6	Discussion/D ecision	Not treated
Yes	R1-073307	Scrambling Code Designs for SSCH	Nortel		7.2.7	Discussion/D ecision	Not treated
Yes	R1-073308	Further Discussion on the Mapping of Short Sequences for S-SCH	Nortel		7.2.7	Discussion/D ecision	Not treated
Yes	R1-073309	The Detection of the Antenna Configuration	Nortel		7.2.8	Discussion/D ecision	Not treated
Yes	R1-073310	FEC Code Block-based CRC	Nortel		7.3	Discussion/D ecision	Not treated
Yes	R1-073311	UL Power Control with Fractional Frequency Reuse for E-UTRA	Nortel		7.4.2	Discussion/D ecision	Not treated
Yes	R1-073312	Discussion on the DL Interference Coordination	Nortel		7.4.3	Discussion/D ecision	Not treated
Yes	R1-073313	Further Discussion on UL Closed-loop Adaptive Antenna Switching	Nortel		7.4.6	Discussion/D ecision	Not treated
Yes	R1-073314	MCS Selection for LTE	Nortel		7.4.5	Information	Not treated
Yes	R1-073315	Uplink Reference Signal Sequence Design	Toshiba		7.2.2	Discussion/D ecision	Not treated
Yes	R1-073316	CAZAC sequence for PUCCH	Toshiba		7.2.4	Discussion	Not treated
Yes	R1-073317	Pre-coding Codebook for EUTRA MIMO Downlink	Toshiba		7.2.6	Discussion	Not treated
Yes	R1-073318	DL Transmit Diversity with Spatial Multiplexing for 4 TX antennas	LSI Corporation		7.2.6	Discussion/D ecision	Not treated
Yes	R1-073319	Summary Results on OZCL Sequences for UL RS for LTE	SHARP		7.2.2	Discussion/D ecision	Noted
Yes	R1-073320	Adaptive Best-M Based Scheme for CQI Reporting in the LTE UL	SHARP		7.2.4	Discussion/D ecision	Not treated
Yes	R1-073321	Improved Flexibility/Performance CQI+ACK/NACK coding in the E-UTRA uplink	SHARP		7.2.4	Discussion/D ecision	Not treated
Yes	R1-073322	UL physical channel for CQI report	SHARP		7.2.4	Discussion/D ecision	Not treated
Yes	R1-073323	Proposed Scrambling sequences for S-SCH with embedded frame timing derivation	SHARP		7.2.7	Discussion/D ecision	Not treated
Yes	R1-073324	25211CR242 (Rel-7, F) "PICH associated HS-SCCH for Enhanced CELL_FACH"	Nokia Siemens Networks, Nokia		6	CR	Revised
Yes	R1-073325	25211CR243 "Clarification for CPC feature"	Nokia Siemens Networks, Nokia		6	CR	Agreed
Yes	R1-073326	16QAM modulation selection algorithm for HSUPA	Nokia Siemens Networks, Nokia		6	Discussion	Noted
Yes	R1-073327	25212CR252 "16QAM modulation selection for HSUPA"	Nokia Siemens Networks, Nokia		6	CR	Agreed
Yes	R1-073328	25214CR452 "CPC preamble and postamble clarification for CQI transmission"	Nokia Siemens Networks, Nokia		6	CR	Revised
Yes	R1-073329	25214CR453 "Removal of Inactivity_Threshold_for_UE_Grant_Monitoring definition"	Nokia Siemens Networks, Nokia		6	CR	Agreed
Yes	R1-073330	25214CR454 "Corrections to HS-DSCH procedures for CELL_FACH and MIMO"	Nokia Siemens Networks, Nokia		6	CR	Revised
No	R1-073331	25214CR455 "CPC PC clarification"	Nokia Siemens Networks, Nokia		6	CR	Withdrawn
Yes	R1-073332	Rel-7 E-DPDCH gain factor calculation	Nokia, Nokia Siemens Networks		6	Discussion	Noted

Yes	R1-073333	25214CR456 "Correction to Rel-7 E-DPDCH gain factor calculation"	Nokia, Nokia Siemens Networks	6	CR	R1-073831	Revised
Yes	R1-073334	Update to 64QAM CQI tables	Nokia, Nokia Siemens Networks	6	Discussion		Noted
Yes	R1-073335	25214CR457 "Clarification to applicability of CQI tables in Rel. 7"	Nokia, Nokia Siemens Networks	6	CR		Noted
Yes	R1-073336	25.211CR245 Clarifications on the use of S-CCPCH pilot bits for MBSFN FDD feature	Ericsson	6	CR		Agreed
Yes	R1-073337	25.212CR253 Clarifications of MIMO	Ericsson	6	CR		Agreed
Yes	R1-073338	25.214CR458 "Clarifications of MIMO and 64QAM"	Ericsson	6	CR	R1-073832	Revised
Yes	R1-073339	25.212CR254 "Clarifications of CPC and MIMO"	Ericsson	6	CR		Agreed
Yes	R1-073340	25.214CR459 Clarifications of CPC	Ericsson	6	CR		Agreed
Yes	R1-073341	25215 CR176 "Adding GANSS related measurements in the FDD physical layer measurements"	Alcatel-Lucent, Orange	6	CR	R1-073814	Revised
Yes	R1-073342	25211CR246 (Rel-7,) "Clarification on MICH"	Alcatel-Lucent	6	CR	R1-073826	Revised
Yes	R1-073343	25.211 CR0232r3 (Rel-7, C) "Enhanced F-DPCH"	Qualcomm Europe	6	CR		Agreed
Yes	R1-073344	25.212 CR255 (Rel-7, F) "RM1 transparent for HS-SCCH-less operation"	Qualcomm Europe	6	CR		Noted
Yes	R1-073345	25.214 CR460 (Rel-7, F) "E-DPDCH scaling when UE is at max power"	Qualcomm Europe	6	CR	R1-073862	Revised
Yes	R1-073346	25.213 CR090 (Rel-7, D) "Editorial changes in 25.213 for 16QAM specification"	Qualcomm Europe	6	CR		Agreed
Yes	R1-073347	Impact of 64QAM+MIMO HSDPA operation in the DL	Qualcomm Europe, Ericsson	8	Discussion		Noted
Yes	R1-073348	Impact of 64QAM+MIMO HSDPA operation in the UL	Qualcomm Europe, Ericsson	8	Discussion		Noted
No	R1-073349	Overhead Analysis for PMI Downlink Signaling Using Single Bit PMI Indicator	InterDigital Communications LLC	7.2.3	Discussion		Missing
Yes	R1-073350	Performance Comparison of Distributed-Haar Based Compression for CQI Feedback in E-UTRA	InterDigital Communications LLC	7.2.4	Discussion		Not treated
Yes	R1-073351	Performance Comparison of Full Band CQI Reporting Using Haar Compression for E-UTRA	InterDigital Communications LLC	7.2.4	Discussion		Not treated
Yes	R1-073352	Binary Differential Feedback Using Existing Codebooks for E-UTRA	InterDigital Communications LLC	7.2.6	Discussion		Not treated
Yes	R1-073353	MU-MIMO Codebook Subset Selection and Signaling Considerations for E-UTRA	InterDigital Communications LLC	7.2.6	Discussion		Not treated
Yes	R1-073354	P-BCH TTI Boundary Detection using BPSK coding on S-SCH	InterDigital Communications LLC	7.2.7	Discussion		Not treated
Yes	R1-073355	E-UTRA Power control simulation results for various feedback approaches	InterDigital Communications LLC	7.4.2	Discussion		Noted
Yes	R1-073356	UL Sounding RS Protocol Design for Antenna Selection	Mitsubishi Electric	7.2.2	Discussion/D ecision		Not treated
Yes	R1-073357	Antenna Selection with a Frequency-Hopped or Variable Bandwidth Sounding Reference Signal	Mitsubishi Electric	7.4.6	Discussion		Not treated
Yes	R1-073358	Update of 36.213 Physical Layer Procedure for E-UTRA	Motorola	7.1	TS	R1-073824	Revised
Yes	R1-073359	On supporting 1st stage turbo code rate matching	Motorola	7.3	Discussion/D ecision		Not treated
Yes	R1-073360	Convolutional code rate matching in LTE	Motorola	7.3	Discussion/D ecision		Not treated
Yes	R1-073361	Uplink channel interleaving	Motorola	7.3	Discussion/D ecision		Noted
Yes	R1-073362	Downlink channel interleaving	Motorola	7.3	Discussion/D ecision		Not treated
Yes	R1-073363	RE sizing for turbo code block segments	Motorola	7.3	Discussion/D ecision		Not treated
Yes	R1-073364	Soft Buffer size per HARQ Process	Motorola	7.3	Discussion/D ecision		Not treated

Yes	R1-073365	UE Capability		Motorola	7.3	Discussion/D ecision		Not treated
Yes	R1-073366	HARQ timing		Motorola	7.3	Discussion/D ecision		Not treated
No	R1-073367	eNode-B Measurements		Motorola	7.5	Discussion/D ecision		Missing
Yes	R1-073368	UE Tx Power (PSD) Measurement and Reporting		Motorola	7.5	Discussion/D ecision		Noted
Yes	R1-073369	Downlink Acknowledgement Mapping to RE's		Motorola	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073370	Support of Precoding for E-UTRA DL L1/L2 Control Channel		Motorola	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073371	E-UTRA Coverage		Motorola	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073372	Downlink Resource Allocation Mapping for E-UTRA		Motorola	7.2.3	Discussion/D ecision		Noted
Yes	R1-073373	Search Space definition for L1/L2 Control Channels		Motorola	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073374	PDCCH Channel Estimation System impact (1 vs 2 DRS) on System Performance		Motorola	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073375	E-UTRA Downlink L1/L2 Control Channel Configurations		Motorola	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073376	E-UTRA Downlink L1/L2 Control Channel Design - PICH/AICH/DBCH		Motorola	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073377	Efficient Structure for Aggregating 12[3]48 Downlink Control Channel Elements		Motorola	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073378	PMI Downlink Signaling & PDCCH format		Motorola	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073379	UL ACK/NACK Resource Provisioning		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073380	UL ACK/NACK Implicit Mapping		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073381	UL ACK/NACK for TDD		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073382	Scheduling Request Mechanism for EUTRA Uplink		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073383	Joint feedback for E-UTRA downlink precoding and CQI		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073384	CQI Feedback Schemes for E-UTRA		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073385	CQI Coding Schemes		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073386	Uplink transmission of CQI and Ack/Nack		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073387	Performance of CQI Feedback Schemes		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073388	UL L1/L2 control signals with data Multiplexing Details		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073389	PDCCH Downlink Format for (MIMO) precoding and non-precoding modes		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073390	PDCCH UL format		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073391	Persistent Scheduling of PUCCH resources		Motorola	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073392	E-UTRA DL Distributed Transmission Mapping rules and Performance		Motorola	7.2.5	Discussion/D ecision		Noted
Yes	R1-073393	DL distributed transmission summary		Motorola	7.2.5	Discussion/D ecision		Noted

