

**3GPP TSG RAN Meeting #24
Seoul, South Korea, 2 - 4 June 2004**

RP-040233

Title: 3GPP TSG RAN Work Item Description Sheets after meeting #23
Active WIs

Source: 3GPP support team
26/05/2004



César Gutiérrez Miguélez
ETSI Mobile Competence Center
cesar.gutierrez@etsi.org

Contents

| | | |
|-------|--|----|
| 1 | Introduction | 3 |
| 2 | Radio Interface Improvement Feature..... | 5 |
| 2.1 | Improvement of inter-frequency and inter-system measurements..... | 7 |
| 2.2 | Improved Receiver Performance Requirements for HSDPA..... | 9 |
| 2.2.1 | Performance Requirements of Receive Diversity for HSDPA | 12 |
| 3 | RAN Improvement Feature | 15 |
| 3.1 | Radio access bearer support enhancement | 17 |
| 3.1.1 | Iu enhancements for IMS support in the RAN..... | 20 |
| 3.1.2 | Optimisation of downlink channelisation code utilisation..... | 22 |
| 3.1.3 | Optimisation of channelisation code utilisation for TDD | 24 |
| 3.2 | RRM optimizations for Iur and Iub..... | 26 |
| 3.3 | Remote Control of Electrical Tilting Antennas..... | 28 |
| 3.4 | Network Assisted Cell Change (NACC) from UTRAN to GERAN | 31 |
| 4 | Location Services | 33 |
| 4.1 | UE Positioning | 33 |
| 4.1.1 | UE positioning enhancements..... | 35 |
| 4.1.2 | A-GPS Minimum Performance Specification..... | 37 |
| 5 | Multimedia Broadcast and Multicast Service | 40 |
| 5.1 | Introduction of the Multimedia Broadcast Multicast Service (MBMS) in RAN..... | 40 |
| 6 | Evolution of the transport in the UTRAN..... | 43 |
| 7 | Multiple Input Multiple Output Antennas (MIMO)..... | 46 |
| 7.1 | Multiple Input Multiple Output Antennas (MIMO) – Physical Layer..... | 49 |
| 7.2 | Multiple Input Multiple Output Antennas (MIMO) Layer 2,3 aspects..... | 52 |
| 7.3 | Multiple Input Multiple Output Antennas (MIMO)- Iub/Iur Protocol Aspects..... | 55 |
| 7.4 | Multiple Input Multiple Output Antennas (MIMO) - RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing..... | 58 |
| 8 | Subscriber and Equipment Trace Support in UTRAN..... | 61 |
| 9 | Enhancement of the support of network sharing in the UTRAN..... | 63 |
| 10 | FDD Enhanced Uplink | 65 |
| 10.1 | FDD Enhanced Uplink: Physical Layer | 68 |
| 10.2 | FDD Enhanced Uplink: Layer 2 and 3 Protocol Aspects..... | 71 |
| 10.3 | FDD Enhanced Uplink: UTRAN Iub/Iur Protocol Aspects..... | 74 |
| 10.4 | FDD Enhanced Uplink: RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing | 77 |

1 Introduction

This document contains WI Description Sheets in TSG RAN for active Work Items after TSG RAN meeting #23. Those of the approved study items are provided in a separate document, RAN_Study_Items. The WI sheets for finished WIs can be found in RAN_Work_Items_History.

The following Work Items were finished at TSG RAN#22 and the Description Sheets are moved to the file RAN_Work_Items_History:

- UMTS 1.7/2.1 GHz
- Improved access to UE measurement data for CRNC to support TDD RRM

A new Feature has been approved:

- FDD Enhanced Uplink (RP-040081). This feature will cover the Stage 2 and additional Blocks for Stage 3 below, one per WG. Stage 2 is expected to be completed by September 2004, Stage 3 by December 2004.
- Optimisation of downlink channelisation code utilisation (RP-040136). Completion date December 2004. WG1 leading.
- Optimisation of channelisation code utilisation for TDD (RP-040130). Completion date December 2004. WG1 leading.

The following Work Items had its completion date changed at TSG RAN #22:

| Work Item | Old Date | New Date |
|--|----------------|---|
| Improvement of inter-frequency and inter-system measurement | March 2004 | September 2004 |
| RAB support enhancement | June 2004 | September 2004 |
| Iu enhancements for IMS support in RAN | March 2004. | 6 months after SA2 completion |
| Remote Control of Electrical Tilting Antennas | March 2004 | September 2004 |
| Network Assisted Cell Change (NACC) from UTRAN to GERAN - network-side aspects | March 2004 | June 2004 |
| A-GPS minimum performance specification | June 2004 | September 2004 |
| Multiple Input Multiple Output antennas (MIMO) | December 2004 | March 2005 |
| Multiple Input Multiple Output antennas - Layer 2,3 aspects | September 2004 | December 2004 |
| Multiple Input Multiple Output antennas - Iub/Iur Protocol Aspects | September 2004 | December 2004 |
| Multiple Input Multiple Output antennas - RF Radio Transmission/Reception, System Performance Requirements and Conformance Testing | December 2004 | March 2005 |
| Subscriber and equipment trace in UTRAN | March 2004 | June 2004 |
| Enhancement of the support of network sharing in the UTRAN | June 2004 | 3 months after NTShar is finished in SA |

3GPP TSG RAN Work Items (Active)

The table below summarizes RAN Work Items open after meeting #23:

| Type | WI Name | Acronym | Leading WG | % | Finish Date | Status Report RP #23 |
|------|--|-------------------------|------------|----|---|----------------------|
| Feat | Improvements of Radio Interface | RInImp | RP | | March 2004 | |
| BB | Improvement of inter-frequency and inter-system measurement | RInImp-IflsM | R1 | 50 | September 2004 | RP-040003 |
| BB | Improved Receiver Performance Requirements for HSDPA | RInImp-HSPerf | R4 | 30 | September 2004 | RP-040005 |
| WT | Performance Requirements of Receive Diversity for HSDPA | RInImp-HSPerf-RxDiv | R4 | 30 | September 2004 | RP-040006 |
| Feat | RAN improvements | RANimp | RP | | March 2004 | |
| BB | RAB support enhancement | RANimp-RABSE | R2 | 50 | September 2004 | RP-040007 |
| WT | Iu enhancements for IMS support in RAN | RANimp-RABSE-IuEnhIMS | R3 | 25 | 6 months after SA WG2 part is finished | RP-040008 |
| WT | Optimisation of downlink channelisation code utilisation | RANimp-RABSE-CodeOptFDD | R1 | 0 | December 2004 | |
| WT | Optimisation of channelisation code utilisation for TDD | RANimp-RABSE-CodeOptTDD | R1 | 0 | December 2004 | |
| BB | Rel6 RRM optimization for Iur and Iub | RANimp-RRMopt | R3 | | | |
| BB | Remote Control of Electrical Tilting Antennas | RANimp-TiltAnt | R3 | 45 | September 2004 | RP-040010 |
| BB | Network Assisted Cell Change (NACC) from UTRAN to GERAN - network-side aspects | RANimp-NACC | R3 | 50 | June 2004 | RP-040011 |
| BB | UE positioning | LCS2-UEpos | RP | | September 2004 | |
| WT | UE positioning enhancements - other methods | LCS2-UEpos-enh | R2 | 25 | September 2004 | RP-040012 |
| WT | A-GPS minimum performance specification | LCS-UEPos-AGPSPerf | R4 | 35 | September 2004 | RP-040013 |
| BB | Introduction of MBMS in RAN | MBMS-RAN | R2 | 80 | September 2004 | RP-040014 |
| Feat | Evolutions of the transport in the UTRAN | ETRAN | RP | | | |
| Feat | Multiple Input Multiple Output antennas (MIMO) | MIMO | R1 | 50 | March 2005 | RP-040015 |
| BB | Multiple Input Multiple Output antennas - Physical layer | MIMO-Phys | R1 | 50 | September 2004 | |
| BB | Multiple Input Multiple Output antennas - Layer 2,3 aspects | MIMO-L23 | R2 | 0 | December 2004 | |
| BB | Multiple Input Multiple Output antennas - Iub/Iur Protocol Aspects | MIMO-IurIub | R3 | 0 | December 2004 | |
| BB | Multiple Input Multiple Output antennas - RF Radio Transmission/Reception, System Performance Requirements and Conformance Testing | MIMO-RF | R4 | 15 | March 2005 | |
| WT | Subscriber and equipment trace in UTRAN | OAM-Trace-RAN | R3 | 60 | June 2004 | RP-040016 |
| BB | Enhancement of the support of network sharing in the UTRAN | NTShar-UTRANenh | R2 | 25 | 3 months after NTShar is finished in SA | RP-040017 |
| Feat | FDD Enhanced Uplink | EDCH | RP | 0 | June 2005 | |
| | FDD Enhanced Uplink: Stage 2 | EDCH-Stage2 | R2 | 0 | September 2004 | |
| BB | FDD Enhanced Uplink: Physical Layer | EDCH-Phys | R1 | 0 | December 2004 | |
| BB | FDD Enhanced Uplink: Layer 2 and 3 Protocol Aspects | EDCH-L23 | R2 | 0 | December 2004 | |
| BB | FDD Enhanced Uplink: UTRAN Iub/Iur Protocol Aspects | EDCH-IurIub | R3 | 0 | December 2004 | |
| BB | FDD Enhanced Uplink: RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing | EDCH-RF | R4 | 0 | June 2005 | |

2 Radio Interface Improvement Feature

Last distributed as: RAN_Work_Items_after_RAN_15 (originally WI-Radio-if-improve2)

Work Item Description

Title: Radio Interface Improvement

This work item intends to introduce new mechanisms allowing improvements on the way the Radio Interface is used.

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

In order to cope with new techniques providing more efficient use of the bandwidth for the radio interface, it is necessary to ensure backward compatibility in terms of service offering.

When a new system is designed it is quite normal that some work is required also to enhance the already defined mechanism at the physical layer as well as at the signalling level. Thus this work item will cope with technical enhancement and improvement for the Radio path.

4 Objective

The main objective for this feature is to ensure that adequate mechanisms are provided to allow enhancement of the radio interface in a backward compatible manner.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale

To be defined on a per building block basis but potentially all specifications and report of the 25 series

This is a generic task which will be valid for all major releases

| New specifications | | | | | | |
|----------------------------------|-------|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |

11 Work item rapporteurs

TSG-RAN

12 Work item leadership

TSG-RAN

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| X | Feature (go to 14a) |
| | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature

Generic Feature

2.1 Improvement of inter-frequency and inter-system measurements

Last distributed as: RAN_Work_Items_after_RAN_15 (originally RP-000180)

Work Item Description

Title: Improvement of inter-frequency and inter-system measurements

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

Compressed mode in Release-99 covers limited set of methods of implementing the compressed mode for enabling measurements on other frequencies. There have been methods suggested that potentially improve the system capacity and operational flexibility in addition to the existing methods.

- The following two technologies have been identified as candidates for Release 2000 for compressed mode improvements:
 1. Compressed mode with puncturing and flexible positions
 2. Combination of the existing methods (including method in point 1)

4 Objective

The purpose of this work item is to work on the compressed mode improvements for improved system performance.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---------------------------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.212 | | Multiplexing and channel coding (FDD) | | RAN #25 | | |
| 25.215 | | Physical layer – Measurements (FDD) | | RAN #25 | | |
| 25.331 | | RRC Protocol Specification | | RAN #25 | Parameter update | |
| 25.423 | | UTRAN Iur Interface RNSAP Signalling | | RAN #25 | Parameter update | |
| 25.433 | | UTRAN Iub Interface NBAP Signalling | | RAN #25 | Parameter update | |

11 Work item rapporteurs

Antti Toskala, Nokia Networks

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a sub-building block part of the radio interface improvement building block.

2.2 Improved Receiver Performance Requirements for HSDPA

Approved as RP-030732 at TSG RAN #22.

Work Item Description

Title: Improved Receiver Performance Requirements for HSDPA

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

Performance requirements for HSDPA capable UE were discussed in RAN WG4, and the requirements for RAKE receiver are currently specified in TS25.101 for the 5 and 10 code UE. As the next step, in order to enhance the benefits of HSDPA as a feature in 3GPP, it is proposed that improved receiver performance requirements should be considered since it can significantly and robustly enhance the coverage, cell capacity and the peak data rate in a HSDPA system. Therefore, it is proposed that improvement for performance requirements of HSDPA receiver should be discussed, and specified in TS 25.101. It is also proposed that these requirements shall be an optional capability for a HSDPA capable UE.

4 Objective

The purpose of this work item is to specify improved receiver performance requirements in realistic environments for HSDPA capable UE, which will enhance system performance and end user service quality. Reference receiver structures for performance enhancements should be agreed in WG4. The specification shall not mandate any specific implementation to meet performance enhancement.

To meet the schedule, the work should progress in phasing as follows:

- TSG RAN WG4#30, simulation assumption and cases agreed.
- TSG RAN WG4#31, review of simulation results, agreements on further simulations to conclude performance requirements.
- TSG RAN WG4#32, review of final results, conclusion of new performance requirements.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects: | USIM | ME | AN | CN | Others |
|-------------------|-------------|-----------|-----------|-----------|---------------|
| Yes | | X | | | |
| No | X | | X | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale

| New specifications | | | | | | |
|---|-------|---------------|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |

Expected completion of the BB by RAN #25 (September 2004)

11 Work item rapporteurs

Takehiro Nakamura (NTT DoCoMo)

12 Work item leadership

RAN WG 4

13 Supporting Companies

TSG RAN
Nokia, Ericsson, Vodafone, NTT DoCoMo

14 Classification of the WI (if known)

| |
|---------------------|
| Feature (go to 14a) |
|---------------------|

3GPP TSG RAN Work Items (Active)

| | |
|---|----------------------------|
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature is Improvements of Radio Interface.

2.2.1 Performance Requirements of Receive Diversity for HSDPA

Approved as RP-030731 at TSG RAN #22.

Work Item Description

Title: Performance Requirements of Receive Diversity for HSDPA

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

Performance requirements for HSDPA UE were discussed in RAN WG4, and the requirements for RAKE receiver are currently specified in TS25.101 for the 5 and 10 code UE. As the next step, in order to enhance the benefits of HSDPA as a feature in 3GPP, it is proposed that a Rx Diversity option should be considered since it can significantly and robustly enhance the coverage, cell capacity and the peak data rate in a HSDPA system.

Therefore, it is proposed that the performance requirements of receive diversity should be discussed, and specified in TS 25.101. It is also proposed that Receive diversity shall be an optional capability for a HSDPA UE terminal.

Receive diversity is a simple structure which does not require a study to define a reference structure for the receiver. Therefore, this work item should only focus on Rx diversity as an enhancement for HSDPA.

4 Objective

The purpose of this work item is to specify the performance requirements based on receive diversity for HSDPA UE. However, UE is allowed to meet the requirements with any means.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

*None***9 Impacts**

| Affects: | USIM | ME | AN | CN | Others |
|-------------------|-------------|-----------|-----------|-----------|---------------|
| Yes | | X | | | |
| No | X | | X | X | X |
| Don't know | | | | | |

11 Expected Output and Time scale

| New specifications | | | | | | |
|---|-------|---|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| 25.101 | | UE Radio transmission and reception (FDD) | | RAN#25 (September 2004) | | |
| | | | | | | |

11 Work item rapporteurs

Takehiro Nakamura (NTT DoCoMo)

12 Work item leadership

RAN WG 4

13 Supporting Companies

TSG RAN

3, AT&T Wireless Services, Cingular Wireless, Ericsson, Fujitsu, InterDigital Communications Corp., Lucent Technologies, Motorola, NEC, Nokia, NTT DoCoMo, Orange, Panasonic, Samsung, Siemens, Telecom Italia, T-Mobile, Vodafone Group

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

3GPP TSG RAN Work Items (Active)

14c The WI is a Work Task: parent Building Block is Improved Receiver Performance Requirements for HSDPA

3 RAN Improvement Feature

Last distributed as: RAN_Work_Items_after_RAN_15 (originally WI-RAN-improve2)

Work Item Description

Title: RAN Improvement

This work item intends to introduce new mechanisms allowing improvements on all aspects dealing with the RNS internal interfaces as well as the interface towards the core network. In addition this includes internal mechanisms to be introduced in the Technical Specification under responsibility of TSG RAN for the RNS part of the network, e.g., algorithms for QoS handling.

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| X | Core Network |
| | Services |

2 Linked work items

None

3 Justification

This work item has been created to collect all evolutions of the Radio Network System. This includes transport of user and signalling plane as well as protocols over all interfaces of the RNS. The Iu and Iur reference points are also covered by this Feature description.

4 Objective

The main objective of this Feature is to cover all evolution of the internal RNS architecture and protocol.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | X | |
| No | X | X | | | X |
| Don't know | | | | | |

11 Expected Output and Time scale (to be updated at each plenary)

(to be defined on a per Building block or WT basis but this may impact most of the specifications 25.4 series and some of the 25.3 series)

12 This is a generic task which will be valid for all major releases

| New specifications | | | | | | |
|----------------------------------|-------|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |

12 Work item rapporteurs

TSG-RAN

13 Work item leadership

TSG-RAN

14 Supporting Companies

TSG-RAN

15 Classification of the WI (if known)

| | |
|---|----------------------------|
| X | Feature (go to 14a) |
| | Building Block (go to 14b) |
| | Work Task (go to 14c) |

16a The WI is a Feature: List of building blocks under this feature

Generic Feature

3.1 Radio access bearer support enhancement

Last distributed as: RP-010915 (originally RP-000140)

Work Item Description

Title: Radio Access Bearer support enhancement

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

3 Justification

The increasing interest in IP based services demands special optimisation of the means by which a radio access bearer can be provided by UTRAN.

4 Objective

This work item should have the scope of adding necessary functionality to the Uu, Iur and Iu interface in order to efficiently support RT traffic, e.g. VoIP. Examples of such functionality are:

- Radio Access Bearer multiplexing in PDCP
- Support of variable formats over Iu and unequal error protection over Uu
- Channel type switching for logical channels
 - Today it is only possible to switch all logical channels of one UE, not individual. For DSCH it would be much better to be able to switch single logical channels
- IP header removal as developed within GERAN
- RFC3095 context relocation in SRNS relocation

5 Service Aspects

The intention with the work item is to better and more efficient support IP based services.

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

**10 Expected Output and Time scale (to be defined on a per work task basis)
This is a generic task which will be valid for all major releases**

| New specifications | | | | | | |
|----------------------------------|-------|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |

Work under this WI related to enhancement of support of IMS voice over IP is expected to be completed by September 2004

11 Work item rapporteurs

TSG-RAN WG2: Juha Mikola, Nokia (juha.mikola@nokia.com)

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

(one Work Item identified as a feature)

- RAN Improvement

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

3.1.1 Iu enhancements for IMS support in the RAN

First distributed at TSG RAN #19 as RP-030191

Work Item Description

Title: Iu enhancements for IMS support in the RAN

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| X | Core Network |
| | Services |

2 Linked work items

RAB support enhancements

3 Justification

This Work Item aims at enhancing the support of IMS in the RAN for the release 6.

Some requirements for the IMS support have been identified by SA2 and this has lead to the introduction of a new release 5 function at RAN3#34: a basic signalling indication on the Iu interface for concerned interactive RABs.

However, this indication enables a basic support for IMS by the RAN but it is believed that room of improvement may be brought e.g. by the introduction of additional QoS specific parameter(s)

This Work Item proposes to refine the requirements provided by SA2 from a RAN thorough perspective and evaluate possible further enhancements for the release 6 allowing some further optimisations of the handling of IMS RAB by an RNC.

4 Objective

The objective of this WI is to improve the support of RABs for IMS on the Iu interface.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | | X | X | |
| No | X | X | | | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|-------------------------------------|--------------------------------|---------------------------------------|--|----------|
| Spec No. | Title | Prime rsp. WG | 2 nd ary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.413 | | UTRAN Iu Interface RANAP Signalling | | 6 months after SA2 completion | Definition of new RAB QoS parameters and addition of procedural text | |

11 Work item rapporteurs

Philippe Godin (Nortel Networks)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG RAN
(Nortel Networks, AWS, 3, Ericsson)

14 Classification of the WI (if known)

| | |
|--|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature
RAB support enhancement

14c The WI is a Work Task: parent Building Block

3.1.2 Optimisation of downlink channelisation code utilisation

First distributed and approved at TSG RAN #23 as RP-040136

Work Item Description

Title: Optimisation of downlink channelisation code utilisation

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

3 Justification

Since using secondary scrambling codes introduces some loss of intra-cell orthogonality in downlink, code utilization in downlink is an important element for the efficiency of downlink in FDD UTRA cells. Several features require a UE specific downlink code for a dedicated channel, such as HSDPA which requires an associated DPCH, compressed mode by SF reduction, IMS with infrequent RTCP packets and full headers which have to be sent with low delay. HSDPA transmissions also require channelisation codes and therefore would benefit from a limited use of secondary scrambling codes, so efficient code utilization of dedicated channels also improves HSDPA performance.

4 Objective

The objective of this work item is to introduce improvements to UTRA FDD downlink which allow a better utilization of downlink codes for dedicated channels.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|------------------|----------------------|---|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| TR | | R1 | R2, R3 | | RAN#25 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| TBD | | | | | RAN#26 | |

11 Work item raporteurs

Sarah Boumendil (Nortel Networks)

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG RAN
(Nortel Networks, Vodafone, Ericsson, Qualcomm)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Work Task: parent Building Block
RAB support enhancements
(one Work Item identified as a feature)

3.1.3 Optimisation of channelisation code utilisation for TDD

First distributed and approved at TSG RAN #23 as RP-040130

Work Item Description

Title: Optimisation of channelisation code utilisation

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

3 Justification

Code utilisation is an important element for the uplink and downlink efficiency of UTRA-TDD cells. Several features require a UE specific code for a dedicated channel, such as HSDPA which requires an associated DPCH, IMS with infrequent RTCP packets and full headers which have to be sent with low delay.

HSDPA transmissions also require channelisation codes and so efficient code utilisation of dedicated channels also improves HSDPA performance.

For TDD code resources are limited on both uplink and downlink. Efficient utilisation and careful management of both downlink and uplink code resources is desirable.

4 Objective

The objective of this work item is to introduce improvements which allow a better utilisation of codes for dedicated channels. This applies to the downlink and uplink for TDD.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|------------------|----------------------|---|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| TR | | R1 | R2, R3 | | RAN#25 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| TBD | | | | | RAN#26 | |

11 Work item raporteurs

Nicholas Anderson (IPWireless)

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG RAN
(IPWireless, InterDigital, Softbank, Alcatel)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Work Task: parent Building Block
RAB support enhancements
(one Work Item identified as a feature)

3.2 RRM optimizations for Iur and Iub

Last distributed as: RAN_Work_Items_after_RAN_15 (originally RP-000310)

Work Item Description

Title: RRM optimizations for Iur and Iub

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

3 Justification

Optimising the existing procedures will increase the efficiency of UTRAN and the quality of service to the end user.

4 Objective

This work item focuses on optimizing the existing procedures and functions of Iub and Iur.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

**10 Expected Output and Time scale (to be defined on a per work task basis)
This is a generic task which will be valid for all major releases**

| New specifications | | | | | | |
|----------------------------------|-------|----------------|---------------------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2 nd ary resp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |

11 Work item raporteurs

Gert-Jan van Lieshout (Ericsson)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

Radio Interface Improvement feature and UTRAN Improvement feature

14c The WI is a Work Task: parent Building Block

3.3 Remote Control of Electrical Tilting Antennas

First distributed at TSG RAN #19 as RP-030193

Work Item Description

Title: Remote Control of Electrical Tilting Antennas

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

RET -OAM aspects

3 Justification

Because of the interference limitation property of the CDMA based UTRAN, the tilting of antennas is essential for the successful operation and optimisation of UMTS network coverage. It would be very beneficial if it were possible to remotely control the tilting of antennas in order to optimise radio coverage areas.

The ability for the operator to control the electrical tilt of the antennas remotely from the O&M Network is currently possible via the implementation-specific interfaces between Node B Element Manager and Node B. A “remote control” mechanism would decrease the costs incurred on the operator for site visits to change the tilt of the antennas manually and simplify the redeployment of antennas in a large network.

Remote electrical tilting (RET) solutions to date are proprietary and hence interfacing a mix of antennas and Node Bs from different vendors is not possible without a standardised interface. Therefore, in order to enable flexibility for the operator in choosing their antenna supplier(s), a new interface is required between RET antenna and Node B to control the electrical tilting. Additionally, RET functionality in the UTRAN accompanied by an appropriate set of signalling commands and control parameters from the Network Manager over the Ift-N interface would allow the operator to optimise the whole network using consistent commands – even in a multi-vendor environment.

4 Objective

The objectives of this work item are:

- Specifying a standardised open interface to enable local RET antenna-controlling functionality situated in the Node B to allow the RET antenna system being provided by a third party vendor .
- Be able to control the antenna from the Network Manager, so that the operator is able to control the RET antenna remotely and consistently across the network.

5 Service Aspects

3GPP TSG RAN Work Items (Active)

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | X |
| No | X | X | | X | |
| Don't know | | | | | |

a) Work for TSG RAN WG 3

Definition and inclusion of the relevant items in the TSG RAN WG3 specification in order to control electrical tilting antennas

b) Work for TSG SA WG 5

Provision of the parameters / functionality across the Itf-N interface needed for a network wide controlling of RET antenna devices

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | | |
|--------------------|---|----------------|--------------------|---------------------------------------|----------------------|----------|--|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments | |
| 25.460 | UTRAN Iuant Interface: General Aspects and Principles | R3 | | | RAN#25 | | |
| 25.461 | UTRAN Iuant Interface: Layer 1 | R3 | | | RAN#25 | | |
| 25.462 | UTRAN Iuant Interface: Signalling Transport | R3 | | | RAN#25 | | |
| 25.463 | UTRAN Iuant interface: Remote Electrical Tilting (RET) antennas Application Part (RETAP) signalling | R3 | | | RAN#25 | | |

| Affected existing specifications | | | | |
|----------------------------------|----|---|----------------------|----------|
| Spec No. | CR | Subject | Approved at plenary# | Comments |
| 25.401 | | UTRAN architecture description; stage 2 | RAN#25 | |

11 Work item rapporteur

Andreas Hauser, Vodafone D2 GmbH, Düsseldorf, Germany

12 Work item leadership

TSG-RAN WG 3

13 Supporting Companies

TSG RAN

(Vodafone Group, 3, Lucent Technologies, Nortel Networks, Siemens AG, Telefónica, Telecom Italia, Alcatel)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: Parent Feature: RAN Improvement

Work Task under this block: RET -OAM aspects

3.4 Network Assisted Cell Change (NACC) from UTRAN to GERAN

First distributed at TSG RAN #19 as RP-030156

Work Item Description

Title: Network Assisted Cell Change (NACC) from UTRAN to GERAN -Network-side aspects

1 3GPP Work Area

| | |
|----|--------------|
| X | Radio Access |
| X? | Core Network |
| | Services |

2 Linked work items

Independent feature.

