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Source: **Ad hoc 8 vice-chair**

Title: **Ad hoc 8 report**

Document for: **Approval**

Abstract

This is the report of the Ad Hoc 8 meeting which took place on August, 31st from 13.30h to 1740h. During this ad hoc meeting the following input documents have been discussed:

Tdoc	Source	Title
R1-99a95	Nokia	Compressed mode for GSM measurements
R1-99b14	Nokia, Mitsubishi, Siemens	Text proposal for compressed mode parameter for GSM search
R1-99a81	Siemens	Method and algorithm for the GSM cell reconfirmation
R1-99c83	Nokia	TFCI transmission in compressed mode
R1-99d05	Hyundai, Shinsegi	A modified CMCCH
R1-99b27	Ericsson	Use of multiple scrambling codes in compressed mode
R1-99b81	Ericsson	Uplink compressed mode performance
R1-99b98	Mitsubishi	Compressed Mode for FDD-FDD handover preparation
R1-99b99	Mitsubishi	Compressed mode function in multiplexing chain
R1-99d14	Mitsubishi	Simulation results for compressed mode impacts on non-compressed voice depending on TGL
R1-99c57	Mitsubishi	Simulation results for TG position and proposal

All submitted contributions in this ad hoc meeting could be treated. In the following, summary and conclusion about the presented input papers is given.

1. Compressed Mode for FDD-GSM Handover preparation

R1-99a95 "Compressed Mode for GSM measurements" (Nokia)
This contribution proposes an update and changes to TS25.231 concerning GSM measurements and synchronisation to GSM.
Vodafone has concerns that specifying only one GSM power measurement pattern does not provide enough measuring time for all scenarios and thus doesn't leave enough flexibility.

Conclusion: Text proposal is accepted, but the table in chapter 7.1.3.3.6.2 on GSM power measurements, besides containing the one proposed pattern from this text proposal will be left open for additional patterns. The updated text proposal will be provided as R1-99d18.

R1-99b14 "Text proposal for compressed mode parameter for GSM search" (Nokia, Mitsubishi, Siemens)
Harmonised text proposal (from R1-99810 and R1-99a07) for TS25.231, chapter 7.1.3.3.6.3 for search patterns suited for first SCH decoding without prior knowledge of timing information.

Conclusion: Text proposal accepted.

R1-99a81 "Method and algorithm for the GSM cell reconfirmation" (Siemens)

In this contribution, it's proposed to use GSM BCCH and CCCH normal bursts as well as the SCH burst for GSM cell reconfirmation. In order to perform the BSIC reconfirmation using a normal burst of the GSM BCCH and CCCH, a correlation algorithm and a pre-knowledge of the training sequence is used.
Nokia expresses some concerns about the necessity and the reliability of this method and would prefer to discuss this via reflector. Another question comes from Philips if the use of the described algorithm would be mandatory.

Conclusion: Contribution found interesting and discussion will continue on reflector

2. TFCI transmission in Compressed Mode

R1-99c83 "TFCI transmission in compressed mode" (Nokia)
This contribution addresses the problem of transmission of TFCI when in compressed mode and creation of transmission gaps is done by puncturing. Simulation results on TFCI symbol error rate are shown for the case of puncturing TFCI symbols. Contains a text proposal for description of frame structure and TFCI transmission for compressed mode when puncturing is used in TS25.212, section 4.3.3.
During the discussion it was noted that reducing the number of TFCI words during the compressed mode could be a solution in terms of performance, but however this solution might be not acceptable with regards to higher layers.

Conclusion: Text proposal accepted.

3. Compressed Mode in Downlink

R1-99d5 "A modified CMCCH (Compressed Mode Common Channel)" (Hyundai, Shinsegi)
This contribution is an update of R1-99b10. The concept of modified CMCCH is similar to that of the previously presented concept of CMCCH. That is, a user's data in a compressed frame is transmitted through it's DPCH and a common channel, CMCCH, at the same time by time multiplexing several users which are in DL compressed mode. The difference between the first presented and the modified CMCCH is that the assignment of OVSF code of CMCCH isn't done initially any more, but whenever UE enters compressed mode.
Several companies have concerns about the increased complexity, e.g. multi-code reception capability of UE with this proposal, about flexibility and alignment of different users on the CMCCH and about Compressed Mode with CMCCH during soft handover. Also the scheduling of optimized compressed mode patterns seems not to be possible due to the need of user alignment.

