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| WGSE/STG | **Doc. STG(12)12** |
| **Date issued:** 1 June 2012**Source:**  STG**Status:** For consideration**Subject:** Liaison Statement to SE40 on the CDMA UL algorithm in SEAMCAT |
| **Password protected: yes** |  |  **No** | **x** |

Dear Alexandre

STG at its web-meeting on 16th May 2012 considered the issue raised in the first bullet point of ECC PT1(12)046\_Annex 21 which is a LS from ECC PT1 to SE40 cc: STG.

STG recognises that even though the CDMA UL algorithm is adapted to sharing study where overlapping networks with similar size are under investigation, the current algorithm may not be adapted to the need of SE40 when only one strong interferer is considered.

STG agrees that further enhancement is needed and that it should be generic enough to encompass any scenario. The ECO proposed an algorithm (see Annex) but it was not accepted in its present form. It was pointed out that the ECO algorithm improves the situation but required further development. It will therefore be used as “working draft algorithm” to be elaborated further.

It was further proposed to amend the ECO algorithm in the way that when the first cell with the highest noise rise is emptied of users, then a second cell with the second highest noise rise should also start removing its users. This need to be repeated to all cells until the noise rise is below a threshold. However, it was also highlighted that there is no clear answer to the issue and feedback from 3GPP experts would be helpful to get more information on the behavior of a realistic network under the constraint of one strong interferer.

STG agrees to provide a Beta version with an option to select, for testing the algorithm as soon as the specification of the new algorithm is agreed. Since calibration of algorithms is, by experience, time consuming, SE40 members are invited to help STG by actively participating in the elaboration of the algorithm’s specification and the testing of the Beta version.

STG is aware that SE40 needs to be able to perform simulations for the August 2012 meeting.

Best regards

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STG chairman

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Annex

ECO proposal for enhancing the CDMA UL algorithm to support SE40 work (16 May 2012)

(**Not approved by STG in its present form**)

Currently the CDMA UL algorithm is as follow:

1. Balance the power of the UE ( i.e. set their Tx power)
2. Calculate the average noise rise (with external interference)
3. Arrange the active users in a list so that they are sorted based on their Tx power
4. If average noise rise is above a defined threshold (input to SEAMCAT) start then start dropping users
5. UE with strongest Tx power are removed first
6. Check that the average noise rise is below threshold if no, continue step 5 if yes exit

The ECO proposing the following changes:

1. Balance the power of the UE ( i.e. set their Tx power)
2. Calculate the average noise rise (with external interference)
3. Arrange the active users in a list so that they are sorted based on their Tx power
4. If (network) average noise rise is above a defined threshold (input to SEAMCAT) then start dropping users
5. [[1]](#footnote-1)Identify the cell with the highest noise rise (selectedCell), (to be selected, the cell’s noise rise should be 3 dB higher than the average noise rise of the network) the 3 dB is a hard coded value and is open for discussion
6. List all the active users of selectedCell
7. Start removing (i.e. dropping) the active users of selectedCell
8. Check that the (network) average noise rise is above the threshold (input to SEAMCAT), if yes go to 7 until there is no more users or that the network noise rise is below threshold.
9. If the network noise rise is still above threshold then go to 10 otherwise exit
10. UE with strongest Tx power are removed first
11. Check that the average noise rise is below threshold if no, continue step 10 if yes exit
1. Items in the numbered list marked in red reflecting the ECO proposal. [↑](#footnote-ref-1)