Ad-hoc 9 physical meeting report

Report of ad-hoc 9 physical meeting

- **1-Chairman's report on activities over the reflector**

  > The chair person presented shortly the outcome from the discussion over the reflector. The report is attached to this report.

- **2-Liaisons from other groups**

  > A number of liaisons were identified for review by the group as follows and were dealt with in the different agenda item points. Anwers were agreed to all of the liaisons. Details provided in the following

    – *R1-99h91, Eb/No range, RAN WG3*

    – *R1-99h93, Liaison statement on DPC Mode Support for Release '99, RAN WG3 ->Agenda 7.2*

    – *R1-99h96, LS on UE minimum power,RANWG4-> agenda 8.1*

    – *R1-99i21, LS on FDD UE minimum transmission power, RAN WG2-> Agenda 8.1*

Agenda

- ## 3- On open loop power control

  - R1-99i63, Removal of open loop power control (CR 25.214-007), Ericsson -> already treated in Plenary

- ## 4- Power control at initialisation

  - > R1-99i13, Consolidation of power control information for DCH initialisation, Philips
    - – *The attached CR is agreed in principle but some modification needed (removal of reference to DSCH and outer loop power control. The revised version of such a CR should be considered by the plenary together with a CR on 25.211 describing clearly the power control preamble. Also this CR on 25.214 should indicate the preamble issue.*

- ## 6- Power setting of common channels

  - > R1-99i64, Power offset of AICH and PICH (CR 25.214-008), Ericsson, -> already treated in the Plenary

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- ## 7- Downlink inner loop power control for FDD

  - > 7.1 General issues, corrections

    - R1-99j29, Downlink power control, Nokia

      - *CR agreed in principle however a revision of the CR is needed to incorporate the following :*

        - *Further elaboration the definition of the power as the average over the transmitted symbols rather than on each symbol. Averaging over the transmitted symbol allow to not take into account DTX periods. The averaging length should be the slot duration in order to avoid any possible problems of change of power between radio frames.*

        - *Clarification of the symbol word since symbol can have a different meaning through out the WG1 specs(25.211)*

      - *Accuracy on the the limits depends on the averaging length and number of symbols. It is understood that WG 4 will define such accuracy considering the set averaging period (1 slot)*

      - *There is a need to check whether the limits are for the CCtrCH or on a DPCH basis. If on the CCTrCH basis then problems are encountered when multiple DPCH with different SF are used*

      - *It is understood that the text implies that the "instantaneous power" cannot be increased for compressed frames. This may though need to be revisited in a near future.*

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- ## 7- Downlink inner loop power control for FDD

  - \> 7.3 Downlink power control in soft handover (no SSDT case)

    - – R1-99k02: Downlink Power Control Step Size During Soft Handover

      - – *The contribution identified some issues with the current WG3 specification where it appears that the step size cannot be change after the radio link set up. It means in particular that the step size cannot be change when entering soft handover. Then we may end up with node B applying different PC step sizes since one only support 0.5dB. Simulation results are show that indicate a loss in PC.*

    - – R1-99j99, Draft Liaison on Changing the NodeB TPC Step Size after the start of the connection, Nortel Networks

      - – *This draft liaison aims at informing WG3 of the identified problem in previous contribution (R1-99k02) and ask WG3 to include the possibility to change the step size dynamically -The ad-hoc 9 asked for a modification of the proposed LS to say that it is recommended that the same step size is used. Some improvement of the optimality indication of the PC also needed.*

      - – *Revised version of CR contained in R1-99kxx*

Ad-hoc 9 report

- ## 7- Downlink inner loop power control for FDD

  - > 7.3 Downlink power control in soft handover (no SSDT case)

    - – Synchronisation of the application of DPC mode

      - – *List of contributions for the topic*

        - • *R1-99h93, Liaison statement on DPC Mode Support for Release '99, RAN WG3*
        - • *R1-99k03: Synchronization of NodeBs and UE for DPC_mode, Nortel networks*
        - • *R1-99k00, Draft Liaison statement Nortel networks on DPC mode synchronisation, Nortel Networks*

      - – *R1-99h93 is a liaison statement from WG3 where they are asking for information on the impact of a lack of synchronisation of the use of the DPC mode (Power control reduction in soft handover).*