3 Justification

Network Assisted Cell Change (NACC) is a feature that was specified in GERAN in Rel-4. NACC offers the possibility to reduce the delay when transiting between GPRS cells by providing the system information of the target cells.

Inter-RAT NACC for CELL_DCH signalling over the Uu was agreed in Rel-5. This WI is required to specify how the RNC acquires the System Information (GERAN SI) required to be delivered to the UE/MS as part of the NACC function.

4 Objective

The objective of this Work Item is to analyse the impacts on UTRAN architecture and provide the signalling support on the UTRAN Interfaces for Network Assisted Cell Change from UTRAN to GERAN.

5 Service Aspects

None/Text

6 MMI-Aspects

None/Text

7 Charging Aspects

None/Text

8 Security Aspects

None/Text

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | X | |
| No | X | X | | | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 23.060 | | Definition of NACC from UTRAN to GERAN | | | | |
| 25.401 | | Architecture impacts of support for NACC from UTRAN to GERAN | | RAN #24 | | |
| 25.410 | | Support of NACC on the lu interface | | RAN #24 | | |
| 25.413 | | Signalling support for NACC from UTRAN to GERAN on lu | | RAN #24 | | |
| 25.420 | | Support of NACC on the lur interface | | RAN #24 | | |
| 25.423 | | Signalling support for NACC on the lur interface | | RAN #24 | | |

11 Work item rapporteurs

Brendan McWilliams, Brendan.McWilliams@gb.vodafone.co.uk

12 Work item leadership

TSG RAN WG3

13 Supporting Companies

TSG RAN
(Vodafone Group, Orange, Telecom Italia, Qualcomm, Nokia, Nortel)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

Radio Access Network Improvement Feature

4 Location Services

This is a SA WG2 feature

4.1 UE Positioning

Last distributed as: UE_positioning.doc

Work Item Description

Title: UE positioning

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

- Location Based Services (LCS)
- Low Chip rate TDD option

3 Justification

UE positioning is a function of UE and UTRAN (Access Stratum) which can be useful for a number of purposes:

- Radio Resource Management
- Support for location based services (LCS)

4 Objective

UE positioning is a feature that allows:

- UTRAN to calculate the geographical co-ordinates of a UE known by UTRAN
- UTRAN to provide sufficient information so that capable UEs can calculate autonomously their geographical co-ordinates
- UTRAN to answer to Core Networks requests for UE position

UE positioning feature encompasses a collection of positioning methods, allowing different level of accuracy and operational scenarios.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

This is a feature which is supported in release 99. For output and timescales, refer to the appropriate building block under the feature.

11 Work item rapporteur

Denis Fauconnier, Nortel Networks

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| x | Feature (go to 14a) |
| | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

- UE positioning enhancements
- Iub/Iur interfaces for UE positioning methods supported on the radio interface release 99

14b The WI is a Building Block: parent Feature

14c The WI is a Work Task: parent Building Block

4.1.1 UE positioning enhancements

Last distributed as: RP-010915 (originally RP-000509)

Work Item Description

Title: UE positioning enhancements

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

UE positioning is a function of UE and UTRAN (Access Stratum) which can be utilised for a number of purposes:

- Radio Resource Management
- Support for location based services (LCS)

Different accuracy can be requested when positioning a UE for these purposes.

4 Objective

The purpose of this work item are to increase the accuracy of the UE positioning or define methods allowing UE positioning with less complexity for a given accuracy.

Examples of enhancements are:

- Addition of IPDL for UE positioning in TDD
- Almanac corrections

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

**10 Expected Output and Time scale (to be defined on a per work task basis)
This is a generic task which will be valid for all major releases**

| New specifications | | | | | | |
|----------------------------------|-------|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |

11 Work item rapporteur

Mark Beckmann, Siemens AG

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| x | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

UE positioning

14c The WI is a Work Task: parent Building Block

4.1.2 A-GPS Minimum Performance Specification

Approved at TSG RAN #20 as RP-030308. Revised at TSG RAN #22 as RP-030719.

Work Item Description

Title: AGPS Minimum Performance Specification Development

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

This Work Item is not related to other Work Items.

3 Justification

A-GPS has already been standardized as one of UE location technologies supported by 3GPP in R99. Associated signalling support for A-GPS has also been completed in Release 4 and 5. However, the minimum performance requirements for A-GPS measurement are currently missing in TS 25.133 (RAN WG4). Thus, there is no active effort to pursue A-GPS performance test specification in TS 34.121 (T1-RF). As a result, the location measurement reporting accuracy from different UE vendors could be different, which makes it difficult for a network operator to use these location reports to fulfil the service requirements for location clients.

Operators have already committed to deploy A-GPS with initial release of UMTS network service. It is important to speed up the standard process on A-GPS minimum performance specification in order to meet operator's early deployment requirement.

4 Objectives

This WI is to develop A-GPS minimum performance specification for both UE based and UE assisted A-GPS with following objectives:

- The minimum performance specification shall be defined based on mature and achievable A-GPS technology to limit the inconsistency of UEs' location performance in the same operational environment, which is potentially caused by different implementations from various UE vendors
- The minimum performance specification and the test cases shall take into account of variety operational scenarios of an A-GPS receiver to prevent significant performance inconsistency from different UE vendors after a UE has passed the defined test cases, when they are operating in a different environment rather than an ideal open-air condition.

5 Service Aspects

None.

6 MMI-Aspects

None.

7 Charging Aspects

None.

8 Security Aspects

None.

9 Impacts

| Affects: | USIM | ME | AN | CN | Others |
|-------------------|-------------|-----------|-----------|-----------|---------------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|-------|--|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.1XY | | Requirements for minimum performance of A-GPS (FDD) | | RAN #25 | | |
| 34.121 | | Terminal conformance specification; Radio transmission and reception (FDD) | | T # 25 | | |
| | | | | | | |

11 Work item rapporteurs
Donglin Shen – AT&T Wireless Services

12 Work item leadership
3GPP TSG RAN (WG4)

13 Supporting Companies
TSG RAN
(AWS, Nokia, Siemens, China Mobile, Rogers Wireless, Nortel, Motorola, Ericsson and Cingular Wireless)

14 Classification of the WI (if known)

| | |
|--|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |

3GPP TSG RAN Work Items (Active)

| | |
|---|-----------------------|
| X | Work Task (go to 14c) |
|---|-----------------------|

14c The WI is a Work Task: parent Building Block

UE Positioning

5 Multimedia Broadcast and Multicast Service

This is a SA WG1 feature

5.1 Introduction of the Multimedia Broadcast Multicast Service (MBMS) in RAN

Originally RP-010812, revised at TSG RAN #19 as RP-030015

Work Item Description

Title: Introduction of the Multimedia Broadcast Multicast Service (MBMS) in RAN (originally Enhancement of Broadcast and Introduction of Multicast Capabilities in RAN)

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

- TSG SA WG1 WI title: "**Enhancement of Broadcast and Introduction of Multicast**"
=> TS 22.146: "Multicast Broadcast Multimedia Service (MBMS)-Stage 1"
- TSG SA WG2 WI title: "**Multimedia Broadcast/Multicast Service Architecture**"
=> TR 23.846: "Multimedia Broadcast/Multicast Service; Architecture and Functional Description-Stage 2"
=> TS 23.246 "Multimedia Broadcast/Multicast Service (MBMS); Architecture and Functional Description"
- TSG CN WG1 WI title "**Support of the Multicast Broadcast Multimedia Service (MBMS) in CN protocols**"
=> TR 29.846, "Multimedia Broadcast Multicast Service; CN1 Procedure Description (Rel-6)":
- TSG GERAN WI title "**Support of the Multimedia Broadcast Multicast Service (MBMS) in GERAN**"
- TSG SA3 WI title: "**Security Aspects of Multimedia Broadcast/Multicast Service (MBMS)**"
=> TS 33.246 " Security of Multimedia Broadcast/Multicast Service "
- TSG SA4 WI: expected to be generated to address codec issues for MBMS.

3 Justification

TSG SA1 has been working on the service requirements of MBMS which is a new bearer service. TS 22.146 is the specification for the MBMS service requirements defined by TSG SA WG1. TSG SA2 has already started discussions (SA WG2 #20 meeting) on the architectural issues of MBMS.

The intention of this WI is to address the RAN issues and required changes in order to accommodate MBMS.

4 Objective

The objective of this WI is to analyse and provide the necessary changes and additions required for the efficient support of MBMS in the current RAN specifications. Some possible study areas are listed below:

- analysis and creation/modification of UTRAN functions needed to be standardized for the efficient support of MBMS
- impact on the logical/transport/physical channels
- impact on the radio interface protocols
- impact on the “MBMS context” concept on RAB signalling
- impacts on lub and lur and lu-ps
- decision making process between point-to-point or point-to-multipoint configurations needed for MBMS Multicast mode
- interaction between MBMS and lu-flex
- security aspects

5 Service Aspects

Multimedia Broadcast and Multicast service capabilities have been introduced.

6 MMI-Aspects

None

7 Charging Aspects

It shall be possible to charge the receiver of the MBMS multicast mode.

8 Security Aspects

It shall be possible to secure multicast.

9 Impacts

| Affects: | USIM | ME | AN | CN | Others |
|-------------------|-------------|-----------|-----------|-----------|---------------|
| Yes | | X | X | X | |
| No | X | | | | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|---|----------------|---------------------------------|---------------------------------------|----------------------|-----------------------------|
| Spec No. | Title | Prime resp. WG | 2 nd ary resp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| TR 25.992 | Multimedia Broadcast/Multicast Service (MBMS); UTRAN/GERAN requirements | R2 | GERAN2 | RAN #19 | RAN #20 | New Technical Report |
| TS 25.346 | Introduction of Multimedia Broadcast/Multicast Service (MBMS) in the Radio Access Network (Stage-2) | R2 | R3 | RAN #20 | RAN#20 | New Technical Specification |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |

Estimated date of RAN MBMS WI completion (stage-2 and stage-3): June 2004.

11 Work item raporteurs

Juho Pirskanen, Nokia
juho.pirskanen@nokia.com

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block:

This WI is a building block part of the SA1 "Multimedia Broadcast and Multicast Service" feature.

6 Evolution of the transport in the UTRAN

Last distributed as: RAN_Work_Items_after_RAN_9 (originally WI-EVUTRAN)

Work Item Description

Title: Evolution of the transport in the UTRAN

This work item intends to introduce mechanism necessary to allow an evolution of transport mechanism in the RNS following requirement put by the core network.

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

In order to cope with new requirement coming from new service definition, it is necessary to introduce mechanism to support new transport mechanisms or to improve the existing ones. Typical examples of such mechanisms are the following: introduction of an IP transport inside the RNS and AAL2 QoS optimisation

4 Objective

The main objective for this building block is to ensure that adequate mechanism are provided to handle the different type of traffic (i.e. signalling and user flow) inside the RNS to ensure that requirements in terms of QoS and delay are taken into account.

This shall be valid also for efficient O&M transport of the different interfaces inside the RNS. This includes the Iub, Iur and any protocol suites at the Iu reference point.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|-------|--------|
| Yes | | | X | X (1) | |
| No | | | | | |
| Don't know | | | | | |

Note 1: This cross indicates that as soon as there is an impact on the Iu supported protocol this also touch upon the Access stratum part situated in the Core network

- 12 Expected Output and Time scale (to be updated at each plenary)
(to be defined on a per WT basis but all specifications 25 4x2 and 254x4)**
- 13 This is a generic task which will be valid for all major releases**

| New specifications | | | | | | |
|----------------------------------|-------|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |

- 11 Work item raporteurs
Francois Courau (Alcatel)**
- 12 Work item leadership
TSG-RAN WG3**
- 13 Supporting Companies
TSG-RAN**
- 14 Classification of the WI (if known)**

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

Not Relevant

14b The WI is a Building Block: parent Feature

Evolution of Transport

3GPP TSG RAN Work Items (Active)

14c The WI is a Work Task: parent Building Block

Not Relevant

7 Multiple Input Multiple Output Antennas (MIMO)

Originally RP-010267, last distributed at TSG RAN #19 as RP-030192

Work item sheet description

Title: Multiple Input Multiple Output Antennas

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

MIMO Physical Layer

MIMO Layer 2 and 3 Protocol Aspects

MIMO UTRAN Iub Protocol Aspects

MIMO RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

3 Justification

In RAN#11 MIMO was presented as part of the HSDPA feasibility study. It was agreed that MIMO offers significant performance gains with acceptable impact to both UE and UTRAN. MIMO shall be optional at the UE.

4 Objective

The purpose of this work item is to improve system capacity and spectral efficiency by increasing the data throughput in the downlink within the existing 5MHz carrier. This will be achieved by means of deploying multiple antennas at both UE and Node-B side.

The technical objective of this work item is the integration of MIMO functionality in UTRA, in line with recommendations from WG1, to improve capacity and spectral efficiency. The works tasks include the support for both FDD and TDD. In those cases where differences between FDD and TDD are identified, they should be considered as separate work tasks.

For physical layer, the features include:
Physical Layer procedures

For higher layers:
Signalling aspects
UE capabilities

For Iur/Iub interface:

For the adoption of MIMO some modifications to the present Iub signalling and user data streams may need to be included.

For radio transmission and reception:

3GPP TSG RAN Work Items (Active)

UE radio transmission and reception
 BTS radio transmission and reception
 BTS Conformance testing
 Requirements for support of Radio Resource Management

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|---|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.876 | Multiple-Input Multiple Output Antenna Processing for HSDPA | WG1 | | RAN#18 | RAN#23 | |
| 25.996 | Spatial channel model for multiple input multiple output simulations | WG1 | | | RAN#23 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |

11 Work item rapporteurs

Howard Huang (hchuang@lucent.com)

12 Work item leadership

3GPP TSG RAN Work Items (Active)

TSG RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| X | Feature (go to 14a) |
| | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

MIMO Physical Layer

MIMO Layer 2 and 3 Protocol Aspects

MIMO UTRAN Iub Protocol Aspects

MIMO RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

14b The WI is a Building Block: parent Feature

(one Work Item identified as a feature)

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

7.1 Multiple Input Multiple Output Antennas (MIMO) – Physical Layer

First distributed at TSG RAN #19 as RP-030192

Work item sheet description

Title :Multiple Input Multiple Output Antennas – Physical Layer

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

MIMO Layer 2 and 3 Protocol Aspects
MIMO UTRAN Iub Protocol Aspects
MIMO RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

3 Justification

In RAN#11 MIMO was presented as part of the HSDPA feasibility study. It was agreed that MIMO offers significant performance gains with acceptable impact to both UE and UTRAN. MIMO shall be optional at the UE.

4 Objective

The technical objective of this work item is the integration of MIMO physical layer functionality in UTRA for both FDD and TDD.

The work task for physical layer procedures will also consider additional physical layer measurements that may be required.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|--|--|-------------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.876 | Multiple-Input Multiple Output Antenna Processing for HSDPA | WG1 | | | RAN#23 | |
| 25.996 | Spatial channel model for multiple input multiple output simulations | WG1 | | | RAN#23 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.211 | | Physical channels and mapping of transport channels onto physical channels (FDD) | | RAN#25 | | |
| 25.212 | | Multiplexing and channel coding (FDD) | | RAN#25 | | |
| 25.213 | | Spreading and modulation (FDD) | | RAN#25 | | |
| 25.214 | | FDD : Physical layer procedures | | RAN#25 | | |
| 25.215 | | Physical layer measurements (FDD) | | RAN#25 | | |
| 25.221 | | Physical channels and mapping of transport channels onto physical channels (TDD) | | RAN#25 | | |
| 25.222 | | Multiplexing and channel coding (TDD) | | RAN#25 | | |
| 25.223 | | Spreading and modulation (TDD) | | RAN#25 | | |
| 25.224 | | Physical layer procedures (TDD) | | RAN#25 | | |
| 25.225 | | Physical layer; Measurements (TDD) | | RAN#25 | | |

11 Work item rapporteurs

Howard Huang (hchuang@lucent.com)

12 Work item leadership

TSG RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

Multiple Input Multiple Output Antennas (MIMO)

14c The WI is a Work Task: parent Building Block

7.2 Multiple Input Multiple Output Antennas (MIMO) Layer 2,3 aspects

First distributed at TSG RAN #19 as RP-030192

Work item sheet description

Title: Multiple Input Multiple Output Antennas – Layer 2,3 aspects

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

MIMO Physical Layer

MIMO UTRAN Iub Protocol Aspects

MIMO RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

3 Justification

In RAN#11 MIMO was presented as part of the HSDPA feasibility study. It was agreed that MIMO offers significant performance gains with acceptable impact to both UE and UTRAN. MIMO shall be optional at the UE.

4 Objective

The technical objective of this work item is the integration of MIMO physical layer functionality in UTRA to improve capacity and spectral efficiency. Some additional signalling may be required to support MIMO functionality

- For higher layers:
 - Signalling aspects
 - UE capabilities

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--|-------------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| 25.306 | | UE Radio Access Capabilites | | RAN#26 | | |
| 25.331 | | Radio resource control (RRC) protocol specification | | RAN#26 | | |
| 25.321 | | Medium access control (MAC) protocol specification | | RAN#26 | | |

11 Work item rapporteurs

Howard Huang (hchuang@lucent.com)

12 Work item leadership

TSG RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

Multiple Input Multiple Output Antennas

3GPP TSG RAN Work Items (Active)

14c The WI is a Work Task: parent Building Block

7.3 Multiple Input Multiple Output Antennas (MIMO)- Iub/Iur Protocol Aspects

First distributed at TSG RAN #19 as RP-030192

Work item sheet description

Title: Multiple Input Multiple Output Antennas- Iub/Iur Protocol Aspects.

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

MIMO Physical Layer
 MIMO Layer 2 and 3 Protocol Aspects
 MIMO RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

3 Justification

In RAN#11 MIMO was presented as part of the HSDPA feasibility study. It was agreed that MIMO offers significant performance gains with acceptable impact to both UE and UTRAN. MIMO shall be optional at the UE.

4 Objective

The technical objective of this work item is the integration of MIMO physical layer functionality in UTRA to improve capacity and spectral efficiency.

For Iur/Iub interface:

For the adoption of MIMO some modifications to the present Iub signalling and user data streams may need to be included.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--|-------------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| TS 25.401 | | UTRAN Overall Description | | RAN#26 | | |
| TS 25.420 | | UTRAN I _{ur} Interface: General Aspects and Principles | | RAN#26 | | |
| TS 25.422 | | UTRAN I _{ur} interface signalling transport | | RAN#26 | | |
| TS 25.423 | | UTRAN I _{ur} Interface RNSAP Signalling | | RAN#26 | | |
| TS 25.424 | | UTRAN I _{ur} interface data transport & transport signalling for CCH data streams | | RAN#26 | | |
| TS 25.425 | | UTRAN I _{ur} interface user plane protocols for CCH data streams | | RAN#26 | | |
| TS 25.426 | | UTRAN I _{ur} and I _{ub} Interface Data Transport & Transport Signalling for DCH Data Streams | | RAN#26 | | |
| TS 25.430 | | UTRAN I _{ub} Interface General Aspects and Principles | | RAN#26 | | |
| TS 25.432 | | UTRAN I _{ub} interface signalling transport | | RAN#26 | | |
| TS 25.433 | | UTRAN I _{ub} Interface NBAP Signalling | | RAN#26 | | |
| TS 25.434 | | UTRAN I _{ub} interface data transport & transport signalling for CCH data streams | | RAN#26 | | |
| TS 25.435 | | UTRAN I _{ub} interface user plane protocols for CCH data streams | | RAN#26 | | |
| TS 25.442 | | UTRAN Implementation Specific O&M Transport | | RAN#26 | | |

11 Work item raporteurs

Howard Huang (hchuang@lucent.com)

12 Work item leadership

TSG RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

Multiple Input Multiple Output Antennas

14c The WI is a Work Task: parent Building Block

7.4 Multiple Input Multiple Output Antennas (MIMO) - RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

First distributed at TSG RAN #19 as RP-030192

Work item sheet description

Title: Multiple Input Multiple Output Antennas - RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

MIMO Physical Layer
MIMO Layer 2 and 3 Protocol Aspects
MIMO UTRAN Iub Protocol Aspects

3 Justification

In RAN#11 MIMO was presented as part of the HSDPA feasibility study. It was agreed that MIMO offers significant performance gains with acceptable impact to both UE and UTRAN. MIMO shall be optional at the UE.

4 Objective

The technical objective of this work item is the description of the MIMO characteristics, the system performance requirements and conformance testing.

- For radio transmission and reception:
 - UE radio transmission and reception
 - BTS radio transmission and reception
 - BTS Conformance testing

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---|-------------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| 25.101 | | UE Radio Transmission and Reception (FDD) | | | RAN#27 | |
| 25.102 | | UE Radio Transmission and Reception (TDD) | | | RAN#27 | |
| 25.104 | | UTRA (BS) FDD; Radio transmission and Reception | | | RAN#27 | |
| 25.105 | | UTRA (BS) TDD; Radio transmission and Reception | | | RAN#27 | |
| 25.123 | | Requirements for support of Radio Resource Management (TDD) | | | RAN#27 | |
| 25.133 | | Requirements for support of Radio Resource Management (FDD) | | | RAN#27 | |
| 25.141 | | Base station conformance testing(FDD) | | | RAN#27 | |
| 25.142 | | Base station conformance testing(TDD) | | | RAN#27 | |

11 Work item rapporteurs

Howard Huang (hchuang@lucent.com)

12 Work item leadership

TSG RAN WG4

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

3GPP TSG RAN Work Items (Active)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

Multiple Input Multiple Output Antennas

8 Subscriber and Equipment Trace Support in UTRAN

Approved at TSG RAN #20 as RP-030355

Work Item Description

Title: Subscriber and Equipment Trace support in UTRAN

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

Rel6 - Trace Management

3 Justification

Subscriber and Equipment Trace provides very detailed information at call level on one or more specific mobile(s). This data is an additional source of information to Performance Measurements and allows going further in monitoring and optimisation operations.

Contrary to Performance Measurements, which are a permanent source of information, Trace is activated/deactivated on user demand for a limited period of time for specific analysis purposes. Thus, signalling support is needed on the UTRAN Interfaces for activation/deactivation of the Trace functionality, correlation of the Traces gathered in the different Nodes,...

4 Objective

The main objective of this Work Item is to analyse the impacts on UTRAN architecture and provide the signalling support on the UTRAN Interfaces to fulfill the requirements on Subscriber and Equipment Trace as defined in TS 32.421.

Another objective of the Work Item is to avoid mechanisms systematically providing the IMEI(SV) for each Iu signaling connection.

5 Service Aspects

None/Text

6 MMI-Aspects

None/Text

7 Charging Aspects

None/Text

8 Security Aspects

None/Text

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | X | |
| No | X | X | | | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.401 | | Architecture impacts of support for Subscriber and Equipment Trace | | RAN #24 | | |
| 25.410 | | Trace Function on the lu interface | | RAN #24 | | |
| 25.413 | | Signalling support for Subscriber and Equipment Trace on lu | | RAN #24 | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11 Work item raporteurs

Yann Sehedic, sehedic@nortelnetworks.com

12 Work item leadership

TSG RAN WG3

13 Supporting Companies

TSG RAN (Nortel, Lucent, Nokia, Motorola, Telefónica, Orange)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

Rel6 - Trace Management

9 Enhancement of the support of network sharing in the UTRAN

Work Item Description

Title: Enhancement of the support of network sharing in the UTRAN

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

- Network sharing – Technical Report 22.951 “Service Aspects and Requirements for Network Sharing” (SA1- 31019)
- Network sharing – Technical Report 23.851 “Architecture and Functional Description” (SA2-32044)

3 Justification

Network sharing may be used to lower the initial rollout cost for new radio networks. In addition, network sharing provides possibilities for operators not owning a 3G license to be able to deliver 3G services.

Based on the work concurred in SA on “Network Sharing” TSG-RAN should develop support to this feature.

4 Objective

This work is aimed to develop stage-3 support to “Network Sharing” feature, taking into account Stage 1 and stage 2 requirements. During the work considerations on equipment complexity, current consumption and common channel capacity impacts should be analysed. The solution shall not have impact to earlier release terminals.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | X | X | X | |
| No | X | | | | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.401 | | UTRAN Overall Description | | 3 months after NTShar is finished in SA | | |
| 25.413 | | UTRAN lu interface RANAP signalling | | 3 months after NTShar is finished in SA | | |
| 25.331 | | Radio Resource Control (RRC); Protocol Specification | | 3 months after NTShar is finished in SA | | |
| 25.304 | | UE procedures in idle mode and procedures for cell reselection in connected mode | | 3 months after NTShar is finished in SA | | |
| | | | | | | |
| | | | | | | |

11 Work item rapporteur

Anders Dahlén, TeliaSonera (Anders.Dahlen@TeliaSonera.com)

12 Work item leadership

TSG-RAN WG 2

13 Supporting Companies

TSG RAN

TeliaSonera, Ericsson, Nokia, Nortel, Dansk Mobiltelefon I/S (Sonofon)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: Parent Feature: Network Sharing

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

10 FDD Enhanced Uplink

First distributed and approved at TSG RAN #23 as RP-040081.

Work Item Description

Title: FDD Enhanced Uplink

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

- FDD Enhanced Uplink: Physical Layer
- FDD Enhanced Uplink: Layer 2 and 3 Protocol Aspects
- FDD Enhanced Uplink: UTRAN Iub/Iur Protocol Aspects
- FDD Enhanced Uplink: RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

3 Justification

In RAN#17 a study item on “Uplink Enhancements for Dedicated Transport Channels” was approved. The aim of the study was to look at the feasibility of enhancing the uplink DCH operation and performance by several techniques in order to support services like video-clips, multimedia, e-mail, telematics, gaming, video-streaming.... The RAN study has shown that various techniques, Node-B controlled scheduling, shorter TTI and a hybrid ARQ layer in the Node-B, can enhance the uplink packet transfer performance significantly compared to Release-99/Rel-4/Rel-5.

4 Objective

The technical objective of this work item is the Enhanced Uplink functionality in UTRA FDD, to improve the performance of uplink dedicated transport channels. The improvements should take into account backwards compatibility aspects.

- For radio interface physical layer, the feature includes:
 - Physical and Transport Channels mapping
 - Multiplexing and Channel Coding
 - Physical Layer procedures
 - Physical layer measurements
 - UE physical layer capabilities
- For radio interface higher RAN layers:
 - Architecture aspects
 - MAC entity (Scheduling and hybrid ARQ protocol)
 - Interlayer interactions in connected mode
 - Control plane protocols
 - User plane protocols

3GPP TSG RAN Work Items (Active)

- UE capabilities
- For Iur/Iub interface:
 - Control plane protocols
 - User plane protocols
- For radio transmission and reception:
 - UE radio transmission and reception
 - Base Station radio transmission and reception
 - Base Station conformance testing
 - Requirements for support of Radio Resource Management

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|--|---------------------|-------------------------|---|----------------------|---|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.309 | UTRA FDD Enhanced Uplink stage 2 | R2 | R1 | RAN#24 | RAN#25 | Rapporteur: Tania Godard, Nortel |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| | | | | | | |

Note: this WIDS describes the Feature and the Building Block dealing with the stage 2 aspects; the stage 3 is defined in each of the 4 work items defined for each WG. The completion date for the stage 2 is September 2004.

