**STG(13)27**

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| **ECC / WGSE / STG - SEAMCAT Technical Group****ECO, Copenhagen, 13-14 June 2013** |  |
| **Date Issued:** 7th June 2013**Source :** Switzerland**Subject:**  Elements for the reply of the LS from CPG-PTD (STG(13)26 |
| **Document:**  |
| Password protection required? (Y/N) | N |

**Background**

In [STG(13)26](http://www.cept.org/Documents/stg/11204/STG%2813%2926_LS-from-CPG-PTD-to-STG-on-TPC), [CPG-PTD](http://www.cept.org/ecc/groups/ecc/cpg/cpg-pt-d) requests information on the implementation of Transmit Power Control (PC) within SEAMCAT: *“Therefore, CPG PT D would appreciate the information from STG regarding the algorithm used in SEAMCAT that implements the power control feature of the LTE mobile UE.”*

In this contribution, elements for the compilation of the answer to CPG-PTD are provided without the aim of completeness.

**Proposal**

To discuss the elements provided in this contribution in the context of the reply to STG(13)26.

**Potential elements**

1. Element

For the general description of the PC algorithm.

Source: SEAMCAT Manual, OFDMA simulation algorithm: <http://tractool.seamcat.org/wiki/Manual/Algorithms/OFDMA>

Section 3 UL algorithms



2. Element

For the general description of the PC algorithm.

Source: SEAMCAT Handbook, <http://www.cept.org/files/1050/documents/SEAMCAT%20Handbook%20January%202010.pdf>

Chapter 11 OFDMA Simulation

- 11.2 Methodology and assumptions



and



3. Element

For the PC algorithm, especially the explanation on the *Power Scaling Threshold*.

Source: [http://tractool.seamcat.org/wiki/Manual/Scenario/OFDMA#TransmittersettingsforOFDMAasinterferinglink](http://tractool.seamcat.org/wiki/Manual/Scenario/OFDMA%22%20%5Cl%20%22TransmittersettingsforOFDMAasinterferinglink)

When OFDMA UL is the interferer, it is important to simulated the whole interfering network (i.e. power control) so that the interfering emission power from the UE is optimized. In this case, the GUI interface is similar to the victim one. In OFDMA UL, the power control is applied to the active users (i.e. the mobile users with specific RBs) so that the UE Tx power is adjusted with respect to the path loss to the BS it is connected to. In 3GPP [TR36.942], the UL power control is defined so that the UE transmit power is set such as: where Pt is the UE Tx power in dBm, Pmax is the maximum transmit power in dBm, Rmin is the minimum power reduction ratio to prevent UEs with good channels to transmit at very low power level. Rmin is set by Pmin / Pmax. PL is the path-loss in dB for the UE from its serving BS and PLx-ile is the x-percentile path-loss (plus shadowing) value. PLx-ile is defined here as the value in the CDF, which is greater than the path-loss of x percent of the MSs in the cell from the BS (i.e. it corresponds to the parameter “power Scale Threshold”. It is set by default to 0.9, but you can change it. With this power control scheme, the 1-x percent of UEs that have a path-loss greater than PLx-ile will transmit at **Pmax**, i.e. are not power controlled. In SEAMCAT, gamma is assumed to equal 1.