      - – *R1-99k03 contains simulation results evaluating the impact of the lack of synchronisation of operation of the DPC mode, investigating several cases where all node B are in the same mode and the UE in a different one, the UE and one node B are in the same mode but another node B is in a different mode. The result indicate that there is a loss. However simulation results assume that the de-synchronisation is for ever. There is no evaluation of a lack of sync for x frames.*

      - – *R1-99k00 is a proposed liaison indicating that a signalling procedure should be available to make sure that the problem disappears. It was agreed that the LS requires some update in order to reflect that WG1 does not have a view on the impact as a function of the lack of sync length. The liaison has also to be explicit on the fact that synchronisation means here synchronised application of the DPC mode.*

      - – *Updated version of the LS in R1-99kxx*

Ad-hoc 9 report

- **7- Downlink inner loop power control for FDD**
  - > 7.3 Downlink power control in soft handover (no SSDT case)
    - – Adjustment loop issue
      - – List of contributions
        - *R1-99j14, Additional simulation results of power control adjustment loop, NEC*
        - *R1-99j15, On the convergence coefficient in power control adjustment loop,NEC*
        - *R1-99i88, Downlink Power Balancing: Additional Slow Loop, Alcatel*
        - *R1-99k01, Adjustment Loop Performance, Nortel networks*
      - – *Contributions contain simulation results from different sources that indicate the benefit of the introduction of adjustment loop. It was concluded that a liaison statement should be written back to WG3 indicating that adjustment should be introduced in the RAN specifications. It use is configurable. The set of parameters should contain at least the r convergence parameter. However other parameters were discussed in the ad-hoc such as the time at which adjustment can be made and the maximum adjustment step size. No detailed proposed was available yet on this new parameters so a CR on 25.214 is to be prepared on the basis of the removed Annex in 25.214 and cover only the r parameter. However additional parameters may be included at a later stage.*

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Ad-hoc 9 report

- **7- Downlink inner loop power control for FDD**

    > 7.1 Downlink power control in soft handover (SSDT case)

    – *List of contributions*

    – R1-99j40, SSDT ID code Samsung,

    – R1-99k17, CR 25.214-037: The new SSDT ID code Samsung

    – R1-99i80, Optimum ID Codes for Site Selection Diversity Transmission Power Control, LGIC

    – R1-99j55, Primary state update rule in SSDT operation, NEC

    – R1-99j56, Change Request for state update rule addition in SSDT specification, NEC

    – *The contributions could not be treated due to lack of time. They should be looked at in the plenary. The chair person urged the ad-hoc member to take into account the signalling defined by WG3 for the soft handover, in particular that a node B is not aware of the size and content of the active set.*

Ad-hoc 9 agenda

- **8 Uplink inner loop Power control for FDD**

  > 8.1 Uplink power limits

    – Minimum transmit power related issues

      – *R1-99h96, LS on UE minimum power,RANWG4*

      – *R1-99i21, LS on FDD UE minimum transmission power, RAN WG2*

      – *Answer to be sent back. Not too clear what is meant by slotted mode (is that compressed mode). How dynamic should be the use of the compressed mode (1 frame, multiple frames?. Difficulties to be expected since the use of compressed mode is under the control of the UTRAN. Also the decrease of the average transmit power obtained by the use of compressed mode would be small since in compressed mode some power corresponding to the noise floor is still transmitted, so this would not solve the identified problem. So the view of ad-hoc is that the decrease of the minimum power should be the only acceptable solution. WG1 does not see how compressed mode could work. WG1 understands that the feasibility of power lower than -44 dBm is a WG4 issue.A liaison to be prepared by the ad-hoc chairman.*

Ad-hoc 9 report

- ## 8 Uplink inner loop Power control for FDD

  > *Maximum transmit power in PC*
  >> – R1-99i66, Uplink power control maximum TX power (CR 25.214-012), Ericsson
  >>> – *Agreed. However the CR needs to be slightly modified to cover the use of possibly different power control steps in normal and compressed mode*

  > *R1-99i91, Setting of beta values for multi-code (CR 25.214-013), Ericsson*
  >> – agreed however WG1 secretary to make sure that the CR looks OK (no red color)