11 Work item raporteurs

Joakim Bergström (Ericsson)

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG RAN
(Ericsson, Nokia, Nortel, Vodafone Group, Motorola, Qualcomm, TeliaSonera, Alcatel, T-mobile, Lucent Technologies, Samsung, Philips, LG Electronics, NEC, Orange, Telefonica, NTT DoCoMo, and Siemens)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| X | Feature (go to 14a) |
| | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

FDD Enhanced Uplink: Physical Layer

FDD Enhanced Uplink: Layer 2 and 3 Protocol Aspects

FDD Enhanced Uplink: UTRAN Iub/Iur Protocol Aspects

FDD Enhanced Uplink: RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

10.1 FDD Enhanced Uplink: Physical Layer

First distributed and approved at TSG RAN #23 as RP-040081.

Work Item Description

Title: FDD Enhanced Uplink: Physical Layer

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

- FDD Enhanced Uplink
- FDD Enhanced Uplink: Layer 2 and 3 Protocol Aspects
- FDD Enhanced Uplink: UTRAN Iub/Iur Protocol Aspects
- FDD Enhanced Uplink: RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

3 Justification

In RAN#17 a study item on “Uplink Enhancements for Dedicated Transport Channels” was approved. The aim of the study was to look at the feasibility of enhancing the uplink DCH operation and performance by several techniques in order to support services like video-clips, multimedia, e-mail, telematics, gaming, video-streaming.... The RAN study has shown that various techniques, Node-B controlled scheduling, shorter TTI and a hybrid ARQ layer in the Node-B, can enhance the uplink packet transfer performance significantly compared to Release-99/Rel-4/Rel-5.

4 Objective

The technical objective of this work item is the Enhanced Uplink functionality in UTRA FDD, to improve the performance of uplink dedicated transport channels. The improvements should take into account backwards compatibility aspects.

- For physical layer, the building block includes:
 - Physical and Transport Channels mapping
 - Multiplexing and Channel Coding
 - Physical Layer procedures
 - Physical layer measurements
 - UE physical layer capabilities

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--|--------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | R1 | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| 25.211 | | Physical channels and mapping of transport channels onto physical channels (FDD) | | | RAN#26 | |
| 25.212 | | Multiplexing and channel coding (FDD) | | | RAN#26 | |
| 25.213 | | Spreading and modulation (FDD) | | | RAN#26 | |
| 25.214 | | Physical layer procedures (FDD) | | | RAN#26 | |
| 25.215 | | Physical layer; Measurements (FDD) | | | RAN#26 | |

Note: this work item is the Physical Layer part of the stage 3 of the FDD Enhanced Uplink work item.

11 Work item rapporteurs

Karri Ranta-aho (Nokia)

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG RAN

3GPP TSG RAN Work Items (Active)

(Ericsson, Nokia, Nortel, Vodafone Group, Motorola, Qualcomm, TeliaSonera, Alcatel, T-mobile, Lucent Technologies, Samsung, Philips, LG Electronics, NEC, Orange, Telefonica, NTT DoCoMo, and Siemens)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

FDD Enhanced Uplink

10.2 FDD Enhanced Uplink: Layer 2 and 3 Protocol Aspects

First distributed and approved at TSG RAN #23 as RP-040081.

Work Item Description

Title: FDD Enhanced Uplink: Layer 2 and 3 Protocol Aspects

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

- FDD Enhanced Uplink
- FDD Enhanced Uplink: Physical Layer
- FDD Enhanced Uplink: UTRAN Iub/Iur Protocol Aspects
- FDD Enhanced Uplink: RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

3 Justification

In RAN#17 a study item on “Uplink Enhancements for Dedicated Transport Channels” was approved. The aim of the study was to look at the feasibility of enhancing the uplink DCH operation and performance by several techniques in order to support services like video-clips, multimedia, e-mail, telematics, gaming, video-streaming.... The RAN study has shown that various techniques, Node-B controlled scheduling, shorter TTI and a hybrid ARQ layer in the Node-B, can enhance the uplink packet transfer performance significantly compared to Release-99/Rel-4/Rel-5.

4 Objective

The technical objective of this work item is the Enhanced Uplink functionality in UTRA, to improve the performance of uplink dedicated transport channels. The improvements should take into account backwards compatibility aspects.

- For radio interface higher RAN layers, the building block includes:
 - Architecture aspects
 - MAC entity (Scheduling and hybrid ARQ protocol)
 - Interlayer interactions in connected mode
 - Control plane protocols
 - User plane protocols
 - UE capabilities

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---|----------------------|---|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | R2 | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| 25.301 | | Radio Interface Protocol Architecture | | | RAN#26 | |
| 25.302 | | Services provided by the physical layer | | | RAN#26 | |
| 25.306 | | UE Radio Access capabilities definition | | | RAN#26 | |
| 25.321 | | Medium Access Control (MAC) protocol specification | | | RAN#26 | |
| 25.331 | | Radio Resource Control (RRC) protocol specification | | | RAN#26 | |

Note: this work item is the Layer 2 and 3 Protocol Aspects part of the stage 3 of the FDD Enhanced Uplink work item.

11 Work item rapporteurs

Joakim Bergström (Ericsson)

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

3GPP TSG RAN Work Items (Active)

TSG RAN

(Ericsson, Nokia, Nortel, Vodafone Group, Motorola, Qualcomm, TeliaSonera, Alcatel, T-mobile, Lucent Technologies, Samsung, Philips, LG Electronics, NEC, Orange, Telefonica, NTT DoCoMo, and Siemens)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

FDD Enhanced Uplink

10.3 FDD Enhanced Uplink: UTRAN Iub/Iur Protocol Aspects

First distributed and approved at TSG RAN #23 as RP-040081.

Work Item Description

Title: FDD Enhanced Uplink: UTRAN Iub/Iur Protocol Aspects

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

- FDD Enhanced Uplink
- FDD Enhanced Uplink: Physical Layer
- FDD Enhanced Uplink: Layer 2 and 3 Protocol Aspects
- FDD Enhanced Uplink: RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

3 Justification

In RAN#17 a study item on “Uplink Enhancements for Dedicated Transport Channels” was approved. The aim of the study was to look at the feasibility of enhancing the uplink DCH operation and performance by several techniques in order to support services like video-clips, multimedia, e-mail, telematics, gaming, video-streaming.... The RAN study has shown that various techniques, Node-B controlled scheduling, shorter TTI and a hybrid ARQ layer in the Node-B, can enhance the uplink packet transfer performance significantly compared to Release-99/Rel-4/Rel-5.

4 Objective

The technical objective of this work item is the Enhanced Uplink functionality in UTRA, to improve the performance of uplink dedicated transport channels. The improvements should take into account backwards compatibility aspects.

- For Iur/Iub interface, the building block includes:
 - Control plane protocols
 - User plane protocols

5 Service Aspects

None

6 MMI-Aspects

3GPP TSG RAN Work Items (Active)

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|--|---|--------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.42x | Iur user plane protocols for FDD Enhanced Uplink | R3 | | RAN#25 | RAN#26 | |
| 25.43x | Iub user plane protocols for FDD Enhanced Uplink | R3 | | RAN#25 | RAN#26 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| 25.401 | | UTRAN overall description | | | RAN#26 | |
| 25.420 | | UTRAN Iur Interface: General Aspects and Principles | | | RAN#26 | |
| 25.423 | | UTRAN Iur interface Radio Network Subsystem Application Part (RNSAP) signalling | | | RAN#26 | |
| 25.430 | | UTRAN Iub Interface: General Aspects and Principles | | | RAN#26 | |
| 25.433 | | UTRAN Iub interface NBAP signalling | | | RAN#26 | |

Note: this work item is the UTRAN Iub/Iur Protocol Aspects part of the stage 3 of the FDD Enhanced Uplink work item.

11 Work item raporteurs

3GPP TSG RAN Work Items (Active)

Saso Stojanovski (Nortel)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG RAN

(Ericsson, Nokia, Nortel, Vodafone Group, Motorola, Qualcomm, TeliaSonera, Alcatel, T-mobile, Lucent Technologies, Samsung, Philips, LG Electronics, NEC, Orange, Telefonica, NTT DoCoMo, and Siemens)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

FDD Enhanced Uplink

10.4 FDD Enhanced Uplink: RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

First distributed and approved at TSG RAN #23 as RP-040081.

Work Item Description

Title: FDD Enhanced Uplink: RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

- FDD Enhanced Uplink
- FDD Enhanced Uplink: Physical Layer
- FDD Enhanced Uplink: Layer 2 and 3 Protocol Aspects
- FDD Enhanced Uplink: UTRAN Iub/Iur Protocol Aspects

3 Justification

In RAN#17 a study item on “Uplink Enhancements for Dedicated Transport Channels” was approved. The aim of the study was to look at the feasibility of enhancing the uplink DCH operation and performance by several techniques in order to support services like video-clips, multimedia, e-mail, telematics, gaming, video-streaming.... The RAN study has shown that various techniques, Node-B controlled scheduling, shorter TTI and a hybrid ARQ layer in the Node-B, can enhance the uplink packet transfer performance significantly compared to Release-99/Rel-4/Rel-5.

4 Objective

The technical objective of this work item is the Enhanced Uplink functionality in UTRA, to improve the performance of uplink dedicated transport channels. The improvements should take into account backwards compatibility aspects.

- For radio transmission and reception, the building block includes:
- UE radio transmission and reception
- Base Station radio transmission and reception
- Base Station conformance testing
- Requirements for support of Radio Resource Management

5 Service Aspects

None

3GPP TSG RAN Work Items (Active)

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|-------------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---|----------------------|---|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | R4 | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| 25.101 | | User Equipment (UE) radio transmission and reception (FDD) | | | RAN#28 | |
| 25.104 | | Base Station (BS) radio transmission and reception (FDD) | | | RAN#28 | |
| 25.133 | | Requirements for support of radio resource management (FDD) | | | RAN#28 | |
| 25.141 | | Base Station (BS) conformance testing (FDD) | | | RAN#28 | |

Note: this work item is the RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing part of the stage 3 of the FDD Enhanced Uplink work item.

11 Work item rapporteurs

Thomas Unshelm (Ericsson)

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

TSG RAN

3GPP TSG RAN Work Items (Active)

(Ericsson, Nokia, Nortel, Vodafone Group, Motorola, Qualcomm, TeliaSonera, Alcatel, T-mobile, Lucent Technologies, Samsung, Philips, LG Electronics, NEC, Orange, Telefonica, NTT DoCoMo, and Siemens)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

FDD Enhanced Uplink

**3GPP TSG RAN Meeting #24
Seoul, South Korea, 2 - 4 June 2004**

RP-040233

Title: 3GPP TSG RAN Study Item Description Sheets after meeting #23
Active SIs

Source: 3GPP support team
(26/05/2004)



Contents

| | | |
|---|---|----|
| 1 | Introduction..... | 3 |
| 2 | Radio link performance enhancements | 4 |
| 3 | UTRA Wideband Distribution Subsystems (WDS)..... | 6 |
| 4 | Analysis of OFDM for UTRAN enhancement | 9 |
| 5 | Analysis of higher chip rates for UTRA TDD evolution..... | 12 |
| 6 | Evolution of UTRAN Architecture..... | 15 |
| 7 | Uplink Enhancements for UTRA TDD | 17 |

1 Introduction

This document contains Study Item sheets in TSG-RAN (latest situation) for all approved Study Items. Those of the approved WIs are provided in a separate document, RAN_Work_Items. The description sheets for finished SIs can be found in RAN_Study_Items_History.

The following Studies were finished at TSG RAN #23:

- Uplink Enhancements for Dedicated Transport Channels. A WI following the results has been agreed.
- Low Output Powers for general purpose FDD BS. No WI follows.

The scope of the Study Item on Radio Link Performance Enhancements was revised. It was agreed that the work on TX diversity under this item should be moved to MIMO and that the Power Control Enhancements, where progress has been lacking for a number of meetings, will be removed from the study; only HSDPA enhancements remain under this SI. The Description Sheet will be revised in WG1.

No new Studies approved at TSG RAN #23.

The following Study Items had its completion date changed at TSG RAN #23:

| Study Item | Old Date | New Date |
|-------------------------------------|------------|--|
| Radio link performance enhancements | March 2004 | June 2004 |
| UTRA WideBand Distribution Systems | March 2004 | June 2004 |
| Evolution of the UTRAN architecture | March 2004 | The study will be kept on hold until RAN3 finishes MBMS work |

The table below summarizes RAN Study Items open after meeting #23:

| SI Name | Acronym | Leading WG | % | Finish Date | Status Report RP#23 |
|---|-------------------|------------|-----|----------------|---------------------|
| FS on Radio link performance enhancements | RInImp-Rlperf | R1 | 70 | June 2004 | RP-040018 |
| FS on UTRA WideBand Distribution Systems | RInImp-WDS | R4 | 60 | June 2004 | RP-040019 |
| FS for the analysis of OFDM for UTRAN enhancement | RInImp-FSOFDM | R1 | 75 | June 2004 | RP-040124 |
| FS on Uplink Enhancements for Dedicated Transport Channels | RInImp-FSUpDTrCh | R1 | 100 | March 2004 | RP-040021 |
| FS on Analysis on Higher Chip Rates for UTRA TDD evolutions | RInImp-FSVHCR TDD | R1 | 80 | June 2004 | RP-040022 |
| FS on the evolution of the UTRAN architecture | RANimp-FSEvo | R3 | 35 | March 2005 | RP-040023 |
| FS on Low Output Powers for general purpose FDD BSs | RInImp-FSLoPw | R3 | 100 | March 2004 | RP-040024 |
| FS on Uplink enhancements for UTRA TDD | RInImp-FSUpEnhTDD | R1 | 10 | September 2004 | RP-040025 |

2 Radio link performance enhancements

Last distributed as: RP-010914 (originally RP-000181rev4)

Study Item Description

Title: Radio link performance enhancements

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

After completion of Release –99, possible topics have been identified that could improve the radio link performance. In order to improve the performance it is felt necessary to continue related studies after Release –99 completion and to include possible agreed improvements to the coming UTRA releases.

4 Objective

- The purpose of this study item is to study the radio link performance enhancements for both UTRA FDD and TDD. This is a permanent study item to be repeated for every UTRA Release.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects | USIM | ME | AN | CN | Others |
|---------|------|----|----|----|--------|
| : | | | | | |

3GPP TSG RAN Study Items (Active)

| | | | | | |
|-------------------|---|---|---|---|--|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be defined on a per work task basis)
This is a generic task which will be valid for all major releases

| New specifications | | | | | | |
|--------------------|-------|----------------|--------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | WG1 | | | RAN#24 | |
| | | | | | | |

11 Work item raporteurs

Antti Toskala, Nokia Networks

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the SI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The SI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The SI is a Building Block: parent Feature

This is a building block part of the radio interface improvement feature.

14c The SI is a Work Task: parent Building Block

(one Work Item identified as a building block)

3 UTRA Wideband Distribution Subsystems (WDS)

Originally in RP-010488

Study Item Description

Title: Feasibility Study on UTRA Wideband Distribution Subsystems (WDS)

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

This study item shall assess the feasibility for a new class of equipment that would allow for improved flexibility of radio access network solutions; this is here called *Wideband Distribution Subsystem, or WDS* – and includes a generic interface to the UTRA FDD Node B. TDD applicability is possible and will also be considered as part of the feasibility study.

WDS are a capable of flexible remoting of multiple Node B's RF interface, on a possible multi-operator, multi-vendor scenario, both for indoor and outdoor applications while granting substantially compliant Node B performance.

In many cases existing 2G WDS were accepted for network integration under Operator's direct responsibility, as existing specifications were not addressable for clearly and neatly defining equipment reference specification and network integration techniques, with even more severe issues in case of a multi-operator application scenario.

4 Objective

The feasibility study should identify the WDS' requirements for interfacing to Node B and demonstrate that WDS doesn't impact negatively into radio network performances on a multioperator environment. Therefore it shall include a study on WDS RF multicarrier performances, e.g.:

Linearity

Transparency

Inter-operator Power Control and RF transmit power behaviour

Transmit characteristics

Receive characteristics

These characteristics will be identified while considering WDS as ancillary equipment on a multi-vendor Node B scenario. TDD applicability shall also be investigated and clarified.

End-to-end system performance shall also be studied to identify the application scenario for WDS.

3GPP TSG RAN Study Items (Active)

Additionally the study shall identify the requirements and the impact for a communication interface (e.g. for O&M purposes) between WDS and other network elements. RAN WG3 and SA WG5 will be involved for evaluation of any impact in O&M aspects.

Submission of initial results is planned for RAN4 #18.

5 Service Aspects

There could be service aspects to be considered, e.g. impact on LCS. The Feasibility Study should clarify this aspect.

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | O&M |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|--------------------|-------|------------------|----------------------|---|-------------------------|---------------------------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.867 | | WG4 | | | RAN#24 | TR on feasibility for WDS |
| | | | | | | |

11 Work item rapporteurs

Andrea Casini (Tekmar Sistemi)

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

TSG-RAN

14 Classification of the SI

| | |
|--|----------------------------|
| | Building Block (go to 14b) |
|--|----------------------------|

14b The SI is a Building Block: parent Feature is Radio Interface Improvement Feature

4 Analysis of OFDM for UTRAN enhancement

Distributed as RP-020672. Revised at TSG RAN #22 as RP-030724.

Study Item Description

Title: Feasibility Study for the analysis of OFDM for UTRAN enhancement

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked study items

Feasibility Study considering the viable deployment of UTRA in additional and diverse spectrum arrangements

3 Justification

As the mobile radio systems evolve and become more integrated with daily activities, there is an increasing requirement for services requiring very high bit rates and higher system capacity for such services. These include services to individuals as well as multimedia broadcast services. OFDM (Orthogonal Frequency Division Multiplexing) is one of the technologies that are proving themselves well suited to mobile radio access for high rate and multimedia services (i.e. DAB, DVB-T, 802.11a). Given the availability of this radio technology, its applicability to UTRAN and its potential to enhance UTRAN should be studied.

4 Objective

The objective of this Study Item is to study the applicability of OFDM in UTRAN and its potential to enhance UTRAN.

It should be possible to use OFDM in a 5MHz spectrum allocation. As a starting point, OFDM will be considered in the downlink only.

The use of OFDM should have minimal impact on the signalling as well as physical layer, changes be limited to those needed to support a new modulation in UTRAN.

The following list provides examples of areas that may be considered in the study:

- Throughput for data services. To be compared with throughput of current UTRAN releases
- Complexity aspects of multimode UEs supporting both OFDM and Release 99/Release 5 UMTS

Deployment scenarios, including frequency reuse aspects, within diverse spectrum allocations

The study should consider performance aspects, aspects linked to the evolution of UMTS (high level architecture, diverse spectrum arrangements and allocations), impact on signalling in UTRAN,

aspects of capacity/cost/complexity/ coverage and aspects of co-existence with the existing UTRAN releases.

The output of the study item will be a Technical Report containing an analysis of the feasibility of introducing OFDM in UTRAN and a comparison of OFDM performance with HSDPA. The analysis of OFDM performance, and its comparison with reference HSDPA performance, should be based on a basic OFDM design (referred often as textbook OFDM). Consideration of more elaborate OFDM techniques (MIMO, advanced OFDM modulations, etc) should not be considered and may be subject to later consideration.

5 Service Aspects

No

6 MMI-Aspects

No

7 Charging Aspects

No

8 Security Aspects

No

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---------------|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| TR | | RAN1WG1 | RAN WG4 | RAN 23 | RAN 24 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |

11 Work item rapporteurs

Sarah Boumendil (Nortel Networks)

12 Work item leadership

RAN WG1

13 Supporting Companies

TSG RAN
(Nortel Networks, Wavecom, France Telecom, Alcatel, Philips, Samsung)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

5 Analysis of higher chip rates for UTRA TDD evolution

Distributed as RP-020673

Study Item Description

Title: Feasibility Study for the analysis of higher chip rates for UTRA TDD evolution

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked study items

“Feasibility Study considering the viable deployment of UTRA in additional and diverse spectrum arrangements”

3 Justification

In the early standardisation of 3GPP several different chip rates were considered. These included multiples of the basic chip rate 1x, 2x and 4x or approximately 4Mcps, 8Mcps and 16Mcps. The limited amount of spectrum available in the core UMTS bands forced a choice of the lowest chip rate which ultimately became 3.84Mcps. However it was the assumption that higher chip rates would not be precluded from future releases and indeed the statement “The information presented in this section is based on a chip rate of 3.84 Mcps. NOTE: Other chip rates may be considered in future releases” is included in Section 5.1 under *Frequency bands and channel arrangement* of all Node B and UE specifications in Release 99 (25.101, 25.102, 25.104 and 25.105).

Therefore, with the imminent allocation of considerably more spectrum for 3G in bands other than the current IMT-2000 band in which systems are currently being deployed, and the demand for higher burst rates and sector throughputs for data traffic in the wide area, there is a necessity to re-examine the benefits and consequences of these higher chip rates for the 3GPP standards in this newer spectrum.

4 Objective

The study will consider higher chip rates, such as 2x the standard chip rate, 7.68Mcps.

There is an increasing requirement for additional services requiring very high bit Rates. The potential added value of introducing higher chip rate UTRA TDD should be investigated.

The following list provides examples of areas that may be considered in the study:

- Throughput for data services. To be compared with throughput of current UTRAN releases
- Support for personal, multimedia and broadcast services
- Deployment scenarios within diverse spectrum allocations

3GPP TSG RAN Study Items (Active)

- Implementation complexity for NodeB and UE

The study should consider performance aspects, aspects linked to the evolution of UMTS (high level architecture, diverse spectrum arrangements and allocations), impact on signalling in UTRAN, aspects of capacity/cost/complexity/ coverage and aspects of co-existence with the existing UTRAN releases.

The output of the study item will be a Technical Report containing an analysis of the feasibility and potential benefits of introducing higher chip rate UTRA TDD in UTRAN, and a recommendation to RAN Plenary on a potential work item time-frame and work plan.

5 Service Aspects

None/Text

6 MMI-Aspects

None/Text

7 Charging Aspects

None/Text

8 Security Aspects

None/Text

9 Impacts

| Affects : | UICC apps | ME | AN | CN | Others |
|------------|-----------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---------------|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| TR | | WG1 | WG4 | RAN#19 | RAN#25 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |

11 Work item raporteurs

3GPP TSG RAN Study Items (Active)

Tim Wilkinson (IPWireless)

12 Work item leadership

WG1

13 Supporting Companies

TSG RAN

(IPWireless Inc, Cingular Wireless LLC, Cisco Systems Europe, Vodafone Group)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

(one Work Item identified as a feature)

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

6 Evolution of UTRAN Architecture

Study Item Description

Title: Feasibility Study on the Evolution of UTRAN Architecture

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work/study items

None

3 Justification

The first step of UTRAN architecture evolution was the introduction of the IP transport in Rel-5. The next step is to study the architecture evolution for UTRAN that could lead to better transport layer utilization. The study could for example consider new of distribution of some RAN functionalities e.g. Node Bs would contain more control operation. Also potential benefits for the radio capacity may be achieved from the proposed methods due e.g. reduced delay.

4 Objective

The objective of this study item is to study UTRAN architecture evolution considering a new functional split between the nodes. It should be possible to introduce this evolved architecture together with the existing Release'99 based network elements. The study item should consider also impacts on the existing UTRAN interfaces and co-existence with the existing UTRAN architecture as well as potential benefits for the system performance, deployment and radio interface evolution.

The study item includes study on new distribution of some RAN functionalities between existing nodes e.g. between Node Bs and RNCs.

The new architecture to be considered shall be such there is no UE impacts i.e. support R99 and later radio interface.

5 Service Aspects

None/Text

6 MMI-Aspects

None/Text

7 Charging Aspects

None/Text

8 Security Aspects

None/Text

9 Impacts

3GPP TSG RAN Study Items (Active)

| Affects: | USIM | ME | AN | CN | Others |
|-------------------|-------------|-----------|-----------|-----------|---------------|
| Yes | | | X | | |
| No | X | X | | | X |
| Don't know | | | | X | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|---------------------------------|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| TR | Distributed RAN architecture | R3 | | | RAN#27 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| 25.401 | | | | | | |

11 Study item rapporteurs
Woonhee Hwang, Nokia.

12 Study item leadership
TSG-RAN WG3

13 Supporting Companies
TSG RAN
(Nokia, H3G, NEC, T-Mobil, Sonera, mmO2, Siemens)

14 Classification of the SI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14 The SI is a Work Task: parent Building Block

UTRAN Improvement Feature

7 Uplink Enhancements for UTRA TDD

Approved at TSG RAN #20 as RP-030359

Study Item Description

Title: Feasibility Study on Uplink Enhancements for UTRA TDD

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

With the growth in IP based services, there is a burgeoning requirement for increasing the coverage and throughput and reducing the delay of the uplink. Applications that could benefit from an enhanced uplink include web browsing, video clips, multimedia messaging and other IP based applications. This study item proposes to investigate enhancements that can be applied to UTRA in order to improve the performance for uplink dedicated and shared transport channels.

4 Objective

It is proposed that the study should include, but not be restricted to the following topics related to uplink enhancements for UTRA TDD to enhance uplink performance in general or to enhance the uplink performance for background, interactive and streaming based traffic:

- Adaptive modulation and coding
- Hybrid ARQ
- Node B controlled scheduling
- Fast allocation of dedicated and/or shared resources
- Enhancements to uplink dedicated channels
- Enhancements to uplink shared channels
- Physical layer and higher layer signalling mechanisms to support the enhancements

5 Service Aspects

None – better support of existing services

6 MMI-Aspects

None

7 Charging Aspects

None – uses existing charging schemes

8 Security Aspects

None

9 Impacts

| Affects : | UICC apps | ME | AN | CN | Others |
|------------|-----------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------------------------|---------------|-------------------|---------------------------------------|----------------------|----------------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| TR | TDD Uplink enhancements | R1 | R2,R3,R4 | | RAN#25 | New study item |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| | | | | | | |

The technical report should present the results of the study and make a recommendation for which techniques should be incorporated into current and future releases of the standard. The report should also detail the work items descriptions necessary to continue this work.

