TSG-RAN Working Group 1 meeting #7   **TSGR1#7(99)D24**
Hanover, Germany, August 30 – September 3, 1999

Agenda item: **15**

Source: **Ad Hoc #1**

Title: **Report from Ad Hoc #1: TDD, part 1**

Document for: **Approval**

1 Introduction

Ad hoc #1 meeting on TDD first session, August 31, 1999.
Starting Time: 8:30
End Time: 12:30

Ad hoc #1 meeting on TDD second session, September 1, 1999. Report included in separate document.

2 Documents relevant for TDD

In the following, the discussion and the results on the presented documents are given.

2.1 Liaison Statements

Tdoc C12/99 "Reply to Liaison Statement on Timing Advance for TDD", WG2

Conclusion:
- For information only.

Tdoc C13/99 "Answer to LS to RAN WG2 on USCH requirement for TDD", WG2

Conclusion:
- For information only

Tdoc C63/99 "LS about TDD Synchronisation Methods", WG3

Discussion:
- Some time is needed to investigate this in detail. An answer should be given asap as the item is covered in detail in WG1.
- Start discussion via email after this WG1 meeting.

Conclusion:
- Liaison statement saying that WG1 will send an answer after considering the items in detail will be drafted by the Ad Hoc 1 chair to be sent to WG3. This text will be reviewed in the second TDD ad hoc session.

2.2 Power Control

Tdoc A98/99 "Outer Loop Power Control in TDD mode", IDC

Discussion:

- For information only – effects WG2 mainly.
- Principle described was approved at last WG1 meeting.

Tdoc A97/99 "Comments on Weighted Open Loop Scheme for Uplink Power Control in TDD Mode," IDC

Discussion:
- Contribution to confirm that formula approved last time is correct also if the exact Tx power is not broadcast which was a concern raised at the last meeting.

Tdoc A96/99 "Text Proposal for 25.224," IDC

Discussion:
- In Table 1 in the related section in 25.224, also the "closed loop PC" has to be removed for the uplink column.

Conclusion:
- Ad hoc 1 recommends to agree on the text proposal given in Tdoc A96/99 with the change mentioned above.

Tdoc B70/99 "Definition of TPC Bits in TDD," Siemens AG

Discussion:
- Clarified that TPC bits use same spreading factor as data.
- Clarified that TPC bits have no influence on guard time.
- About 4% error rate for the power control bits sufficient in most cases.

Conclusion:
- Ad hoc 1 recommends to agree on the text proposal given in Tdoc A70/99.

Tdoc C64/99 "Textproposal for TS25.224 Regarding Closed Loop PC in TDD mode," Siemens AG

Discussion:
- Table 1: "1..3dB" to be replaced by "1, 2, 3 dB".
- Remove the line with dynamic range in the table.
- Value of the cycles given in the table is not correct, since now we have 15 instead of 16 time slots. Instead of the values for the cycle period, a text should be changed to "variable, with rate

Conclusion:
- Ad hoc 1 recommends to agree on the text proposal given in Tdoc C64/99 with the changes mentioned above.

2.3 Measurements for TDD

Tdoc A79/99 "Physical Layer Measurements in UTRA TDD Mode," Siemens AG

Discussion:
- RSCP: "measured *on midamble code*" should be added for clarification.
- Section 7.7: The text related to timing advance should read "*May* be performed by UTRAN" instead of "*has to* be performed by UTRAN" since there are cases where timing advance is not used.
- Section 2.4: The wording should be polished to clarify that reporting is done both periodically if requested and if below the threshold, not only if below the threshold. It should be made clear in the wording that for reporting, different triggers are possible.
- Section 2.4: With respect to the measurement list provided by UTRAN, also the UE capabilities have to be taken into account; this should be added in section 8.
- The monitoring frequency is important for DCA; which working group takes care of this? WG1 should work on the performance analysis and report to WG2 about monitoring frequency needed for certain performance.

