

Status Report for WI to TSG

Work Item Name: MIMO processing for HSDPA

SOURCE: Rapporteur (Howard Hunag) TSG: RAN WG: 1

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Ref. to WI sheet: RAN_Work_Items.doc

Progress Report since the last TSG (for all involved WGs):

RAN WG1:

Since the last RAN plenary meeting in September, the 3GPP-3GPP2 Spatial Channel Model AdHoc Group (SCM AHG) has held three conference calls (September 17, October 10, November 21) and held a meeting in Quebec City, Canada on October 22-23, 2002 (concurrent with 3GPP2 TSG-C WG3). The following items have been addressed.

System channel model. The system channel model will be used in system level simulations for comparing various MIMO algorithm proposals. Parameters for the 3 environments (urban macrocell, suburban macrocell, suburban microcell) have been further specified, and additional features have been added to account for a larger variety of channel characteristics observed by measurements. These features include: antenna cross-polarization, far scatterer clusters (for bad urban environments), urban canyon model (for modeling highly correlated angles of arrival), and line of site models (for Ricean fading). Because of the new features, the overall completion on the system channel model is about 95%.

System level simulation methodology. These issues include system simulation calibration, computational complexity, and performance prediction (mapping frame error rate to a consistent scalar metric). Recent discussions have addressed the use of a minimum mean-squared error (MMSE) receiver as the baseline receiver, and accounting for intercell interference. The complete methodology should be specified by March 2003, according to a goal set by the 3GPP-3GPP2 harmonization group.

A summary of the SCM AHG work can be found in the SCM text [1], and a summary of the Quebec City meeting can be found in [2]. The FTP site of the SCM AHG is www.3gpp.org/ftp/tsg_ran/WG1_RL1/3GPP_3GPP2_SCM. Because of the SCM AHG work, the MIMO TR 25.876 [3] has not been updated.

RAN WG2:

The WI has not been treated yet.

RAN WG3:

The WI has not been treated yet.

RAN WG4:

A summary of the SCM AHG was present to the RAN4 #25 meeting on November 14.

List of completed elements:

- Requirements
- Link level channel model
- System level channel model (95% complete)

List of open issues:

- System level simulation methodology (to be completed by February 2003, as set forth by the 3GPP-3GPP2 harmonization group)
- Evaluation of MIMO proposals
- Impacts to UE and UTRAN implementation.
- Impacts to physical layer operation.
- Conclusion

Estimates of the level of completion (when possible):

40%

WI completion date review resulting from the discussion at the working group:

09/2003 (TSG-RAN#21)

References to WG's internal documentation and/or TRs:

[1] SCM-077, "Spatial Channel Model Text Description".

[2] SCM-074, "Spatial Channel Model Ad Hoc Group Meeting 3 Summary".

[3] RP-020240, "Multiple-Input Multiple-Output Antenna Processing for HSDPA", TR 25.876 v1.1.0

[4] R4-021413, "Joint 3GPP-3GPP2 Spatial channel model ad hoc group status report"