11 Work item rapporteurs

[TBA]

12 Work item leadership

RAN WG1

13 Supporting Companies

TSG RAN (IPWireless, InterDigital, Alcatel, Samsung, 3)

14 Classification of the WI (if known)

3GPP TSG RAN Study Items (Active)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

(one Work Item identified as a feature)

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

Title: 3GPP TSG RAN Study Item Description Sheets after meeting #23
Concluded Studies

Source: 3GPP support team
(26/05/2004)



Contents

| | | |
|----|--|----|
| 1 | Introduction..... | 3 |
| 2 | High speed downlink packet access..... | 4 |
| 3 | Uplink Synchronous Transmission Scheme | 7 |
| 4 | Feasibility Study of UE antenna efficiency test methods performance requirements | 10 |
| 5 | Improvement of Radio Resource Management across RNS and RNS/BSS..... | 12 |
| 6 | Mitigating the Effect of CPICH Interference at the UE..... | 14 |
| 7 | Re-introduction of the downlink SIR measurement | 17 |
| 8 | SRNS Relocation Procedure Enhancement | 20 |
| 9 | Introduction of direct transport bearers between SRNC and Node-B | 22 |
| 10 | Feasibility study of UE antenna efficiency test methods performance requirements (2) | 24 |
| 11 | Fast Cell Selection (FCS) for HS-DSCH..... | 26 |
| 12 | Viable deployment of UTRA in additional and diverse spectrum arrangements | 29 |
| 13 | Early UE handling in UTRAN..... | 32 |
| 14 | Improvement of inter-frequency and inter-system measurements for 1.28 Mcps TDD..... | 34 |
| 15 | Enhancements to OTDOA Positioning using advanced blanking methods..... | 37 |
| 16 | Improved Access to UE Measurement Data for CRNC to support TDD RRM | 40 |
| 17 | Uplink Enhancements for Dedicated Transport Channels..... | 43 |
| 18 | Low Output Powers for general purpose FDD BS | 46 |

1 Introduction

This document contains Study Item sheets in TSG-RAN for all approved Study Items that have been finished. The WI sheets of the approved and finished WIs are provided in a separate document, RAN_Work_Items_History. The SI sheets for active SIs can be found in RAN_Study_Items.

The following studies were finished at TSG RAN #23 and are included in this file for the first time:

- Uplink Enhancements for Dedicated Transport Channels. A WI following the results has been agreed.
- Low Output Powers for general purpose FDD BS. No WI follows.

2 High speed downlink packet access

Last distributed as: RAN_Study_Items_after_RAN_9 (originally RP-000032)

Study Item Description

Title: High Speed Downlink Packet Access

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 **Linked work items**

None

3 **Justification**

This work item proposes to study enhancements that can be applied to UTRA in order to provide very high speed downlink packet access. It's aim is to identify a long term evolution path for the UTRA air interface.

4 **Objective**

It is proposed that the study should include, but not be restricted to, the following topics:

- Adaptive modulation and coding schemes
- Hybrid ARQ protocols
- Position of the scheduling function within UTRAN
- Other advanced techniques

[note: Technical details of one proposal can be found in TDoc 126]

5 **Service Aspects**

Probably none– better support of existing packet data services

6 **MMI-Aspects**

None

7 **Charging Aspects**

None– uses existing packet data charging schemes

8 **Security Aspects**

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|---|------------------|----------------------|---|-------------------------|----------------------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| TR | Evaluation of High Speed Downlink Packet Data Service | R2 | R1, R3, R4 | RAN #10 | RAN #11 | New technical report |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

The technical report should present the results of the study and make a recommendation for which techniques should be incorporated into future releases of the standard. The report should also detail the work items descriptions necessary to continue this work.

11 Work item raporteurs

Amitava Ghosh, Motorola

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|--|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| | Work Task (go to 14c) |

3GPP TSG RAN Study Items (History)

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

(one Work Item identified as a feature)

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

3 Uplink Synchronous Transmission Scheme

Last distributed as: RP-010914 (originally RP-000291)

Study Item Description

Title: Uplink Synchronous Transmission Scheme (USTS)

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

USTS is expected to provide good capacity in the uplink with low overhead and minimal impact on hardware and software resources at UE and in the UTRAN.

4 Objective

The purpose of this work item is to increase the uplink capacity by means of making a cell receive orthogonalized signals from UEs.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |

| | | | | | |
|-------------------|--|--|--|--|--|
| Don't know | | | | | |
|-------------------|--|--|--|--|--|

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|-------|--|----------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| 25.854 | USTS | WG1 | | RAN #12 | RAN #14 | |
| 25.839 | USTS | WG3 | | RAN #12 | RAN #14 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | Approved at plenary# | | Comments | |
| 25.211 | | Physical channels and mapping of transport channels onto physical channels (FDD) | RAN #14 | | | |
| 25.213 | | Spreading and modulation (FDD) | RAN #14 | | | |
| 25.214 | | FDD : Physical layer procedures | RAN #14 | | | |
| 25.331 | | Radio Resource Control (RRC) Protocol Specification | RAN #14 | | | |
| 25.413 | | UTRAN Iu Interface RANAP Signalling | RAN #14 | | | |
| 25.423 | | UTRAN Iur Interface RNSAP Signalling | RAN #14 | | | |
| 25.433 | | UTRAN Iub Interface NBAP Signalling | RAN #14 | | | |

11 Work item raporteurs

Duk Kyung Kim (kdk@sktelecom.com)

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature
(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

This is a building block part of the radio interface improvement feature.

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

4 Feasibility Study of UE antenna efficiency test methods performance requirements

Last distributed as: RAN_Study_Items_after_RAN_9 (originally in RP-000468 as R4-000732)

Study Item Description

Title: Feasibility study of UE antenna efficiency test methods performance requirements

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

This is parented to the RAN improvement feature.

3 Justification

Antenna performance of the UE is very critical to the operation of the network. RAN WG4 had agreed that this should be performed in future releases of its specifications.

4 Objective

To perform a feasibility study on antenna test methods to be used for evaluating the efficiency of UE antenna. The feasibility study will also consider different requirements on different UE types.

5 Proposed building blocks and work tasks:

6 **Service Aspects**
None

7 **MMI-Aspects**
None

8 **Charging Aspects**
None

9 **Security Aspects**
None

10 Impacts

| Affects | SIM | ME | AN | CN | Others |
|---------|-----|----|----|----|--------|
| : | | | | | |

3GPP TSG RAN Study Items (History)

| | | | | | |
|-------------------|---|---|---|---|--|
| Yes | | X | | | |
| No | X | | X | X | |
| Don't know | | | | | |

11 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|-------------------------------|----------------|--------------------|-----------------------------------|-----------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for information at RAN# | Approved at RAN | Comments |
| | TR on UE antenna test methods | | | | RAN #12 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | Approved at RAN#12 | | Comments | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

12 Work item rapporteur

Olle Edvardsson, Allgon

13 Work item leadership

TSG-RAN WG4

14 Supporting Companies

TSG-RAN

15 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 15a) |
| | Building Block (go to 15b) |
| X | Work Task (go to 15c) |

15c The WI is a Work Task: parent Feature: Radio interface improvement feature

5 Improvement of Radio Resource Management across RNS and RNS/BSS

Last distributed as: RP-010480

Study Item Description

Title: Study Item Description for an Improvement of RRM across RNS and RNS/BSS

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None identified.

3 Justification

At the 3GPP UTRAN Evolution workshop, held in Helsinki, it was agreed to go forward with studies in the area of Multiradio support. To allow an easier load sharing and better quality of service management across RNS and RNS/BSS, a proper method should be studied.

4 Objective

The objective of this study item is to work out the functional grouping and the interface aspects in order to provide efficient resource management across RNS and RNS/BSS. The method which allows efficient resource management across RNS and RNS/BSS shall not affect UE/MS.

If there is a need to define new interface, then the possible interface shall be open.

The objective is also to look into the aspects between GERAN and UTRAN for this feature.

5 Service Aspects

None identified.

6 MMI-Aspects

None identified.

7 Charging Aspects

None identified.

8 Security Aspects

None identified.

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

This is a Release 5 Study Item

| New specifications | | | | | | |
|----------------------------------|--|---------------|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| 25.881 | Study Item Description for Improvement of RRM across RNS and RNS/BSS | RAN3 | RAN2 | RAN #13 | RAN #14 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11 Study item rapporteurs

Antti Toskala, Nokia, Helsinki, Finland

12 Study item leadership

RAN 3

13 Supporting Companies

Nokia, Orange PCS Ltd, Siemens, Vodafone Group,

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: Parent Feature: RAN Improvement

6 Mitigating the Effect of CPICH Interference at the UE

Last distributed as: RAN_Study_Items_after_RAN_14 (originally in RP-010431)

Study Item Description

Title: Mitigating the Effect of CPICH Interference at the UE

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

Because the CPICH is typically allocated a significant portion of the total Node-B transmit power, the interference impact of the CPICH is particularly strong. On the other hand, the information content and structure of the CPICH channels are completely known a priori at the receiver, which can considerably simplify efforts to mitigate the CPICH interference effect. Mitigating the effect of CPICH interference at the UE may significantly improve UE performance requirements and increase radio network capacity.

4 Objective

The objectives of this study are the verification of the benefits of this feature through additional simulation studies, and further evaluation of complexity issues. Depending on the results of this study, recommendations will be made as to whether to establish a 3GPP Work Item in order to incorporate this feature into the 3GPP standard. This would ultimately involve the establishment of appropriate test scenarios and procedures, as well as the derivation of improved UE performance requirements through physical layer simulations.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | X | | | |
| No | X | | X | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.991 | | R4 | | RAN#14 | RAN#15 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| 25.101 | | UE Radio transmission and reception (FDD) | | RAN #15 | | |
| 34.121 | | Terminal Conformance Specification, Radio Transmission and Reception | | T #15 | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11 Work item raporteurs

Shimon Moshavi, Intel (Shimon.Moshavi@intel.com)

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

Cingular, T-Mobil, Telecom Italia, AWS, Omnitel/Vodafone, Lucent, Intel

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

3GPP TSG RAN Study Items (History)

14a The WI is a Feature: List of building blocks under this feature
(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature
Improvements of Radio Interface

14c The WI is a Work Task: parent Building Block
(one Work Item identified as a building block)

7 Re-introduction of the downlink SIR measurement

Last distributed as: RAN_Study_Items_after_RAN_13 (originally in RP-010434)

Study Item Description

Title: Introduction of SIR measurement

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

The SIR measurement is recognised to be a valuable tool to an operator, since it provides the ability to obtain an indication of intercell interference and hence coverage from subscriber UEs while in call within a network. This is a useful measure when trying to optimise the capacity and coverage of the cells.

4 Objective

The purpose of the study is to:

- elaborate the purposes of the SIR measurement,
- set performance requirements to meet those purposes,
- identify possible techniques to meet those requirements, including techniques that might already be used for other purposes,
- identify reporting procedures and signalling, and
- alignment with the O&M procedures.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | RAN#14 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.133 | | | | | | |
| 25.123 | | | | | | |
| 25.215 | | | | | | |
| 25.225 | | | | | | |
| 25.331 | | | | | | |
| 25.302 | | | | | | |

11 Work item rapporteurs

Torgny Palenius, Ericsson

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

Telecom Italia, Blu, Ericsson, Mobilkom Austria, One2One, Telefonica

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

3GPP TSG RAN Study Items (History)

14b The WI is a Building Block: parent Feature

RAN improvements

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

8 SRNS Relocation Procedure Enhancement

Originally in RP-010490

Study Item Description

Title: SRNS Relocation Procedure Enhancement

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

SRNS relocation is used to move the control of a UE connection from a source (old serving) RNC to a target (new serving) RNC. This means that both control and user plane are moved to the target (new serving) RNC.

The current SRNS relocation procedure requires that the Drift RNC maintains all the radio links prior to it becoming the target RNC. In addition it does not support the relocation of a UE to a Drift RNC when another Drift RNC is involved or when previous SRNC is involved. The Iu-r, while the relocation is taking place, is not allowed to establish connections from the new SRNC to the previously existing DRNCs or to the previous SRNC.

Both of these relocation scenarios are included in TR 25.832 Manifestations for Handover and SRNS Relocation (section 5.2.2), but are marked as unsupported by R99 procedures.

4 Objective

The purpose of this Study Item is to identify which enhancements could be made to the SRNS relocation procedure to remove some of the limitations applicable in release 99 and R4.

5 Service Aspects

None/Text

6 MMI-Aspects

None/Text

7 Charging Aspects

None/Text

8 Security Aspects

None/Text

9 Impacts

The Core Network part of Iu signalling (RANAP) is not affected by the changes implied in this Working Item.

| Affects: | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | | X |
| Don't know | | | | x | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|-------|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| TR | | R3 | | | RAN#17 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11 Work item raporteurs
Olivier Guyot, Nokia.

12 Work item leadership
TSG-RAN WG3

13 Supporting Companies
TSG-RAN

14 Classification of the SI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The SI is a Feature: List of building blocks under this feature

14b The SI is a Building Block: parent Feature

14c The SI is a Work Task: parent Building Block

UTRAN Improvement Feature

9 Introduction of direct transport bearers between SRNC and Node-B

Last distributed as: RAN_Study_Items_after_RAN_15 (originally in RP-010492)

Study Item Description

Title: Introduction of direct transport bearers between SRNC and Node-B; removing the artificial limitation present in the Rel99/Rel4 specifications.

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

SRNS relocation enhancement

3 Justification

Increased efficiency of the UTRAN and the quality of service to the end user.

4 Objective

In Rel99/Rel4, all Iub/Iur transport bearers used for the transport of Dedicated Transport Channels need to be terminated at the DRNC. However when accepting certain limitations, there is no reason why these transport bearers should not go directly from SRNC to Node-B.

Going directly from SRNC to Node-B has some obvious benefits like decreasing the processing required by the DRNC and decreasing the delay of UTRAN internal transport.

This objective with this study is to identify consequences resulting from removal of the artificial limitation which currently requires transport bearers to be terminated at the DRNC.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|------------------|-----------------------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2 nd ary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | WG3 | | | RAN #16 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |

11 Work item rapporteurs

Risto Sepponen (Ericsson)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the SI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14c The SI is a Work Task: parent Building Block

RRM optimizations for Iur and Iub

10 Feasibility study of UE antenna efficiency test methods performance requirements (2)

Study Item Description

Title: Feasibility study of UE antenna efficiency test methods performance requirements (2)

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

This is parented to the RAN improvement feature.

3 Justification

Antenna performance of the UE is very critical to the operation of the network. RAN WG4 had agreed that this should be performed in future releases of its specifications.

4 Objective

To perform a feasibility study on antenna test methods to be used for evaluating the efficiency of UE antenna. The feasibility study will also consider different requirements on different UE types.

5 Proposed building blocks and work tasks:

6 Service Aspects
None

7 MMI-Aspects
None

8 Charging Aspects
None

9 Security Aspects
None

10 Impacts

| Affects | SIM | ME | AN | CN | Others |
|---------|-----|----|----|----|--------|
| : | | | | | |

3GPP TSG RAN Study Items (History)

| | | | | | |
|-------------------|---|---|---|---|--|
| Yes | | X | | | |
| No | X | | X | X | |
| Don't know | | | | | |

11 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|-------------------------------|----------------|--------------------|-----------------------------------|-----------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for information at RAN# | Approved at RAN | Comments |
| | TR on UE antenna test methods | | | | RAN #18 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | Approved at RAN | | Comments | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

12 Work item rapporteur

Alf Ahlström, Allgon

13 Work item leadership

TSG-RAN WG4

14 Supporting Companies

TSG-RAN

15 Classification of the SI (if known)

| | |
|---|----------------------------|
| | Feature (go to 15a) |
| | Building Block (go to 15b) |
| X | Work Task (go to 15c) |

15c The SI is a Work Task: parent Feature: Radio interface improvement feature

11 Fast Cell Selection (FCS) for HS-DSCH

Originally in RP-010227

Closed at TSG RAN #19 due to the lack of progress and upon rapporteur's request. Last Status Report in RP-030154.

Study Item Description

Title: Fast Cell Selection (FCS) for HS-DSCH

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

In RAN#7 a study item on High Speed Downlink Packet Access was approved for consideration. FCS was one of the features for HS-DSCH. However, RAN1 recommended that both intra and inter Node-B FCS should be studied further during Release#5 HSDPA work so that it can be a part of Release-6 specification.

4 Objective

Initial simulation studies on HSDPA indicate that FCS provides some benefit in average throughput in certain cases. However, the results were not conclusive. As such, a FCS study item is proposed for Rel-5 so that its benefits w.r.t HSDPA can be fully evaluated. The following analysis should be part of the study item on FCS:

1. Investigate the benefits of FCS with full motion simulator instead of the quasi-motion simulator (users experience Rayleigh faded but do not move) as used in the previous study.
2. Model integrated voice and data, different traffic models (web browsing, WAP, video streaming etc.) and TCP/IP in the system simulator.
3. Model the handoff process in the system simulator.

5 Service Aspects

Probably none– better support of existing packet data services

6 MMI-Aspects

None

7 Charging Aspects

None– uses existing packet data charging schemes

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|----------------------------------|------------------|----------------------|---|-------------------------|----------------------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| TR | Evaluation of FCS for HS-DSCH | R1 | R2, R3, R4 | RAN #19 | RAN #20 | New technical report |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

The technical report should present the results of the study and make a recommendation for which techniques should be incorporated into future releases of the standard. The report should also detail the work items descriptions necessary to continue this work.

11 Work item rapporteurs

Rizwan Hassan, Lucent

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the SI (if known)

| | |
|--|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |

| | |
|--|-----------------------|
| | Work Task (go to 14c) |
|--|-----------------------|

14a The SI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The SI is a Building Block: parent Feature

(one Work Item identified as a feature)

14c The SI is a Work Task: parent Building Block

(one Work Item identified as a building block)

12 Viable deployment of UTRA in additional and diverse spectrum arrangements

Originally in RP-010718.

Study Item Description

Title: Feasibility Study considering the viable deployment of UTRA in additional and diverse spectrum arrangements

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

The present 3GPP specifications cover the IMT-2000 2 GHz band (Band I and II), in accordance with ITU-R Radio Regulations Article S5 Footnote S5.388, in R99 and Rel4 and the work is continuing with the UMTS1900 Band II improvements and UMTS 1800 Band III.

ITU-R WRC-2000 identified additional extension bands for IMT-2000 that requires further studies for the subsequent future deployment of UTRA in the whole or parts of the bands as indicated below:

- 806 – 960 MHz (The whole band 806 – 960 MHz is not identified on a global basis for IMT-2000 due to variation in the primary Mobile Service allocation across the three ITU Regions)
- 1710 – 1885 MHz, where the work is progressing under UMTS1800 SI.
- 2500 – 2690 MHz (In ITU Region 1 the bands 2500 – 2520 MHz and 2670 – 2690 MHz is also allocated on a co-primary basis to the Mobile Satellite Service subject to market demand)

4 Objective

The viable deployment of UTRA in additional and diverse spectrum arrangements should be assessed, including

- Duplex spacing arrangements other than for Bands I, II and III.
- Arbitrary selectable or variable duplex spacing methods
- Use of asymmetric spectrum arrangements considering the need for additional downlink traffic capacity
- Terminal capabilities and signalling
- Possible interface impacts

The work will result in a technical report.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|--------------------|--|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.889 | FS considering the viable deployment of UTRA in additional and diverse spectrum arrangements | RAN4 | RAN2 RAN3 | RAN #16 | RAN #20 | |
| | | | | | | |

11 Work item rapporteurs

Thomas Unshelm, Ericsson

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

TSG-RAN

14 Classification of the SI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |

| | |
|--|-----------------------|
| | Work Task (go to 14c) |
|--|-----------------------|

14b The SI is a Building Block: parent Feature

Radio Interface Improvement Feature

13 Early UE handling in UTRAN

Study Item Description

Title: Feasibility Study on the early UE handling in UTRAN

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked study items

SA WI on Early UE handling?
 CN SI on early UE handling?
 GERAN SI on early UE handling?

3 Justification

The stimulus for the work is the concern that mobiles are unable to be fully tested against all of the features (or combinations of features) in the R'99 standard. Hence when one of the un-tested features is "switched on" in a network, there is a risk that some mobiles will not work with this feature (or particular combination of features). Hence, Operators are keen that methods are available that provide the ability to handle these early mobiles in a smooth manner.

4 Objective

The objective of this Study Item is to study the UTRAN impacts and merits of handling indications regarding UE maturity.

The candidates, as a complement to the new TR (equivalent to 09.94), were:

- 1) Hooks included into some early RRC messages; hook may be IMEI-SV, derived from IMEI-SV, or other indication
- 2) Extension mechanism to the RRC messages allowing rel-99 corrections, when rel-4 changes needs to be backwards compatible.
- 3) IMEI-SV solution to the CN, with an indication to the RAN; indication may be derived from IMEI-SV or may be IMEI-SV itself.

In order that the relative merits of these methods can be studied, it is required that outstanding issues with their handling are resolved.

5 Service Aspects

No

6 MMI-Aspects

No

7 Charging Aspects

No

8 Security Aspects

No

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | X | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-----------------------------------|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| TR | SI on Early UE handling in RAN | RAN WG2 | RAN WG3 | 18 | 20 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11 Work item raporteurs

Alan Law (Vodafone Ltd)

12 Work item leadership

RAN WG2

13 Supporting Companies

TSG RAN
(Vodafone Group, Nortel, Nokia, Ericsson, Siemens)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14c The WI is a Work Task: parent Building Block
Early UE handling (SA2)

14 Improvement of inter-frequency and inter-system measurements for 1.28 Mcps TDD

Originally in RP-010929. Closed at RAN #21, last Status Report in RP-030397.

Study Item Description

Title: Improvement of inter-frequency and inter-system measurements for 1.28 Mcps TDD.

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

In the case of 1.28Mcps TDD, some idle time slots due to discontinuous transmission can be used for monitoring GSM, FDD and 3.84 Mcps TDD as compressed mode in FDD mode. However, the current Rel-4 specification may not reserve enough time for each inter-system measurement. This may cause the relatively long measurement time and may result in the increase of terminal power consumption or a call drop in case that UE is located at handover region.

A candidate for some improvement can be as follows:

- Enlarging the measurement window for inter-system measurement.
- Change the location of measurement window for inter-system measurement.

4 Objective

The purpose of this study item is to provide the enlarged measurement window and the change of the location of measurement window in 1.28 Mcps TDD for improved system performance.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects: | USIM | ME | AN | CN | Others |
|-------------------|-------------|-----------|-----------|-----------|---------------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|--|----------------|--------------------|--------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for informationat plenary# | Approved at plenary# | Comments |
| TR 25.XXX | | WG1 | | RAN #17 | RAN #21 | |
| Affected existing specifications | | | | | | |
| Spec No. | Subject | | | Approved at plenary# | Comments | |
| 25.222 | Multiplexing and channel coding(TDD) | | | | | |
| 25.224 | Physical Layer Procedures (TDD) | | | | | |
| 25.331 | RRC Protocol Specification | | | | | |
| 25.423 | UTRAN Iur Interface RNSAP Signalling | | | | | |
| 25.433 | UTRAN Iub Interface NBAP Signalling | | | | | |
| 25.123 | Requirements for Support of Radio Mesource Management (TDD) | | | | | |

11 Study item raporteurs

Li Xiao Qiang, SAMSUNG

12 Study item leadership

TSG-RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the SI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The SI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

3GPP TSG RAN Study Items (History)

14b The SI is a part of the radio interface improvement features.

14c The SI is a Work Task: parent Building Block

(one Work Item identified as a building block)

15 Enhancements to OTDOA Positioning using advanced blanking methods

Last distributed as: RP-020453. Closed at RAN #21, last Status Report in RP-030403.

Study Item Description

Title: Enhancements to OTDOA Positioning using advanced blanking methods

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None.

3 Justification

Currently OTDOA and optionally IPDL are the supported OTD (Observed Time Difference) methods for UE positioning. The use of CDMA in the RAN introduces the problem of hearability, whereby a UE is unable to measure a distant Node B due to interference from a nearby Node B. To compute a position it is necessary to receive and measure signals from at least 3 geographically distinct Node Bs, although in practise it is necessary to receive many more than this if reliable and robust positioning is to be achieved in the presence of multipath.

Location Based Services are gaining momentum spurred on by requirements such as the FCC's E-911 directive. Phase 2 of this directive requires the UE to be located within 50m 67% of the time and within 150m 95% of the time. Any UE positioning technology adopted by RAN will need to meet this accuracy requirement.

IPDL was introduced to RAN in 1999 and the work on standardising it is now nearing completion. Several documents analysing the performance of IPDL have been presented to RAN4 recently. These indicate that it is probably able to meet the E-911 requirements, although it is likely to be some time before supporting field test results are available to verify its performance. Since IPDL's introduction three years ago considerable experience with the performance on E-OTD for GSM has been gathered and new Observed Time Difference techniques and methods have been developed.

In particular new software based approaches using interference cancellation algorithms have emerged. These promise much better performance than traditional IPDL without the need to physically blank the downlink transmission. Being based on software signal processing methods they enable multiple Node Bs to be "blanked" and this results in a dramatic improvement to the positioning accuracy and robustness.

These methods should be studied as they have the following main benefits:-

- Improved performance, compliant with E-911 phase 2,

3GPP TSG RAN Study Items (History)

- No effect upon existing or legacy UEs, or downlink capacity
- Algorithmic enhancements can be made in the network without affecting already deployed UEs.

4 **Objective**

The objectives of this Study Item are as follows:

- To evaluate the performance of new interference cancellation techniques in comparison to IPDL for UE positioning using downlink OTDOA methods,
- To identify the requirements and format of measurements that would be needed to support these algorithms, specifically avoiding specifying one particular algorithm,
- To identify signalling requirements and message formats.

5 **Service Aspects**

None

6 **MMI-Aspects**

None

7 **Charging Aspects**

None

8 **Security Aspects**

None

9 **Impacts**

| Affects : | USIM | ME | AN | CN | Others |
|-----------------------|-------------|-----------|-----------|-----------|---------------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | X |

Note: Impact on the UE is only in so far as a UE implementing the methods will require support for the new measurements and signalling. UEs that do not implement the proposed methods are expected to be completely unaffected, irrespective of whether the network supports the methods or not.

10 Expected Output and Time scale (to be updated at each plenary)

| New Technical Reports | | | | | | |
|----------------------------------|--|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| TR | Enhancements to OTDOA positioning using advanced blanking techniques. | R2 | R1 | RAN#18 | RAN#19 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |

11 Work item rapporteurs

David Bartlett, Cambridge Positioning Systems.

12 Work item leadership

TSG-RAN WG2 supported by WG1
Review by WG3 and WG4.

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

UE Positioning Enhancements.

16 Improved Access to UE Measurement Data for CRNC to support TDD RRM

Approved at TSG RAN #18 as RP-020901. Closed at RAN #21, last Status Report in RP-030402

Study Item Description

Title: Improved Access to UE Measurement Data for CRNC to support TDD RRM.

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked study items

None

3 Justification

The Controlling RNC (CRNC) is a critical element of the Radio Resource Management (RRM) function. In TDD the CRNC is responsible for Dynamic Channel Allocation (DCA). In order to effectively perform DCA, the CRNC needs access to measurements that characterize interference and path loss on both a cell and time slot basis.

Currently the Serving RNC (SRNC) requests and receives UE specific measurements. In the case that the SRNC and CRNC are not collocated, the CRNC will be unable to access these critical measurement data, even though they are inherently available to the network.

It is desirable for the CRNC to have access to UE related measurements such as:

- Downlink CCPCH RSCP
- UE TX power
- DL ISCP

The current Iur interface allows the SRNC to forward some UE related measurements in certain scenarios (e.g. DL ISCP data to support Downlink Power Control). However, there is no mechanism to allow the CRNC to request this information according to its own needs.

