

**Agenda Item:**

**Source:** Telecom Modus

**Title:** SSdT impacts on Iub and Iur

**Document for:**

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## **1 INTRODUCTION**

This contribution proposes supporting information related to ‘Site Selection Diversity Transmit power control’ (SSDT) in Iub and Iur. We propose this information to be included in [2] and [3].

## **2 SSdT**

### **2.1 Background**

SSDT is a macro diversity method for the UE in soft handover mode whereby the UE selects one of its cells from its active set to be ‘primary’, and all others are classed as ‘non-primary’.

Upon Radio Link Setup, Radio Link Addition, and Radio Link Reconfiguration, the SRNC sends the active set to the new Radio Link. Annex Case A shows a scenario when three radio links are established. For each new radio link setup or addition, the active set is sent to the corresponding cell. A cell receiving the active set is capable of recognising its entry position in the list.

Upon receipt of the active set, the connected cells (which support SSdT) and the UE, assign an ID code (Temporary Cell Identification) based on the cell’s entry position in the active set. When the UE selects a primary cell from the active set that is to be chosen for downlink transmission, the UE periodically informs the primary cell identification to all the connected cells (i.e. where a radio link is established). The UE uses vacant TPC bits - given by the puncture method - on the UL DPCCH to send the primary cell identification to the connected cells.

The SRNC sends the active set to a cell when the cell’s entry position within the active set has changed. An example of this can be seen in Annex Case B.

The SSdT function is initiated/terminated in the SRNC and the status of SSdT (i.e. initiated/terminated) is sent to the UE and the Node B(s).

#### SSdT Optionality

If the SSdT feature is optional in the network (SRNC), then the proposed SSdT parameters on Iub and Iur are optional. If the SSdT feature is mandatory in the network (SRNC), then the proposed SSdT parameters on Iub and Iur are mandatory (i.e. cells establishing new radio links always read the parameters).

For further information on SSdT, please read reference [1], section 5.2.3.4.

### **2.2 Parameters sent on Iub and Iur**

We propose the Active Set and the SSdT status indicator to be included in the corresponding procedures on the Iub and Iur interfaces.

### 3 PROPOSED CHANGES

We propose:

**Iub interface (proposal of changes in [2]):**

- The current procedures 9.2.2.1.7 Radio Link Setup, 9.2.2.2.1 Radio Link Addition, and 9.2.2.2.2 Radio Link Reconfiguration in [2] contain bullets of information. We propose this to include the Active Set and the ‘SSDT’ initiation/termination indicator.

**Iur interface (proposal of changes in [3]):**

- The current procedures 9.2.2.1 Radio Link Setup, 9.2.2.2 Radio Link Addition and 9.2.2.4 Radio Link Reconfiguration (Synchronised) in [3] contain bullets of information. We propose this to include the Active Set and the ‘SSDT’ initiation/termination indicator.

### 4 REFERENCES

- [1] 3GPP RAN S1.14, Physical layer Procedures, ver. 0.0.1
- [2] Merged Description of Iub Interface, ver. 0.0.2
- [3] Merged Description of Iur Interface, ver. 0.0.2

### 5 ANNEX

**Case A:** Upon Radio Link Setup or Radio Link Addition the SRNC sends the Active Set to all connected cells which establish a new radio link. Table 1 is an example of a table attributed to each connected cell (table maintained in the Node B(s) and UE).

Cell ID	Position within Active Set	Temporary Cell ID
100	first	11111111
101	second	11110000
102	third	00001111

Table 1: SSDT table held within Node B (per cell) and UE, at Radio Link Setup/Addition

**Case B:** Following Radio Link Addition (soft handover), the SRNC sends the Active Set to cells upon a change of its position within the Active Set. Table 2 is an example of a table attributed to each connected cell (table maintained in the Node B(s) and UE). Note: The entry position of Cell ID 101 and Cell ID 102 within the Active Set has not changed.

Cell ID	Position within Active Set	Temporary Cell ID
101	second	11110000
102	third	00001111
103	first or fourth	11111111 or 00110011

Table 2: SSDT table held within Node B (per cell) and UE, at Radio Link Addition