Conclusion: Ad Hoc 8 doesn't recommend the use of CMCCH at this stage of standardisation process

R1-99b27 "Use of multiple scrambling codes in compressed mode" (Ericsson)
Discusses general methods for transmission time reduction methods for compressed mode (spreading factor reduction, puncturing, multi-code transmission using a common channel). Recommends the optional use of multiple scrambling codes for transmission of a compressed frame in the special case that a compressed frame is created by spreading factor reduction method in order to prevent the situation of code-limited downlink capacity. The proposal doesn't require any coordination between users. Some method for the UE which channelisation / scrambling code pair to be used for compressed frames needs to be defined (example for code allocation given in the contribution).
There are several questions for clarifying the proposed solution, e.g. for which cases it applies and if the code assignment is unique. The optional use of multiple scrambling codes applies only to spreading factor reduction method, other methods, especially creation of transmission gaps by puncturing are not concerned. Also, a unique code assignment can be assured with this proposal. It's recommended that UE should support the optional use of multiple scrambling codes for downlink compressed mode by spreading factor reduction.

Conclusion: The proposal of this document is accepted. A detailed text proposal (R1-99c95) for TS25.212 is drafted at the end of the ad hoc session and accepted by Ad Hoc 8.

4. Compressed Mode in Uplink

R1-99b81 "Uplink Compressed Mode Performance" (Ericsson)
This document is provided for information and presents simulation results on the degradation of the uplink due to uplink compressed mode for speech services. Comes to the conclusion that the difference in performance for non-compressed frames and compressed frames is less than 0.3dB for UE operating inside the cell. For UE operating at the cell border, average FER is found to increase from 1% to 1.75% and that Eb/N0 needs to be increased by 1dB to combat this.

Conclusion: Noted.

5. Compressed Mode for FDD-FDD IFHO preparation

R1-99b98 "Compressed mode parameters for FDD-FDD handover preparation" (Mitsubishi)
Text proposal for TS25.231, section 7.1.3.3.4 for monitoring of FDD cells on other frequencies for the handover preparation from UTRA FDD to UTRA FDD in case of cell selection and reselection.
There were no questions or concerns raised.

Conclusion: Text proposal accepted.

6. Compressed Mode function in Multiplexing Chain

R1-99b99 "Compressed mode function in Multiplexing chain" (Mitsubishi)
This document discusses where the compressed mode function should be placed within the coding, interleaving and multiplexing chain and proposes to ask Ad Hoc 4 for making a clear description in TS25.212. This contribution mainly addresses the downlink. Main idea is to have 2 functions before (puncturing function) and after (DTX gathering function) the 2nd interleaver.
Contains also a text proposal for an update of TS25.212, section 4.4.2.1 and Table 7 in 4.4.3.2, related to compressed mode parameters considering the current rate matching scheme.
There were no questions or concerns raised.

Conclusion: Text proposal accepted.

7. Other issues

R1-99d14 "Simulation results for compressed mode impacts on non-compressed voice depending on TGL" (Mitsubishi)
Provided for information. Simulation results of required Eb/I0 of a data user entering compressed mode and its impact on a non-compressed data user for varying TPC step sizes of 1dB and 2dB and with recovery periods of length 4 and 7 slots. Comes to the conclusion that for the compressed user itself, using TPC step sizes of 2dB in the recovery period gives better performance than 1dB step sizes, but that impact on the non-compressed user can become significant. Simulation conditions are simplified by taking into account only one compressed and one non-compressed data user.
There were no questions or concerns raised.

Conclusion: Noted.

R1-99c57 "Simulation results for TG position and proposal" (Mitsubishi)
Presents link-level simulation results for performance of compressed mode (single frame method with fixed position) by evaluating required Eb/I0 for BER=10-3 for varying transmission gap positions and lengths, varying TPC step sizes of 1dB and 2dB and with recovery periods of length 4 or 7 slots. Proposes to change the position of the transmission gap in the case of single frame method and for fixed transmission gap positions.
There were no questions or concerns raised.

Conclusion: Text proposal accepted.

8. Still open items

- Compressed mode during soft handover
- Tx-diversity and compressed mode
- Frame structure of uplink compressed mode
- Application of compressed mode for interleaving depths other than 10 ms