To better implement DCA, especially for multi-vendor configurations, it may be beneficial to provide the CRNC with a means to initiate the transfer of UE measurement data, rather than be limited by the scheduling dictated by the SRNC.

4 Objective

The objective of this Study Item is to study the need for CRNC access to UE measurements for TDD DCA and the methods to be used to allow the CRNC to receive those measurements. The CRNC may gain access to the measurements through:

- New procedures for the Iur to support transfer of UE measurement information from the SRNC to the CRNC.

3GPP TSG RAN Study Items (History)

- New procedures for permitting the CRNC to request measurements directly from the UE.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|-------------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|---|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| TR 25.xyz | Improved Access to UE Measurement Data for CRNC to support TDD RRM | WG3 | | RAN#20 | RAN#20 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11 Study item rapporteurs

Jim Miller, InterDigital

12 Study item leadership

TSG-RAN WG3

13 Supporting Companies

TSG RAN (InterDigital, Siemens, Samsung, CATT)

14 Classification of the SI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The SI is a Feature: List of building blocks under this feature
(list of Work Items identified as building blocks)

14b The SI is a Building Block: parent Feature

14c The SI is a Work Task: parent Building Block
RRM optimizations for Iur and Iub

17 Uplink Enhancements for Dedicated Transport Channels

Distributed as RP-020658

Study finished at TSG RAN #23 March 2004

Study Item Description

Title: Feasibility Study on Uplink Enhancements for Dedicated Transport Channels

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked study items

None

3 Justification

As the use of IP based services becomes more important there is an increasing requirement to improve the coverage and throughput as well as reduce the delay of the uplink. Applications that could benefit from an enhanced uplink may include services like video-clips, multimedia, e-mail, telematics, gaming, video-streaming etc. This study item proposes to investigate enhancements that can be applied to UTRA in order to improve the performance on uplink dedicated transport channels.

4 Objective

It is proposed that the study should include, but not be restricted to, the following topics related to enhanced uplink for UTRA FDD to enhance uplink performance in general or to enhance the uplink performance for background, interactive and streaming based traffic:

- Adaptive modulation and coding schemes
- Hybrid ARQ protocols
- Node B controlled scheduling
- Physical layer or higher layer signalling mechanisms to support the enhancements
- Fast DCH setup
- Shorter frame size and improved QoS

5 Service Aspects

None– better support of existing services

6 MMI-Aspects

None

7 Charging Aspects

None– uses existing charging schemes

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|---------------------------------|------------------|----------------------|---|-------------------------|----------------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| TR | Enhanced Uplink for UTRA FDD | R1 | R2, R3, R4 | | RAN#23 | New study item |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |

The technical report should present the results of the study and make a recommendation for which techniques should be incorporated into current and future releases of the standard. The report should also detail the work items descriptions necessary to continue this work.

11 Study item rapporteur

Karri Ranta-aho, Nokia

12 Study item leadership

RAN WG1

13 Supporting Companies

TSG RAN
(Motorola, Ericsson, Nokia, AT&T Wireless Services)

14 Classification of the SI (if known)

| |
|---------------------|
| Feature (go to 14a) |
|---------------------|

3GPP TSG RAN Study Items (History)

| | |
|--|----------------------------|
| | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The SI is a Feature: List of building blocks under this feature

(list of Study Items identified as building blocks)

14b The SI is a Building Block: parent Feature

(one Study Item identified as a feature)

14c The SI is a Work Task: parent Building Block

(one Study Item identified as a building block)

18 Low Output Powers for general purpose FDD BS

Approved at TSG RAN #19 as RP-030198

Finished at TSG RAN#23 March 2004

Study Item Description

Title: Low Output Powers for general purpose FDD BSs

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

Many companies have shown interest in the feasibility of a low output power FDD Base Station and the possibilities it offers, e.g.:

1. the flexibility in radio network deployment, which should be one of the characteristics of a 3G system,
2. it is not necessary to attenuate a high power signal before feeding an active external distribution system (lower power consumption, positive environmental effects),
3. it facilitates the sharing of the infrastructure among operators, especially in locations where it is difficult to find sites, or where operators are forced by regulators to share the infrastructures,
4. it allows the placement of one or several base stations in a centralised position with separate RF power amplifiers distributed closer to the subscriber positions, thus reducing interference while meeting the unwanted emissions requirements.
5. by placing the base stations at one location, less supporting infrastructure is required and maintenance is simplified.

4 Objective

The study item shall identify the application scenarios and the relevant parameters that best characterise this low output power FDD Base Station, for instance the range of output powers to be considered (eg. -15 to 10 dBm). It shall identify the changes needed in the specifications to permit this low output power FDD Base Station, taking into account the document RP-030194, and other contributions.

Submission of initial results is planned for RAN4 #27 and RAN3#36

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|----------|
| Yes | | | X | | O&M, RRM |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|------------------------------|---------------|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| TR xx.yyy. | Low Output Powers for FDD BS | WG4 | WG3 | | RAN#23 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| | | | | | | |

The conclusion of the study item is planned for RAN #23.

11 Work item rapporteurs

Ana Burgos & José Alberto Martín (Telefónica)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG RAN
(Tekmar Sistemi, Telefónica, TDF, Mikom, Marconi)

14 Classification of the SI

| | |
|--|----------------------------|
| | Building Block (go to 14b) |
|--|----------------------------|

14b The SI is a Building Block: parent Feature is Radio Interface Improvement Feature

**3GPP TSG RAN Meeting #24
Seoul, South Korea, 2 - 4 June 2004**

RP-040233

Title: 3GPP TSG RAN Work Item Description Sheets after meeting #23
Concluded WIs

Source: 3GPP support team
(26/04/2004)



Contents

| | | |
|---------|---|-----|
| 1 | Introduction..... | 4 |
| 2 | Release 4 | 7 |
| 2.1 | Low chip rate TDD option..... | 7 |
| 2.1.1 | Low chip rate TDD physical layer..... | 10 |
| 2.1.2 | Low chip rate TDD layer 2 and layer 3 protocol aspects | 13 |
| 2.1.3 | Low Chip Rate TDD UE radio access Capability | 16 |
| 2.1.4 | Low chip rate TDD UTRAN network Iub/Iur protocol aspects | 18 |
| 2.1.5 | Low Chip Rate TDD RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing..... | 21 |
| 2.2 | Transcoder Free Operation | 24 |
| 2.2.1 | Out of band Transcoder Control | 24 |
| 2.2.1.1 | Transcoder Free Operations in UTRAN..... | 24 |
| 2.3 | UMTS QoS Architecture for PS Domain | 27 |
| 2.3.1 | RAB Quality of Service Negotiation/Renegotiation over Iu | 27 |
| 2.3.1.1 | RAB Quality of Service Negotiation over Iu..... | 30 |
| 2.3.1.2 | RAB Quality of Service Renegotiation over Iu | 32 |
| 2.3.1.3 | RAB Quality of Service Negotiation over Iu during relocation | 34 |
| 2.3.2 | PS-Domain handover for real-time services | 36 |
| 2.4 | Rel-4 Evolution of the transport in UTRAN | 39 |
| 2.4.1 | QoS optimization for AAL type 2 connections over Iub and Iur interfaces..... | 39 |
| 2.4.2 | Transport bearer modification procedure on Iub, Iur, and Iu | 43 |
| 2.5 | Rel-4 Improvements of the Radio interface..... | 46 |
| 2.5.1 | UTRA FDD Repeater Specification | 46 |
| 2.5.2 | DSCH power control improvement in soft handover | 49 |
| 2.5.3 | UMTS 1800 | 51 |
| 2.5.4 | UMTS 1900 | 53 |
| 2.6 | Rel-4 RAN improvements | 56 |
| 2.6.1 | RAB support enhancements..... | 56 |
| 2.6.2 | Node B Synchronisation for TDD | 56 |
| 2.7 | Rel-4 Location services enhancements..... | 60 |
| 2.7.1 | UE positioning | 60 |
| 2.7.1.1 | Iub/Iur interfaces for UE positioning methods supported on the radio interface R99..... | 60 |
| 2.7.1.2 | UE positioning enhancements- IPDLs for TDD..... | 63 |
| 3 | Release 5 | 66 |
| 3.1 | High Speed Downlink Packet Access (HSDPA)..... | 66 |
| 3.1.1 | High Speed Downlink Packet Access (HSDPA) - <i>Physical Layer</i> | 69 |
| 3.1.2 | High Speed Downlink Packet Access (HSDPA) - <i>layer 2 and 3 aspects</i> | 72 |
| 3.1.3 | High Speed Downlink Packet Access (HSDPA) - <i>Iub/Iur Protocol Aspects</i> | 75 |
| 3.1.4 | High Speed Downlink Packet Access (HSDPA) - RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing | 78 |
| 3.2 | Rel-5 Evolution of the transport in the UTRAN..... | 81 |
| 3.2.1 | IP transport in UTRAN..... | 81 |
| 3.3 | Rel-5 Improvements of the Radio interface..... | 84 |
| 3.3.1 | Base station classification..... | 84 |
| 3.3.1.1 | TDD Base station classification..... | 86 |
| 3.3.1.2 | Base Station Classification for 1.28 Mcps TDD..... | 89 |
| 3.3.2 | Enhancement on the DSCH hard split mode | 91 |
| 3.4 | Rel-5 RAN improvements | 94 |
| 3.4.1 | RRM optimizations for Iur and Iub | 94 |
| 3.4.1.1 | Iur Common Transport Channel Efficiency Optimisation | 99 |
| 3.4.1.2 | Iur Neighbouring cell reporting Efficiency Optimisation..... | 102 |
| 3.4.1.3 | RL Timing Adjustment..... | 104 |

| | | |
|----------|--|-----|
| 3.4.1.4 | Separation of resource reservation and radio link activation..... | 106 |
| 3.4.2 | Re-arrangement of Iub Transport Bearers | 109 |
| 3.4.3 | Radio access bearer support enhancement..... | 111 |
| 3.4.4 | Beamforming requirements for UE | 113 |
| 3.4.5 | Support of Site Selection Diversity Transmission in UTRAN..... | 115 |
| 3.4.6 | Node B Synchronisation for 1.28 Mcps TDD | 118 |
| 3.4.7 | UTRAN Sharing in Connected Mode..... | 121 |
| 3.5 | Rel-5 Location services enhancements..... | 123 |
| 3.5.1 | UE positioning | 123 |
| 3.5.1.1 | UE positioning enhancements for 1.28 Mcps TDD..... | 123 |
| 3.5.1.2 | Open interface between the SMLC and the SRNC within the UTRAN to support A-GPS Positioning | 126 |
| 3.6 | Intra Domain Connection of RAN Nodes to Multiple CN Nodes..... | 129 |
| 3.6.1 | RAN work for Intra Domain Connection of RAN Nodes to Multiple CN Nodes..... | 129 |
| 4 | Release 6..... | 132 |
| 4.1 | Rel-6 Improvements of the Radio Interface | 132 |
| 4.1.1 | Base station classification..... | 132 |
| 4.1.1.1 | FDD Base station classification..... | 132 |
| 4.1.2 | Improving Receiver Performance Requirements for the FDD UE..... | 135 |
| 4.1.3 | UMTS 850 | 137 |
| 4.1.4 | DS-CDMA Introduction in the 800 MHz Band..... | 141 |
| 4.1.5 | UMTS 1.7/2.1 GHz..... | 145 |
| 4.2 | Location services enhancements 2 (Rel-6)..... | 149 |
| 4.2.1 | UE positioning | 149 |
| 4.2.1.1 | Open interface between the SMLC and the SRNC within the UTRAN to support Rel-4 positioning methods..... | 149 |
| 4.3 | Rel-6 RAN improvement feature..... | 152 |
| 4.3.1 | Beamforming enhancements..... | 152 |
| 4.3.2 | Rel-6 RRM optimizations for Iur and Iub | 154 |
| 4.3.2.1 | Improved access UE measurement data for CRNC to support TDD RRM..... | 154 |
| Annex A: | Work Items with anomalous conclusion | 157 |
| A.1 | UE positioning in UTRA TDD | 157 |
| A.2 | UE positioning in UTRA FDD | 157 |
| A.3 | Hybrid ARQ II/III..... | 157 |
| A.4 | Radio Interface Testing..... | 157 |
| A.5 | Requirement on Equipment | 157 |
| A.6 | Smart antenna | 157 |
| A.7 | RAN Technical Small Enhancements and Improvements..... | 157 |
| A.8 | Gated DPCCH Transmission | 158 |
| A.9 | Improved usage of downlink resource in FDD for CCTrCHs of dedicated type | 159 |
| A.10 | Terminal power saving features..... | 162 |
| A.11 | Improvement of RRM across RNS and RNS/BSS | 164 |

1 Introduction

This document contains Work Item sheets in TSG RAN for all approved Work Items that have been finished. The WI sheets of the approved and finished Study Items are provided in a separate document, RAN_Study_Items_History. The SI sheets for active WIs can be found in the document RAN_Work_Items.

The following Rel-6 Work Items were concluded at TSG RAN #23, the WIDSs are included in this document for the first time:

- UMTS 1.7/2.1 GHz
- Improved access to UE measurement data for CRNC to support TDD RRM

The following table lists all TSG RAN Work Items included in Release 4 under their parent WI (if applicable) and the group that led the work:

| Type | Rel-4 WI name | WI Acronym | Leading Group | Section in this document |
|------|--|---------------------------------|---------------|--------------------------|
| Feat | Transcoder-Free Operation | TrFO | CN4 | 2.2 |
| BB | OoBTC Solution | TRFO-OoBTC | CN4 | 2.2.1 |
| WT | Implementation in UTRAN | TRFO-OoBTC-UTRAN | RAN3 | 2.2.1.1 |
| Feat | Low Chip Rate TDD option | LCRTDD | RAN1 | 2.1 |
| BB | Physical layer | LCRTDD-Phys | RAN1 | 2.1.1 |
| BB | Layer 2 and layer 3 protocol aspects | LCRTDD-L23 | RAN2 | 2.1.2 |
| BB | UE radio access capability | LCRTDD-UErac | RAN2 | 2.1.3 |
| BB | Iub/Iur protocol aspects | LCRTDD-IubIur | RAN3 | 2.1.4 |
| BB | RF radio transmission/reception, system performance requirements and conformance testing | LCRTDD-RF | RAN4 | 2.1.5 |
| Feat | UMTS QoS Architecture for PS Domain | QoSPPS | SA2 | 2.3 |
| BB | RAB Quality of Service (re)Negotiation over Iu | QoSPPS-MAPEND-RABQoS | RAN3 | 2.3.1 |
| WT | RAB Quality of Service Negotiation over Iu | QoSPPS-MAPEND-RABQoS-Negot | RAN3 | 2.3.1.1 |
| WT | RAB Quality of Service Negotiation over Iu during relocation | QoSPPS-MAPEND-RABQoS-NegotReloc | RAN3 | 2.3.1.3 |
| WT | RAB Quality of Service Re-Negotiation over Iu | QoSPPS-MAPEND-RABQoS-ReNegot | RAN3 | 2.3.1.2 |
| Feat | Rel-4 Evolutions of the transport in the UTRAN | ETRAN | TSG RAN | 2.4 |
| BB | QoS optimisation for AAL2 connections over Iub and Iur interfaces | ETRAN-QoSAAAL2 | RAN3 | 2.4.1 |
| BB | Transport bearer modification procedure on Iub, Iur, and Iu | ETRAN-MigrMod | RAN3 | 2.4.2 |
| Feat | Rel-4 Improvements of Radio Interface | RInImp | TSG RAN | 2.5 |
| BB | UTRA repeater specification (master) | RInImp-REP | RAN4 | 2.5.1 |
| BB | DSCH power control improvement in soft handover | RInImp-DSCHsho | RAN1 | 2.5.2 |
| BB | UMTS 1800 | RInImp-UMTS18 | RAN4 | 2.5.3 |
| BB | UMTS 1900 | RInImp-UMTS19 | RAN4 | 2.5.4 |
| Feat | Rel-4 RAN improvements | RANimp | TSG RAN | 2.6 |
| BB | RAB support enhancement for Rel-4 | RANimp-RABSE | RAN2 | 2.6.1 |
| BB | Node B synchronisation for TDD | RANimp-NBsync | RAN1 | 2.6.2 |
| Feat | Rel-4 Location Services enhancements | LCS1 | SA2 | 2.7 |

3GPP TSG RAN Work Items (History)

| Type | Rel-4 WI name | WI Acronym | Leading Group | Section in this document |
|------|--|-------------------|---------------|--------------------------|
| BB | UE positioning Rel-4 | LCS1-UEpos | TSG RAN | 2.7.1 |
| WT | Iub/Iur interfaces for methods Rel 99 | LCS1-UEpos-Iublur | RAN3 | 2.7.1.1 |
| WT | UE positioning enhancements - IPDL for TDD | LCS1-UEpos-enh | RAN2 | 2.7.1.2 |

The following table lists all TSG RAN Work Items included in Release 5 under their parent WI (if applicable) and the group that led the work:

| Type | Rel-5 WI name | WI Acronym | Leading Group | Section in this document |
|------|---|------------------------|---------------|--------------------------|
| Feat | Rel-5 Evolution of the transport in the UTRAN | ETRAN | TSG RAN | 3.2 |
| BB | IP transport in the UTRAN | ETRAN-IPtrans | RAN3 | 3.2.1 |
| Feat | High Speed Downlink Packet Access | HSDPA | RAN2 | 3.1 |
| BB | Physical Layer | HSDPA-Phys | RAN1 | 3.1.1 |
| BB | Layer 2 and 3 aspects | HSDPA-L23 | RAN2 | 3.1.2 |
| BB | Iub/Iur protocol aspects | HSDPA-Iublur | RAN3 | 3.1.3 |
| BB | RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing | HSDPA-RF | RAN4 | 3.1.4 |
| Feat | Rel-5 Improvements of Radio Interface | RInImp | TSG RAN | 3.3 |
| BB | Base station classification | RInImp-BSCClass | RAN4 | 3.3.1 |
| WT | TDD Base station classification | RInImp-BSCClass-TDD | RAN4 | 3.3.1.1 |
| WT | Base Station Classification for 1.28 Mcps TDD option | RInImp-BSCClass-LCRTDD | RAN4 | 3.3.1.2 |
| BB | Enhancement on the DSCH hard split mode | RInImp-DSCHhsp | RAN1 | 3.3.2 |
| Feat | Rel-5 RAN improvements | RANimp | TSG RAN | 3.4 |
| BB | RRM optimization for Iur and Iub | RANimp-RRMopt | RAN3 | 3.4.1 |
| WT | Iur common transport channel efficiency optimisation | RANimp-RRMopt-ctc | RAN3 | 3.4.1.1 |
| WT | Iur neighbouring cell reporting efficiency optimisation | RANimp-RRMopt-ncr | RAN3 | 3.4.1.2 |
| BB | RL Timing Adjustment | RANimp-RLTA | RAN3 | 3.4.1.3 |
| BB | Separation of resource reservation and radio link activation | RANimp-SepRR | RAN3 | 3.4.1.4 |
| BB | Re-arrangements of Iub transport bearers | RANimp-TTPS | RAN3 | 3.4.2 |
| BB | RAB support enhancement for Rel-5 | RANimp-RABSE5 | RAN2 | 3.4.3 |
| BB | Beamforming requirements for UE | RANimp-BFR-UE | RAN1 | 3.4.4 |
| BB | Support of Site Selection Diversity Transmission in UTRAN | RANimp-SSDT | RAN1 | 3.4.5 |
| BB | Node B Synchronisation for 1.28 Mcps TDD | RANimp-NBSLCR | RAN1 | 3.4.6 |
| BB | UTRAN sharing in connected Mode | NETSHARE | RAN3 | 3.4.7 |
| Feat | Rel-5 Location Services enhancements | LCS1 | SA2 | 3.5 |
| BB | UE positioning | LCS1-UEpos | TSG RAN | 3.5.1 |
| WT | UE positioning enhancements for 1.28 Mcps TDD | LCS-128Pos | RAN2 | 3.5.1.1 |
| WT | Open SMLC-SRNC Interface within the UTRAN to support A-GPS Positioning | LCS-INTF | RAN2 | 3.5.1.2 |
| Feat | Intra Domain Connection of RAN Nodes to Multiple CN Nodes | IUFLEX | SA2 | 3.6 |
| BB | Stage 3: RAN node selecting CN node | IUFLEX | RAN3 | 3.6.1 |

The following table lists all TSG RAN Work Items included in Release 6 under their parent WI (if applicable) and the group that led the work:

3GPP TSG RAN Work Items (History)

| Type | Rel-6 WI name | WI Acronym | Leading Group | Section in this document |
|------|---|---------------------|---------------|--------------------------|
| Feat | Rel-6 Improvements of Radio Interface | RInImp | TSG RAN | 4.1 |
| BB | Base station classification | RInImp-BSCClass | RAN4 | 4.1.1 |
| WT | FDD BS Classification | RInImp-BSCClass-FDD | RAN4 | 4.1.1.1 |
| BB | Improving Receiver Performance Requirements for the FDD UE | RInImp -UERecPerf | RAN4 | 4.1.2 |
| BB | UMTS-850 | RInImp-UMTS850 | RAN4 | 4.1.3 |
| BB | DS-CDMA introduction in the 800 MHz band | RInImp-UMTS800 | RAN4 | 4.1.4 |
| BB | UMTS 1.7/2.1 GHz | RInImp-UMTS1721 | RAN4 | 4.1.5 |
| Feat | Location Services enhancements 2 (Rel-6) | LCS2 | SA2 | 4.2 |
| BB | UE positioning | LCS2-UEpos | TSG RAN | 4.2.1 |
| WT | Open interface between the SMLC and the SRNC within the UTRAN to support Rel-4 positioning methods | LCS-Rel4Pos | RAN2 | 4.2.1.1 |
| Feat | Rel-6 RAN improvements | RANImp | TSG RAN | 4.3 |
| BB | Beamforming Enhancements | RANImp-BFE | RAN1 | 4.3.1 |
| BB | Rel6 RRM optimization for Iur and Iub | RANImp-RRMopt | RAN3 | 4.3.2 |
| WT | Improved access to User Equipment (UE) measurement data for Controlling Radio Network Controller (CRNC) to support Time Division Duplex (TDD) Radio Resource Management (RRM) | RANImp-RRMopt-UEMsD | RAN3 | 4.3.2.1 |

2 Release 4

2.1 Low chip rate TDD option

Originally RP-000191

Work Item Description

Title: Low chip rate TDD option

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

Low Chip Rate TDD Physical Layer

Low chip rate TDD layer 2 and layer 3 protocol aspects

Low Chip Rate TDD RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

Low Chip Rate TDD UE radio access Capability

Low chip rate TDD UTRAN network Iub/Iur protocol aspects

3 Justification

The integration of TDD low chip rate option in Release 2000 is discussed and approved in RAN#6. This paper is to describe the work plan of the integration for low chip rate TDD in R00.

4 Objective

The technical objective of this work item is the integration of the low chiprate TDD functionality in UTRA TDD, in line with decisions at RAN#6.

- For physical layer, the features include:
 - The frame structure and the burst structure
 - Channel description and mapping
 - Modulation and spreading
 - Channel coding and multiplexing
 - Physical layer procedures
 - Measurements by physical layer
- For higher layers:
 - The work will focus on adding extensions and Add-Ons for low chip rate support.
- For Iur/Iub interface:

3GPP TSG RAN Work Items (History)

For the adoption of some new features, e.g. the smart antenna, baton hand-over, some additional messages in Iur and Iub interface signalling for low chip rate TDD option should be taken into consideration.

- For radio transmission and reception:
 - The system performance requirements supporting low chip rate services
 - The Rx characteristics requirement
 - The Transmitter characteristics requirement
 - The frequency bands and channel arrangements

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|------------------|----------------------|---|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| | | | | | | |

The expected finalisation date is TSG-RAN #11

11 Work item rapporteurs

Mr. Guiliang Yang (CATT/CWTS)

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| X | Feature (go to 14a) |
| | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

The building blocks should be discussed and approved via email discussion

14b The WI is a Building Block: parent Feature

(one Work Item identified as a feature)

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

2.1.1 Low chip rate TDD physical layer

Originally RP-000311

Work Item Description

Title: Low chip rate TDD physical layer

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

Low Chip Rate TDD UE radio access capabilities

Low chip rate TDD Layer 2 and Layer 3 protocol aspects

Low chip rate TDD Iub/Iur protocol aspects

Smart Antenna

Low chip rate TDD RF Radio Transmission/Reception, System Performance Requirements and

Conformance Testing

Low Chip Rate TDD Inter-working with GERAN

3 Justification

For the low chip rate TDD, it has commonalties but also difference on physical layer with the high chip rate TDD option e.g. chip rate, frame structure, burst structure, some physical layer procedures etc. This paper is to describe one of the low chip rate TDD building blocks –physical layer.

4 Objective

The technical objective of this work item is to clarify the integration work to be done for the physical layer. And this work will affect the specifications for working group on physical layer. The integration work for low chip rate TDD with its properties should maximize the commonality with high chip rate TDD options.

- For physical layer, it includes the following work tasks:
 - Physical Channels and Mapping of Transport Channels onto Physical Channels
 - Multiplexing and Channel Coding
 - Modulation and spreading
 - Physical layer procedures
 - Physical Layer Measurements

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects: | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|----------------------------------|--|--------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.928 | Low Chip Rate TDD Physical Layer | WG1 | | RAN #10 | RAN #11 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| 25.201 | | Physical layer – General description | | | RAN#11 | |
| 25.221 | | Physical channels and mapping of transport channels onto physical channels (TDD) | | | RAN#11 | |
| 25.222 | | Multiplexing and channel coding (TDD) | | | RAN#11 | |
| 25.223 | | Spreading and modulation (TDD) | | | RAN#11 | |
| 25.224 | | TDD; physical layer procedures | | | RAN#11 | |
| 25.225 | | Physical layer; measurements | | | RAN#11 | |
| 25.302 | | Services Provided by the physical layer | | | RAN#11 | |
| 25.944 | | Channel coding and multiplexing examples | | | RAN#11 | |

11 Work item rapporteurs

Mr. Guiliang Yang (CATT/CWTS)

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

Low chip rate TDD

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

2.1.2 Low chip rate TDD layer 2 and layer 3 protocol aspects

Originally RP-000312

Work Item Description

Title: Low chip rate TDD layer 2 and layer 3 protocol aspects

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

Low Chip Rate TDD physical layer

Low chip rate TDD Iub/Iur protocol aspects

Smart Antenna

Low chip rate TDD RF Radio Transmission/Reception, System Performance Requirements and Conformance Testing

Low Chip Rate TDD Inter-working with GERAN

Low chip rate TDD UE radio access capabilities

3 Justification

Although most of the L2/L3 features are common with high chip rate TDD option, there are some differences, e.g. modification of signalling, baton handover etc., which should be described and clarified. Basically, most of them were originated from the differences of physical layer between low chip rate TDD and UTRA TDD and the involvement of Smart Antenna. This paper is to describe one of the low chip rate TDD building blocks – layer 2 and layer 3 protocol aspects.