Yes	R1-073394	UL Resource Allocation for Frequency-diverse (hopping) Allocations	Motorola	7.2.5	Discussion/D ecision		Not treated
Yes	R1-073395	Beamforming for E-UTRA	Motorola	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073396	MU-MIMO for E-UTRA	Motorola	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073397	Requirement for DL PMI Signaling	Motorola	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073398	MBSFN Performance with SFBC and Spatial Multiplexing	Motorola	7.2.6	Discussion		Not treated
Yes	R1-073399	MIMO RS Structure for Unicast/MBMS-Mixed Scenarios	Motorola	7.2.1	Discussion/D ecision		Not treated
No	R1-073400	MU-MIMO Performance under agreed simulation conditions	Motorola	7.2.6	Discussion/D ecision		Withdrawn
Yes	R1-073401	Cell Search E-mail Reflector Summary	Motorola	7.2.7	Discussion/D ecision		Not treated
Yes	R1-073402	BCH/SCH transmission for odd number of RB	Motorola	7.2.8	Discussion/D ecision		Not treated
Yes	R1-073403	RACH Slot Configurations	Motorola	7.2.9	Discussion/D ecision		Not treated
Yes	R1-073404	Random Access E-mail Reflector Summary	Motorola	7.2.9	Discussion/D ecision		Noted
Yes	R1-073405	Sounding Reference Signal Power Setting	Motorola	7.4.2	Discussion/D ecision		Not treated
Yes	R1-073406	Power Control Errors and Uplink Frequency Domain Scheduling	Motorola	7.4.2	Discussion/D ecision		Not treated
Yes	R1-073407	UE Transmit Power Accuracy and Calibration	Motorola	7.4.2	Discussion/D ecision	R1-073837	Revised
Yes	R1-073408	Uplink Inter-Cell Power Control: X2 Messages	Motorola	7.4.3	Discussion/D ecision		Not treated
Yes	R1-073409	MU-MIMO PHICH Assignment for Adaptive and non-Adaptive HARQ	Motorola	7.4.6	Discussion/D ecision		Not treated
Yes	R1-073410	On Rate Matching parameters for TS 36.212	Broadcom	7.3	Discussion/D ecision		Not treated
Yes	R1-073411	Text change Proposal for Rate Matching in TS 36.212	Broadcom	7.3	Discussion/D ecision		Not treated
Yes	R1-073412	Randomization of int-cell interference in PUCCH	ETRI	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073413	Sequence allocation and hopping for uplink ACK/NAK channels	ETRI	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073414	S-SCH scrambling and mapping methods	ETRI	7.2.7	Discussion/D ecision	R1-073798	Revised
No	R1-073415	Performance of LTE DL multi-user MIMO	Freescall Semiconductor	7.2.6	Discussion		Missing
Yes	R1-073416	Resource Allocation and Indication for LTE	Sunplus mMobile Inc.	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073417	Orthogonal RS for Different MBSFN Zones in E-UTRA	Texas Instruments	7.2.1	Discussion/D ecision		Noted
Yes	R1-073418	Interference between Sounding Reference Signal and Random Access Preamble	Texas Instruments	7.2.2	Discussion/D ecision		Not treated
Yes	R1-073419	Uplink Reference Signal Sequence Assignments in E-UTRA	Texas Instruments	7.2.2	Discussion/D ecision		Not treated
Yes	R1-073420	Uplink Reference Signals in Support of Requirements for High-Speed UEs	Texas Instruments	7.2.2	Discussion/D ecision		Not treated
Yes	R1-073421	Choice of CRC Length To Reduce False PDCCH Detection	Texas Instruments	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073422	Preamble Based Scheduling Request for E-UTRA	Texas Instruments	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073423	Design Aspects of UE Feedback	Texas Instruments	7.2.4	Discussion/D ecision		Not treated

Yes	R1-073424	Rank and PMI Feedback Rate – Analysis	Texas Instruments	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073425	Rank Feedback Rate – System Simulation	Texas Instruments	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073426	PMI Feedback Rate – System Simulation	Texas Instruments	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073427	Frequency Granularity of MIMO Pre-coding for E-UTRA	Texas Instruments	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073428	CQI Feedback Reduction Scheme for E-UTRA	Texas Instruments	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073429	Coherent Uplink ACK/NAK Transmission with High Speed UEs	Texas Instruments	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073430	Simultaneous ACK/NAK and SR Transmission in Uplink	Texas Instruments	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073431	Simultaneous CQI and ACK/NAK Transmission in Uplink	Texas Instruments	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073432	Uplink ACK/NAK Transmission for Persistently Scheduled Downlink Packets	Texas Instruments	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073433	Remaining Details on SU-MIMO for E-UTRA	Texas Instruments	7.2.6	Discussion/D ecision	Revised R1-073845
Yes	R1-073434	Secondary SCH Mapping and Scrambling	Texas Instruments	7.2.7	Discussion/D ecision	Not treated
Yes	R1-073435	Random Access Preamble L1 Parameters in E-UTRA	Texas Instruments	7.2.9	Discussion/D ecision	Not treated
Yes	R1-073436	Random Access Slot Configurations	Texas Instruments	7.2.9	Discussion/D ecision	Not treated
Yes	R1-073437	25214 CR461 (Rel-7, F) "Power setting for HS-DPCCH in MIMO mode"	LG Electronics	6	CR	Withdrawn
Yes	R1-073438	Summary of the e-mail discussion on channel coding	NTT DoCoMo	7.3	Discussion/D ecision	Revised R1-073833
Yes	R1-073439	UE categories	NTT DoCoMo	7	Discussion/D ecision	Noted
Yes	R1-073440	Selection of CQI reporting scheme	Mitsubishi Electric	7.4.5	Discussion/D ecision	Not treated
Yes	R1-073441	UE and CGE specific scrambling codes for low complexity blind detection of downlink control signalling	Mitsubishi Electric	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073442	Resource block mapping for EUTRA downlink distributed transmissions	Mitsubishi Electric	7.2.5	Discussion/D ecision	Not treated
Yes	R1-073443	25221 CR144 "Introduction of multi-frequency operation for 1.28Mcps TDD"	RITT, CMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	CR	Technically endorsed
Yes	R1-073444	25222 CR136 "Introduction of multi-frequency operation for 1.28Mcps TDD"	RITT, CMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	CR	Technically endorsed
Yes	R1-073445	25223 CR046 "Introduction of multi-frequency operation for 1.28Mcps TDD"	RITT, CMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	CR	Revised R1-073839
Yes	R1-073446	25224 CR163 "Introduction of multi-frequency operation for 1.28Mcps TDD"	RITT, CMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	CR	Revised R1-073840
Yes	R1-073447	25225 CR088 "Introduction of multi-frequency operation for 1.28Mcps TDD"	RITT, CMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	CR	Technically endorsed

Yes	R1-073448	Introduce TD-SCDMA industry standard in CCSA to 3GPP	RIIT, CMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	Discussion	R1-073807	Revised
Yes	R1-073449	25224 CR164 "Improvement on the power control of E-PUCCH in 1.28Mcps TDD"	ZTE	6	CR	R1-073808	Revised
Yes	R1-073450	25201 CR035 (Rel-7, F) "Minor modification related to EDCH in 1.28Mcps TDD"	ZTE, CATT, TD-TECH, Spreadtrum Communications	6	CR	R1-073830	Revised
Yes	R1-073451	Consideration on resource indication in LTE TDD	ZTE	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073452	Control channel format for DBCH, PCH and RACH response	NEC, Nokia, Nokia Siemens Networks, Motorola	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073453	Assignment of Base Sequence Group for UL DM RS	NEC Group	7.2.2	Discussion/D ecision		Not treated
Yes	R1-073454	Chicken and Egg issue for DL L1/L2 control	NEC Group	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073455	Low overhead PDCCH format for BCCH, PCH, RACH response transmission on DL-SCH	NEC Group	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073456	DL Control Channel Structure: CCE Aggregation and Blind Detections	NEC Group	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073457	Uplink Resource Allocation for E-UTRA	NEC Group	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073458	DL Unicast Resource Allocation Signalling using L1L2 control channels	NEC Group	7.2.3	Discussion/D ecision	R1-073795	Revised
Yes	R1-073459	Downlink ACK/NACK signalling for E-UTRA	NEC Group	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073460	DL Multiplexing for Persistent and Dynamic scheduling	NEC Group	7.2.3	Discussion/D ecision		Not treated
Yes	R1-073461	CQI + ACK/NACK transmission in PUCCH	NEC Group	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073462	PUCCH allocation for ACK/NACK transmission	NEC Group	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073463	Multiplexing of uplink data-non-associated control signal with data	NEC Group	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073464	Detail of ACK/NACK and CQI transmission without data transmission	NEC Group	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073465	Way Forward for Uplink Blind Decoding	NEC Group	7.2.4	Discussion and Approval		Not treated
Yes	R1-073466	Cell-specific Resource Block Mapping for Downlink Distributed Transmission	NEC Group	7.2.5	Discussion/D ecision		Not treated
Yes	R1-073467	DL Distributed Resource Signalling for EUTRA	NEC Group	7.2.5	Discussion/D ecision		Not treated
Yes	R1-073468	Frequency Hopping Pattern for EUTRA Uplink	NEC Group	7.2.5	Discussion/D ecision		Not treated
Yes	R1-073469	S-SCH and Scrambling Codes	NEC Group	7.2.7	Discussion/D ecision		Not treated
Yes	R1-073470	Adoption of 2-stage Rate Matching and modified IR-HARQ	Fujitsu	7.3	Discussion/D ecision		Not treated
Yes	R1-073471	Improved E-HICH signature allocation for LCR-TDD	Spreadtrum Communications	6	Information	R1-073796	Revised
Yes	R1-073472	25222 CR138 (Rel-7, C) "Improved E-HICH signature allocation method for LCR-TDD"	Spreadtrum Communications	6	CR	R1-073797	Revised
Yes	R1-073473	Multiplexing of PUCCH and Sounding RS	Fujitsu	7.2.4	Discussion/D ecision		Not treated

Yes	R1-073474	UL sounding RS operation	LG Electronics	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073475	UL RS binding method with larger base RB sequences	LG Electronics	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073476	PHICH duration and signaling	LG Electronics	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073477	DL PDCCH/PCFICH/RS transmission in MBSFN subframe	LG Electronics	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073478	RB-group based DL LVRB allocation	LG Electronics	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073479	Mapping Relations between UL VRB and DL ACK/NACK	LG Electronics	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073480	Downlink PHICH structure	LG Electronics	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073481	Scheduling restriction according to UL/DL subframe ratio in TDD	LG Electronics	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073482	Considerations on PDCCH design for SU-MIMO	LG Electronics	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073483	Interleaver design for CCE-to-RE mapping	LG Electronics	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073484	On the consideration of DL L1/L2 control channel design for MIMO	LG Electronics	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073485	Proposed Scheduling Request (SR) structure and multiplexing with PUCCH	LG Electronics	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073486	Erroneous operation handling caused by DL/UL control channel failure	LG Electronics	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073487	Proposed PUCCH slot format considering sounding RS transmission	LG Electronics	7.2.4	Discussion/D ecision	Revised
Yes	R1-073488	Mapping Relations between DL CCE and UL ACK/NACK	LG Electronics	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073489	Delta CQI in spatial domain for SU-MIMO	LG Electronics	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073490	Separate transmission of CQI values and indexes considering reporting period	LG Electronics	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073491	Frequency granularity of CQI and PMI feedback	LG Electronics	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073492	Two alternative approaches for UL frequency hopping	LG Electronics	7.2.5	Discussion/D ecision	Not treated
Yes	R1-073493	Further Consideration on RE Mapping for 4Tx PDSCH	LG Electronics	7.2.6	Discussion/D ecision	Not treated
Yes	R1-073494	Further Consideration on CDD-based Precoding	LG Electronics	7.2.6	Discussion/D ecision	Not treated
Yes	R1-073495	CDD-based Precoding for Open-loop SM in E-UTRA downlink	LG Electronics	7.2.6	Discussion/D ecision	Not treated
Yes	R1-073496	SSC mapping and scrambling method	LG Electronics	7.2.7	Discussion/D ecision	Not treated
Yes	R1-073497	Flexibility of detecting 40ms P-BCH boundary	LG Electronics	7.2.7	Discussion/D ecision	Not treated
Yes	R1-073498	Cyclic Shift Configuration Set for Non-Synchronized RACH	LG Electronics	7.2.9	Discussion/D ecision	Not treated
Yes	R1-073499	Additional Burst Types for Non-Synchronized RACH	LG Electronics	7.2.9	Discussion/D ecision	Not treated
No	R1-073500	Preamble Indication for Non-Synchronized RACH	LG Electronics	7.2.9	Discussion/D ecision	Missing
Yes	R1-073501	Preamble Index Mapping for Non-Synchronized RACH	LG Electronics	7.2.9	Discussion/D ecision	Not treated
Yes	R1-073502	Comparison of Formula for Restricted Cyclic shift Set	LG Electronics, Nokia, Siemens Networks	7.2.9	Discussion/D ecision	Not treated
Yes	R1-073503	Spatial mapping of code blocks for 4 TX SU-MIMO	LG Electronics	7.3	Discussion/D ecision	Not treated

