

TSG-RAN meeting #17
 Biarritz, France, 3-6 September 2002

RP-020460

Title: Draft Report of the 3GPP/3GPP2 Harmonisation meeting
on Radio Access issues
(Korpilampi, Finland, June 25th 2002)

Document for: Approval

Source: 3GPP support team



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1 Opening of the meeting

The chairmen (Francois Courau, Alcatel and Ed Tiedemann, Qualcomm) started the meeting at 9:15 the 25th June 2002. A brief presentation of the participants followed.

2 Approval of the Agenda

RPA020001 Draft Agenda (Chairmen)

Francois Courau (co-chairman) presented the agenda.

The documents presented were allocated to the proper agenda items. Documents 2 and 3 are provided as background information. The agenda was approved.

3 Results from actions defined during November 2001 meeting in New Brunswick

3.1 Channel spatial models

RPA020004 Joint 3GPP 3GPP2 Spatial Channel Modeling AHG Status Report (Lucent)

Achilles Kogiantis (Lucent), serving as chair of the Spatial Channel Modeling AHG, presented this contribution.

The SCM Ad Hoc is formed by the merge of two sub-working groups, 3GPP2 TSG-C WG3 Spatial Channel Model Adhoc and 3GPP TSG RAN WG1 MIMO Adhoc Group. A joint mailing list has been set with around 130 participants. The work started with a meeting in April 2002, after which a number of conference calls have followed. A target date has been set for August 2002 to provide the physical parameters, and by that time the SCM Ad Hoc will provide a first report of the work.

The scope of the Ad Hoc is *"to develop and specify parameters and methods associated with the spatial channel modeling that are common to the needs of the 3GPP and 3GPP2"*. More specifically, the Ad Hoc is developing specifications for system level evaluation, including:

- a) physical parameters (e.g. power delay profiles, angle spreads, dependencies between parameters)
- b) system evaluation methodology
- c) antenna arrangements
- d) some framework (air interface) dependent parameters.

Link level models are being developed, but for calibration only.

The link level assumptions, which have been essentially finalised, were presented. The system level model is still under discussion, the current status was presented.

Ed Tiedemann questioned point c. in slide 3. He asked if the current studies only focus on the propagation without considering the antenna assumptions, which would certainly impact the modelling. Achilles Kogiantis answered that antenna patterns have been agreed to some extent, but the variety of NodeB/BS antenna patterns hasn't been considered. He agreed that the influence of antenna distribution would be significant, and noted that for some distributions, like cross-polarized antennas, there is little knowledge on the group on how to model them.

Howard Benn (3GPP RAN WG4 chairman, Motorola) noted that some of the issues with these antennas have been studied in RAN WG4 for inter system performance requirements. RAN WG4 is simply providing average values in its specifications and also guidance for network deploying. In order to take advantage of the knowledge in RAN WG4 that could be used in the SCM Ad Hoc, Francois Courau suggested that the work of the Ad Hoc should be presented in RAN WG4.

Concerning the models used for performance requirements, Ed Tiedemann commented that these have to be simpler or else the tests for multi antenna terminals get very much complicated. Related to this, Thomas Derryberry (Nokia) raised the issue how to test the terminals, since the position of the user/terminal will have a significant impact on the propagation paths.

Achilles Kogiantis clarified that the Ad Hoc group intends to study system simulator calibration in the future, as it is agreed that now there are many random parameters.

Ed Tiedemann questioned if the quasi-static modelling used currently and in the past is still valid for multiple antennas. Achilles Kogiantis noted that this has not been considered and it is difficult to assess the impact. The channel statistics for each user in each drop are assumed stationary.

Achilles Kogiantis noted that for some channels it might not be possible to derive performance requirements from system level simulations. Concerning the impact on RAN WG4, Howard Benn noted that normally the models used in RAN WG1 are much more complex than what is required in RAN WG4, where the test equipment companies cannot accept complex models. He clarified that the complex models are useful for system comparison, but are not necessary/acceptable for testing, so the models used in RAN WG1 are normally relaxed in RAN WG4.

As a possible way of simplification, it is noted that the large number of parameters could be reduced to a fewer number, as some are correlated, or to a number of curves.

Ed Tiedemann raised the issue of the issue of interference from neighbouring cells such as including traffic models on the neighbouring cells, and how would they impact the channel model used. Achilles Kogiantis clarified that it hasn't been considered, but it is an interesting issue.

Ed Tiedemann asked which 3GPP Release MIMO would be in. Antti Toskala (3GPP RAN WG1 chairman, Nokia) answered that it would be in Release 6. Francois Courau further clarified that Release 6 would not be finished before September 2003. Some discussion followed on what work was allowed to be started by 3GPP, but however the main point is that the MIMO work item has its own schedule (see RPA020005), regardless of the expected date for Release 6.

Ed Tiedemann reported the status of the work in 3GPP2. cdma2000 Release C was completed in May, but there hasn't been any formal decision, dates or work plan for a further Release; although it seems clear that there would be a Release D. The main topics of this new Release would be Multicast (similar to 3GPP MBMS), Reverse Link Enhancements, and Multiple Antenna.

3.2 Common traffic models

No discussions

3.3 Terminal requirements

No discussions

3.4 Exchange of information between working group chairs and officials

RPA020006 3GPP2 Presentation (3GPP2)

Thomas Derryberry (Nokia) and Ed Tiedemann presented this contribution.