4 Objective

The technical objective of this work item is to complete the low chip rate TDD L2/L3 functionality adaptation in UTRA TDD. And this work will affect the specifications for working group on L2/L3. The integration work for low chip rate TDD with its properties should follow the principle to maximize the commonality with high chip rate TDD.

- For layer 2 and layer 3 protocol aspects, it includes the following work tasks:
 - UE procedures in idle mode
 - Interlayer procedures in connected mode
 - Control plane protocol aspects
 - User plane protocol aspects
 - mobility aspects

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects: | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|--|--|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.834 | Low chip rate TDD layer 2 and layer 3 protocol aspects | WG2 | | RAN #11 | RAN #11 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| 25.301 | | Radio interface protocol architecture | | | RAN#11 | |
| 25.302 | | Service provided by the physical Layer | | | RAN#11 | |
| 25.303 | | UE functions and Inter-layer procedures in connected mode | | | RAN#11 | |
| 25.304 | | UE procedures in idle mode and procedures for cell reselection in connected mode | | | RAN#11 | |
| 25.305 | | Stage 2 functional specification of location service in UTRAN (LCS) | | | RAN#11 | |
| 25.321 | | Medium access control (MAC) protocol specification | | | RAN#11 | |
| 25.322 | | Radio link control(RLC) protocol specification | | | RAN#11 | |
| 25.331 | | Radio resource control (RRC) protocol specification | | | RAN#11 | |
| 25.324 | | Radio Interface for Broadcast/Multicast Services | | | RAN#11 | |

3GPP TSG RAN Work Items (History)

| | | | | |
|--------|--|--|--------|--|
| 25.925 | | Radio Interface for Broadcast/Multicast Services | RAN#11 | |
| 25.922 | | Radio Resource Management Strategies | RAN#11 | |

11 Work item raporteurs

Mr. Yanhui LIU (CATT/CWTS)

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

low chip rate TDD

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

14b The WI is a Building Block: parent Feature

low chip rate TDD

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

2.1.3 Low Chip Rate TDD UE radio access Capability

Originally RP-000315

Work Item Description

Title: Low chip rate TDD UE radio access capability

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

Low Chip Rate TDD physical layer

Low chip rate TDD Layer 2 and Layer 3 protocol aspects
Low chip rate TDD Iub/Iur protocol aspects

Smart Antenna

Low chip rate TDD RF Radio Transmission/Reception, System Performance Requirements and Conformance Testing

Low Chip Rate TDD Inter-working with GERAN

3 Justification

For the low chip rate TDD, it has commonalities but also difference on radio access capabilities with the high chip rate TDD option e.g. usage of timeslots for different UE classes, usage of USCH /DSCH, etc. This paper is to describe one of the low chip rate TDD building block – UE radio access capabilities.

4 Objective

The technical objective of this work item is complete the UE radio access capabilities. And this work will affect the specifications for working group on UE radio access capability.

- For UE radio access capability, it includes the following work tasks:
 - Definition of UE radio access capabilities for low chip rate option

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects: | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|------------------------------|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| 25.926 | | UE Radio Access Capabilities | | | RAN #11 | |

11 Work item rapporteurs

Mr. Yanhui LIU (CATT/CWTS)

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

Low chip rate TDD

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

2.1.4 Low chip rate TDD UTRAN network Iub/Iur protocol aspects

Originally RP-000316

Work Item Description

Title: Low chip rate TDD Iub/Iur protocol aspects

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

Low Chip Rate TDD physical layer

Low chip rate TDD layer2 and layer3 protocol aspects

Smart Antenna

Low chip rate TDD RF Radio Transmission/Reception, System Performance Requirements and Conformance Testing

Low chip rate TDD UE radio access capabilities

Low Chip Rate TDD Inter-working with GERAN

3 Justification

In Iub and Iur interfaces, especially, low chip rate TDD will result in adaptations of Information Elements in radio link related signaling, to support the changed physical channel parameters. In addition, low chip rate TDD should define some procedures which are different from those of high chip rate TDD such as uplink synchronisation. This paper is to describe one of the low chip rate TDD building blocks – Low chip rate TDD Iub/Iur protocol aspects

4 Objective

The integration work for low chip rate TDD with its properties should follow the principle to maximize the commonality with high chip rate TDD.

- For Low chip rate TDD Iub/Iur protocol aspects, it includes the following work tasks:
 - Iub aspects
 - Iur aspects

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects: | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|--|--|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.937 | TR on Low chip rate TDD Iub/Iur protocol aspects | WG3 | | RAN #11 | RAN #11 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| 25.401 | 23 | UTRAN Overall Description | | | RAN#11 | |
| 25.402 | 14 | Synchronisation in UTRAN Stage 2 | | | RAN#11 | |
| 25.433 | 358, 359 | UTRAN Iub Interface NBAP Signalling | | | RAN#11 | |
| 25.423 | 309 | UTRAN Iur Interface RNSAP Signalling | | | RAN#11 | |
| 25.425 | 23 | UTRAN Iur Interface User Plane Protocols for Common Transport Channel data streams | | | RAN#11 | |
| 25.427 | 42 | UTRAN Iub/Iur Interface User Plane Protocols for DCH data streams | | | RAN#11 | |
| 25.430 | 14 | UTRAN I _{ub} Interface: General Aspects and Principles | | | RAN#11 | |
| 25.435 | 37 | UTRAN Iub Interface User Plane Protocols for Common Transport Channel data streams | | | RAN#11 | |

11 Work item rapporteurs

Mr. Bing Xu (CATT/CWTS)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

low chip rate TDD

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

2.1.5 Low Chip Rate TDD RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

Originally RP-000313

Work Item Description

Title: RF Radio Transmission/Reception, System Performance Requirements and Conformance Testing

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

Low chip Rate TDD physical layer
Low Chip Rate TDD UE radio access capabilities
Low chip rate TDD Layer 2 and Layer 3 protocol aspects
Low chip rate TDD Iub/Iur protocol aspects
Low Chip Rate TDD Inter-working with GERAN
Smart Antenna

3 Justification

For the low chip rate TDD, due to the difference on chip rate, the parameters for RF are affected like e.g. operation band width, mask, out of band emission, blocking, etc. This paper is to describe one of the low chip rate TDD building blocks - RF Radio Transmission/Reception, System Performance Requirements and Conformance Testing.

4 Objective

The technical objective of this work item is the description of the low chiprate TDD RF characters, the system performance requirements and conformance testing. And this work will affect the specifications for working group on RF character and other working group related to the system performance and conformance testing and the work on UE radio access capability.

- As a building block, it includes the following work task:
- UE radio transmission and reception
- BTS radio transmission and reception
- BTS Conformance testing
- BTS Electromagnetic compatibility
- Requirements for support of Radio Resource Management

5 Service Aspects

None

6 MMI-Aspects

3GPP TSG RAN Work Items (History)

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects: | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.945 | | WG4 | | RAN #10 | RAN #11 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| 25.102 | | UE Radio Transmossion and Reception (TDD) | | | RAN#11 | |
| 25.105 | | BTS Radio Transmission and Reception (TDD) | | | RAN#11 | |
| 25.123 | | Requirements for support of Radio Resource Management (TDD) | | | RAN#11 | |
| 25.142 | | Base station conformance testing(TDD) | | | RAN#11 | |
| 25.942 | | RF system scenarios | | | RAN#11 | |
| 25.113 | | Base station EMC | | | RAN#11 | |
| 25.133 | | Requirements for support of Radio Resource Management (FDD) | | | RAN#11 | |

11 Work item raporteurs

Mr. Daijun Zhang (CATT/CWTS)

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

Low chip rate TDD

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

2.2 Transcoder Free Operation

This was a Feature led by CN WG4.

2.2.1 Out of band Transcoder Control

Building block led by CN WG4

2.2.1.1 Transcoder Free Operations in UTRAN

Originally RP-000507

Work Item Description

Title: Transcoder Free Operations in UTRAN

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

Out of band Transcoder Control (CN Work Item)

3 Justification

This WI is the complementary part of the WI that has been agreed for TSG CN. It shall provide more details for the Radio Access Network standardisation that is required for the Transcoder Free Operation.

4 Objective

- *The number of transcoders to be installed in the core network can be minimised.*
- *The bandwidth to be provided in the core network may be reduced by TrFO or transcoder at the core network edge for both MS to MS calls and for MS from/to wireline calls.*

5 Service Aspects

The service aspects for Transcoder Free Operation are:

- *Usage of the framing protocol as defined in TS 25.415 in the Core Network needs to be supported*
- *Symmetrical set of RFCIs needs to be supported*
- *The behaviour of an RNC for receiving RFCIs at Iu UP initialisation from the core network shall be changed to be applied for both uplink and downlink.*
- *The mechanism to make the RFCIs available during TrFO Break needs to be supported (storage of RFCIs)*
- *Specific adaptations of the inband rate control procedure needs to be performed (“distributed –”, “maximum –”, and “immediate rate control”)*
- *RNC behaviour on a RAB Assignment Request needs to be adopted for TrFO calls.*
- *25.415 should in principle define the IuUP framing protocol in a way, that it covers its applicability for the Nb interface as well. This needs to be confirmed and co-ordinated with CN3.*

3GPP TSG RAN Work Items (History)

6 **MMI-Aspects**

None

7 **Charging Aspects**

None

8 **Security Aspects**

None

9 **Impacts**

| Affects: | USIM | ME | AN | CN | Others |
|-------------------|-------------|-----------|-----------|-----------|---------------|
| Yes | | | X | X | |
| No | X | X | | | |
| Don't know | | | | | X |

10 **Expected Output and Time scale (to be updated at each plenary)**

| New specifications | | | | | | |
|---|--|-----------------------|----------------------|---|-----------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| 23.153 | Out of Band Transcoder Control - Stage 2 | CN4 | RAN3 | TSG-CN#7 | TSG-CN#10 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approve d at plenary# | Comments |
| TS 25.401 | | | | | TSG- RAN#11 | |
| TS 25.410 | | | | | TSG- RAN#11 | |
| TS 25.413 | | see "Service Aspects" | | | TSG- RAN#11 | |
| TS 25.415 | | see "Service Aspects" | | | TSG- RAN#11 | |
| | | | | | | |

11 **Work item rapporteurs**

Siemens, Alexander Vesely (alexander.vesely@siemens.at)

12 **Work item leadership**

TSG-RAN WG3

13 **Supporting Companies**

TSG-RAN

14 **Classification of the WI (if known)**

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

14c The WI is a Work Task: parent Building Block

Out of Band Transcoder Control

2.3 UMTS QoS Architecture for PS Domain

This was a feature led by SA WG2.

2.3.1 RAB Quality of Service Negotiation/Renegotiation over Iu

Originally RP-000137, major revision RP-000498, part of it included in WI "RAB Quality of Service Negotiation over Iu" (see section 4.1.1 below)

Work Item Description

Title: RAB Quality of Service Negotiation/Renegotiation over Iu

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| X | Core Network |
| | Services |

2 Linked work items

None

3 Justification

In release 99, UTRAN can only accept or reject a radio access bearer request from the core network. For services that could accept looser QoS requirements than those requested by the CN in the RAB establishment request there exist no means for UTRAN to propose alternative (looser) QoS. For such services the RAB establishment will fail, or alternatively the CN could re-attempt the RAB reestablishment with looser QoS requirements which would significantly increase the setup time.

Release 99 also does not allow the UTRAN to renegotiate RAB/QoS parameters for on-going calls/session. Since the UTRAN is responsible for managing the radio resources, it is necessary for the UTRAN to be able to initiate RAB renegotiation for efficient use of the radio interface.

4 Objective

This work item should enhance the Radio Access Bearer setup to something more sophisticated using e.g. QoS profiles to align with the already existing CN solution used in GPRS. However, it should be as simple as possible.

This work item should also enhance the management of Radio Access Bearers for on-going calls/session so that QoS parameters can be renegotiated by the UTRAN.

5 Service Aspects

The intention with the work item is to reduce the setup time of services.

The intention is also to allow continuation of service through UTRAN initiated QoS renegotiation.

3GPP TSG RAN Work Items (History)

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|-------------------|------|----|----|----|--------|
| Yes | | | X | X | |
| No | X | X | | | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.413 | | | | RAN #11 | | |
| 23.060 | | | | | | |
| 24.008 | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11 Work item raporteurs

Anders Molander, Ericsson

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| |
|---------------------|
| Feature (go to 14a) |
|---------------------|

3GPP TSG RAN Work Items (History)

| | |
|---|----------------------------|
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

UMTS QoS Architecture for PS Domain

2.3.1.1 RAB Quality of Service Negotiation over Iu

Originally partly in RP-000137, revised in RP-000499

Work Item Description

Title: RAB Quality of Service Negotiation over Iu

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| X | Core Network |
| | Services |

2 Linked work items

None

3 Justification

In release 99, UTRAN can only accept or reject a radio access bearer request from the core network. For services that could accept looser QoS requirements than those requested by the CN in the RAB establishment request there exist no means for UTRAN to propose alternative (looser) QoS. For such services the RAB establishment will fail, or alternatively the CN could re-attempt the RAB reestablishment with looser QoS requirements which would significantly increase the setup time.

4 Objective

This work item should enhance the Radio Access Bearer setup to something more sophisticated using e.g. QoS profiles to align with the already existing CN solution used in GPRS. However, it should be as simple as possible.

5 Service Aspects

The intention with the work item is to reduce the setup time of services.

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects | USIM | ME | AN | CN | Others |
|---------|------|----|----|----|--------|
|---------|------|----|----|----|--------|

3GPP TSG RAN Work Items (History)

| | | | | | |
|-------------------|---|---|---|---|---|
| : | | | | | |
| Yes | | | X | X | |
| No | X | X | | | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|----------------|--------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.413 | | | | RAN #11 | | |
| 23.060 | | | | | | |
| 24.008 | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11 Work item raporteurs

Anders Molander, Ericsson

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

14c The WI is a Work Task: parent Building Block

RAB Quality of Service Negotiation/Renegotiation over Iu

2.3.1.2 RAB Quality of Service Renegotiation over Iu

Originally RP-000500

Work Item Description

Title: RAB Quality of Service Renegotiation over Iu

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| X | Core Network |
| | Services |

2 Linked work items

None

3 Justification

Release 99 also does not allow the UTRAN to renegotiate RAB/QoS parameters for on-going calls/session. Since the UTRAN is responsible for managing the radio resources, it is necessary for the UTRAN to be able to initiate RAB renegotiation for efficient use of the radio interface.

4 Objective

This work item should also enhance the management of Radio Access Bearers for on-going calls/session so that QoS parameters can be renegotiated by the UTRAN.

5 Service Aspects

The intention is also to allow continuation of service through UTRAN initiated QoS renegotiation.

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects | USIM | ME | AN | CN | Others |
|---------|------|----|----|----|--------|
| Yes | | | X | X | |
| No | X | X | | | X |

| | | | | | |
|-------------------|--|--|--|--|--|
| Don't know | | | | | |
|-------------------|--|--|--|--|--|

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|-------|----------------|--------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.413 | | | | RAN #11 | | |
| 23.060 | | | | | | |
| 24.008 | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11 Work item raporteurs

Sania Irwin, Motorola

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

14c The WI is a Work Task: parent Building Block

RAB Quality of Service Negotiation/Renegotiation over Iu

2.3.1.3 RAB Quality of Service Negotiation over Iu during relocation

Last distributed as: RP-010168

Work Item Description

Title: RAB Quality of Service Negotiation over Iu during relocation

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| X | Core Network |
| | Services |

2 Linked work items

None

3 Justification

In release 99, for services that could accept looser QoS requirements than those requested by the CN in the relocation request, there exist no means for UTRAN to propose alternative (looser) QoS. For such services the relocation will fail.

4 Objective

This work item should enhance the relocation so that QoS parameters can be negotiated by the UTRAN during relocation. However, it should be as simple as possible.

5 Service Aspects

The intention of the work item is to allow continuation of service during relocation

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects | USIM | ME | AN | CN | Others |
|---------|------|----|----|----|--------|
|---------|------|----|----|----|--------|

3GPP TSG RAN Work Items (History)

| | | | | | |
|-------------------|---|---|---|---|---|
| : | | | | | |
| Yes | | | X | X | |
| No | X | X | | | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|-------|----------------|--------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.413 | | | | RAN #11 | | |
| 23.060 | | | | | | |
| 24.008 | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11 Work item rapporteurs

Chenghock Ng, NEC

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

NEC, Siemens, Motorola, Telecom Italia, Alcatel

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

14c The WI is a Work Task: parent Building Block

RAB Quality of Service Negotiation/Renegotiation over Iu

2.3.2 PS-Domain handover for real-time services

Originally RP-000127

Work Item Description

Title: PS-Domain handover for real-time services

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| X | Core Network |
| | Services |

2 **Linked work items**

(list of linked WIs)

3 **Justification**

In release 99, Relocation for services from PS domain is only optimised for non-real-time services. In current design, the content of the data buffers from the source RNC are fetched, which is not fully optimal for real-time services, and means that delay may exceed the requirement for real-time services. It is expected that real-time services from the PS domain, such as voice over IP would benefit from fully optimised handover.

4 **Objective**

This work item should design handover in RAN (mainly Iu) that supports real-time services from PS domain in an optimised way. The solution should be as simple as possible.

5 **Service Aspects**

The intention with the work item is to assure more optimised support for services such as voice over IP.

6 **MMI-Aspects**

None

7 **Charging Aspects**

None

8 **Security Aspects**

None

9 **Impacts**

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | | X | X | |
| No | X | X | | | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|--|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.936 | PS-Domain handover for real- time services | R3 | | RAN #10 | RAN #11 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.413 | | | | RAN #11 | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11 Work item rapporteurs

Atte Länsisalmi (Nokia)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

Radio Interface Improvement, RAN Improvement and Evolution of bearers on the radio to enable IP based multimedia in UMTS Features

3GPP TSG RAN Work Items (History)

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

2.4 Rel-4 Evolution of the transport in UTRAN

This is a generic feature. See Description Sheet in file RAN_Work_Items.

2.4.1 QoS optimization for AAL type 2 connections over Iub and Iur interfaces

Originally RP-000188

Work Item Description

Title: QoS optimization for AAL type 2 connections over Iub and Iur interfaces

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

(list of linked Wis)

3 Justification

In Release 99, traffic like compressed voice (AAL type 2 connection) and traffic like data (AAL type 2 connection) are accommodated in common underlying VC(s) for AAL type 2 connections as real time traffics over Iub and Iur interfaces to ease management of CFN (Connection Frame Number) allocation to Down link data frame or scheduling at SRNC (Serving RNC). In addition to that, in sections with AAL type 2 switches, I.363.2 and Q.2630.1 referred in Release 99 have no capability to prioritize real time traffic like compressed voice or non-real time traffic like data.

In general, this requires much higher capacity underlying VC for AAL type 2 connections to meet the delay requirements for real time traffic like compressed voice especially in case of real time traffic data frame (smaller) right after non-real time traffic data frame (much bigger). Typical simulation on the case was given in TSG R3#8(99)e19 by Alcatel in Release 99 time frame. Higher capacity underlying VC for AAL type 2 connections over Iub interface impacts very much on initial and running costs of the Iub interface which usually consists of leased line.

4 Objective

This work item intends to introduce the capability to optimize the bandwidth of underlying VC for AAL type 2 connections over Iub and Iur interfaces in addition to the scheduling capability at SRNC in Release 4 time frame.

The capability should be realized with standardized solution(s) for multi-vendor environment, and the one(s) should cover all possible UTRAN transport network configurations.

5 Service Aspects

3GPP TSG RAN Work Items (History)

None

6 **MMI-Aspects**

None

7 **Charging Aspects**

None

8 **Security Aspects**

None

9 **Impacts**

| Affects : | USIM | ME | AN | CN | Others |
|-----------------------|-------------|-----------|-----------|-----------|---------------|
| Yes | | | X | | |
| No | X | X | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|---|---|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.934 | QoS optimization for AAL type 2 connections over lub and lur interfaces | WG3 | | RAN #10 | RAN #11 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| TS 25.414 | 26 | UTRAN lu interface: data transport & transport signalling | | RAN #11 | | |
| TS 25.415 | 51 | UTRAN lu interface: user plane protocols | | RAN #11 | | |
| TS 25.420 | 11 | UTRAN lur interface: general aspects and principles | | RAN #11 | | |
| TS 25.424 | 10 | UTRAN lur interface: data transport & transport signalling for common transport channel data streams | | RAN #11 | | |
| TS 25.425 | 25 | UTRAN lur interface: user plane protocols for common transport channel data streams | | RAN #11 | | |
| TS 25.426 | 13 | UTRAN lur and lub interfaces: data transport & transport signalling for DCH data streams | | RAN #11 | | |
| TS 25.430 | 17 | UTRAN lub interface: general aspects and principles | | RAN #11 | | |
| TS 25.434 | 8 | UTRAN lub interface: data transport & transport signalling for common transport channel data streams | | RAN #11 | | |
| TR 25.931 | 7 | UTRAN functions, examples on signalling procedures | | RAN #11 | | |

11 Work item rapporteurs

Takayuki Yoshimura (Japan Telecom)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

3GPP TSG RAN Work Items (History)

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

(one Work Item identified as a feature)

14c The WI is a Work Task: parent Building Block

Evolution of transport in UTRAN

2.4.2 Transport bearer modification procedure on Iub, Iur, and Iu

Originally RP-000446

Work Item Description

Title: Transport bearer modification procedure on Iub, Iur, and Iu (originally Migration to Modification procedure)

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| X | Core Network |
| | Services |

2 **Linked work items**

None

3 **Justification**

Subclause 7.8 “Radio access bearer modification” of 3G TR 25.931 “UTRAN functions, examples on signalling procedures” (Release 99) utilizes Modification procedure of transport network bearer. But it is associated with a note that if the referred signalling protocol does not have the modification procedure, tentative procedure with establish new bearer and then release old one is applied to. The referred signalling protocol does not have the procedure.

The modification procedure has advantages to the tentative procedure in the transport network bearer bandwidth optimization and required number of signalling messages for the capability. Furthermore the procedure also becomes functionally less complex; A transport channel needs no longer be moved from one transport bearer to another. Especially in the unsynchronised reconfiguration case (e.g. subclause 7.14.1 (should be 7.14.2) "Unsynchronised transport channel reconfiguration" in TR 25.931), the current/tentative procedure seems quite complex with respect to the "moment of moving".

4 **Objective**

In Release 2000 time frame, the modification procedure is available in enhanced the referred transport network signalling protocol.

This work item is to make successful migration from the tentative procedure to the modification procedure.

5 **Service Aspects**

None

6 **MMI-Aspects**

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | WG3 | | | RAN #10 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| TS 25.410 | 15 | UTRAN Iu interface: general aspects and principles | | RAN #11 | | |
| TS 25.413 | 250 | UTRAN Iu Interface RANAP Signalling | | RAN #11 | | |
| TS 25.414 | 25 | UTRAN Iu interface: data transport & transport signalling | | RAN #11 | | |
| | | | | | | |
| TS 25.420 | 10 | UTRAN Iur interface: general aspects and principles | | RAN #11 | | |
| | | | | | | |
| TS 25.424 | 9 | UTRAN Iur interface: data transport & transport signalling for common transport channel data streams | | RAN #11 | | |
| | | | | | | |
| TS 25.426 | 12 | UTRAN Iur and Iub interfaces: data transport & transport signalling for DCH data streams | | RAN #11 | | |
| TS 25.430 | 16 | UTRAN Iub interface: general aspects and principles | | RAN #11 | | |
| | | | | | | |
| TS 25.434 | 7 | UTRAN Iub interface: data transport & transport signalling for common transport channel data streams | | RAN #11 | | |
| TR 25.931 | 6 | UTRAN functions, examples on signalling procedures | | RAN #11 | | |

11 Work item rapporteurs

3GPP TSG RAN Work Items (History)

Takayuki Yoshimura (Japan Telecom)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

(one Work Item identified as a feature)

14c The WI is a Work Task: parent Building Block

Evolution of transport in UTRAN

2.5 Rel-4 Improvements of the Radio interface

This is a generic feature. See Description Sheet in file RAN_Work_Items.

2.5.1 UTRA FDD Repeater Specification

Originally RP-000083

Work item Description

Title: UTRA FDD Repeater Specification

1 3GPP work area

Radio Access

2 Linked work items

None

3 Justification

Repeaters have proven to be useful for extending the coverage into buildings, train/car tunnels, subways, highways, etc in 2nd generation systems. Also, by installing repeaters at the sector borders or in highly dense areas, the transmitted power from the MS and the BS could possibly be lowered, leading to an improvement in C/I and thereby capacity.

For the installation of repeaters in cellular networks a specification is needed in e.g. Europe due to regulatory requirements.

For operators without the capability of handover to 2nd generation systems, extending the coverage of UTRA will be of importance especially at the initial rollout stage. For operators with capability of handover to 2nd generation systems, user requirements (e.g. high data rates) may not be met by those systems and extended UTRA coverage might be needed.

4 Objective

The objective of the work item is to create a technical specification of the UTRA repeater's minimum RF characteristics which, at least, should include:

- Spurious emissions
- Intermodulation products
- Out of band gain
- Frequency stability
- Modulation accuracy
- Blocking characteristics

In addition to the minimum RF characteristics, conformance requirements and Electro Magnetic Compatibility (EMC) shall also be specified.

5 Service Aspects

The use of repeater in a network may reduce the performance of the LCS method OTDOA. This is addressed in more detail in document R4-000012.

3GPP TSG RAN Work Items (History)

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects: | USIM | ME | Access Network | Core Network | Others |
|------------|------|----|----------------|--------------|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scales

| New specifications | | | | | | |
|----------------------------------|--|-------------------|----------------------|---|---------------------------|-------------------------------------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| TS 25.106 | UTRA Repeater; Radio transmission and reception | WG4 | | RAN#9 | RAN#11 | Repeater minimum RF characteristics |
| TS 25.143 | UTRA Repeater; Conformance testing | WG4 | | RAN#9 | RAN#11 | Repeater conformance testing |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | Approved at plenary# | | Comments | |
| TS 25.113 | | UTRA Repeater EMC | RAN#11 | | Repeater EMC requirements | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11 Work item rapporteurs

Martin Nilsson, Allgon AB
Thomas Kummetz, Mikom GmbH

12 Work item leadership

TSG-RAN WG4

13 Supporting companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

3GPP TSG RAN Work Items (History)

14b The WI is a Building Block:

This is a building block part of the radio interface improvement feature.

In addition there is a relation to the building block UE positioning in UTRA FDD.

2.5.2 DSCH power control improvement in soft handover

Originally RP-000442

Work Item Description

Title: DSCH power control improvement in soft handover

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

After consideration in TSG RAN WG1 it was identified that DSCH power control operation in case of soft handover possibility (for the associated DCH is) needs improvement. This topic has been studied in TSG RAN WG1 as part of the study item "radio link performance improvements".