Yes	R1-073504	On the consideration of CRC attachment	LG Electronics	7.3	Discussion/D ecision	Not treated
Yes	R1-073505	DL RE puncturing for DL RS/PSC/SSC TxP boosting	LG Electronics	7.4.2	Discussion/D ecision	Not treated
Yes	R1-073506	Intra-cell power control for uplink in E-UTRA	LG Electronics	7.4.2	Discussion/D ecision	Not treated
Yes	R1-073507	UL synchronous HARQ procedure and UE behaviour after ACK/NACK detection	LG Electronics	7.4.6	Discussion/D ecision	Not treated
No	R1-073508	Specification of cell-specific DL RS FH sequences	Huawei	7.2.1	Discussion/D ecision	Withdrawn
Yes	R1-073509	Throughput evaluation with cell-specific frequency-hopped/shifted DL RS using realistic DL CQI estimation/adaptive adjustment	Huawei	7.2.1	Discussion/D ecision	Not treated
Yes	R1-073510	CCE to RE interleaver design criteria	Huawei	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073511	DL control signaling to support MIMO	Huawei	7.2.3	Discussion	Not treated
Yes	R1-073512	Feedback method for CQI, PMI and rank	Huawei	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073513	Cell-specific mapping of distributed virtual resource blocks	Huawei	7.2.5	Discussion/D ecision	Not treated
Yes	R1-073514	Scrambling and information encoding for the S-SCH	Huawei	7.2.7	Discussion/D ecision	Not treated
Yes	R1-073515	Multiple values of cyclic shift increment NCS	Huawei	7.2.9	Discussion/D ecision	Not treated
Yes	R1-073516	Specification of restricted set of cyclic shifts of root Zadoff-Chu sequences	Huawei, Panasonic	7.2.9	Discussion/D ecision	Not treated
Yes	R1-073517	Uplink Sounding Reference Signal in E-UTRA	Huawei	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073518	Sequence grouping rule for UL DM RS	Huawei	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073519	MBSFN impact on paging transmission	Huawei	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073520	Subframe index in UL schedule grant for TDD FS Type 2	Huawei	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073521	Multiplexing of Scheduling Request Indicator	Huawei	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073522	Code Allocation for UL ACK/NACK Channels	Huawei	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073523	TFICI mapping for S-CCPCH and 16QAM for 1.28 Mcps TDD MBSFN	CATT	6	Approval	Noted
Yes	R1-073524	25221 CR145 (Rel-7, F) "TFICI mapping for S-CCPCH and 16QAM for 1.28 Mcps TDD MBSFN"	CATT	6	CR	Agreed
Yes	R1-073525	25222 CR137 (Rel-7, F) "TFICI mapping for S-CCPCH and 16QAM for 1.28 Mcps TDD MBSFN"	CATT	6	CR	Agreed
Yes	R1-073526	Downlink Dedicated Reference Symbols Structure for TDD with Frame Structure Type 2	CATT	7.2.1	Discussion/D ecision	Noted
Yes	R1-073527	CCFI for LTE TDD	CATT	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073528	Timing relationship between the DL control signaling and associated sub-frames for TDD	CATT	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073529	PUCCH channel structure for TDD with FS2	CATT, Huawei	7.2.4	Discussion/D ecision	Noted
Yes	R1-073530	PUCCH formats for ACK/NACK and CQI transmission for TDD with FS2	CATT, Huawei	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073531	Timing relationship between the UL ACK/NACK and DL sub-frames for TDD	CATT	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073532	Uplink ACK/NACK transmission for LTE TDD	CATT	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073533	HARQ RTT and Process Number in TDD	CATT	7.3	Discussion/D ecision	Not treated

Yes	R1-073534	Random access preamble structure for LTE TDD frame structure type 2	CATT		7.2.9	Discussion/D ecision		Noted
Yes	R1-073535	Comparison of Downlink Resource Allocation Indication Schemes	Samsung		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073536	Configuration of PDCCH Monitoring Set	Samsung		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073537	UL LFDMA with hopping	Samsung		7.2.5	Discussion/D ecision		Not treated
Yes	R1-073538	DL ACK/NAK transmission for 1 transmit antenna	Samsung		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073539	Radio link monitoring for E-UTRA	Samsung		7.4.1	Discussion/D ecision		Not treated
Yes	R1-073540	Simultaneous UE transmission of ACK/NAK and CQI	Samsung		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073541	UL ACK/NAK channel structure	Samsung		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073542	UL ACK/NAK resource indication for supporting persistent scheduling	Samsung		7.2.4	Discussion/D ecision		Not treated
No	R1-073543	PUCCH channel coding: block coding vs convolutional coding	Samsung		7.3	Discussion/D ecision		Missing
Yes	R1-073544	Control signaling transmission format in presence of data in E-UTRA UL	Samsung		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073545	CQI report transmission using PUSCH resource	Samsung		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073546	RB-wise regrouping of UL control	Samsung		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073547	DL CCFI to RE mapping	Samsung		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073548	HARQ redundant symbol selection for synchronous HARQ	Samsung		7.3	Discussion/D ecision		Not treated
Yes	R1-073549	HARQ symbol to RE mapping	Samsung		7.3	Discussion/D ecision		Not treated
Yes	R1-073550	System Performance for 2 Tx antenna MU-MIMO	Samsung		7.2.6	Discussion/D ecision		Not treated
Yes	R1-073551	Refinement of 2 Tx antenna precoding codebook	Samsung		7.2.6	Discussion/D ecision		Noted
Yes	R1-073552	Cyclic Shift Restrictions for RACH in Small, Medium and Large Cells	Samsung		7.2.9	Discussion/D ecision		Not treated
Yes	R1-073553	Determination of the Cyclic Shift Amount, Ncs	Samsung		7.2.9	Discussion/D ecision		Not treated
Yes	R1-073554	Performance of orthogonal Hybrid ARQ for multi-user MIMO in E-UTRA uplink	Samsung		7.2.6	Discussion/D ecision		Not treated
Yes	R1-073555	Performance of single CQI feedback for 2CW SU-MIMO	Samsung		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073556	Downlink Link Adaptation and Related Control Signaling	Samsung		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073557	Power Scaling and DL RS boosting in a Multi-antenna System	Samsung		7.2.1	Discussion/D ecision		Not treated
Yes	R1-073558	Code block CRC for DL-SCH and UL-SCH	Samsung		7.3	Discussion/D ecision		Not treated
Yes	R1-073559	Downlink signaling for support of single-user MIMO	Samsung		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073560	Downlink hybrid ARQ signaling	Samsung		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073561	LTE downlink ACK channel mapping to CCE	Samsung		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073562	LTE uplink CQI report format	Samsung		7.2.4	Discussion/D ecision		Not treated

Yes	R1-073563	Redundancy version definition for DL-SCH	Samsung		7.3	Discussion/D ecision		Not treated
Yes	R1-073564	Selection of Orthogonal Cover and Cyclic Shift for High Speed UL ACK Channels	Samsung		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073565	Downlink ACK/NACK Transmit Diversity	Samsung		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073566	Further Considerations of CDD Precoding for High-speed UEs	Samsung		7.2.6	Discussion/D ecision		Not treated
Yes	R1-073567	Improving cell-edge performance by Inter-Cell Interference Coordination	Samsung		7.4.3	Discussion/D ecision		Not treated
Yes	R1-073568	Summary of Reflector Discussions on EUTRA DL RS	Samsung		7.2.1	Discussion		Noted
Yes	R1-073569	Summary of Reflector Discussions on EUTRA UL RS	Samsung		7.2.2	Discussion		Noted
Yes	R1-073570	Sounding RS Multiplexing in E-UTRA UL – Interaction with PUCCH	Samsung		7.2.2	Discussion/D ecision		Not treated
Yes	R1-073571	PUCCH Transmission without Data in E-UTRA	Samsung		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073572	Control Signaling Location in Presence of Data in E-UTRA UL	Samsung		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073573	Tradeoffs of Additional RS in the PDCCH Region	Samsung		7.2.1	Discussion/D ecision		Not treated
Yes	R1-073574	Distributed PDSCH Transmission in E-UTRA	Samsung		7.2.5	Discussion/D ecision		Noted
Yes	R1-073575	UL Grant Size in E-UTRA	Samsung		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073576	VoIP Link Adaptation Using DM RS in E-UTRA Uplink	Samsung		7.4.2	Discussion/D ecision		Not treated
Yes	R1-073577	Implicit ACK/NAK Multiplexing in PUCCH CQI Sub-Frame Structure	Samsung		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073578	Uplink time domain hopping for E-UTRA TDD	Samsung		7.2.5	Discussion/D ecision		Not treated
Yes	R1-073579	Code block reordering in HARQ retransmissions	Samsung		7.3	Discussion/D ecision		Not treated
Yes	R1-073580	Downlink reference signal structure for TDD frame structure type 2	Samsung		7.2.1	Discussion/D ecision		Not treated
Yes	R1-073581	Implicit mapping of CCE to UL ACK/NACK resource	Samsung		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073582	Modulation mapping information	ZTE		8	Discussion & Decision		Noted
Yes	R1-073583	Combination of uplink semi-persistent schedule and frequency hopping	ZTE		7.2.5	Discussion		Not treated
Yes	R1-073584	Dedicated Beam-forming supported in E-UTRA DL	ZTE		7.2.6	Discussion		Noted
Yes	R1-073585	UL resource allocation based on DFT precoder complexity reduction	ZTE		7.2.3	Discussion		Noted
Yes	R1-073586	DL resource allocation and related signalling way	ZTE		7.2.3	Discussion		Not treated
Yes	R1-073587	ACK/NACK transmission in E-UTRA downlink	ZTE		7.2.3	Discussion		Not treated
Yes	R1-073588	Distributed Transmission in E-UTRA Downlink	ZTE		7.2.5	Discussion		Not treated
Yes	R1-073589	Multiplexing of Sounding RS and PUCCH	ZTE		7.2.4	Discussion		Not treated
Yes	R1-073590	System Information Mapping Scheme for S-SCH Sequences	ZTE		7.2.7	Discussion and decision		Not treated
Yes	R1-073591	One Interleaved Multiplexing for S-SCH Sequences	ZTE		7.2.7	Discussion and decision		Not treated
Yes	R1-073592	Optimization of Circular Buffer Rate Matching	ZTE		7.3	Discussion and decision		Withdrawn

Yes	R1-073593	Bit priority mapping scheme	ZTE		7.3	Discussion and decision		Not treated
No	R1-073594	Number of HARQ Processes	ZTE		7.3	Discussion and decision		Withdrawn
Yes	R1-073595	Group-based Re-ordering Method of ZC Sequence in RACH	ZTE		7.2.9	Discussion		Not treated
Yes	R1-073596	Uplink Inter-cell Power Control based on Overload Indicator and modified IoT measurement for E-UTRA	ZTE		7.4.2	Discussion		Not treated
Yes	R1-073597	On UL scheduling grant	Fujitsu		7.2.3	Discussion		Not treated
No	R1-073598	On data hopping in UL	Fujitsu		7.2.3	Discussion		Withdrawn
Yes	R1-073599	Code mapping and scrambling for the SSCH	Marvell Semiconductor		7.2.7	Discussion		Not treated
Yes	R1-073600	Enhanced UE DRX for HSPA Rel-8	Nokia Siemens Networks, Nokia		6	Discussion		Noted
Yes	R1-073601	Distributed Virtual Resource Block Mapping for Persistent Resource Allocation as VoIP	Alcatel-Lucent		7.2.5	Discussion/D ecision		Not treated
Yes	R1-073602	Incremental CQI Feedback Scheme and Simulation Results	Alcatel-Lucent		7.2.4	Discussion		Not treated
Yes	R1-073603	Signaling Resource Allocations in DL Control Channel	Alcatel-Lucent		7.2.3	Discussion		Not treated
Yes	R1-073604	Semi-Static Interference Coordination Method	Alcatel-Lucent		7.4.3	Discussion		Not treated
Yes	R1-073605	Support for Semi-Static Inter cell Interference Coordination	Alcatel-Lucent, Nortel Networks		7.4.3	Discussion/D ecision		Not treated
Yes	R1-073606	PDCCH payload formats and sizes	Panasonic		7.2.3	Discussion/D ecision	R1-073810	Revised
Yes	R1-073607	PDCCH signaling for retransmission of downlink persistent scheduling	Panasonic		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073608	CCE aggregation size and transport format signaling	Panasonic		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073609	Semi-static, dynamic and hybrid CCE aggregation	Panasonic		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073610	Discussion on resource allocation and transport format signaling	Panasonic		7.2.3	Discussion		Not treated
Yes	R1-073611	Mapping of CCEs (control channel element) onto physical resource	Panasonic		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073612	Comparison between FDM and CDM+FDM for DL L1/L2 control channel multiplexing	Panasonic		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073613	DL ACK/NACK modulation and UL HARQ behaviour	Panasonic		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073614	Assignment of Downlink ACK/NACK channel	Panasonic		7.2.3	Discussion/D ecision		Not treated
Yes	R1-073615	Distributed channel mapping	Panasonic		7.2.5	Discussion/D ecision		Noted
Yes	R1-073616	Signaling parameters for UL ACK/NACK resources	Panasonic		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073617	Ordering of the implicit resource allocation table for Uplink ACK/NACK	Panasonic		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073618	Usage of Cyclic Shifts and block-wise spreading codes for Uplink ACK/NACK	Panasonic, Texas Instruments		7.2.4	Discussion/D ecision		Noted
Yes	R1-073619	Cell Specific Cyclic Shifts and block-wise spreading codes for Uplink ACK/NACK	Panasonic		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073620	Clarification of Implicit Resource Allocation of Uplink ACK/NACK Signal	Panasonic		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073621	Variable Phase Definition of the Reference Signal for CQI in PUCCH	Panasonic		7.2.4	Discussion/D ecision		Not treated
Yes	R1-073622	RACH sequence allocation and indication to the cell	Panasonic		7.2.9	Discussion/D ecision	R1-073836	Revised
Yes	R1-073623	RACH sequence allocation for efficient matched filter implementation	Panasonic		7.2.9	Discussion/D ecision		Not treated