This document presents Revision C (1xEV-DV) of the cdma2000 standard. This Revision is backwards compatible with previous versions of the cdma2000 and IS-95 standards. Basically, it introduces new Forward Link channels for packet data, shared, with adaptive modulation and coding, asynchronous retransmission. A data and a control channel are introduced in the Forward Link, and also two channels, for ACK and for channel quality reporting, are introduced in the Reverse Link. The peak data rate is 3.09Mbps in the Forward, 451.2 kbps in the Reverse.

Revision C was sent for SDO approval in May 2002 and is also included in the update of the recommendation M.1457 in ITU. Some work is still pending on BS & MS performance requirements, protocol conformance and network interfaces.

Concerning the future Revisions of cdma2000, the following items are considered:

- Reverse link enhancements
- Broadcast/Multicast
- Antenna Technologies

A 3GPP2 evolution WorkShop will be held in July 2002

It is clarified that antenna technologies is basically MIMO, but many proposals have been received.

Francois Courau reported that there is a group out of 3GPP working on an antenna interface for tilting, it is still unclear how to use its work in 3GPP. The group is named AISG, and it seems that it is not a legal entity yet.

Ed Tiedemann reported that the several proposed enhancements for the Reverse Link have been proposed, like better scheduling, shortening of the frame length, Hybrid-ARQ, and others. It is clarified that there is a document with high level requirements, but not at a technical level. Ed noted that 3GPP2 does not normally develop detailed technical requirements in TSG-C, but leaves it to technical proposals to determine what is required. A discussion followed on the different ways the two projects start the work on new technologies.

Hyeon Woo Lee (Samsung) reminded about the OFDM study item in 3GPP. It seems this technology is not studied in 3GPP2.

Concerning the future evolution in 3GPP, another point of study in 3GPP is the interconnection with Wireless LAN. It is also reported that the biggest issue under study for MBMS is how and when to switch from Point-to-Point to Multipoint. Concerning the services to be provided by MBMS, 3GPP officials recommended looking at the Stages 1 and 2 documents from SA.

RPA020005 3GPP RAN Work Items and Study Items (active after RAN#16) (Secretary)

Francois Courau (Chairman) presented this contribution.

Two documents are presented, one for Study Items and other for Work Items.

It is clarified that the Items with green background are active, the rest are closed.

The various Study and Work Items were briefly explained.

It was commented that BS Classifications are not currently in 3GPP2 specifications, 3GPP is basing its classification on the MCL (Minimum Coupling Loss) value.

On the UE antenna efficiency test methods study item, it was clarified that the work consists of selecting a test method out of two different proposals, from CTIA in the US and from COST in Europe. Ed Tiedemann noted that some work has been presented in 3GPP2 and it would be interesting to exchange the information, but it seems that the work done by CTIA has been presented in both projects. Achilles Kogiantis questioned if this SI could be expanded to cover multiple antennas. It seems that this is not recommendable at the current stage, the complexity of the work for one antenna is already very high.

After review of the active Work Items and Study Items, it seems that the area where joint work could be carried out is the UE antenna testing methods.

4 Way Forward

It is agreed that the next SCM Ad Hoc meetings will be as follows:

- August 2002, colocated with 3GPP RAN WG1, Seattle.
- October 2002, colocated with 3GPP2, Quebec.
- January 2003, colocated with 3GPP RAN WG1, San Diego.

It seems that the work in the Ad Hoc necessary to start the standarization of MIMO is just points a) and b) in RPA020004. The goal for completion of all Ad Hoc work items is March 2003. There will be a presentation in TSG RAN#17 in September 2002 and in 3GPP2 TSG C in September or October 2002 and the TR recollecting the work will be carried there for information. The same TR will be used for presentation in both groups.

Additionally, the work done and the TR will be presented in RAN WG4 in November for comments. In order to complete the work for March 2003, it is requested that the physical parameters get agreed by August or September 2002. This is a guidance, the joint group reckons that this might be a tight timeline, given that there is a holidays period in the middle.

The chairmen requested the WG chairmen keep a better communication with their counterparts in the other project. The joint meeting chairmen will provide the mapping of the Working Groups between the projects.

Howard Benn, 3GPP RAN WG4 chairman, will contact the WG4 chairman in 3GPP2 for the UE antenna test methods study. It seems that the experts on this area in the different companies are the same for 3GPP2 and 3GPP and therefore it will not be difficult to coordinate.

5 Closing of the meeting

The chairmen thanked the host for the organization and the participants for their attendance. The meeting was closed at 13:15.

Annex A: List of participants

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Annex B: List of documents

Doc.No.	Title	Source
RPA010001	Proposed Agenda	Chairmen
RPA010002	Output statement from the 3GPP/3GPP2 Harmonization meeting in November 2001	Secretary
RPA010003	Report of the 3GPP/3GPP2 Harmonisation meeting on 3GPP HSDPA and 3GPP2 1xEV-DV/1xEV-DO work (East Brunswick, NJ, USA, 13-14 November 2001)	Secretary
RPA010004	Joint 3GPP 3GPP2 Spatial Channel Modeling AHG Status Report	Lucent
RPA010005	3GPP RAN Work Items and Study Items (active after RAN#16)	Secretary
RPA010006	3GPP2 Presentation	3GPP2

These documents can be found at:

ftp://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_AHs/2002_06_3GPP2_Harmonisation2/