Conclusion:

- Ad hoc 1 recommends to agree on the content given in the text proposal of Tdoc A79/99 with the changes mentioned above. The structure of the measurement specifiation will be discussed in adhoc 16.

2.4 Channel Definitions in TDD

Tdoc B66_Update/99 "Physical Channel Definitions in TS25.221", Siemens AG

Discussion:
- Sections 6.3.7, 6.3.8 inserted to complete the list of all transport channels. More specification-like text comparable to other sections should be added: e.g. DSCH/USCH mapped onto one or more PDSCH/PUSCH should be added
- "Efficient allocation" to be replaced by "frame by frame" allocation or something similarly specific.
- List of abbreviations: include CCTrCH, remove RU.

Conclusion:
- Ad hoc 1 recommends to agree on the text proposal given in Tdoc B66_Update/99 with the changes mentioned above, i.e., after revising sections 6.3.7/6.3.8 as mentioned above. The changes are included in the revised version Tdoc D02/99.

Tdoc B65/99 "Common Channel Terminology in TDD mode", Siemens AG

Conclusion:
- Ad hoc 1 recommends to agree on the text proposal given in Tdoc B65/99.

Tdoc C65/99 "TFCI for shared channels in TDD mode", Siemens AG

Discussion:
- TFCI on associated and on shared channel? TFCI on both dedicated and on shared channel? It was confirmed that this is possible, different CCTrCHs are used.

Conclusion:
- Ad hoc 1 recommends to agree on the text proposal given in Tdoc C65/99.

Tdoc B09/99 "Downlink Shared Channel (DSCH) physical layer signalling with TDD", Nokia

Discussion:
- There are not only three, but there is a 4th method: TFCI on shared channel should be added -> modify text to: "using the TFCI field of the associated channel or PDSCH".
- Is more complex planning required in a cellular system? 128 midambles with 16 shifts are available, e.g. 2 midamble sets can be used in a cell; some verification is needed to make sure that the new proposal does not require cell planning.
- Measurements on adjacent cells and influence on cellular situation should be crosschecked for the proposal.
- Modify text to: "derived from the cell specific set of midambles used for that cell".
- Are the different methods optional or mandatory? UTRAN decides which one to use, for UE all are mandatory.

Conclusion:
- Ad hoc 1 recommends to agree on the text proposal given in Tdoc B09/99 with the changes mentioned above. The revised version can be found in TDoc C93/99 "Updated Downlink Shared Channel (DSCH) physical layer signalling with TDD".

New Optimal Coding for extended TFCI with almost no Complexity increase (rev 2)", Samsung

Discussion:
- Results on TDD presented for information, decision for both FDD and TDD will be taken in AH04.
- Why only 120 km/h case simulated for TDD? – Time limit and kind of worst case scenario.
- Performance gain shown.
- Complexity issue to be discussed in AH04 for both FDD and TDD.

Conclusion:
- Decision on the adoption of this scheme will be taken in AdHoc 4.

2.5 Midamble Codes

Tdoc B64/99 "Additional Midambles for PRACH in TDD mode", Siemens AG

Discussion:
- This scheme could be used for DSCH signalling according to B09/99 as well.

Conclusion:
- Ad hoc 1 recommends to agree on the text proposal given in Tdoc B64/99.

2.6 Service Mapping and Interleaving

Tdoc B67/99 "Physical Channel Segmentation and 2nd Interleaving for TDD", Siemens AG

Discussion:
- It was clarified that there is no additional delay for the data.
- Which type of diversity gain does this scheme provide? Time diversity and interference diversity since interference is different for different time slots.

Conclusion:
- Scheme approved.

Tdoc C09/99 "Textproposal: Physical Channel Segmentation and 2nd Interleaving for TDD", Siemens AG

Conclusion:
- Ad hoc 1 recommends to agree on the text proposal of Tdoc C09/99.

3 Conclusion

It is recommended by Ad Hoc #1 on TDD to modify the existing set of WG1 specifications based on the recommendations given in section 2.