Yes	R1-073624	Limitation of RACH sequence allocation for high mobility cell	Panasonic	7.2.9	Discussion/D ecision	Not treated
No	R1-073625	Remaining issues on random access	Panasonic	7.2.9	Discussion/D ecision	Missing
Yes	R1-073626	Reference signal generation method for E-UTRA uplink	Panasonic	7.2.2	Discussion/D ecision	Noted
Yes	R1-073627	Further consideration on uplink RS hopping and grouping	Panasonic	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073628	Frequency dependent PUSCH DM-RS generation method with considering eNB-specific allocation	Panasonic	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073629	Sounding RS multiplexing with RACH and PUCCH for E-UTRA uplink	Panasonic	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073630	Discussion on CQI Report Metric (SINR vs TBS)	Panasonic	7.2.4	Discussion	Not treated
Yes	R1-073631	DCI Partitioning for CQI Reporting	Panasonic	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073632	CQI quantization for SU-MIMO	Panasonic	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073633	Rank feedback in downlink MIMO	Panasonic	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073634	PUCCH modulation for multi sequence transmission	Panasonic	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073635	Control signaling aspects of MU-MIMO	Panasonic	7.2.6	Discussion/D ecision	Not treated
Yes	R1-073636	Number of HARQ processes	Panasonic	7.3	Discussion/D ecision	Not treated
Yes	R1-073637	TS 36.214 v1.1.1	Nokia	7.1	TS	Revised
Yes	R1-073638	DL UL allocation period of 20ms for EUTRA TDD Frame Structure Type 1	Nokia, Nokia Siemens Networks	7.2	Discussion/D ecision	Not treated
Yes	R1-073639	DL UL allocation options for EUTRA TDD	Nokia, Nokia Siemens Networks	7.2	Discussion/D ecision	Not treated
Yes	R1-073640	Timing Estimation with Orthogonal RS	Nokia, Nokia Siemens Networks	7.2.1	Discussion/D ecision	Noted
Yes	R1-073641	UL sounding reference signal for EUTRA TDD	Nokia, Nokia Siemens Networks	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073642	UL sounding Arrangement	Nokia Siemens Networks, Nokia	7.2.2	Discussion/D ecision	Noted
Yes	R1-073643	Symbol based cyclic shift hopping	Nokia Siemens Networks, Nokia	7.2.2	Discussion/D ecision	Noted
Yes	R1-073644	Cyclic Shift Hopping and DM RS Signaling	Nokia Siemens Networks, Nokia	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073645	Downlink Control signaling considerations for EUTRA TDD	Nokia, Nokia Siemens Networks	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073646	Multi-TTI Uplink Grants for TDD (FS1+FS2)	Nokia, Nokia Siemens Networks	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073647	PDCCCH UL and DL signaling entity payloads	Nokia, Nokia Siemens Networks	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073648	Signaling PCH, RACH response and dynamic BCH in L1/L2 control channel.	Nokia, Nokia Siemens Networks	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073649	Signalling and decoding of PRB allocations LTE downlink	Nokia, Nokia Siemens Networks	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073650	Discussion of short format DL allocation within UL grant	Nokia, Nokia Siemens Networks	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073651	CQI transmission in PUCCH for TDD FS2	Nokia, Nokia Siemens Networks	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073652	ACK/NACK transmission in PUCCH for TDD FS2	Nokia, Nokia Siemens Networks	7.2.4	Discussion/D ecision	Noted
Yes	R1-073653	Detection and DTX Performance of CQI+ACK/NACK transmitted on PUCCH	Nokia Siemens Networks, Nokia	7.2.4	Discussion/D ecision	Not treated

Yes	R1-073654	Scheduling Request supporting High Doppler	Nokia Siemens Networks, Nokia	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073655	UL/DL resource allocation signaling errors and their impact to UL multiplexing design	Nokia Siemens Networks, Nokia	7.2.4	Discussion/D ecision	(R1-073013)	Not treated
Yes	R1-073656	ACK/NACK transmission with UL data	Nokia Siemens Networks, Nokia	7.2.4	Discussion/D ecision	(R1-073014)	Not treated
Yes	R1-073657	ACK/NACK modulation with UL data	Nokia Siemens Networks, Nokia	7.2.4	Discussion/D ecision	(R1-073015)	Not treated
Yes	R1-073658	Increasing the size of CQI by means of enhanced sequence modulation	Nokia Siemens Networks, Nokia	7.2.4	Discussion/D ecision	(R1-073000)	Noted
Yes	R1-073659	PUCCH sequence modulation sequences	Nokia Siemens Networks, Nokia	7.2.4	Discussion/D ecision	(R1-073001)	Not treated
Yes	R1-073660	On CQI coding in PUCCH	Nokia Siemens Networks, Nokia	7.2.4	Discussion/D ecision	(R1-073004)	Not treated
Yes	R1-073661	Signaling of Implicit ACK/NACK resources	Nokia Siemens Networks, Nokia	7.2.4	Discussion/D ecision	(R1-073006)	Not treated
Yes	R1-073662	CQI per PRB vs. per group of best PRBs	Nokia Siemens Networks, Nokia	7.2.4	Discussion/D ecision		Not treated
Yes	R1-073663	Channel Quality Indicator for LTE MU-MIMO	Nokia, Nokia Siemens Networks	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073664	Effect of Precoding Granularity on LTE Multiuser MIMO	Nokia, Nokia Siemens Networks	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073665	On the Need of Downlink Dedicated RS	Nokia, Nokia Siemens Networks	7.2.6	Discussion/D ecision		Noted
Yes	R1-073666	LTE Multiuser MIMO and Interference Suppression in the UE	Nokia, Nokia Siemens Networks	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073667	Number of spatially multiplexed users for LTE DL MU-MIMO	Nokia, Nokia Siemens Networks	7.2.6	Discussion/D ecision		Not treated
Yes	R1-073668	Transmission of P-BCH, P-SCH and S-SCH on dedicated MBMS carrier	Nokia, Nokia Siemens Networks	7.2.8	Discussion/D ecision		Not treated
Yes	R1-073669	Interleaving for LTE Shared Channels	Nokia Siemens Networks, Nokia	7.3	Discussion/D ecision		Not treated
Yes	R1-073670	Soft Combining in LTE	Nokia Siemens Networks, Nokia	7.3	Discussion/D ecision		Not treated
Yes	R1-073671	Physical Channel Segmentation	Nokia Siemens Networks, Nokia	7.3	Discussion/D ecision		Not treated
Yes	R1-073672	Bit Ordering for CRC	Nokia Siemens Networks, Nokia	7.3	Discussion/D ecision		Not treated
Yes	R1-073673	On the Number of HARQ-processes	Nokia, Nokia Siemens Networks	7.3	Discussion/D ecision		Not treated
Yes	R1-073674	Overload Indicator handling for LTE	Nokia Siemens Networks, Nokia	7.4.2	Discussion/D ecision		Not treated
Yes	R1-073675	Closed loop power control corrections for PUSCH	Nokia Siemens Networks, Nokia	7.4.2	Discussion/D ecision		Not treated
Yes	R1-073676	Power control headroom reports for EUTRAN uplink	Nokia Siemens Networks, Nokia	7.4.2	Discussion/D ecision		Not treated
Yes	R1-073677	Summary of Power Control E-mail Discussion	Nokia Siemens Networks	7.4.2	Discussion/D ecision		Noted
Yes	R1-073678	Cluster based Overload Indication	Nokia Siemens Networks, Nokia	7.4.2	Discussion/D ecision		Not treated
Yes	R1-073679	Low load scenarios with CQI-based interference coordination	Nokia Siemens Networks, Nokia	7.4.3	Discussion/D ecision		Not treated
Yes	R1-073680	CQI Trigger Mechanism	Nokia Siemens Networks, Nokia	7.4.5	Discussion/D ecision		Not treated
Yes	R1-073681	CQI reporting requirements for EUTRA UE	Nokia Siemens Networks, Nokia	7.4.5	Discussion/D ecision		Not treated
Yes	R1-073682	Node B measurements for LTE	Nokia Siemens Networks	7.5	Discussion/D ecision		Withdrawn

Yes	R1-073683	Investigation on P-SCH Specific Scrambling Sequences for S-SCH	NTT DoCoMo	7.2.7	Discussion/de cision	Not treated
Yes	R1-073684	Cell ID Assignment for Home Node B	NTT DoCoMo	7.2.7	Discussion/de cision	Not treated
Yes	R1-073685	Usage of Remaining Resource Elements in Resource Blocks Multiplexed with PBCH and SCH	NTT DoCoMo	7.2.5	Discussion/de cision	Not treated
Yes	R1-073686	Necessity of Time Diversity for PDSCH	NTT DoCoMo	7.4.5	Discussion/de cision	Not treated
Yes	R1-073687	RB-level Distributed Transmission Method for Shared Data Channel in E-UTRA Downlink	NTT DoCoMo	7.2.5	Discussion/de cision	Noted
Yes	R1-073688	Control Signaling for Uplink Frequency Hopping in E-UTRA	NTT DoCoMo	7.2.5	Discussion/de cision	Not treated
Yes	R1-073689	On PRACH Structure for 1.4 MHz System Bandwidth	NTT DoCoMo	7.2.9	Discussion/de cision	Not treated
Yes	R1-073690	PRACH Multiplexing Method and Slot Configuration for E-UTRA Uplink	NTT DoCoMo	7.2.9	Discussion/de cision	Not treated
Yes	R1-073691	Sounding RS Structure in E-UTRA Uplink	NTT DoCoMo	7.2.2	Discussion/de cision	Not treated
Yes	R1-073692	Assignment Scheme for Sounding Reference Signals in E-UTRA Uplink	NTT DoCoMo	7.2.2	Discussion/de cision	Not treated
Yes	R1-073693	Necessity of Multiple Bandwidths for Sounding Reference Signals	NTT DoCoMo	7.2.2	Discussion/de cision	Not treated
No	R1-073694	Uplink Power Control Method for E-UTRA	NTT DoCoMo	7.4.2	Discussion/de cision	Missing
No	R1-073695	Investigation on Effect of Overload Indicator for Uplink Inter-cell Power Control	NTT DoCoMo	7.4.3	Discussion/de cision	Missing
No	R1-073696	Multiplexing Method of Control Signals in PDCCH	NTT DoCoMo	7.2.3	Discussion/de cision	Missing
Yes	R1-073697	Investigation on Control Information Bits in PDCCH	NTT DoCoMo	7.2.3	Discussion/de cision	Not treated
Yes	R1-073698	ACK/NACK Transmission Method in E-UTRA Downlink	NTT DoCoMo	7.2.3	Discussion/de cision	Not treated
Yes	R1-073699	Views on RTD for Hybrid ARQ in E-UTRA	NTT DoCoMo	7.3	Discussion/de cision	Not treated
Yes	R1-073700	PUCCH Structure Considering Sounding RS Transmission in E-UTRA Uplink	NTT DoCoMo	7.2.4	Discussion/de cision	Not treated
Yes	R1-073701	Basic Method for CQI Feedback in E-UTRA	NTT DoCoMo	7.2.4	Discussion/de cision	Not treated
No	R1-073702	Transmission Scheme for ACK/NACK and CQI Information from Same UE in E-UTRA Uplink	NTT DoCoMo	7.2.4	Discussion/de cision	Missing
Yes	R1-073703	Investigation on Performance of PUCCH in Coverage-limited Conditions	NTT DoCoMo	7.2.4	Discussion/de cision	Not treated
Yes	R1-073704	Feedback Control for MBMS in E-UTRA	NTT DoCoMo	7.2.4	Discussion/de cision	Not treated
Yes	R1-073705	Persistent Scheduling in E-UTRA	NTT DoCoMo	7.2.4	Discussion/de cision	Not treated
Yes	R1-073706	Investigation on Adaptive Beamforming Using Dedicated RS in E-UTRA Downlink	NTT DoCoMo	7.2.1	Discussion/de cision	Noted
Yes	R1-073707	Investigation on Frequency Granularity of SU-MIMO Precoding in E-UTRA Downlink	NTT DoCoMo	7.2.6	Discussion/de cision	Noted
Yes	R1-073708	Investigation on Throughput Performance of MU-MIMO in E-UTRA Downlink	NTT DoCoMo	7.2.6	Discussion/de cision	Not treated
Yes	R1-073709	Discussion on contention and dedicated resource allocation	LG Electronics	7.2.9	Discussion/de cision	Not treated
Yes	R1-073710	Performance comparison of identity channel interleaving, channel interleaving within one OFDM symbol, and systematic/parity bit interleaving	Alcatel-Lucent	7.3	Discussion	Not treated
Yes	R1-073711	Signalling of MBSFN subframe allocations	Alcatel-Lucent	7.2.3	Discussion	Not treated

