To:	TSG-R WG2
Source:	TSG-R WG1
Title:	Liaison statement to TSG-R WG2 concerning the changes made to Tx diversity concept in the TSG-R WG1 meeting #7

In TSG-R WG1 meeting #7 several details of the Tx diversity solution were finalized for release–99 [1]. For FDD, the following decisions were made:

- Number of closed loop transmit diversity (TxAA) modes were reduced to 2

- All the TxAA closed loop modes will use only 1 bit feedback. One additional bit feedback is reserved for simultaneous use of TxAA closed loop modes and SSDT power control

- Orthogonal pilot pattern on dedicated channel transmitted from diversity antenna is always used in closed loop mode 1

- In closed loop mode 2 no orthogonal pilot pattern is used

- Open loop Tx diversity (STTD encoding) can be applied on PICH

Correspondingly, for TDD the following decision was made:

- Use of TSTD on SCH accepted as a working assumption

WG1 urges WG2 to check if these decisions have got any implications to the TS 25.300 series of specifications. Specifically, the control procedures for the use of either 1 or 2 FBI bits in non-SHO and SHO cases (and with or without SSDT power control) should be checked now that all the closed loop (TxAA) diversity modes use only 1 FBI bit.

It is the opinion of WG1 that during SHO there are significant benefits of combining transmit diversity (either open or closed loop) and SSDT power control. However both transmit diversity and SSDT power should be capable of operating independently of the other.

During SHO with or without SSDT power control, it is possible for some Node Bs to implement transmit diversity and for others not to implement transmit diversity. However all active set Node Bs implementing transmit diversity should use the same mode (Open loop STTD, closed loop (TxAA) mode 1 or mode 2). If at least one Node B of the active set implements closed loop (TxAA) transmit diversity, 1 bit FBI field is required (a total of 2 bits will be required if SSDT power control is also active).

On transitions between non-SHO and SHO, since all transmit diversity modes can be used during SHO, WG1 is of the opinion that there is no need to switch transmit diversity modes (closed loop TxAA or Open loop) on entering SHO, and in the absence of SSDT power control there is no need to change the uplink DPCCH format since the number of FBI bits remains constant. In this case where the transmit diversity mode and uplink DPCCH format is unchanged, it is not required that entering and leaving SHO be synchronised between UE and UTRAN.

When using SSDT power control, with or without transmit diversity, the number of FBI bits in the DPCCH may be required to increase upon entering SHO, and in this case synchronisation between UE and UTRAN is required on entering SHO. If closed loop (TxAA) transmit diversity is

TSG-RAN Working Group 2 (Radio layer 2 and Radio layer 3)
Malmö, Sweden, 20 - 24 September 1999

TSGR2#7(99)a37

3GPP TSG RAN WG1
30th, August-3rd, September, 1999, Hannover, Germany

TSGR1#7(99)d50

replaced by SSDT power control on entering SHO, the number of FBI bits could remain constant but synchronisation of this change from Tx diversity to SSDT would be required. If FBI bit(s) are reserved for SSDT power control at all times, then synchronisation is not required upon entering SHO irrespective of any transmit antenna diversity scheme.

REFERENCES

[1]   TSG-R1. Ad Hoc #6 report to RAN WG1 meeting #7. TSG-R WG1 document, TSGR1#7(99)b12, 30th, August-3rd, September, 1999, Hannover, Germany, 7 pp.