4 Objective

- The purpose of this work item is to specify improvement for the DSCH power control operation.
-

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects | USIM | ME | AN | CN | Others |
|---------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |

| | | | | | |
|-------------------|--|--|--|--|--|
| Don't know | | | | | |
|-------------------|--|--|--|--|--|

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|---------------------------------------|--|--------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| 25.841 | DSCH power control improvement in SHO | WG1 | | RAN #11 | RAN #11 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.211 | | Physical Channels and mapping of transport channels to physical channels (FDD) | | RAN #11 | | |
| 25.214 | | Physical Layer Procedures (FDD) | | RAN #11 | | |
| 25.331 | | RRC Protocol Specification | | RAN #11 | | |
| 25.423 | | UTRAN Iur Interface RNSAP Signalling | | RAN #11 | | |
| 25.433 | | UTRAN Iub Interface NBAP Signalling | | RAN #11 | | |
| 25.101 | | | | RAN #11 | | |
| 25.104 | | | | RAN #11 | | |
| 25.141 | | | | RAN #11 | | |
| 34.121 | | | | RAN #11 | | |

11 Work item rapporteurs

Antti Toskala, Nokia

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

This is a building block part of the radio interface improvement feature.

2.5.3 UMTS 1800

Originally RP-000448

Work Item Description

Title: UMTS 1800

1 **3GPP Work Area**

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 **Linked work items**

none

3 **Justification**

A decision was made at WARC 00 to extend the current IMT 2000 frequency allocation to include the current 2G cellular bands.

4 **Objective**

The purpose of this work item is to add the following frequency band to the 3GPP specifications

UMTS 1 800 Band:

1 710 - 1 785 MHz: mobile transmit, base receive

1 805 - 1 880 MHz: base transmit, mobile receive

A report will be generated to study the radio compatibilities of DCS1800 and UMTS1800.

TSG RAN WG2 will be asked to study the terminal capabilities. TSG RAN WG3 will be asked to study any possible interface impacts.

5 **Service Aspects**

None

6 **MMI-Aspects**

None

7 **Charging Aspects**

None

8 **Security Aspects**

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.101 | | UE Radio transmission and reception (FDD) | | RAN #14 | | |
| 25.104 | | UTRA (BS) FDD; Radio transmission and reception | | RAN #14 | | |
| 25.141 | | Base station conformance testing (FDD) | | RAN #14 | | |
| 34.121 | | Terminal Conformance Specification, Radio Transmission and Reception | | T #14 | | |

11 Work item rapporteurs

Howard Benn (howard.benn@motorola.com)

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

This is a building block part of the radio interface improvement feature.

2.5.4 UMTS 1900

Originally RP-010234

Work Item Description

Title: UMTS 1900

1 **3GPP Work Area**

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 **Linked work items**

None

3 **Justification**

A decision was made at WARC 00 to extend the current IMT 2000 frequency allocation to include the bands currently occupied by PCS-1900. It is noted that Release 99 does not provide complete support for these bands. In addition, coexistence with other technologies has not been evaluated.

4 **Objective**

The purpose of this work item is to generate a report summarizing a study of co-existence of UTRA FDD and PCS1900, TIA/EIA-136, TIA/EIA/IS-95 in the following bands:

1850 – 1910 MHz: Up-link (UE transmit, Node B receive)

1930 – 1990 MHz: Down-link (Node B transmit, UE receive)

Based on the report the RF characteristics for both UE and BTS supporting this band will need to be added/corrected compared to Release 99.

TSG RAN WG2 will be asked to study the terminal capabilities. TSG RAN WG3 will be asked to study any possible interface impacts.

5 **Service Aspects**

None

6 **MMI-Aspects**

None

7 **Charging Aspects**

None

8 **Security Aspects**

None

9 Impacts

| Affects : | USI M | ME | AN | CN | Others |
|---------------|----------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale

| New specifications | | | | | | |
|----------------------------------|-------|--|-------------------------|--|-----------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approve d at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| 25.101 | | UE Radio transmission and reception (FDD) | | RAN#14 | | |
| 25.104 | | UTRA (BS) FDD; Radio transmission and reception | | RAN#14 | | |
| 25.113 | | Requirements for Support of Radio Resource Management (FDD) | | RAN#14 | | |
| 25.133 | | Base Station Electromagnetic compatibility (EMC) | | RAN#14 | | |
| 25.141 | | Base station conformance testing (FDD) | | RAN#14 | | |
| 25.331 | | RRC Protocol | | RAN#14 | | |
| 25.942 | | RF System Scenarios | | RAN#14 | | |
| 25.306 | | Radio UE capability | | RAN#14 | | |
| 34.121 | | Terminal Conformance Specification, Radio Transmission and Reception | | T#14 | | |

11 Work item raporteurs

Howard Benn

12 Work item leadership

RAN WG 4

13 Supporting Companies

Cingular, AWS, Motorola, Nortel Networks, Nokia, Ericsson, VoiceStream Wireless

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature
This is a building block part of the radio interface improvement feature.

2.6 Rel-4 RAN improvements

This is a generic feature. See Description Sheet in file RAN_Work_Items.

2.6.1 RAB support enhancements

This is a generic feature. See Description Sheet in file RAN_Work_Items.

2.6.2 Node B Synchronisation for TDD

Originally RP-000055

Work Item Description

Title: Node B Synchronisation for UTRA TDD mode

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

NodeB synchronisation is beneficial in UTRA TDD to minimise cross-interference in neighbouring cells. Currently, no method has been specified how NodeB synchronisation can be achieved with UTRAN's and UE's internal resources such as signalling via the air interface.

The following benefits of the introduction of NodeB synchronisation by means of internal resources are seen:

- A substantial reduction of the cost of the transmission network.
- An autonomous synchronisation procedure without the need of external references.
- An easily extendable method for the purpose of inter-system NodeB synchronisation.

4 Objective

The purpose of this new work item is to enable the synchronisation of NodeBs in UTRA TDD by means of UTRAN's and UE's internal resources such as air interface signals and NodeB cross measurements. NodeB synchronisation involves

- radio frame und multi frame synchronisation and
- intra-system and inter-system synchronisation.

3GPP TSG RAN Work Items (History)

5 **Service Aspects**

None

6 **MMI-Aspects**

None

7 **Charging Aspects**

None

8 **Security Aspects**

None

9 **Impacts**

| Affects : | USIM | ME | AN | CN | Others |
|-----------------------|-------------|-----------|-----------|-----------|---------------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|-------------------------------------|--|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.836 | NodeB synchronisation for TDD | WG1 | | RAN #10 | RAN #11 | |
| 25.838 | NodeB synchronisation for TDD | WG3 | | RAN #10 | RAN #11 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.123 | | Requirements for Support of Radio Resource Management (TDD) | | RAN #11 | | |
| 25.221 | | Physical channels and mapping of transport channels onto physical channels (TDD) | | RAN #11 | | |
| 25.224 | | Physical Layer Procedures (TDD) | | RAN #11 | | |
| 25.225 | | Physical layer – Measurements (TDD) | | RAN #11 | | |
| 25.301 | | Radio Interface Protocol Architecture | | RAN #11 | | |
| 25.302 | | Services provided by the physical layer | | RAN #11 | | |
| 25.303 | | Interlayer procedures in connected mode | | RAN #11 | | |
| 25.321 | | MAC Protocol Specification | | RAN #11 | | |
| 25.331 | | RRC Protocol Specification | | RAN #11 | | |
| 25.402 | | Synchronisation in UTRAN Stage 2 | | RAN #11 | | |
| 25.433 | | UTRAN Iub Interface NBAP Signalling | | RAN #11 | | |
| 25.423 | | UTRAN Iur Interface RNSAP Signalling | | RAN #11 | | |

11 Work item rapporteurs

Stefan Oestreich, Siemens AG

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|----------|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

3GPP TSG RAN Work Items (History)

Radio Interface Improvements and RAN Improvements Features

2.7 Rel-4 Location services enhancements

This is a generic Feature led by SA WG2

2.7.1 UE positioning

This is a generic Building Block led by TSG RAN. See Description Sheet in file RAN_Work_Items.

2.7.1.1 Iub/Iur interfaces for UE positioning methods supported on the radio interface R99

Originally RP-000509

Work Item Description

Title: Iub/Iur interfaces for UE positioning methods supported on the radio interface release 99

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

Currently, the UE positioning is a function of UTRAN where several methods are supported on the radio interface:

- cell coverage based positioning method;
- OTDOA method with network configurable idle periods; and
- network assisted GPS method.

Nevertheless, only the cell coverage based positioning method is supported on the Iub and Iur interface of release 99.

4 Objective

The purpose of this work item is to add on the Iub and Iur protocols the necessary support for the positioning methods defined for release 99.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.401 | | UTRAN Overall Description | | RAN #10 | | |
| 25.420 | | UTRAN Iur Interface: General Aspects and Principles | | RAN #10 | | |
| 25.423 | | UTRAN Iur Interface RNSAP Signalling | | RAN #10 | | |
| 25.430 | | UTRAN Iub Interface: General Aspects and Principles | | RAN #10 | | |
| 25.433 | | UTRAN Iub Interface NBAP Signalling | | RAN #10 | | |

11 Work item rapporteurs

to be decided by RAN WG3

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|----------|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

14c The WI is a Work Task: parent Building Block

UE positioning

2.7.1.2 UE positioning enhancements- IPDLs for TDD

Originally RP-000509

Work Item Description

Title: UE positioning enhancements

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

UE positioning is a function of UE and UTRAN (Access Stratum) which can be utilised for a number of purposes:

- Radio Resource Management
- Support for location based services (LCS)

Different accuracy can be requested when positioning a UE for these purposes.

4 Objective

The purpose of this work item are to increase the accuracy of the UE positioning or define methods allowing UE positioning with less complexity for a given accuracy.

Examples of enhancements are:

- Addition of IPDL for UE positioning in TDD [This was finished in TSG-RAN #11]
- Almanac corrections

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.305 | | Stage 2 Functional Specification of Location Services in UTRAN | | RAN #11 | | |
| 25.123 | | Requirements for Support of Radio Resource Management (TDD) | | RAN #11 | | |
| 25.224 | | Physical Layer Procedures (TDD) | | RAN #11 | | |
| 25.225 | | Physical layer – Measurements (TDD) | | RAN #11 | | |
| 25.302 | | Services provided by the physical layer | | RAN #11 | | |
| 25.303 | | Interlayer procedures in connected mode | | RAN #11 | | |
| 25.304 | | UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode | | RAN #11 | | |
| 25.331 | | RRC Protocol Specification | | RAN #11 | | |
| 25.420 | | UTRAN Iur Interface: General Aspects and Principles | | RAN #11 | | |
| 25.423 | | UTRAN Iur Interface RNSAP Signalling | | RAN #11 | | |
| 25.430 | | UTRAN Iub Interface: General Aspects and Principles | | RAN #11 | | |
| 25.433 | | UTRAN Iub Interface NBAP Signalling | | RAN #11 | | |

11 Work item rapporteur

Mark Beckmann, Siemens AG

3GPP TSG RAN Work Items (History)

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| x | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14c The WI is a Work Task: parent Building Block

UE positioning

3 Release 5

3.1 High Speed Downlink Packet Access (HSDPA)

Originally RP-010262

Work Item Description

Title: High Speed Downlink Packet Access

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

HSDPA Physical Layer

HSDPA Layer 2 and 3 Protocol Aspects

HSDPA UTRAN Iub/Iur Protocol Aspects

HSDPA RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

3 Justification

In RAN#7 a study item on High Speed Downlink Packet Access was approved. The aim of the study was to look at the feasibility and potential of various techniques such as Adaptive Modulation and Coding and Hybrid ARQ for increasing throughput and peak data rates with reduction in concomitant delay. Since RAN#7, RAN WG1 and RAN WG2 have considered many contributions on this subject and have concluded on the feasibility and potential of various techniques and provided recommendations on the inclusion of these techniques for Rel-5. This work item is in line with the recommendations from WG2 and WG1.

4 Objective

The technical objective of this work item is the integration of HSDPA functionality in UTRA, in line with recommendations from WG1 and WG2, to increase the throughput and peak data rates while reducing the overall delay. The works tasks include support for both FDD and TDD. In those cases where differences between FDD and TDD are identified, they should be considered as separate work tasks.

- For physical layer, the features include:
 - Physical and Transport Channels mapping
 - Higher Order Modulation
 - Multiplexing and Hybrid ARQ Channel Coding
 - Physical Layer procedures
- For higher layers:
 - Architecture aspects

3GPP TSG RAN Work Items (History)

- MAC entity (Scheduling and Hybrid ARQ protocol)
- Interlayer procedures in connected mode
- Control plane aspects
- UE capabilities

- For Iur/Iub interface:
For the adoption of HSDPA some modifications to the present Iub and Iur signalling and user data streams will need to be included.

- For radio transmission and reception:
 - UE radio transmission and reception
 - BTS radio transmission and reception
 - BTS Conformance testing
 - Requirements for support of Radio Resource Management

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|------------------|----------------------|---|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.855 | | R2 | | | RAN#13 | |
| 25.308 | | R2 | | | RAN#13 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| | | | | | | |

11 Work item raporteurs

Ravi Kuchibhotla (Motorola)

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| X | Feature (go to 14a) |
| | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

HSDPA Physical Layer

HSDPA Layer 2 and 3 Protocol Aspects

HSDPA UTRAN Iub/Iur Protocol Aspects

HSDPA RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

14b The WI is a Building Block: parent Feature

(one Work Item identified as a feature)

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

This WI has not finished yet. See RAN_Work_Items.

3.1.1 High Speed Downlink Packet Access (HSDPA) - *Physical Layer*

Last distributed as: RP-010915 (originally RP-010262)

Work Item Description

Title: High Speed Downlink Packet Access - Physical Layer

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

HSDPA Layer 2 and 3 Protocol Aspects
HSDPA UTRAN Iub/Iur Protocol Aspects
HSDPA RF Radio Transmission/ Reception, System Performance Requirements and
Conformance Testing

3 Justification

The study item on HSDPA was concluded in RAN WG#11 with recommendations on the techniques to be included in Rel-5. This work item enables the inclusion of the identified techniques at the physical layer.

4 Objective

The technical objective of this work item is the integration of HSDPA physical layer functionality in UTRA, while maintaining commonality with the R99 general physical layer aspects to the maximum extent possible.

- For physical layer, the features include:
 - Physical and Transport Channels mapping
 - Higher Order Modulation
 - Multiplexing and Hybrid ARQ Channel Coding
 - Physical Layer procedures

The work task for physical layer procedures will also consider additional physical layer measurements that may be required.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|-------------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--|----------------------|---|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.858 | | R1 | | RAN#14 | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| 25.201 | | Physical layer – General description | | | RAN#15 | |
| 25.211 | | Physical channels and mapping of transport channels onto physical channels (FDD) | | | RAN#15 | |
| 25.212 | | Multiplexing and channel coding (FDD) | | | RAN#15 | |
| 25.213 | | Spreading and modulation (FDD) | | | RAN#15 | |
| 25.214 | | Physical layer procedures(FDD) | | | RAN#15 | |
| 25.221 | | Physical channels and mapping of transport channels onto physical channels (TDD) | | | RAN#15 | |
| 25.222 | | Multiplexing and channel coding (TDD) | | | RAN#15 | |
| 25.223 | | Spreading and modulation (TDD) | | | RAN#15 | |
| 25.224 | | Physical layer procedures(TDD) | | | RAN#15 | |

The expected finalisation date is TSG-RAN #15

11 Work item rapporteurs

Amitava Ghosh (Motorola)

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

Motorola, Nokia, Ericsson, Vodafone Group, Mannesmann Mobilfunk

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

High Speed Downlink Packet Access (HSDPA)

14c The WI is a Work Task: parent Building Block

3.1.2 High Speed Downlink Packet Access (HSDPA) - *layer 2 and 3 aspects*

Last distributed as: RP-010915 (originally RP-010262)

Work Item Description

Title: High Speed Downlink Packet Access - layer 2 and 3 aspects

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

HSDPA Physical Layer
HSDPA UTRAN Iub/Iur Protocol Aspects
HSDPA RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

3 Justification

The study item on HSDPA was concluded in RAN WG#11 with recommendations on the techniques to be included in Rel-5. This work item enables the inclusion of the identified techniques at layers 2 and 3.

4 Objective

The technical objective of this work item is the integration of HSDPA physical layer functionality in UTRA, while maintaining commonality with the R99 general layer 2 and 3 aspects to the maximum extent possible. While most of the control aspects will be identical to those for R99, some additional signaling for the configuration of HSDPA channels will need to be defined. Also, in order to enable the support of fast scheduling, support for a new MAC-HSDSCH entity shall be included. This new entity at the Node B will handle all the scheduling and HARQ (non-physical layer aspects) of the HSDPA feature. UE capabilities will need to be updated to indicate support of HSDPA. Physical Layer aspects of UE capabilities will be handled by WG1.

- For layers 2 and 3, the features include:
 - Architecture aspects
 - MAC entity (Scheduling and Hybrid ARQ protocol)
 - Interlayer procedures in connected mode
 - Control plane aspects
 - UE capabilities

5 Service Aspects

3GPP TSG RAN Work Items (History)

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---|----------------------|---|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| 25.301 | | Radio interface protocol architecture | | | RAN#15 | |
| 25.302 | | Service provided by the physical Layer | | | RAN#15 | |
| 25.303 | | UE functions and Inter-layer procedures in connected mode | | | RAN#15 | |
| 25.306 | | UE Radio Access Capabilites | | | RAN#15 | |
| 25.321 | | Medium access control (MAC) protocol specification | | | RAN#15 | |
| 25.331 | | Radio resource control (RRC) protocol specification | | | RAN#15 | |

The expected finalisation date is TSG-RAN #15

11 Work item raporteurs

Ravi Kuchibhotla (Motorola)

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

Motorola, Nokia, Ericsson, Vodafone Group, Mannesmann Mobilfunk

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

High Speed Downlink Packet Access (HSDPA)

14c The WI is a Work Task: parent Building Block

3.1.3 High Speed Downlink Packet Access (HSDPA) - *Iub/Iur Protocol Aspects*

Last distributed as: RP-010915 (originally RP-010262)

Work Item Description

Title: High Speed Downlink Packet Access - Iub/Iur Protocol Aspects

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

HSDPA Physical Layer
HSDPA Layer 2 and 3 Protocol Aspects
HSDPA RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

3 Justification

The study item on HSDPA was concluded in RAN WG#11 with recommendations on the techniques to be included in Rel-5. This work item enables support of the identified techniques over the Iub and Iur.

4 Objective

The technical objective of this work item is the integration of HSDPA physical layer functionality in UTRA, while maintaining commonality with the R99 general Iub and Iur aspects to the maximum extent possible. While most of the control aspects will be identical to those for R99, some additional signaling for the configuration of HSDPA shared channels will need to be defined. Also frame protocol for the user data stream will need to be defined for the HSDPA shared channels. Flow control for the HSDPA channels on the Iub will need to be supported.

- For Iub and Iur, the features include:
 - Iub and Iur architecture aspects
 - Iub and Iur control plane aspects
 - Iub and Iur user plane aspects

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|-------------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--|----------------------|---|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | | Approved at plenary# | Comments |
| TS 25.401 | | UTRAN Overall Description | | | RAN #15 | |
| TS 25.420 | | UTRAN I _{ur} Interface: General Aspects and Principles | | | RAN #15 | |
| TS 25.422 | | UTRAN I _{ur} interface signalling transport | | | RAN #15 | |
| TS 25.423 | | UTRAN I _{ur} Interface RNSAP Signalling | | | RAN #15 | |
| TS 25.424 | | UTRAN I _{ur} interface data transport & transport signalling for CCH data streams | | | RAN #15 | |
| TS 25.425 | | UTRAN I _{ur} interface user plane protocols for CCH data streams | | | RAN #15 | |
| TS 25.426 | | UTRAN I _{ur} and I _{ub} Interface Data Transport & Transport Signalling for DCH Data Streams | | | RAN #15 | |
| TS 25.430 | | UTRAN I _{ub} Interface General Aspects and Principles | | | RAN #15 | |
| TS 25.432 | | UTRAN I _{ub} interface signalling transport | | | RAN #15 | |
| TS 25.433 | | UTRAN I _{ub} Interface NBAP Signalling | | | RAN #15 | |
| TS 25.434 | | UTRAN I _{ub} interface data transport & transport signalling for CCH data streams | | | RAN #15 | |
| TS 25.435 | | UTRAN I _{ub} interface user plane protocols for CCH data streams | | | RAN #15 | |
| TS 25.442 | | UTRAN Implementation Specific O&M Transport | | | RAN #15 | |

The expected finalisation date is TSG-RAN #15

11 Work item raporteurs

Mike Diesen, Motorola

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

Motorola, Nokia, Ericsson, Vodafone Group, Mannesmann Mobilfunk

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

High Speed Downlink Packet Access (HSDPA)

14c The WI is a Work Task: parent Building Block

3.1.4 High Speed Downlink Packet Access (HSDPA) - RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

Originally RP-010262

Work Item Description

Title: High Speed Downlink Packet Access - RF Radio Transmission/ Reception, System Performance Requirements and Conformance Testing

1 3GPP Work Area

| | |
|----------|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

HSDPA Physical Layer
HSDPA Layer 2 and 3 Protocol Aspects
HSDPA UTRAN Iub/Iur Protocol Aspects

3 Justification

The study item on HSDPA was concluded in RAN WG#11 with recommendations on the techniques to be included in Rel-5. This work item supports the specifications of the various RF characteristics of the HSDPA feature as they impact the base station and mobile station performance and the radio resource management aspects.

4 Objective

The technical objective of this work item is the description of the HSDPA characteristics, the system performance requirements and conformance testing.

- For radio transmission and reception:
 - UE radio transmission and reception
 - BTS radio transmission and reception
 - BTS Conformance testing
 - Requirements for support of Radio Resource Management

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|--|---|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| TR 25.890 | High Speed Downlink Packet Access: UE Radio Transmission and Reception (FDD) | WG4 | | RAN#16 | RAN #20 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.101 | | UE Radio Transmission and Reception (FDD) | | RAN #20 | | |
| 25.102 | | UE Radio Transmission and Reception (TDD) | | RAN #20 | | |
| 25.104 | | UTRA (BS) FDD; Radio transmission and Reception | | RAN#17 NOTE 1 | | |
| 25.105 | | UTRA (BS) TDD; Radio transmission and Reception | | RAN#17 NOTE 1 | | |
| 25.123 | | Requirements for support of Radio Resource Management (TDD) | | RAN#17 NOTE 1 | | |
| 25.133 | | Requirements for support of Radio Resource Management (FDD) | | RAN#17 NOTE 1 | | |
| 25.141 | | Base station conformance testing(FDD) | | RAN#17 NOTE 1 | | |
| 25.142 | | Base station conformance testing(TDD) | | RAN#17 NOTE 1 | | |

11 Work item rapporteurs

Howard Benn (Motorola)

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| X | Feature (go to 14a) |
| | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature
High Speed Downlink Packet Access (HSDPA)

3.2 Rel-5 Evolution of the transport in the UTRAN

This is a generic feature. See Description Sheet in file RAN_Work_Items.

3.2.1 IP transport in UTRAN

Work Item Description

Title: IP-transport in UTRAN

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 **Linked work items**

None

3 **Justification**

Release 2000 workplan includes, as an option, an all-IP transport architecture aimed at allowing operators to deploy IP technology to deliver 3rd generation services.

The foreseen benefits of the introduction of IP as transport technology inside the UTRAN are:

- To give the operator the option to use IP transport as an alternative to AAL2/ATM transport within UTRAN.
- In which networks, or parts of network, the IP option is beneficial over the AAL2/ATM option will vary between different operators, e.g. depending on existing transport network infrastructure, other applications using the same transport, available physical links, etc.
- A consistent approach allowing for end-to-end IP transport solutions.
- The more detailed requirements and expected benefits will be documented in the Technical Report.

4 **Objective**

The purpose of this new work task is to enable the usage of IP technology for the transport of signalling and user data over Iu, Iur and Iub in the UTRAN. This work task is only related to the transport aspects.

5 **Service Aspects**

None

6 **MMI-Aspects**

None

7 Charging Aspects

None

8 Security Aspects

Security aspects linked with the use of IP as transport technology.

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|-------------------|------|----|----|----------------|--------|
| Yes | | | X | X ¹ | |
| No | X | X | | | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

The first step of the work will consist in providing the necessary changes to the generic specifications (TS 25.401, TS 25.402). Then, the CRs to the other specs introducing the possibility to use IP as a transport mechanism will be generated.

The QOS aspects should be studied closely with IETF.

| New specifications | | | | | | |
|--------------------|--|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| TR 25.933 | IP Transport in UTRAN Work Task Technical Report | WG3 | | RAN #14 | RAN #15 | |
| | | | | | | |

| Affected existing specifications | | | | |
|----------------------------------|----|--|----------------------|---|
| Spec No. | CR | Subject | Approved at plenary# | Comments |
| TS 25.401 | | UTRAN Overall Description | RAN #15 | Only text related to Transport Network Layer. |
| TS 25.402 | | Synchronisation in UTRAN, Stage 2 | RAN #15 | To be confirmed during the study |
| TS 25.410 | | UTRAN Iu Interface: General Aspects and Principles | RAN #15 | Only text related to Transport Network Layer. |
| TS 25.411 | | UTRAN Iu Interface Layer 1 | RAN #15 | |
| TS 25.412 | | UTRAN Iu interface signalling transport | RAN #15 | |
| TS 25.413 | | UTRAN Iu Interface RANAP Signalling | RAN #15 | Only parameters and interface related to the Transport Network Layer. |
| TS 25.414 | | UTRAN Iu interface data transport & transport signalling | RAN #15 | |
| TS 25.415 | | UTRAN Iu interface user plane protocols | RAN #15 | Only parameters and interface related to the Transport Network Layer. |
| TS 25.420 | | UTRAN Iur Interface: General Aspects and Principles | RAN #15 | Only text related to Transport Network Layer. |
| TS 25.422 | | UTRAN Iur interface signalling transport | RAN #15 | |
| TS 25.423 | | UTRAN Iur Interface RNSAP Signalling | RAN #15 | Only parameters and interface related to the Transport Network Layer. |
| TS 25.424 | | UTRAN Iur interface data transport & transport signalling for CCH data streams | RAN #15 | |

¹ None of the TSG-CN specifications are impacted.