Yes	R1-073712	On the specification of restricted set of cyclic shifts of root Zadoff-Chu sequences	Huawei, Panasonic, LGE, Nokia, Nokia Siemens Networks	7.2.9	Discussion / decision		Not treated
Yes	R1-073713	Draft reply to LS on HS-SCCH less + MIMO [R1-073245]	Philips, Ericsson, Nokia, Nokia Siemens Networks, NXP Semiconductors	5	LS_out	R1-073817	Revised
Yes	R1-073714	Draft reply to LS on Physical Layer Aspects of eMBMS Counting [R1-073246]	Philips, NXP Semiconductors	5	LS_out	R1-073818	Revised
Yes	R1-073715	Phase reference for downlink beamforming	Philips, NXP Semiconductors	7.2.1	Discussion / decision		Noted
Yes	R1-073716	Discussion of PDCCH message formats	Philips	7.2.3	Discussion / decision		Not treated
Yes	R1-073717	Proposal for resource allocation signalling on PDCCH	Philips	7.2.3	Discussion / decision		Not treated
Yes	R1-073718	Vector quantisation with successive refinement for MIMO feedback	Philips, NXP Semiconductors	7.2.4	Discussion / decision		Not treated
Yes	R1-073719	CQI reporting for TDD	Philips, NXP Semiconductors	7.2.4	Discussion / decision		Not treated
Yes	R1-073720	Way forward for DVRB to PRB mapping for EUTRA downlink	Philips, NXP Semiconductors	7.2.5	Discussion / decision		Not treated
Yes	R1-073721	Codebook for MU-MIMO	Philips	7.2.6	Discussion / decision		Not treated
Yes	R1-073722	CQI definition for MU-MIMO	Philips	7.2.6	Discussion / decision		Not treated
Yes	R1-073723	Signalling for UL resource allocation	Philips	7.2.3	Discussion / decision		Not treated
Yes	R1-073724	UE procedure for ACK/NACK detection	Philips, NXP Semiconductors	7.4.6	Discussion / decision		Not treated
Yes	R1-073725	TS 36.211 v1.2.2	Ericsson	7.1	TS	R1-073823	Revised
Yes	R1-073726	Dedicated reference signal for E-UTRA Frame Structure Type1	Ericsson	7.2.1	Discussion / decision		Noted
Yes	R1-073727	PUCCH RS	Ericsson	7.2.2	Discussion / decision		Not treated
Yes	R1-073728	PUSCH RS	Ericsson	7.2.2	Discussion / decision		Noted
Yes	R1-073729	Sounding RS	Ericsson	7.2.2	Discussion / decision		Not treated
Yes	R1-073730	ID-specific CRC on DL-SCH/UL-SCH	Ericsson	7.3	Discussion / decision		Not treated
Yes	R1-073731	On the number of hybrid ARQ processes in LTE	Ericsson	7.2.3	Discussion / decision		Not treated
Yes	R1-073732	PUCCH FH in TDD frame structure Type2	Ericsson	7.2.4	Discussion / decision		Not treated
Yes	R1-073733	Allocation of uplink control resources	Ericsson	7.2.4	Discussion / decision		Not treated
Yes	R1-073734	Realizing Codebook Subset Restriction	Ericsson	7.2.6	Discussion / decision		Noted
Yes	R1-073735	Extending Codeword to Layer Mapping for Efficient Support of Retransmissions	Ericsson	7.2.6	Discussion / decision		Not treated
Yes	R1-073736	Information mapping on the Secondary Synchronization Signal	Ericsson	7.2.7	Discussion / decision		Not treated
Yes	R1-073737	RACH for frame structure type 2	Ericsson	7.2.9	Discussion / decision		Noted
Yes	R1-073738	RACH transmission timing alignment for LTE TDD	Ericsson	7.4.4	Discussion / decision		Not treated
Yes	R1-073739	Performance of Convolutional Code RM Algorithms	Ericsson	7.3	Discussion / decision		Not treated

Yes	R1-073740	Turbo Decoding Resource Budgeting	Ericsson	7.3	Discussion / decision	Not treated
Yes	R1-073741	Performance and Complexity of Per-Segment CRC Methods	Ericsson	7.3	Discussion / decision	Not treated
Yes	R1-073742	Simplified RE Assignment for Code Block Segments	Ericsson	7.3	Discussion / decision	Not treated
Yes	R1-073743	On radio link synchronisation monitoring	Ericsson	7.4.1	Discussion / decision	Not treated
Yes	R1-073744	UL power control for E-UTRA: Comments on open issues	Ericsson	7.4.2	Discussion / decision	Not treated
Yes	R1-073745	On Inter-cell Interference Coordination Schemes without/with Traffic Load Indication	Ericsson	7.4.3	Discussion / decision	Not treated
Yes	R1-073746	On CQI Reporting	Ericsson	7.4.5	Discussion / decision	Not treated
Yes	R1-073747	Explicit Out of Coverage Reporting Mechanism in E-UTRAN	Ericsson	7.4.1	Discussion / decision	Not treated
No	R1-073748	Introduction of MIMO with 64QAM	Ericsson	8	Discussion / decision	Withdrawn
Yes	R1-073749	E-mail discussion summary on uplink control signaling	Ericsson	7.2.4	Discussion / decision	Noted
Yes	R1-073750	E-mail discussion summary on downlink control signaling	Ericsson	7.2.3	Discussion / decision	Noted
Yes	R1-073751	On open issues channel coding	Ericsson	7.3	Discussion / decision	Not treated
Yes	R1-073752	Regarding Measurements During CPC Downlink DRX Operation	Marvell	6	Discussion	Withdrawn
Yes	R1-073753	UE Capability and MBSFN	Motorola	7.3	Discussion/D ecision	Not treated
Yes	R1-073754	UL RS Generation for E-UTRA	Motorola	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073755	E-UTRA UL RS planning and hopping considerations	Motorola	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073756	Benefit of Non-Persistent UL Sounding for Frequency-Hopping PUSCH	Motorola	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073757	UL Sounding RS for E-UTRA	Motorola	7.2.2	Discussion/D ecision	Not treated
Yes	R1-073758	Uplink Control Signaling with Persistent Scheduling	Motorola	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073759	Comparison of SU and MU MIMO Performance	Motorola	7.2.6	Discussion/D ecision	Not treated
Yes	R1-073760	Channel Estimation for Open Loop Beamforming	Motorola	7.2.6	Discussion/D ecision	Noted
Yes	R1-073761	Open Loop Beamforming	Motorola	7.2.6	Discussion/D ecision	Not treated
Yes	R1-073762	Optimisation of P-SCH Indices for Synchronous Network Operation	Motorola	7.2.7	Discussion/D ecision	Not treated
Yes	R1-073763	Evaluation of Scrambling Methods for S-SCH	Motorola	7.2.7	Discussion/D ecision	Not treated
Yes	R1-073764	Indication of Frame Boundary Using S-SCH	Motorola	7.2.7	Discussion/D ecision	Not treated
Yes	R1-073765	Considerations on P-BCH Scrambling Sequence Design	Motorola	7.2.8	Discussion/D ecision	Not treated
Yes	R1-073766	Way forward for CQI reporting	Motorola	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073767	UL/DL HARQ Timing	Alcatel-Lucent	7.3	Discussion/D ecision	Not treated
Yes	R1-073768	Quantization and Range of UE Specific Correction Value in PUSCH Power Control	Alcatel-Lucent	7.4.2	Discussion/D ecision	Not treated

Yes	R1-073769	Multiplexing the Scheduling Request in the Uplink	Alcatel-Lucent	7.2.4	Discussion/D ecision	Not treated
No	R1-073770	Scheduling Request Transmission	Alcatel-Lucent	7.2.4	Discussion/D ecision	Withdrawn
Yes	R1-073771	Power Offsets to Maintain QoS for Persistent Allocations in the Presence of Control Channel Multiplexing for the E-UTRA Uplink	Alcatel-Lucent	7.4.6	Discussion/D ecision	Not treated
Yes	R1-073772	VRB addressing for localized and distributed DL transmission	Alcatel-Lucent	7.2.5	Discussion/D ecision	Not treated
Yes	R1-073773	Signaling of Frequency Hopping for UL Transmission	Alcatel-Lucent	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073774	Processing Gain and Uplink Channel Sounding	Freescall Semiconductor	7.2.2	Discussion	Not treated
Yes	R1-073775	Uplink Channel Sounding Results' Discussion	Freescall Semiconductor	7.2.2	Discussion	Not treated
Yes	R1-073776	On the TDD UL Grant channel	IPWireless	7.2.3	Decision	Not treated
Yes	R1-073777	Draft Agenda for RAN#50 meeting	RAN1 Chairman	2	Decision (R1-073240)	Agreed
Yes	R1-073778	Rotational CDM for L1/L2 Control Channel Signaling in E-UTRA Downlink	KDDI	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073779	An Evaluation of the Rotational CDM for L1/L2 Control Channel	KDDI	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073780	System-Level Evaluation of the Rotational CDM for L1/L2 Control Channel	KDDI	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073781	Uplink Data-non-associated Control Signaling in E-UTRA	KDDI	7.2.4	Discussion	Not treated
Yes	R1-073782	Scheduling Request Channel in E-UTRA Uplink	KDDI	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073783	Multiplexing of PDCCHs of Multiple UEs in E-UTRA Downlink	KDDI	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073784	Hybrid FDM/CDM Based Multiplexing for ACK/NACK Signals in E-UTRA Downlink	KDDI	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073785	Multiplexing for L1/L2 Control Signals in E-UTRA Downlink	KDDI	7.2.3	Discussion/D ecision	Not treated
Yes	R1-073786	Power Control for RACH	Alcatel-Lucent	7.4.2	Discussion/ Decision	Not treated
Yes	R1-073787	Summary of email discussion on Measurements	Ericsson	7.5	Discussion/ Decision	Noted
Yes	R1-073788	MBSFN Downlink Optimised Broadcast for 3.84Mcps TDD	IPWireless	9	Discussion/ Decision	Noted
Yes	R1-073789	MBSFN DOB	Ericsson	9	Discussion	Noted
Yes	R1-073790	25.221 CR146 (Rel-7, B) "Support for MBSFN DOB operation"	Ericsson	9	CR	Noted
Yes	R1-073791	25.222 CR139 (Rel-7, B) "Support for MBSFN DOB operation"	Ericsson	9	CR	Noted
Yes	R1-073792	25.223 CR047 (Rel-7, B) "Support for MBSFN DOB operation"	Ericsson	9	CR	Noted
Yes	R1-073793	Utilization of the Redundancy Version (RV) Parameter for HARQ	Broadcom	7.3	Discussion/D ecision	Withdrawn
Yes	R1-073794	Specification of cell-specific DL RS FH sequences	Huawei	7.2.1	Discussion/D ecision	Not treated
Yes	R1-073795	DL Unicast Resource Allocation Signalling using L1/L2 control channels	NEC Group	7.2.3	Discussion/D ecision (R1-073458)	Not treated
Yes	R1-073796	Improved E-HICH signature allocation for LCR-TDD	Spreadtrum Communications	6	Information (R1-073471)	Noted
Yes	R1-073797	25.222 CR138r1 (Rel-7, C) "Improved E-HICH signature allocation method for LCR-TDD"	Spreadtrum Communications	6	CR (R1-073472)	Agreed
Yes	R1-073798	S-SCH scrambling and mapping methods	ETRI	7.2.7	Discussion/D ecision (R1-073414)	Not treated
Yes	R1-073799	Enhanced CQI Feedback with Reduced Overhead for E-UTRA	Iceera Semiconductor	7.2.4	Discussion/D ecision	Not treated
Yes	R1-073800	"Draft LS on MBSFN DOB"	IPWireless	9	LS_out	Noted
Yes	R1-073801	25.201 CR036 (Rel-7, cat-B) "Downlink Optimised Broadcast"	IPWireless	9	CR	Noted
Yes	R1-073802	25.221 CR147 (Rel-7, cat-B) "Downlink Optimised Broadcast"	IPWireless	9	CR	Noted

