3GPP TSG RAN #12 RP-010476
Stockholm, Sweden 12th - 15th June 2001

Agenda Item: 9.1.9

Source: AT&T Wireless Services, Cingular Wireless LLC

Title: Proposed UMTS1800/1900 WI Work Schedule

Document for: Discussion and Approval

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1. INTRODUCTION

According to original plan, UMTS1800/1900 work items shall be completed in RAN#13. This means that all related CRs shall be approved by RAN4 #19. Considering amount of work that needs to be completed in RAN4 #18, it may not be practical to expect that all major issues will be resolved in RAN4 #18. To make sure that the project can be completed as planned, an Ad Hoc meeting between RAN4 #18 and #19 may be necessary to focus on any unresolved issues in RAN4 #18 on UMTS1800/1900 work items. Otherwise, these work items are very likely delayed beyond September. The final decision on Ad Hoc shall be based on the progress of RAN4 #18.

Section 2 is a proposed project schedule, which outlines the progress that we expect for each milestone.

2. PROPOSED SCHEDULE FOR UMTS1800/1900 WORK ITEMS

2.1. RAN#12 (JUNE 12-15)

- Agreement on the necessity of a requirements (Annex I)
- Agreement on harmonization on UMTS1800/1900
- Approval of proposed work schedule

2.2. RAN4#18 (JULY 9-13)

- All FCC related changes shall be agreed and approved, which shall cover
  - Node-B emission mask correction - (should be -15dBm with 30KHz measurement bandwidth)
  - UE emission mask correction for 1900MHz band - use absolute value rather than relative value
  - Add a description of FCC requirement interpretation into 25.942.
- Complete all GSM1800/1900 simulation
- Complete IS-95 simulation and any required IS-136 simulation when it is necessary
- Agreement on available 1800/1900MHz simulation results
- Complete initial studies on raster offset, optimized power up scanning algorithm and potential signaling impact
- Identify affected specifications if signaling change is needed

2.3. RAN4 ADHOC (AUG ??).

RAN4 currently has not scheduled any Ad Hoc meeting on this WI. However, it will be safe to plan one for August

- Complete all necessary simulation and analytical study. All the curves and results used for final decision shall be ready before this meeting

- Consensus on simulation results shall be reached in this meeting
- Operators and vendors shall reach consensus on any proposed specification based the maximum capacity loss or outage figure derived through simulation and study
- Reach the agreement on all necessary changes of UMTS specifications.

2.4. RAN4#19 (SEP 3-7)

- All CRs have to be submitted and discussed in this meeting and final agreement shall be achieved for RAN#13 to approve these CRs.
- It shall include CRs for all specifications identified in work items if the change request is applicable
- If signaling change has been decided, all related CRs shall be submitted and approved in this meeting as well

2.5. RAN#13 (SEP 19-21)

- All related CRs should be approved
- Complete the work item

3. ACTION REQUIRED

Review, discuss and approve.

Annex (for information):

Proposed Requirements for UMTS1800/1900 WI

1. INTRODUCTION

UMTS1800/1900 work items have been carried out by RAN4 since September of 2000 and March of 2001 respectively. However, to provide a clear guidance to vendors on operators expectations for these work items, this UMTS1800/1900 requirements document was drafted to identify the requirements and outstanding issues related to UMTS1800/1900 specification development.

2. REQUIREMENTS FOR UMTS1800/1900 WORK ITEMS

2.1. CO-EXISTENCE WITH OTHER TECHNOLOGIES

UMTS1800/1900 specifications shall support WCDMA co-existence with other technologies, such as UMTS and GSM1800 co-existence, or UMTS and GSM1900, IS-95, and IS-136 co-existence. According to current deployment plan, IS-136 will be eventually phased out. Co-existence study with IS-136 has lower priority comparing to co-existence with GSM and IS-95.

2.2. SUPPORTED DEPLOYMENT SCENARIOS

Considering the spectrum availability for different operators, UMTS1800/1900 specifications shall at least support the following deployment scenarios:

- One WCDMA carrier in 2x10MHz with coordinated WCDMA and GSM base stations in the same band. The WCDMA carrier shall be surrounded by GSM carriers, which would form a "sandwich" concept (GSM/WCDMA/GSM).
- One WCDMA carrier in a 2x5MHz band with uncoordinated deployment. Any "technical hooks" that will allow for a 2x5 MHz deployment to exist shall be defined where deployment issues provide acceptable complexities for the operators.
- Two WCDMA carriers in 2x10MHz band with uncoordinated operations at both band edges

2.3. SIMULATION AND ANALYSIS REQUIREMENTS

Operational scenarios defined in section 2.2 needs to be simulated or analyzed with the reasonable consideration of possible interference from other technologies, such as adjacent channel interference, inter modulation and cross modulation. The relationship of capacity loss or system outage versus interference shall be given before final specifications are decided.

