TSG RAN WG 4 Meeting #8   Tdoc: R4-99670
Sophia Antipolis, France
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Agenda Item: 8.6
Source: Fujitsu
Title: **Test Requirements for Site Selection Diversity Transmission (SSDT)**

Document for: Discussion & Decision

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1.   Introduction

TSG RAN WG1 has adopted Site Selection Diversity Transmission (SSDT) as one performance enhancement method for downlink. Physical layer specifications being produced by WG1 {ref 1, 2} includes SSDT as an optional feature of BS. In RAN WG1 meeting #3 it has been decided that support of SSDT functionality is mandatory for all kinds of UE {ref. 3}. The test requirements for SSDT was proposed {ref 4} and approved with some modifications as in {ref 5} at WG4#7 meeting.

After the meeting, some comments were raised in e-mail reflector that states SSDT related functional test might not proper for TS25.104, but rather fit for TS25.103. Since SSDT scheme is one of the optional features in soft-handover mode, it should be tested with soft-handover function activated. On the other hand, we recognized that current specification in TS25.104 is for testing demodulator performance rather than functional test such as soft-handover.

If such kind of soft-handover releted test for BS is agreed to be in TS25.103, SSDT related description on BS may also be in that document. The following text proposal of BS functional test requirements for SSDT is basically same as in {ref 5}.

2.   BS Functional Test Requirements for SSDT

BS functional test for SSDT should focus on testing of correct response to Layer 1 Feedback Signaling Messages from UE.

According to SSDT description in TS25.214v1.1.1, a BS recognises its state as "non-primary" if the following two conditions are fulfilled simultaneously:

- the received/decode Cell ID does not match with the own ID code
- the received uplink signal quality satisfies a quality threshold, Q_{th}, a parameter defined by the network, where Q_{th} can represent, for example, SIR threshold of the uplink DCH

Otherwise the BS recognises its state as primary.

2.1   Text Proposal to TS25.103

The following text is proposed for inclusion in TS25.103.

6.1.3 Handover 3G to 3G
6.1.3.1   FDD Soft/Softer Handover
[The requirements presented in these sections will be reviewed depending on the further progress in TSG RAN WG1 and TSG RAN WG2]
6.1.3.1.1   Requirements
6.1.3.1.1.6   BS Functionality in Site Selection Diversity Transmission (SSDT) Mode
Site Selection Diversity Transmission (SSDT) is an optional feature of BS. This requirement for SSDT mode ensures that BS correctly reacts to Layer 1 feedback signaling messages from UE.

6.1.3.1.1.6.1 Minimum Requirements
For the conditions specified in Table XX1, the BS shall transmit or not transmit the downlink DPDCH channel.

Table XX1: Parameters for SSDT mode test

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Cell ID of BS under test	-	A	A	A	A
SSDT Quality threshold, $Q_{th,}$ set in BS	DB	Q			
Uplink: $\dfrac{DPCH\_E_c}{I_o}$	DB	Q + 3	Q + 3	Q - 3	Q - 3
Cell ID transmitted by UE	-	A	B	A	B
Transmission of downlink DPCCH	-	Yes	yes	yes	yes
Transmission of downlink DPDCH	-	Yes	no	yes	yes

The above test should be for repeated for each of the three code sets "long", "medium" and "short" Cell ID code sets.   The UE emulator can check the power ratio of downlink DPDCH/DPCCH in order to confirm whether BS transmitted the DPDCH.

References
{1} TS 25.214 v1.1.1 Physical Layer Procedures (FDD), TSG RAN WG1: Tdoc R1-(99)a69
{2} TS 25.211 v2.2.1 Physical Channels and mapping of transport channels onto physical channels (FDD), TSG RAN WG1: Tdoc R1-(99)a71
{3} Ad-hoc 11 Meeting Report, Tdoc R1-(99)255
{4} Tdoc R4(99)-521," Test Requirements for Site Selection Diversity Transmission (SSDT)"
{5} Tdoc R4(99)-566," Test Requirements for Site Selection Diversity Transmission (SSDT)(Revised)"