Yes	R1-073803	25.222 CR140 (Rel-7, cat-B) "Downlink Optimised Broadcast"	IPWireless	9	CR		Noted
No	R1-073804	25.223 CR048 (Rel-7, cat-B) "Downlink Optimised Broadcast"	IPWireless	9	CR		Withdrawn
Yes	R1-073805	25.224 CR165 (Rel-7, cat-B) "Downlink Optimised Broadcast"	IPWireless	9	CR		Noted
Yes	R1-073806	On Rate Matching Parameters for Turbo Codes	Ericsson	7.3	Discussion/Decision		Not treated
Yes	R1-073807	Introduce TD-SCDMA industry standard in CCSA to 3GPP	RIIT, CMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	Discussion	(R1-073448)	Noted
Yes	R1-073808	25224 CR164r1 "Improvement on the power control of E-PUCCH in 1.28Mcps TDD"	ZTE	6	CR	(R1-073449)	Agreed
Yes	R1-073809	PDCCCH contents – status from e-mail discussions	Ericsson	7.2.3	Discussion/Decision		Not treated
Yes	R1-073810	PDCCCH payload formats and sizes	Panasonic	7.2.3	Discussion/Decision	(R1-073606)	Not treated
Yes	R1-073811	Turbo rate matching fine tuning	Nokia Siemens Networks, Nokia	7.3	Discussion/Decision		Not treated
Yes	R1-073812	CQI tables for HSDPA MIMO	Ericsson	6	Discussion/Decision		Noted
Yes	R1-073813	25.214 CR462 (Rel-7, F) "Correction of MIMO CQI tables"	Ericsson	6	CR	R1-073838	Revised
Yes	R1-073814	25215 CR176r1 "Adding GANSS related measurements in the FDD physical layer measurements"	Alcatel-Lucent, Orange	6	CR	(R1-073341)	Agreed
Yes	R1-073815	Draft report of RAN1#49b meeting	MCC Support	3	Approval	(R1-073241)	Agreed
No	R1-073816	LS on Introduction of Very low bitrate WB-AMR Combinations into 25.993	RAN2, NSN	5	LS_out	(R1-073244)	Withdrawn
Yes	R1-073817	Reply LS on HS-SCCH less + MIMO	RAN1, Philips	5	LS_out	(R1-073713)	Agreed
Yes	R1-073818	Draft reply to LS on Physical Layer Aspects of eMBMS Counting [R1-073246]	Philips, NXP Semiconductors	5	LS_out	(R1-073714) R1-073884	Revised
Yes	R1-073819	TS 36214 v1.2.0	Nokia	7.1	TS	(R1-073637)	Endorsed
Yes	R1-073820	Request to clarify LTE states for physical layer measurements	Nokia Siemens Networks, Nokia, Panasonic, Ericsson, Motorola	5	LS_out	R1-073875	Revised
Yes	R1-073821	TS 36212 v1.3.2	Qualcomm Europe	7.1	TS	(R1-073249) R1-073873	Revised
Yes	R1-073822	On Early Stopping Rules for Turbo Decoding	Ericsson	7.3	Decision		Not treated
Yes	R1-073823	TS 36211 v1.2.3	Ericsson	7.1	TS	(R1-073725) R1-073872	Revised
Yes	R1-073824	TS 36213 v1.2.2	Motorola	7.1	TS	(R1-073358) R1-073874	Revised
Yes	R1-073825	25211CR242r1 (Rel-7, F) "PICH associated HS-SCCH for Enhanced CELL_FACH"	Nokia Siemens Networks, Nokia	6	CR	(R1-073324)	Agreed
Yes	R1-073826	25211CR247 (Rel-6, F) "Clarification on MICH"	Alcatel-Lucent	6	CR	(R1-073342)	Agreed
Yes	R1-073827	LS on maximum transport block size for HS-SCCH-less operation	RAN1, Philips	6	LS_out		Agreed
Yes	R1-073828	25214CR452r1 "CPC preamble and postamble clarification for CQI transmission"	Nokia Siemens Networks, Nokia	6	CR	(R1-073328) R1-073877	Revised
Yes	R1-073829	25214CR454r1 "Corrections to HS-DSCH procedures for CELL_FACH and MIMO"	Nokia Siemens Networks, Nokia	6	CR	(R1-073330) R1-073861	Revised
Yes	R1-073830	25201 CR035r1 (Rel-7, F) "Minor modification related to EDCH in 1.28Mcps TDD"	ZTE, CATT, TD-TECH, Spreadtrum Communications	6	CR	(R1-073450)	Agreed
Yes	R1-073831	25.214 CR456r1 (Rel-7, F) "Correction to Rel-7 E-DPDCH gain factor calculation"	Nokia, Nokia Siemens Networks	6	CR	(R1-073333) R1-073864	Revised
Yes	R1-073832	25.214 CR458r1 (Rel-7, F) "Correction of 64QAM CQI tables"	Ericsson, Philips, Nokia, Nokia Siemens Networks	6	CR	(R1-073338)	Agreed
Yes	R1-073833	Summary of the e-mail discussion on channel coding	NTT DoCoMo	7.3	Discussion/Decision	(R1-073438)	Noted

Yes	R1-073834	Proposed PUCCH slot format considering sounding RS transmission	LG Electronics	7.2.4	Discussion/D ecision	(R1-073487)	Not treated
Yes	R1-073835	Outcome from offline discussions on Downlink Control Signaling	Ericsson, Qualcomm, Nokia, Nokia Siemens Networks, Panasonic, Motorola, NEC, Alcatel-Lucent, Samsung, LGE, Nortel, Huawei, TI, Mitsubishi, NTT DoCoMo, KDDI, ETRI	7.2.3	Discussion/D ecision		Agreed
Yes	R1-073836	RACH sequence allocation and indication to the cell	Panasonic	7.2.9	Discussion/D ecision	(R1-073622)	Noted
Yes	R1-073837	UE Transmit Power Accuracy and Calibration	Motorola	7.4.2	Discussion/D ecision	(R1-073407)	Not treated
Yes	R1-073838	25.214 CR4621 (Rel-7, F) "Correction of MIMO CQI tables	Ericsson, Philips, Nokia, Nokia Siemens Networks	6	CR	(R1-073813)	Email approval until 31/08
Yes	R1-073839	25223 CR0461 "Introduction of multi-frequency operation for 1.28Mcps TDD"	RIIT, OMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	CR	(R1-073445)	Technically endorsed
Yes	R1-073840	25224 CR1631 "Introduction of multi-frequency operation for 1.28Mcps TDD"	RIIT, OMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	CR	(R1-073446)	Technically endorsed
Yes	R1-073841	Summary of the number of HARQ processes	Panasonic	7.3	Discussion/D ecision		Noted
Yes	R1-073842	Notes from uplink control signalling discussions	Ad Hoc Chairman	7.2.4	Information		Agreed
Yes	R1-073843	Way forward for CRC attachment for turbo-coded transport channels	Samsung	7.3	Discussion/D ecision		Noted
Yes	R1-073844	Way forward for CQI reporting	Ericsson, CATT, Freescale Semiconductor, Huawei, Icera Semiconductor, LGE, Motorola, Nokia, Nokia Siemens Networks, Nortel, NTT DoCoMo, Panasonic, Philips, Qualcomm Europe, Samsung, Texas Instruments, ZTE	7.2.4	Discussion/D ecision	R1-073858	Revised
Yes	R1-073845	Remaining Details on SU-MIMO for E-UTRA	Texas Instruments	7.2.6	Discussion/D ecision	(R1-073433)	Noted
Yes	R1-073846	Uplink RS for Small Resource Block Allocation	Qualcomm Europe	7.2.2	Discussion/D ecision		Not treated
Yes	R1-073847	Way forward on Physical Channel Segmentation	Nokia Siemens Networks, Nokia, Motorola, Samsung, LGE	7.3	Decision		Noted
Yes	R1-073848	CRC attachment	Motorola	7.3	Discussion/ Decision	R1-073852	Revised
Yes	R1-073849	RV and NDI definition	Motorola	7.3	Discussion/ Decision		Not treated
Yes	R1-073850	Text change to code block segmentation	Motorola	7.3	Discussion/ Decision	R1-073860	Revised
Yes	R1-073851	On Guard Interval of LTE TDD FS2	CATT, Ericsson, ZTE, Nokia, Nokia Siemens Networks, Samsung, Huawei	7.2	Discussion/ Decision		Agreed
Yes	R1-073852	CRC attachment	Alcatel-Lucent, Freescale, Marvell, Motorola, TI, ZTE	7.3	Discussion/ Decision	(R1-073848)	Noted

Yes	R1-073853	25224 CR166 (Rel-7, A) "Correction to the calculating formula of SIR"	RITT, CMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	CR		Agreed
Yes	R1-073854	25224 CR167 (Rel-6, A) "Correction to the calculating formula of SIR"	RITT, CMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	CR		Agreed
Yes	R1-073855	25224 CR168 (Rel-5, A) "Correction to the calculating formula of SIR"	RITT, CMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	CR		Agreed
Yes	R1-073856	25224 CR169 (Rel-4, F) "Correction to the calculating formula of SIR"	RITT, CMCC, ZTE, CATT, TD-TECH, Spreadtrum Communications, Alcatel Shanghai Bell	6	CR		Agreed
Yes	R1-073857	LS on the dynamic range of the UE transmission power	RAN4, Motorola	5	LS_in		Noted
Yes	R1-073858	Way forward for CQI reporting	Ericsson, CATT, Freescale Semiconductor, Huawei, Icera Semiconductor, LGE, Motorola, Nokia, Nokia Siemens Networks, Nortel, NTT DoCoMo, Panasonic, Philips, Qualcomm Europe, Samsung, Texas Instruments, ZTE, Sharp, Interdigital, IPWireless, Nextwave, Mitsubishi, Alcatel-Lucent	7.2.4	Discussion/Decision	(R1-073844)	Agreed
Yes	R1-073859	Optimising FDD MBSFN for broadcast	IPWireless	9	Discussion/Decision		Noted
Yes	R1-073860	Text change to code block segmentation	Motorola	7.3	Discussion/Decision	(R1-073850) R1-073863	Revised
Yes	R1-073861	25214 CR454r2 "Corrections to HS-DSCH procedures for CELL_FACH and MIMO"	Nokia Siemens Networks, Nokia	6	CR	(R1-073829)	Agreed
Yes	R1-073862	25214 CR460r1 (Rel-7, F) "E-DPDCH scaling when UE is at max power"	Qualcomm Europe	6	CR	(R1-073345)	Revised
Yes	R1-073863	Text change to code block segmentation	Motorola, Samsung, Ericsson, Qualcomm, Nokia, Nokia-Siemens Networks, LGE	7.3	Discussion/Decision	(R1-073860)	Agreed
Yes	R1-073864	25214 CR456r2 (Rel-7,F) "Correction to Rel-7 E-DPDCH gain factor calculation"	Nokia, Nokia Siemens Networks, Philips	6	CR	(R1-073831) R1-073866	Revised
Yes	R1-073865	25214 CR460r2 (Rel-7, F) "E-DPDCH scaling when UE is at max power"	Qualcomm Europe	6	CR		Agreed
Yes	R1-073866	25214 CR456r3 (Rel-7,F) "Correction to Rel-7 E-DPDCH gain factor calculation"	Nokia, Nokia Siemens Networks, Philips	6	CR	(R1-073864)	Agreed
Yes	R1-073867	Proposed way forward on DL distributed transmission	Ericsson, Motorola, Samsung, NTT DoCoMo, NEC, Huawei, LGE, Philips, Interdigital, Nortel, Qualcomm, Mitsubishi, TI, Alcatel-Lucent, Freescale, Nokia, Nokia-Siemens Networks, ZTE	7.2.5	Discussion/Decision	R1-073887	Revised