As the results of simulation and analysis, following data/curves shall be provided for final specification development:

- Capacity loss/system outage versus required ACIR on WCDMA uplink victim case
- Capacity loss/system outage versus required ACIR on WCDMA downlink victim case
- Overall capacity loss/system outage versus required ACIR on WCDMA with combination both up/down link interference
- Capacity loss/system outage versus required ACIR on GSM uplink victim
- Capacity loss/system outage versus required ACIR on GSM downlink victim
- Overall capacity loss/system outage versus required ACIR on GSM with combination of both up/down link interference

Note: These results/curves should contain the consideration of the impacts from IMD and XMD.

2.4. SPECIFICATIONS OPTIMIZATION

The specifications shall be optimized to support both 2x5 and 2x10MHz deployment. If 100KHz raster offset has been suggested to support possible 2x5MHz deployment, as proposed, when UMTS is deployed in 2x10MHz environment, no performance degradation shall be accepted.

2.5. SPECIFICATIONS SHALL BE DERIVED AT THE END OF THE WORK

As the results of UMTS1800/1900 work items, ACS, blocking and IMD specifications for UMTS1800/1900 operation shall be developed and defined.

ACS and Blocking specification shall be defined based on a minimum guard band as required when considering other technologies. The closest frequency offset for ACS or blocking test specification shall be considered at 2.7MHz from the center frequency of the WCDMA carrier with 100KHz raster offset (uncoordinated case) and 2.6MHz from the center frequency of a WCDMA carrier without 100KHz raster offset (coordinated case). The second blocking frequency offset should be selected with adequate consideration for proper operation of 2x10MHz deployment with a WCDMA carrier in the middle of the licensed band (GSM/WCDMA/GSM). Modulated signal shall be considered for inter-modulation test specification.

2.6. REQUIRED STUDY AREAS

A100KHz raster offset has been proposed and agreed in principle to accommodate 2x5MHz deployment in the 1900MHz band, in order to align the WCDMA carrier in the center of a 5 MHz licensed band. However, this may cause a problem in 2x10MHz deployment, in which one WCDMA carrier can not be placed in the center of the band with a permanent 100KHz-raster offset. As the result, if 2.7MHz channel spacing is considered, one GSM channel may be lost with the raster offset. Considering this potential problem, the following studies are recommended:

- The minimum channel spacing required between WCDMA and GSM with coordinated deployment cases versus capacity impact
- Impact of raster offset to difference deployment scenarios - permanent 100KHz raster change or configurable raster offset with signaling support. Optimize the specifications to support both 2x5 and 2x10MHz deployment
- Possibility to enhance signaling capability to support raster offset indicator for 2x5MHz deployment - identify the amount of work involved, such as how many L3 messages need to be enhanced and which specification needs to be updated.
- Investigate optimized scanning algorithm in order to improve scanning time when raster offset indicator is introduced

2.7. HARMONIZATION OF UMTS1800/1900 SPECIFICATIONS

In order to achieve the maximum economy of scale on UE complexity, matching UMTS1800 and UMTS1900 specifications shall be achieved as much as possible.

It is understood that the difference on RF related specs are necessary because of different frequency band and Tx/Rx spacing. The effort shall be concentrating on ACS, blocking and IMD specifications.

IS-136 simulations should be continued, but the results may not be directly used in the setting of standards. Any impact from an IS-95 system as identified through analytical and simulation work shall be considered in setting the specifications.

2.8. FCC REGULATORY REQUIREMENTS

As identified in the Seattle ad hoc meeting, the current UE emission mask can not meet the FCC's requirements on out of band emission. This needs to be fixed as proposed in Tdoc R4-ah1800-106.

An existing error on BTS emission mask has been identified in Seattle Ad Hoc meeting. This shall be corrected to meet FCC's requirement. A CR is required to correct the problem.

An interpretation of the FCC out of band emission requirement shall be drafted for 25.942 as agreed in the Seattle ad hoc meeting. A CR for 25.942 shall be submitted and accepted.

2.9. FINAL OUTPUTS SPECIFICATIONS FOR 25.101 AND 25.104

- Definition of frequency band and TRX spacing
- Sensitivity (any required adjustment)
- ACS
- Blocking
- IMD

3. OUTLINE OF SCHEDULE FOR THE WORK ITEM

Milestones:

- RAN#12 - June 12-15 – approve requirements and schedule
- RAN4#18 - July 9-13 – complete simulations and study items
- RAN4 Ad Hoc (potential. need to investigate the necessity) – agree all specifications in principle
- RAN4#19 - September 3-7 – complete all related CRs in RAN4
- RAN#13 - September 19-21 – complete the project