Agenda item: **Reports of Adhocs**

Source: **Ad Hoc #30 chair**

Title: **Report from Ad Hoc #30: TDD NodeB Synchronisation and release 99 CRs**

Document for: **Approval**

1 Introduction

Ad hoc #30 meeting on TDD NodeB Synchronisation and release 99 CRs, November 22, 2000.

Starting Time: 13:30
End Time: 15:30

2 Discussion of Contributions

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

2.1 Contributions on TDD NodeB Synchronisation

Tdoc R1-00-1349, "NodeB Synchronisation for TDD – some refinements", Siemens AG

This contribution proposes some refinements for the NodeB synchronization. The main change is the option to use multiple code offsets within one RNS, allowing simultaneous measurements of different cells in parallel. This allows a more efficient usage of the allocated ressources and more frequent measurements. Furthermore, details were given on the initial synchronisation mechanism and the introduction of new NodeBs. These details are given for information and completeness only, since they are originally within the scope of WG3.

Conclusion:

?? AdHoc#30 agreed on the proposed refinements and recommends to update the TR according to the proposal in Tdoc R1-00-1349.

Tdoc R1-00-1370, "Node B sync in UTRA TDD with multiple measurement occasions", Mitsubishi Electric

In this document a basic analysis was provided comparing both the original Node B sync concept and the proposal in R1-00-1349. This basic analysis showed that the multiple Node B transmissions approach is as efficient as the single Node B transmission method for smaller Node B clusters (containing less than 4 Node B's) and that there is a gain for bigger Node B clusters (containing more than 4 Node B's) which makes this option interesting to use.

There was no discussion on this document.

Tdoc R1-00-1351, "CEC sequences with multiple offsets for Node B sync in UTRA TDD", Mitsubishi Electric, Siemens AG

In this contribution, a construction method for the cell sync burst sequences is proposed, based on CEC-sequences that are extended to the multiple code offset case. It is shown that these Node B sync sequences offer the same advantages as the original ones in terms of their auto-correlation properties and low-complexity receiver implementation.

In the discussion there was a comment that more time would be needed in order to evaluate this construction method.

Conclusion:

?? AdHoc#30 agreed on the proposal for the burst construction method and recommends to update the TR according to the proposal in Tdoc R1-00-1351. If there are severe technical problems found with the construction method, it has to be reconsidered.

Tdoc R1-00-1454, "Draft TR on "NodeB Synchronisation for TDD"", Siemens AG

A draft TR was presented including the proposals as mentioned above. In the discussion the following items were clarified:

?? The section on 'TA for Handover' was misleading. The title should be changed to make clear, that the focus of this section is the usage of the knowledge of the sync accuracy for the purpose of handover.

?? The reference to the Tdoc 1351 should be avoided and the document should rather be included in the annex.

Conclusion:

?? AdHoc#30 recommends to update the draft TR according to the comments in the discussion and to present it to the plenary for approval before submission to RAN#10.

2.2 Contributions on AH99 (TDD)

Tdoc R1-00-1402, "Limit on maximum value of alpha used for open loop power control", Siemens AG

The contribution proposes to limit the weighting of the short term against the long term pathloss for open loop power control by specifying a maximum value of alpha to be signalled by the network. . This parameter would be set dependent on the expected channel reciprocity. A corresponding CR was conditionally approved by RAN WG2, on the condition that RAN WG1 would approve this change as well.

Conclusion:

?? AH30 agrees on this CR and recommends to present it to the plenary for approval. A LS should be sent to WG3 encouraging to do the necessary changes in their specifications during their current meeting WG3#18.

Tdoc R1-00-1340, "Transmission of long sequences with same data symbol", Siemens AG

This document showed the potential performance degradation due to the removal of the DC offset in the TDD bursts that may occur in case of the transmission of long sequences with the same data symbol. A typical example for such a transmission is the PICH, where the PI is coded as long zero and one sequences. Low cost terminals may use cost efficient AC coupled receivers, thus implicitly removing the DC component. In order to overcome this problem, it is proposed to include a bit scrambling operation after CCTrCH multiplexing. The appropriate CRs for TS25.221 and TS25.222 can be found in this Tdoc R1-00-1340.

In the discussion there was a comment that more time would be needed in order to evaluate this proposal. It was asked, if this proposal is for both UL and DL, and it was confirmed that the bit scrambling should be applied to both in order to maintain the same multiplexing chain for both UL and DL. The necessity to use the bit scrambling operation in the UL was doubted. Bit scrambling in UL would require additional operations in the UE.

Conclusion:

?? AH30 agrees in principle on the proposal and recommends to approve the changes at WG1#18, if there is no concern raised until that meeting. The necessity for the UL is yet to be clarified.

Tdoc R1-00-1341, "Transmission of Same Data on all Active Codes in a Downlink Time Slot", Siemens AG

This document showed a potential problem that may occur if the same data is transmitted on all or at least some DL physical channels within one slot. Due to the particular channelisation code construction

and the time alignment in TDD, a high peak power will occur in this situation on the first chip of each symbol. Power clipping of this regular peak pattern will result in an 8dB degradation in ACLR.

In order to overcome this problem, it is proposed to apply a code specific phase offset of multiples of 2?/SF. The appropriate CR for TS25.223 can be found in this TDoc. The contribution showed that this technique will improve the peak to average power ratio also for independant data.

In the discussion there was a comment that more time would be needed in order to evaluate this proposal. It was asked again, if this proposal is for both UL and DL, and it was confirmed that the weighting factors should be applied to both although the gain for the DL is probably higher. The necessity to use the weighting factors in the UL was doubted. The weight factors would affect the simple I/Q transmission scheme for the UE, allowing integer valued coefficients.

Conclusion:

?? AH30 agrees in principle on the proposal and recommends to approve the changes at WG1#18, if there is no concern raised until that meeting. The usage of the scheme for the UL is yet to be clarified.

3 Conclusion

As for TDD NodeB synchronisation, AdHoc#30 achieved an agreement on the general concept, the construction of the synchronisation burst, and the principle extensions for the WG1 specifications. It recommends to update the TR 25.836 accordingly and to present it to TSG RAN#10 after approval by TSG RAN WG1. The updated TR is included in Tdoc R1-00-1467.

Moreover, AdHoc#30 recommends to close the TR 25.836 after the possible approval in RAN#10 and to continue the work with the CRs for the respective specifications afterwards. A corresponding LS should be sent to WG2, 3, and 4. The draft LS is included in R1-00-1465.

As for the release 99 items, AdHoc#30 agreed on the CR in Tdoc R1-00-1402 (alpha value) and recommends to present it to the plenary for approval. A LS should be sent to WG3 encouraging to do the necessary changes in their specifications during their current meeting WG3#18. The draft LS is included in R1-00-1466.

For the CRs included in Tdoc R1-00-1340 and R1-00-1341, AdHoc#30 agreed in principle on the proposals. Since there is more time needed for the discussion, it recommends to postpone the final decision to WG1#18.