Yes	R1-073868	[Draft LS] Load balancing use case for eNodeB measurements	Orange, Vodafone, T-Mobile, NTT DoCoMo, Alcatel-Lucent, Ericsson	5	LS_out	R1-073885	Revised
Yes	R1-073869	Summary of the channel coding session	NTT DoCoMo	7.3	Approval		Noted
Yes	R1-073870	Notes from offline discussions on PDCCH	Discussion moderator (Ericsson)	7.2.3	Discussion/Decision		Agreed
Yes	R1-073871	Maximum number of hybrid ARQ processes	Ericsson, Qualcomm, Nokia, Nokia Siemens Networks, Samsung, Motorola, LG Electronics, Nortel, Philips, NXP Semiconductor	7.3	Discussion/Decision		Agreed
Yes	R1-073872	TS 36211 v1.3.0	Ericsson	7.1	TS	(R1-073823)	Endorsed
Yes	R1-073873	TS 36212 v1.4.0	Qualcomm Europe	7.1	TS	(R1-073821)	Endorsed
Yes	R1-073874	TS 36213 v1.3.0	Motorola	7.1	TS	(R1-073824) R1-073881	Revised by rapporteur
Yes	R1-073875	Request to clarify LTE states for physical layer measurements	RAN1, Nokia Siemens Networks	5	LS_out	(R1-073820)	Agreed
Yes	R1-073876	Way forward on Orthogonal Sequence for DL-RS	Qualcomm Europe, Ericsson, Nortel, Fujitsu, Mitsubishi Elec., NEC, NTT DoCoMo, Sharp, Toshiba Corp.	7.2.1	Decision	R1-073879	Revised
Yes	R1-073877	25214CR452r2 "CPC preamble and postamble clarification for CQI transmission"	Nokia Siemens Networks, Nokia	6	CR	(R1-073828)	Agreed

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Wayback Machine

12 captures
17 Jul 2007 - 1 Jul 2014

http://www.3gpp.org:80/ftp/tsg_ran/WG1_RL1/TSGR1_50/Docs/

Go

JUL 2007

JAN 2008

MAR 2014

19

▼ About this capture

www.3gpp.org - /ftp/tsg_ran/WG1_RL1/TSGR1_50/Docs/

[To Parent Directory]

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INTERNET ARCHIVE
Wayback Machine

13 August 2007
August 2007
12 captures
13 17 Jul 2007 - 1 Jul 2014

16:51 10:51 10:50 11:07 11:27 11:41

Go

JUL 19 2007
JAN 19 2008
MAR 19 2014

About this capture

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Wayback Machine

INTERNET ARCHIVE

15 August 2007

August 2007

12 captures

15 17 Jul 2007 - 1 Jul 2014

Go

http://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_50/Docs/

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JUL 2007

JAN 2008

MAR 2014

19

About this capture

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INTERNET ARCHIVE
Wayback Machine

15 August 2007
August 2007
12 captures
15 Jul 2007 - 1 Jul 2014

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Go

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JUL 19 2008
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About this capture

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INTERNET ARCHIVE
Wayback Machine

15 August 2007 11:55
August 2007 11:55
12 captures
15 Jul 2007 - 1 Jul 2014

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Go

JUL 2007 JUL 19 2008 MAR 2014

About this capture

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EXHIBIT 16

Agenda item: 7.2.4

Source: LG Electronics Inc.

Title: Proposed Scheduling Request (SR) structure and multiplexing with PUCCH

Document for: discussion and decision

1. Overall description

In last RAN1 meeting, there was a partial agreement on the transmission of Scheduling Request (SR) that SR and CQI should be separated, i.e. embedded SR transmission on CQI channel should be averted so that SR and CQI are not associated with each other. Even though there has not been further agreement, the implication of this agreement is that separate dedicated channel for SR transmission should be designed and provided.

In designing SR channel structure, one should consider various aspects and restrictions that are imposed by the current agreements on PUCCH structure and possible multiplexing mechanisms in order not to violate so-called single carrier property.

In this document, two possible alternative SR structures are proposed that are quite in line with the currently agreed-upon PUCCH structure and do not breach single carrier property when multiplexing with other PUCCH data is required.

2. Proposed Scheduling Request (SR) structure and operational method

In general, SR is predisposed to be transmitted solely without the other control information in many request opportunities. But, one cannot completely rule out the situations where simultaneous transmission with ACK/NAK or CQI is required when SR is to be transmitted. In this section, two types of SR structures (so called ‘Alternative 1’ and ‘Alternative 2’) are proposed, and the operational methods of each proposed SR structure are specified.

‘Alternative 1’ has been designed with the premise that simultaneous transmission of SR and ACK/NACK can be shunned arbitrarily by means of either delaying SR transmission or discarding ACK/NACK transmission, while ‘Alternative 2’ has been devised, taking into account the simultaneous transmission of SR and ACK/NACK. Each alternative scheme has its own merit and demerit. ‘Alternative 1’ has the advantage of larger multiplexing capability over ‘Alternative 2’ at the cost of slight degradation in downlink system throughput. On the contrary, ‘Alternative 2’ makes it possible for UEs to transmit SR and ACK/NACK simultaneously in one subframe at the cost of reduced multiplexing capability.

In the following sections, the explanation of each scheme will be elaborated in detail together with its own pros and cons.

2.1 Alternative 1 for Scheduling Request

2.1.1 Basic SR structure

Figure 1 shows the proposed SR transmission mechanism where SR from one UE can be multiplexed together with ACK/NACK signal from the other UEs on the same RB reserved for ACK/NACK channel. This can be done by reserving some resources for SR transmission in a dedicated manner. Currently, there is on-going discussion how to simultaneously multiplex ACK/NAK signal and CQI signal from a certain UE with the current PUCCH structure. Several proposals have been introduced, such as joint coding of ACK/NACK and CQI, or symbol by symbol TDM transmission between ACK/NACK signal and CQI signal, but none of which seems to satisfactorily meet the target BER requirement

agreed upon by the group from our perspective. Therefore, our preference is not to allow simultaneous transmission of ACK/NACK signal and CQI signal from one UE during the same subframe. Quite similarly, simultaneous transmission of SR and ACK/NACK transmission from one UE may be prevented by means of priority setting, which makes a lot of aspects simpler and easier when designing SR structure. However, regardless whether simultaneous SR transmission with the other PUCCH signal is supported from one UE or not, it would be quite preferable in terms of flexible RB management for PUCCH that SR from one UE can be multiplexed together with other UEs' ACK/NACK signal on the same RB

Figure 1 and 2 depict a proposed SR structure, which enables SR transmission from one UE to be multiplexed together with ACK/NAK signal from the other UEs on the same RB. It should be also noted that multiplexing with CQI can be possible, but is omitted just for simplicity in these figures. In the figure 1 and 2, ZC_shift_K ($K=1\sim6$) is K -th CAZAC sequence shifted from one root sequence in frequency domain, $OC(i)$, $i=1\sim3$ or 4, denotes i -th orthogonal covering sequence in time domain. Here in these figures, the number in the axis of orthogonal index represents the index of dedicated or shared orthogonal resource that is assigned to each ACK/NACK, SR or CQI.

Proposed SR structure can have 3 different symbols lengths.

- (1) SR with length of 4 symbols is spread over 4 SC-FDMA symbols in the same position where ACK/NAK information part is located, i.e. 1st, 2nd, 6th, 7th symbol in case of 1st slot (Block A and B in figure 1 and 2).
- (2) SR with length of 3 symbols is spread over 3 SC-FDMA symbols in the same position where ACK/NAK reference signal part is located, i.e. 3rd, 4th, 5th symbol in case of 1st slot (Block C in figure 1 and 2).
- (3) SR with length of 7 symbols is spread over 7 SC-FDMA symbols. However, spreading sequences of two different lengths are applied to 7 symbols, one is SF4 for 1st, 2nd, 6th, 7th symbol in case of 1st slot, the other is SF3 for 3rd, 4th, 5th symbol in case of 1st slot (Block D in figure 1 and 2).

Considering that SR channel for a specific UE is a dedicated channel for which dedicated resource has to be assigned in terms of sequence or resource block (e.g. sequence, resource block), the dedicated resource management for SR should be made as simple as possible. Therefore, three types of operational methods can be considered for SR transmission as given below.

- (1) Block A, B and C can be used for SR transmission. The eNB can choose where to assign certain UE among block A, B and C depending on UE status and system condition.
- (2) Only Block D is used for SR transmission irrespective of those conditions.
- (3) Block A, B, C, and D can be used for SR transmission. In terms of flexibility in the view point of system operation and management, this option seems to be most promising. However, there may be some increase in operational complexity.

Regardless of the selected operational mode among the above, maximum of 42 UEs' SR can be accommodated together in one RB if this RB is solely utilized for SR transmission.

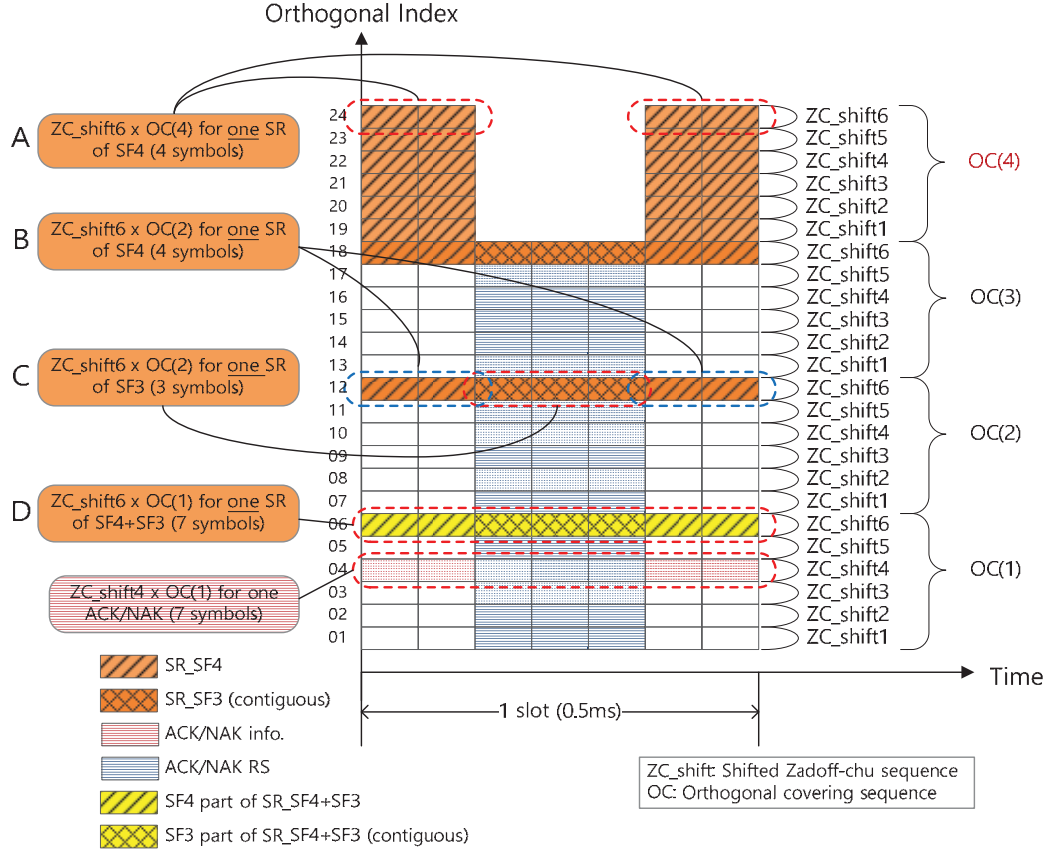


Figure 1: SR structure multiplexed with ACK/NAK

Figure 2 shows similar structure from figure 1 with additional consideration on co-existence with sounding RS. As investigated in the companion contribution [1], sounding RS multiplexing with PUCCH is very important issue to be considered. If it is agreed that sounding RS should be transmitted over one SC-FDMA symbol that is exclusive only for sounding RS, certain PUCCH slot formats for ACK/NACK and CQI should be defined for simultaneous transmission of sounding RS and PUCCH during the same subframe. Similar PUCCH slot format should also be utilized for SR transmission as shown in figure 2.