  > *R1-99j69, Variable rate packet transmission, Panasonic- > to be reviewed by ad-hoc 14.*

Ad-hoc 9 report

- ## 8 Uplink inner loop Power control for FDD
  - > 8.2 Uplink inner loop PC in normal mode in soft handover
    - R1-99i14, Uplink power control in compressed mode [correction], Philips -> already treated in Plenary
    - R1-99i18, Combining of TPC commands when using Algorithm 2 power control, Nokia- > Could not be treated due to lack of time. Should be reviewed by the plenary
  - > 8.3 Uplink inner loop power control in compressed mode not in soft handover
    - R1-99j21, Maximum TX power at UL compressed mode, Telia
      - *Agreed- However we are aware that there is a need for further elaboration on the power (is that for the transmitted symbols or in average , since in compressed mode only some slots are transmitted). Some addition of the word allowed in the CR -> updated version expected*
    - R1-99J92, Setting of power in uplink compressed mode, Ericsson
      - *Agreed.*
    - R1-99i05, Simulation Results of Pre-wake Power Control (PWPC), Panasonic
      - *Could not be reviewed due to lack of time.*

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- **Eb/No for outer-loop power control**
  - > R1-99h91, (Liaison Statement) Eb/N0 range
    - *In this liaisons WG3 is asking WG1 for information about the Eb/No range for both Uplink and downlink outer loop power control. WG1 is not the appropriate group. Comments were made on the downlink outer loop minimum Eb/No target. It should in be limited in order to avoid the UE decreases to much and then asks for a power decrease of the downlink power. A liaison will be drafted by the ad-hoc 9 chairman.*
  - > R1-99k13, Draft LS on definition of outer loop target, Ericsson
    - *Agreed*

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R1-99xxx
Ad-hoc 9 Chairman's report
on activities over the e-mail reflector

Ad-hoc 9 Chairman's report

- **Downlink inner loop power control in general**

- **Downlink inner loop Power control in SHO**

    > Adjustment loop issue

      – Clarification by NEC that their intention is not to replace the synchronisation scheme and indication that the quantisation of the power change to multiple of the power step does not challenge the benefit of adjustment loop

      – Comments from Nokia on the need to additional flexibility for the adjustment loop algorithm and questioning the need to standardise details

      – Answer from NEC that additional parameters if proved useful should be proposed in WG3

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Ad-hoc 9 Chairman's report

- **Uplink inner loop power control in general**

  > Maximum UE transmit power

  – Draft CR from Ericsson on the UE maximum power set by the UTRAN

  – Discussion over the reflector on

  – whether the maximum should not be the maximum UE Tx power in absence of limitation imposed by network

  – Need to reflect this in the power control inner loop itself (-> CR from Telia)

  – Discussion in connection with rate control for packet transmission and indication reported to higher layers that PC limits are reached initiated by Panasonic

  – Background was provided (RRM Technical report)

  – Common understanding that the rate selection (TFC selection) is not a WG1 issues and should not be part of WG1 spec

  – The only aspect for WG1 is the indication to higher layers of Maximum power/threshold reached

  – No consensus on what needs to be go into WG1 specifications (filtering, reference to packet transmission...)

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Ad-hoc 9 Chairman's report

- **Uplink inner loop power control in soft handover**

  - > Discussion initiated by Ericsson on how to use the current text in 25.214 in relation with TPC command combining

  - > Proposal from Nokia first reviewed in July re-discussed on the basis of updated contribution available in WG1#8 (R1-99g55)

    - – *Clarification asked for by Nortel Networks, Ericsson and Philips*

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Ad-hoc 9 Chairman's report

- ## Outer-loop power control

  > Eb/No or SIR target

    - First a need to agree on the definition of Eb/No and SIR
    - Whatever measurements (Eb/No or SIR) these are measurements on the DPCCH rather than DPDCH s if we take Eb/No is is related to the rate of DPCCH which is fixed
    - Consensus that we want a measurement that is independent from the SF and takes into account only the non-orthogonal part of the interference
    - Ec/No as defined in 25.215 is not Ok for power control since it takes into account all interference
    - If we rely only on the measurements as specified in 25.215, SIR would be the correct one

- ## Rapid initialization

  > Both for ad-hoc 14 and ad-hoc 9