3GPP TSG-RAN meeting #16 ***RP-020384***
Marco Island, USA, 4th - 7th June 2002

Agenda Item: 7.2.2

Source: Motorola

Title: Issues with RRC CR 1478 on measurements.

Document for: Discussion

Background

RRC CR 1478 (tdoc R2-021419) on measurements was agreed at RAN2#29. However, on further review of this CR we feel that one item cannot be agreed upon and requires further discussion. This item relates to the *handling of active set cells that are not included in the CELL_INFO_LIST*. The remaining items in the original CR are not an issue and can be agreed upon (as provided in RP-020382).

Discussion

In TS25.331, *Cells that the UE is monitoring are grouped in the UE into three different categories:*

1. *Cells, which belong to the **active set.** User information is sent from all these cells. In FDD, the cells in the active set are involved in soft handover. In TDD the active set always comprises one cell only.*
2. *Cells, which are not included in the active set, but are explicitly indicated to be measured by UTRAN belong to the **monitored set.***
3. *Cells detected by the UE, which are neither included in the active set nor in the monitored set belong to the **detected set.** Reporting of measurements of the detected set is only applicable to intra-frequency measurements made by UEs in CELL_DCH state.*

The discussion in WG2 centred around should cells from the detected set being added directly to the active set before or after a measurement control procedure

During discussion at RAN2#28, the original proposal was that active set cells should always be included in CELL_INFO_LIST. Therefore if any ***detected set*** cells are reported to the network they must be added to the CELL_INFO_LIST via a measurement control procedure before they can be added to the active set via an active set update procedure. Originally this proposal seemed to be acceptable to all companies but later a concern was raised that the measurement control procedure *could cause extra delay* before a detected set cell could be added to the active set.

The outcome at RAN2#28 was that cells not included in CELL_INFO_LIST could be moved to the active set but they would not be used for measurements until they have been added to the CELL_INFO_LIST by a measurement control procedure. This implies that the network should send a measurement control very quickly after the active set update – otherwise there is no clear UE procedure for sending a measurement report for revised active set and this could be handling differently by different UE implementations. This is because the UE needs the revised CELL_INFO_LIST for information of cell identity, cell individual offset, and in the case of path loss measurements the CPICH transmit power.

It should be mentioned, 2 other scenarios where active set cells may not be present in the CELL_INFO_LIST were identified. These are following an inter-frequency blind handover and following an inter-RAT handover from GSM. However, it is clear form the specification that these 2 cases must be handled by the UE.

It should also be pointed that the raised concern of WG2 of additional delay is incorrect based on a earlier LS from R2 to R4. Since the introduction of the concept of detected set cells into the specifications it has been the understanding of RAN2 that this reporting is not intended to be used for the updating of the active set but instead used for optimising cell planning, optimising the contents of neighbour lists, etc. This understanding is captured in a LS that was sent to RAN4 (R2-99k98). The key points from this LS are captured below

The measurement of unlisted cells could be used by the operator for the configuration of neighbour cell lists. The usage of such a measurement for normal handover and cell reselection measurements is, however, considered as too great a burden for the UE. Therefore, the timing requirements for measurements of unlisted cells could be much more lenient than for normal handover and cell reselection measurements. These measurements should be allowed to take precedence over the detection of unlisted cells.

During discussions in RAN WG2, some questions were raised on how performance requirements for such a measurement could be specified. It should be ensured that normal handover and cell reselection measurements are prioritised but that the requirement of detecting unlisted cells can also be tested. RAN WG2 would like to ask RAN WG4 to comment on how easy it would be to define this type of performance requirement…..

Three key points:

- The RAN4 Rel_99 specifications do not include any requirements for the detection and reporting of ***detected set*** cells, and therefore it seems unlikely that any network implementation would rely on these reports for management of the cells from the detected set. The only performance requirements in RAN relate to handing of identified cell from the **monitored set** (which is set at 800ms when there is no additional delay when compressed mode is used).

- Therefore if the original CR is implemented this would feature could still not be reliably used in network since no time is specified for identifying a cell from the detected set. Therefore the new WG2 assumption this would cause extra delay before a detected set cell could be added to the active set is not correct.

- We also have the issue of adding a new requirement to REL_99 CR, which could impact implementation if performance requirements are specified in RAN4 for the detected set.

Proposal

In order to consider this issue, not impact implementation and still be in line with the WG4 specifications, it is proposed the following

- WG4 should define the delay requirements for handling the identification of cells from the detected set. Further discussion is required to which release this should be implemented

- Any network implementation that wishes to add cells, which have been reported as a detected set cells, to the active set would have to add the cell to the CELL_INFO_LIST with a measurement control procedure prior to the active set update procedure. This would ensure a measurement report for the active set is in line with REL_99

- The UE is not required to handle the case where a cell that is not present in the CELL_INFO_LIST is added to the active set with an active set update procedure.

RP-020383 is a CR to 25.331 that contains the proposal described in this paper.

RP-020382 is a revision of 25.331 CR 1478 that removes the one part that relates to the handling of active set cells not included in CELL_INFO_LIST.