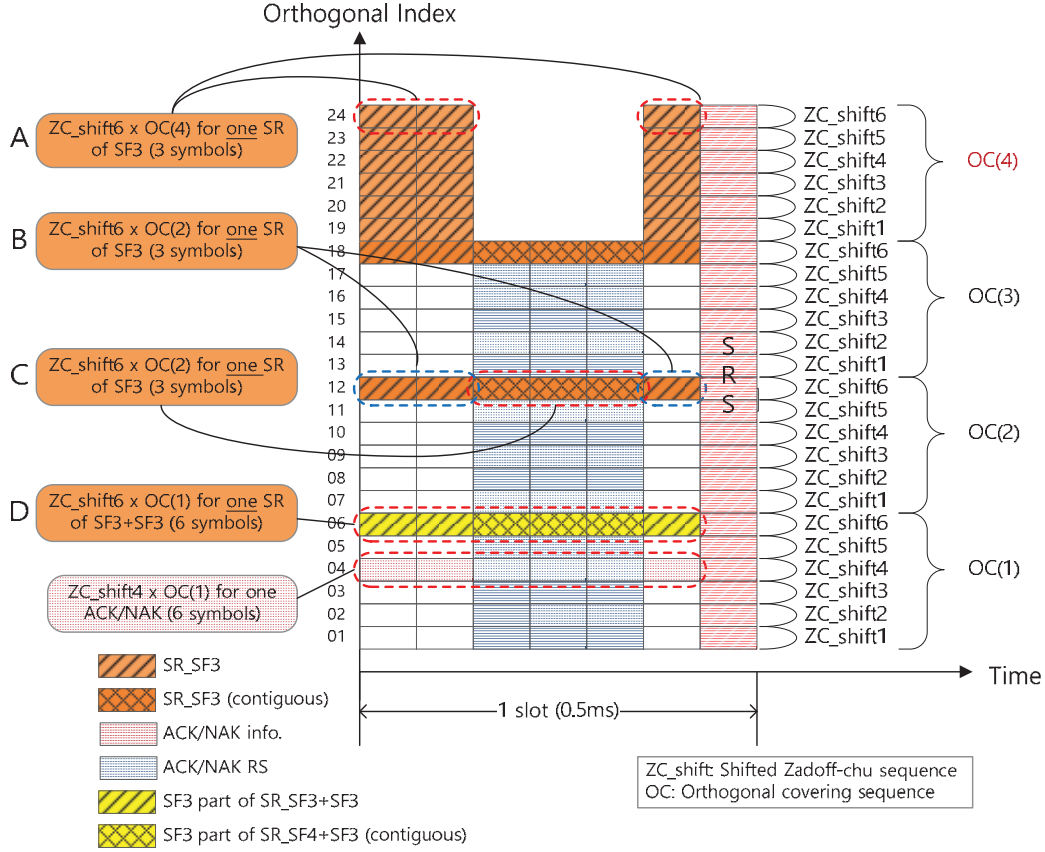


Figure 2: SR structure multiplexed with ACK/NAK and S-RS (Sounding RS)

2.1.2 Scheduling Request transmission in the presence of ACK/NAK transmission

From time to time, UEs would encounter the cases where they want to transmit their SR at the same time when ACK/NACK should be transmitted. In this case, one of two signals should be delayed or discarded in order not to violate single carrier property if SR structure given in figure 1 or figure 2 is used.

It seems to be common understanding and assumption of many companies that there is certain fixed time relationship between ACK/NACK signal and downlink packet transmission. Therefore, it would be quite intuitive and reasonable to delay SR transmission instead of ACK/NACK signal when a certain UE has both signals to transmit. In other words, ACK/NACK signal is presumed to have higher priority in general.

However, there might be a case once in a while where one should consider the other way around. For example, if large amounts of on-going downlink HARQ processes are in places at time and hence UE should transmit its ACK/NACK signal continuously, UE would have a hard time to find an opportunity to transmit its SR for a while even though UE buffer occupancy rises to a certain level of emergency. Therefore, proper management on the priority would be necessary in order to circumvent this kind of situation.

One possible solution is to make specific rules for the case. For example, if SR transmission concurs with ACK/NACK for the first time, ACK/NACK is transmitted since it has a higher priority over SR. However, if it happens successively N times (e.g. $N=3$ in figure 3), SR is transmitted instead of ACK/NACK at the N -th time. Unlike the case of SR where SR transmission can be delayed, ACK/NACK signal should be discarded in order not to complicate the on-going HARQ procedure if it happens. In order to support this operation, eNB is required to monitor both SR and ACK/NACK signal from a certain UE all the time. If eNB detects that SR has been transmitted from the UE instead of ACK/NACK signal at certain predefined time instant when ACK/NACK signal transmission is expected, eNB should just perform retransmission for the corresponding HARQ process since it has no information whether UE has successfully decoded previous sub-packet or not. Therefore, one retransmission in downlink would be squandered if previous sub-packet has been correctly received by the UE, leading to a slight degradation in downlink performance.

Actually, the successive coincidences of ACK/NACK and SR transmission will seldom happen, and accordingly the impact would be negligible. Hence, discarding ACK/NACK signal instead of delaying SR could be considered as adequate solution when SR transmission becomes imminent, since it won't have any serious impacts on the downlink system throughput.

According to the rule, either one of ACK/NACK or SR is chosen to be transmitted depending on parameter 'N' that would determine the priority at the time of transmission for SR. Of course, other metrics could be considered when determining the priority for signal transmission.

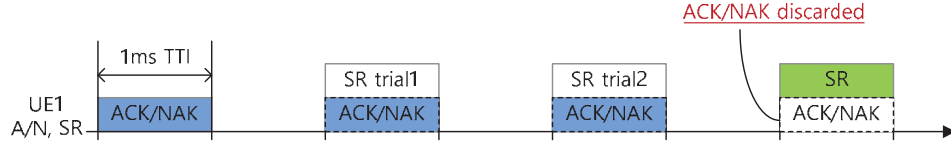


Figure 3: SR transmission when ACK/NACK is scheduled to be transmitted

2.1.3 Scheduling Request transmission in the presence of CQI transmission

From time to time, SR transmission may happen to coincide with CQI transmission. If it happens, it seems to be reasonable that SR (with higher priority in most cases) is mainly transmitted instead of CQI. We can also apply priority based selection method when they coincide at the same time. Figure 4 shows the exemplary case where CQI is skipped or delayed (depending on CQI schemes) when CQI transmission was scheduled at the same time when UE tries to transmit SR to eNB.

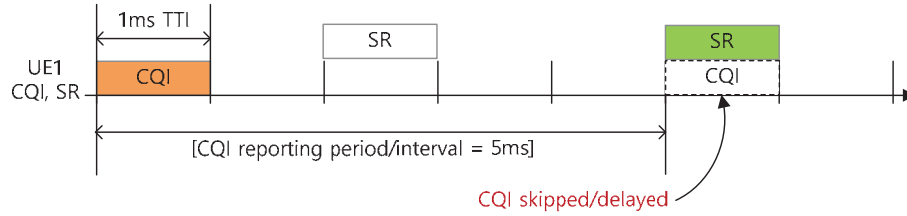


Figure 4: SR transmission when CQI is scheduled to be transmitted

2.2 Alternative 2 for Scheduling Request Structure

In order to transmit the SR and ACK/NACK simultaneously at the same subframe, the alternative SR channels, which reuse the CDM-based structure of ACK/NACK channel with different circular shift(s) of CAZAC code and block-spreading codes (resultantly, the same slot format as for ACK/NACK transmission is used also for SR transmission), can be considered. This dedicated SR channel (i.e., 'Alternative 2') is fully compatible and co-existing with the PUCCH in the same time-frequency resource in a different way from the modified ACK/NACK channel structures for the SR transmission on the PUCCH [2], [3].

Figure 5 shows the exemplary operation how to transmit SR and/or ACK/NACK signal with 'Alternative 2' proposal. As can be seen in the figure, two separate channels will be utilized by one UE in order to transmit either one of SR or ACK/NACK signal without multiplexing at a given time. In other words, if SR transmission from certain UE happens to coincide with its ACK/NACK signal transmission at the same subframe, ACK/NACK signal for this UE should be diverted to the dedicated resource which is assigned to the UE for SR transmission from common resource for ACK/NACK signal as shown in figure 5. However, when the UE should transmit its SR and ACK/NACK signal simultaneously, the ACK/NACK information is not transmitted on the ACK/NACK channel, but on the dedicated SR channel ((b) in Figure 5). In this case, the 1-bit SR using on-off keying is detected non-coherently by means of energy detection and then ACK/NACK information is obtained by coherent detection. In case of SR-only transmission ((c) in Figure 2), the SR can be allocated to the dedicated SR channel and detected in a non-coherent or coherent manner. In order to support this operation, eNB is required to monitor both SR channel and ACK/NACK channel at the same time. If eNB detects certain level of energy on SR channel at the time instant when ACK/NACK signal is expected from the UE,

eNB should perform coherent demodulation for ACK/NACK on the dedicated resource for SR, not on the common resource assigned for ACK/NACK transmission.

This approach is appropriate for maintaining the single-carrier property for UL transmission while supporting the simultaneous transmission of SR and ACK/NACK.

The ‘Alternative 2’ has the smaller multiplexing capability than that of ‘Alternative 1’. ‘Alternative 1’ structure has some potential demerit in the view point of downlink system throughput while there is no such an impact in case of ‘Alternative 2’. Therefore, there is apparently a certain trade-off between ‘Alternative 1’ and ‘Alternative 2’, which needs to be carefully scrutinized before final selection.

In addition, the same operational method as described in section 2.1.3 can be exploited when considering the multiplexing with CQI signal also in case of ‘Alternative 2’ structure. Hence, CQI is skipped or delayed (depending on CQI schemes) when CQI and SR transmission timing is overlapped as shown in Figure 4.

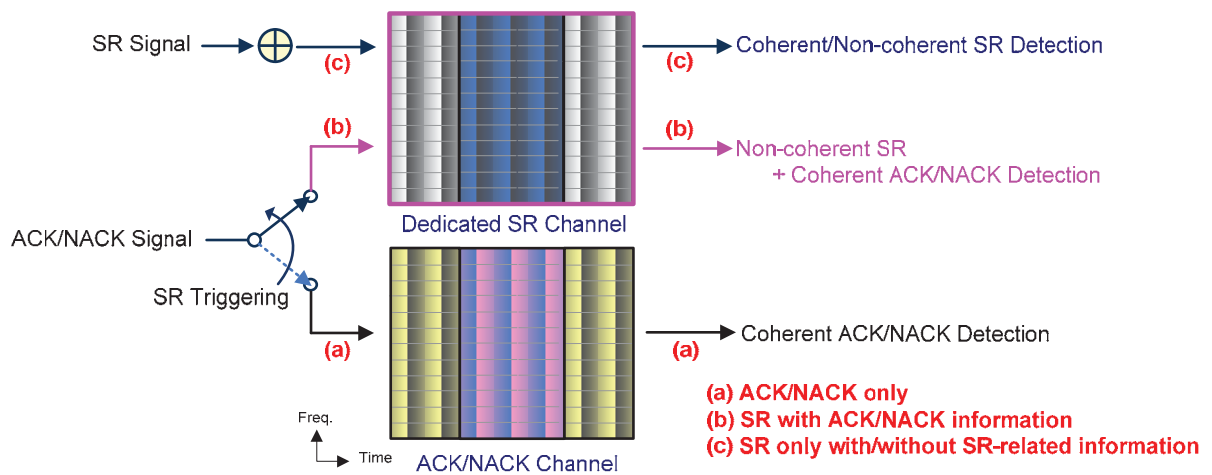


Figure 5: An illustration of multiplexing SR and/or ACK/NACK

3. Conclusion

In this contribution, two possible alternative SR structures (so called ‘Alternative 1’ and ‘Alternative 2’) are proposed that are quite in line with the currently agreed-upon PUCCH structure and do not breach single carrier property when multiplexing with other PUCCH data is required. Each alternative has its own merits and demerits compared with one another as described earlier. That is to say, there is apparently a certain trade-off between ‘Alternative 1’ and ‘Alternative 2’. Especially, ‘Alternative 1’ has an advantage in terms of multiplexing capability, while ‘Alternative 2’ has an advantage in simultaneous transmission of ACK/ANCK and SR aspect. Therefore, two alternative schemes need to be carefully scrutinized before final selection.

4. Reference

- [1] R1-072887 Investigation on problems in case of PUCCH and S-RS simultaneous transmission, LG Electronics, RAN1#49bis Orlando meeting.
- [2] R1-073011, “Multiplexing of scheduling request and ACK/NACK and/or CQI,” NSN, Nokia
- [3] R1-073066, “Multiplexing the scheduling request in the uplink,” Alcatel-Lucent

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