3GPP TSG RAN Work Items (History)

| | | | | |
|-----------|--|--|---------|---|
| TS 25.425 | | UTRAN I _{ur} interface user plane protocols for CCH data streams | RAN #15 | Only parameters and interface related to the Transport Network Layer. |
| TS 25.426 | | UTRAN I _{ur} and I _{ub} Interface Data Transport & Transport Signalling for DCH Data Streams | RAN #15 | |
| TS 25.430 | | UTRAN I _{ub} Interface General Aspects and Principles | RAN #15 | Only text related to Transport Network Layer. |
| TS 25.432 | | UTRAN I _{ub} interface signalling transport | RAN #15 | |
| TS 25.433 | | UTRAN I _{ub} Interface NBAP Signalling | RAN #15 | Only parameters and interface related to the Transport Network Layer. |
| TS 25.434 | | UTRAN I _{ub} interface data transport & transport signalling for CCH data streams | RAN #15 | |
| TS 25.435 | | UTRAN I _{ub} interface user plane protocols for CCH data streams | RAN #15 | Only parameters and interface related to the Transport Network Layer. |
| TS 25.442 | | UTRAN Implementation Specific O&M Transport | RAN #15 | |
| TR 25.931 | | UTRAN Functions, Examples on Signalling Procedures | RAN #15 | Only messages related to transport bearers. |
| TR 25.932 | | Delay Budget within the Access Stratum | RAN #15 | |

11 Work item rapporteurs

Nicolas Drevon, Alcatel

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

(one Work Item identified as a feature)

14c The WI is a Work Task: parent Building Block

Parent Building Block is "Evolution of the Transport in the UTRAN".

3.3 Rel-5 Improvements of the Radio interface

This is a generic feature. See Description Sheet in file RAN_Work_Items.

3.3.1 Base station classification

This Building Block is split between Release 5 and Release 6. The Work Tasks are as follows:

- FDD BS classification (Rel-6)
- TDD BS classification (Rel-5)
- LCR TDD BS classification (Rel-5)

Work Item Description

Last distributed as: RAN_Work_Items_after_RAN_15 (originally RP-000186)

Title: Base station classification

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

This work item proposes a building block for new base station classifications

4 Objective

This is the parent building block for the TDD and FDD basestation classification work tasks. Technical details for the work tasks can be found in TDoc RP-000132, and RP-000183

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | R4 | | RAN #18 | RAN #18 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |

11 Work item rapporteurs

Antti Toskala, Nokia

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature – Radio Interface Improvement

3.3.1.1 TDD Base station classification

Originally RP-000185

Work Item Description

Title: TDD Base Station Classification

1 **3GPP Work Area**

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 **Linked work items**

none

3 **Justification**

Current TSG RAN WG4 specifications have been done according to the requirements for the macrocell base stations (NodeBs). For the UTRA evolution requirements specific for other type of base stations are needed as well (e.g. micro, pico)

4 **Objective**

- definition of base station classes according to deployment scenarios (e.g. macro, micro, pico)
- identification, review and possible update of radio parameters dependent on deployment scenarios
- identification, review and possible update of UTRAN (Node B) measurement requirements and conformance where the maximum base station output power is reflected, dependent on deployment scenarios
- review and possible update of conformance test specifications
- recording of related information into RF System Scenarios

5 **Service Aspects**

None

6 **MMI-Aspects**

None

7 **Charging Aspects**

None

8 **Security Aspects**

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|------------------------------------|--|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.952 | TDD Base station classification | R4 | | RAN #16 | RAN #16 | |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.105 | | UTRA (BS) TDD, Radio Transmission and Reception | | RAN #16 | | |
| 25.142 | | Base Station Conformance Testing (TDD) | | RAN #16 | | |
| 25.123 | | RF parameters in support of RRM (TDD) | | RAN #16 | ? | |
| 25.942 | | RF System Scenarios | | RAN #16 | | |

11 Work item raporteurs

Antti Toskala, Nokia Networks

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

3GPP TSG RAN Work Items (History)

(one Work Item identified as a feature)

14c The WI is a Work Task: parent Building Block: Base Station Classification

(one Work Item identified as a building block)

3.3.1.2 Base Station Classification for 1.28 Mcps TDD

Originally RP-010450

Work Item Description

Title: Base Station Classification for 1.28 Mcps TDD option

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

Current TSG RAN WG4 specifications have been done according to the requirements for the general purpose base station (Node B). For the UTRA evolution requirements specific for other type of base stations are needed as well (e.g. local area base station).

4 Objective

- definition of base station classes according to deployment scenarios (e.g. indoor, outdoor)
- identification, review and possible update of radio parameters dependent on deployment scenarios
- identification, review and possible update of UTRAN (Node B) measurement requirements and conformance where the maximum received signal level at the base station is reflected, dependent on deployment scenarios
- review and possible update of conformance test specifications
- recording of related information into RF System Scenarios

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|---|--|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.882 | Base station classification for 1.28 Mcps TDD option | R4 | | RAN #16 | RAN #16 | |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.105 | | UTRA (BS) TDD, Radio Transmission and Reception | | RAN #16 | | |
| 25.142 | | Base Station Conformance Testing (TDD) | | RAN #16 | | |
| 25.123 | | Requirements for Support of Radio Resources Management (TDD) | | RAN #16 | | |
| 25.942 | | RF System Scenarios | | RAN #16 | | |

11 Work item rapporteurs

Meik Kottkamp, Siemens

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14c The WI is a Work Task: parent Building Block: Base Station Classification

3.3.2 Enhancement on the DSCH hard split mode

Originally RP-010216

Work Item Description

Title: Enhancement on the DSCH hard split mode

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

1) It was identified by RAN WG's (WG1, WG2 and WG3) that in the current Rel99 specification, logical split cannot be supported over Iur during the DSCH soft handover if DSCH scheduling should be done in DRNC. Furthermore, hard split has advantage over logical split in the sense that it can be supported over Iur. However, it was also identified that hard split has some limitation and therefore there is some need to study the enhancement for TFCI coding in the DSCH hard split mode

2) And also, it was identified by RAN WG1, that in the current Rel99 specification, TFCI2 (TFCI for DSCH) is not transmitted from all the cells in the active set when the UE is in soft handover. Furthermore, in the current specification, the power offset should be set high enough to always detect TFCI bits reliably even if UE is not in soft handover.

4 Objective

The purpose of this work item is to specify the enhancements of TFCI coding and power control in DSCH hard split mode for UTRA FDD. This work item is composed of two work tasks.

1) TFCI coding in DSCH hard split mode

Currently DSCH hard split mode can support only 5 bit long DSCH and DCH TFCIs. As a result, the number of TFCI is limited upto 32 for DCH and DSCH in DSCH hard split mode. A new TFCI coding scheme to support the variable bit length can enhance the DSCH hard split mode.

2) TFCI power control in DSCH hard split mode

Currently the reliability of TFCI cannot be guaranteed when the UE is in soft handover. As well, in the current specification, the power offset should be set high enough to always detect TFCI bits reliably even if UE is not in soft handover. New power control scheme for TFCI can enhance the DSCH hard split mode.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---------------------------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| TR 25.870 | | | | RAN # 14 | RAN # 16 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| 25.212 | | Multiplexing and channel coding (FDD) | | RAN #16 | | |
| 25.214 | | Physical Layer Procedure (FDD) | | RAN #16 | | |
| 25.331 | | RRC Protocol Specification | | RAN #16 | | |
| 25.423 | | UTRAN Iur Interface RNSAP Signalling | | RAN #16 | | |
| 25.433 | | UTRAN Iub Interface NBAP Signalling | | RAN #16 | | |

11 Work item rapporteurs

Jaeyoel KIM, SAMSUNG Electronics. kimjy@samsung.com

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

3GPP TSG RAN Work Items (History)

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

This is a building block part of the radio interface improvement feature.

14c The WI is a Work Task: parent Building Block

Work Task 1:TFCI coding in DSCH hard split mode

Work Task 2 :TFCI power control in DSCH hard split mode

3.4 Rel-5 RAN improvements

This is a generic feature. See Description Sheet in file RAN_Work_Items.

3.4.1 RRM optimizations for Iur and Iub

Originally RP-000310

The Work Tasks finished in TSG-RAN #11 are mentioned in this WI description

Work Item Description

Title: RRM optimizations for Iur and Iub

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

Optimising the existing procedures will increase the efficiency of UTRAN and the quality of service to the end user.

4 Objective

This work item focuses on optimising the existing procedures and functions related to:

1) Congestion handling of DCH

Currently a DRNC accepting a dedicated RL, in principle needs to reserve resources for the maximum bitrate which could possibly be required for the DCH's on this RL. This because the DRNC has a very limited view on the load statistics of the DCH's (source descriptor) and has no possibility to control the DL-rate of the DCH's in congestion situations.

2) Procedure parallelism on Iub/Iur

Currently almost no procedure parallelism is allowed in NBAP/RNSAP (dedicated) procedures. As a result, an RRM procedure used for handling problems in a fast changing radio environment, could have to wait for termination of a procedure e.g. introducing a new service on the RL.

In order to improve the capability of the UTRAN to respond to fast changes in the radio environment, the restrictions on parallelism between procedures coping with radio environment changes (e.g. RL_ADDITION/RL_DELETION) and other procedures (e.g. RL_RECONFIGURATION) should be decreased.

3) DPC Rate Reduction in soft handover

Currently R1 describes two DPC_modes in 25.214, however mode change signalling is not supported by R3.

By supporting DPC-mode change signalling in the UTRAN, the UTRAN should be better capable of combating power drifting in the DL.

4) Introduction of common measurements over Iur

It is proposed to study the usefulness of / possibilities for introducing common measurements on Iur. For example, at present an SRNC has no information regarding cell load information in neighbouring cells on a DRNC when making soft handover decisions. A study should indicate whether clear benefits exist of providing such load information to a neighbouring CRNC.

If this, or other possible measurements are identified, a common measurement procedure as currently supported on Iub could be introduced in RNSAP.

5) Extension of Radio Interface Parameters updating in the user plane

Currently the Iub/Iur DCH FP supports a fast update of the TPC Power Offset in the DL RL via user plane signalling.

It should be studied if more radio interface parameters would benefit from a similar handling. If such parameters are identified, the user plane should be extended for this purpose.

6) Separation of resource reservation and radio link activation

This work task aims at introducing the possibility to have dedicated resources reserved in UTRAN without transmitting energy on the corresponding radio link(s). Furthermore, a separate mechanism for activating and deactivating radio transmission related to the reserved resources shall be introduced.

The separation will enable the following optimisations in UTRAN:

- delayed activation of a radio link at soft handover for high bit rate users, thus avoiding a potential handover problem;
- quicker channel type switching back to Cell_DCH;
- quicker radio link additions of radio links that recently were part of the active set;

7) Triggering of the Common Transport Channel Resources Initiation procedure by DRNC

Currently the DRNC has no possibility to request an SRNC to move a UE from using one combination of RACH/FACH channels to other RACH/FACH channels. However this functionality is provided by R(99) RRC signalling and is considered beneficial for obtaining a good distribution of the common resource usage in the DRNS.

For R(00) an appropriate solution should be specified to provide this capability to the DRNC.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

It is proposed to maintain the “RRM optimizations for Iur and Iub Building Block” as a continuously ongoing Building Block.

It is also proposed to handle Release 5 worktasks under this BB in separate WI-sheets, and result in separate TR’s. Therefore, TR25.935 can be brought to v4.0.0, finalising the 6 worktasks indicated below.

1) Congestion handling of DCH

| New specifications | | | | | | |
|----------------------------------|-----------------------------------|---------------|--------------------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2 nd ary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.935 | RRM optimizations for Iur and Iub | WG3 | | RAN #11 | RAN #11 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.423 | 339 | RNSAP | | RAN #11 | | |

2) Procedure parallelism on Iub/Iur

| New specifications | | | | | | |
|----------------------------------|-----------------------------------|---------------|--------------------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2 nd ary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.935 | RRM optimizations for Iur and Iub | WG3 | | RAN #11 | RAN #11 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |

Finalised without specification impact.

3) DPC Rate Reduction in soft handover

3GPP TSG RAN Work Items (History)

| New specifications | | | | | | |
|----------------------------------|-----------------------------------|--|---------------------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2 nd ary resp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.935 | RRM optimizations for lur and lub | WG3 | | RAN #11 | RAN #11 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.427 | 45 | lub/lur dedicated transport channel user plane | | RAN #11 | | |
| 25.423 | 320 | RNSAP | | RAN #11 | | |
| 25.433 | 373 | NBAP | | RAN #11 | | |
| 25.433 | 387 | NBAP | | RAN #11 | | |

4) Introduction of common measurements over lur

| New specifications | | | | | | |
|----------------------------------|-----------------------------------|------------------------------------|---------------------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2 nd ary resp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.935 | RRM optimizations for lur and lub | WG3 | | RAN #11 | RAN #11 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.420 | 12 | lur general aspects and principles | | RAN #11 | | |
| 25.423 | 323 | RNSAP | | RAN #11 | | |

5) Extension of Radio Interface Parameters updating in the user plane

| New specifications | | | | | | |
|----------------------------------|-----------------------------------|----------------|---------------------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2 nd ary resp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.935 | RRM optimizations for lur and lub | WG3 | | RAN #11 | RAN #11 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |

Finalised without specification impact.

6) Separation of resource reservation and radio link activation

Not finalised; proposed to be handled in separate WI-sheet for Release 5.

7) Triggering of the Common Transport Channel Resources Initiation procedure by DRNC

3GPP TSG RAN Work Items (History)

| New specifications | | | | | | |
|----------------------------------|-----------------------------------|----------------|---------------------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2 nd ary resp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.935 | RRM optimizations for lur and lub | WG3 | | RAN #11 | RAN #11 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |

Finalised without specification impact.

11 Work item rapporteurs

Gert-Jan van Lieshout (Ericsson)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

Radio Interface Improvement feature and UTRAN Improvement feature

14c The WI is a Work Task: parent Building Block

Starting from Release 5, each Work Task under this Building Block will be described in a separate WI-sheet.

3.4.1.1 Iur Common Transport Channel Efficiency Optimisation

Originally RP-010473

Work Item Description

Title: Iur Common Transport Channel Efficiency Optimisation

1 **3GPP Work Area**

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 **Linked work items**

None

3 **Justification**

Optimising the existing procedures will increase the efficiency of UTRAN and the quality of service to the end user.

4 **Objective**

Currently in RACH/FACH state, the SRNC will have to execute the RNSAP Common Transport Channel Resources Initialisation procedure every time the UE moves from one cell to another cell in the DRNS. This procedure is required to provide the SRNC with:

- A) Information on supported MAC-C lengths;
- B) Flow control information;
- C) Possibility to request another bearer;

In many cases, many (all) S-CCPCH's in a DRNS will be configured with the same TB sizes. If in such a situation a UE moves from one cell to another cell under the same DRNS, there is no reason to update A).

If the DRNS can continue to use the same flow-control situation, there is no reason to update B).

If, in the case A) and B) are not required and the SRNC does not require the UE to start using a new transport bearer, there is no need to execute the CommonTransport Resource Initialisation procedure.

A mechanism shall be introduced which reduces the need for a Common Transport Resources Initialisation procedure where possible.

5 **Service Aspects**

None

6 **MMI-Aspects**

3GPP TSG RAN Work Items (History)

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | X |
| Don't know | | | | | |

11 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|----------------|---------------------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2 nd ary resp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.xxx | | WG3 | | RAN #15 | RAN #15 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | Approved at plenary# | | Comments | |
| 25.423 | | RNSAP | RAN #15 | | | |

11 Work item rapporteurs

Shahrokh Amirijoo (Ericsson)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

Ericsson, NEC, Nortel, Vodafone

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14c The WI is a Work Task: parent Building Block

3GPP TSG RAN Work Items (History)

RRM optimizations for Iur and Iub

3.4.1.2 Iur Neighbouring cell reporting Efficiency Optimisation

Originally RP-010474

Work Item Description

Title: Iur Neighbouring cell reporting Efficiency Optimisation

1 **3GPP Work Area**

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 **Linked work items**

None

3 **Justification**

Optimising the existing procedures will increase the efficiency of UTRAN and the quality of service to the end user.

4 **Objective**

In Rel99/Rel4, everytime a RL is established in a certain cell, the SRNC will get information about certain characteristics of cells neighbouring the cell in which the RL is established. This information is provided regardless of whether the SRNC already has received this information before e.g. as neighbouring cell information for a previous RL establishment.

A mechanism shall be studied and if it is considered beneficial introduced, which increases the efficiency of the neighbouring cell information reporting by avoiding the transport of information the SRNC is already aware of.

5 **Service Aspects**

None

6 **MMI-Aspects**

None

7 **Charging Aspects**

None

8 **Security Aspects**

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | X |
| Don't know | | | | | |

12 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|------------------|--------------------------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2 nd ary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.xxx | | WG3 | | RAN #15 | RAN #15 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.423 | | RNSAP | | RAN #15 | | |

11 Work item raporteurs

Shahrokh Amirijoo (Ericsson)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

Ericsson, IDC, Nortel, Siemens, Vodafone

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14c The WI is a Work Task: parent Building Block

RRM optimizations for Iur and Iub

3.4.1.3RL Timing Adjustment

Originally RP-010261

Work Item Description

Title: RL Timing Adjustment

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

Optimising the existing procedures will increase the efficiency of UTRAN and the quality of service to the end user.

4 Objective

WG1 has already expressed (outgoing liaison R1-010135) that in the event of RL adjustment being required, the Rel99/Rel4 process of deleting and re-establishing a RL temporarily causes additional DL interference in one or more cells due to loss of macro-diversity gain. In addition it slightly increases the risk of dropped calls. Therefore RAN WG1 asked RAN WG3 to consider implementing a RL adjustment procedure for a future release.

This work task aims at introducing this possibility to execute a timing adjustment of one individual RL, typically one of several RLs in the active set.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

13 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|------------------|-----------------------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2 nd ary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.xxx | | WG3 | WG2 | RAN #15 | RAN #15 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.423 | | RNSAP | | RAN #15 | | |
| 25.433 | | NBAP | | RAN #15 | | |
| 25.331 | | RRC | | RAN #15 | | |

11 Work item rapporteurs

Elena Voltolina (Ericsson)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

Ericsson, Nokia, Philips, Qualcomm

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

14c The WI is a Work Task: parent Building Block

RRM optimizations for Iur and Iub

3.4.1.4 Separation of resource reservation and radio link activation

Originally RP-010487

Work Item Description

Title: Separation of resource reservation and radio link activation

1 **3GPP Work Area**

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 **Linked work items**

None

3 **Justification**

Optimising the existing procedures will increase the efficiency of UTRAN and the quality of service to the end user.

4 **Objective**

This work task aims at introducing the possibility to have dedicated resources reserved in UTRAN without transmitting energy on the corresponding radio link(s). Furthermore, a separate mechanism for activating and deactivating radio transmission related to the reserved resources shall be introduced. The study of this mechanism shall also consider the possibility to reserve resources without allocating them to a particular UE. In this case, the actual allocation of the reserved resources to a particular UE would be delayed until the activation of the radio transmission.

The separation will enable the following optimisations in UTRAN:

- delayed activation of a radio link at soft handover for high bit rate users, thus avoiding a potential handover problem;
- quicker channel type switching back to Cell_DCH;
- quicker radio link additions of radio links that recently were part of the active set;
- benefit from statistical multiplexing at RRM level (by reserving resources on a given cell based on HO probability laws, Busy Hour Call Attempts statistics,...).

5 **Service Aspects**

None

6 **MMI-Aspects**

None

7 **Charging Aspects**

3GPP TSG RAN Work Items (History)

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | X |
| Don't know | | | | | |

14 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|------------------------------------|--------------------------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2 nd ary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.xxx | | WG3 | | RAN #15 | RAN #15 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.420 | | Iur general aspects and principles | | RAN #15 | | |
| 25.423 | | RNSAP | | RAN #15 | | |
| 25.430 | | Iub general aspects and principles | | RAN #15 | | |
| 25.433 | | NBAP | | RAN #15 | | |

11 Work item rapporteurs

Gert-Jan van Lieshout (Ericsson)

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

3GPP TSG RAN Work Items (History)

14c The WI is a Work Task: parent Building Block

RRM optimizations for Iur and Iub

3.4.2 Re-arrangement of Iub Transport Bearers

Originally RP-010465

Work Item Description

Title: Re-arrangement of Iub Transport Bearers (originally Traffic Termination Point Swapping)

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None identified.

3 Justification

In the current NBAP specification (TS25.433) there is no mechanism to change the D-NBAP link for the given Node B Communication Context and secondly there is no mechanism to switch the existing transport bearers from one physical termination point to another. Fixing of the transport resources may cause the transport resource fragmentation problem in the implementation where the physical resources are distributed. In the worst case the transport resource fragmentation may cause the rejection of some large capacity call. To solve this problem there is a need for a new procedure allowing the Node B to initiate transport resource reallocation. This new procedure allows the use of distributed physical resources more efficiently by allowing a defragmentation of the resources and it may be used also due the O&M reasons.

4 Objective

The objective of this work item is to introduce a new procedure in the NBAP enabling Node B to initiate switching of the transport bearers and a Communication Control Port from one physical termination point to another.

5 Service Aspects

None identified.

6 MMI-Aspects

None identified.

7 Charging Aspects

None identified.

8 Security Aspects

None identified.

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

This is a Release 5 Work Item

| New specifications | | | | | | |
|----------------------------------|-------|-------------------------------------|----------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | Approved at plenary# | | Comments | |
| 25.433 | | UTRAN Iub Interface NBAP Signalling | RAN #15 | | | |
| | | | | | | |

11 Work item rapporteurs

Antti Toskala, Nokia, Helsinki, Finland

12 Work item leadership

RAN 3

13 Supporting Companies

Nokia, Nortel Networks, InterDigital, Siemens

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block:

14c The WI is a Work Task: parent Building Block

3.4.3 Radio access bearer support enhancement

Originally RP-000140

"Robust Header Compression" was finished in TSG-RAN #11

"RFC 3095 context relocation in SRNS relocation" was finished in TSG-RAN #16

Work Item Description

Title: Radio Access Bearer support enhancement

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

3 Justification

The increasing interest in IP based services demands special optimisation of the means by which a radio access bearer can be provided by UTRAN.

4 Objective

This work item should have the scope of adding necessary functionality to the Uu and Iu interface in order to efficiently support RT traffic, e.g. VoIP. Examples of such functionality are:

- Radio Access Bearer multiplexing in PDCP
- Header compression for VoIP
 - Normally referenced from an IETF RFC
- Support of variable formats over Iu and unequal error protection over Uu
- Channel type switching for logical channels
 - Today it is only possible to switch all logical channels of one UE, not individual. For DSCH it would be much better to be able to switch single logical channels
- IP header removal as developed within GERAN

5 Service Aspects

The intention with the work item is to better and more efficient support IP based services.

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects*None***9 Impacts**

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.331 | | RRC protocol specification | | RAN#11 | | |
| 25.323 | | PDCP protocol specification | | RAN#11 | | |
| 25.413 | | UTRAN Iu interface RANAP signalling | | RAN#11 | | |
| 25.415 | | UTRAN Iu interface user plane protocols | | RAN#11 | | |
| | | | | | | |
| | | | | | | |

11 Work item rapporteurs

TSG-RAN WG2: Ainkaran Krishnarajah (Ericsson)

TSG-RAN WG3: Martin Israelsson (Ericsson)

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature
(one Work Item identified as a feature)

- RAN Improvement
- Evolution of bearers on the radio to enable IP based multimedia in UMTS

3.4.4 Beamforming requirements for UE

Last distributed as: RP-010950

Work Item Description

Title: Beamforming requirements for UE

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

Beamforming with dedicated pilot symbols or with S-CPICH has potential to improve system capacity.

4 Objective

This work item should define the Rel'5 UE performance requirements for efficient support of beamforming.

5 Service Aspects

None/Text

6 MMI-Aspects

None/Text

7 Charging Aspects

None/Text

8 Security Aspects

None/Text

9 Impacts

| Affects: | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---|----------------------|---|----------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| TS 25.133 | 240 | Active set size limitation for dedicated pilot | | TSG RAN#14 | | |
| TS 25.101 | 142 | Performance requirement for dedicated pilot | | TSG RAN#14 | | |
| | | | | | | |

11 Work item rapporteurs

Jussi Kähtävä, Nokia.

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

Nokia, Motorola, Panasonic, Qualcomm

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

14c The WI is a Work Task: parent Building Block

UTRAN Improvement Feature

3.4.5 Support of Site Selection Diversity Transmission in UTRAN

Originally RP-010951

Work Item Description

Title: Support of Site Selection Diversity Transmission in UTRAN

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None.

3 Justification

SSDT is defined in R99 and Rel4 specifications. In recent discussions in RAN#14 it was clarified that there is no full support of SSDT in the UTRAN. Indeed in R99 and Rel4 specifications it is assumed that the Qth parameter in Node B is set as an OAM parameter with vendor specific definition & signaling ranges. However support of Qth parameter over NBAP would be needed for multi-vendor NodeBs for deployment of SSDT and hence full support of SSDT on the UTRAN side. In addition the physical quantity (UTRAN measurement) used in combination with the Qth parameter should be defined in RAN 1 25.214 specification and performance requirements for the Node B defined.

4 Objective

The objective of this WI is to provide the necessary changes and additions required in the current RAN specifications to provide full support of SSDT in UTRAN. Specifically the work item should:

- Specify the Qth parameter
- Specify the physical measurement quantity at node B for use in combination with the Qth parameter
- Specify performance requirements for Node B in RAN4 specifications
- Specify signalling of the Qth parameter over the Iub and Iur interfaces

25 Service Aspects

None

25 MMI-Aspects

None

25 Charging Aspects

None

25 **Security Aspects**

None

25 **Impacts**

| Affects : | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

25 **Expected Output and Time scale (to be updated at each plenary)**

| New specifications | | | | | | |
|----------------------------------|-------|--|---------------------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2 nd ary resp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.214 | | Physical Layer Procedures (FDD) | | RAN#16 | | |
| 25.104 | | Radio transmission and Reception (FDD) | | RAN#16 | | |
| 25.433 | | UTRAN Iub interface NBAP signalling | | RAN#16 | | |
| 25.423 | | UTRAN Iur interface RNSAP signalling | | RAN#16 | | |
| 25.141 | | Base Station Conformance Testing (FDD) | | RAN#16 | | |

11 **Work item rapporteurs**

NEC

12 **Work item leadership**

TSG-RAN WG1

13 **Supporting Companies**

TSG-RAN

14 **Classification of the WI (if known)**

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

3GPP TSG RAN Work Items (History)

RAN improvements

3.4.6 Node B Synchronisation for 1.28 Mcps TDD

Last distributed as: RP-010915 (originally RP-010216)

Work Item Description

Title: Node B Synchronisation for 1.28 Mcps TDD

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

NodeB synchronisation is beneficial in UTRA TDD to minimise cross-interference in neighbouring cells. Currently, for the 1.28 Mcps TDD option no method has been specified how NodeB synchronisation can be achieved with UTRAN's and UE's internal means such as signalling via the air interface.

The following benefits of the introduction of NodeB synchronisation by internal means are seen:

- A substantial reduction of the cost of the transmission network.
- An autonomous synchronisation procedure without the need of external references.
- An easily extendable method for the purpose of inter-system NodeB synchronisation.

4 Objective

The purpose of this new work item is to enable the synchronisation of NodeBs in UTRA TDD for the 1.28 Mcps option by UTRAN's and UE's internal means such as air interface signals and NodeB cross measurements. NodeB synchronisation involves

- radio frame and multi frame synchronisation and
- intra-system and inter-system synchronisation.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects*None***9 Impacts**

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|---|--|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.868 | NodeB synchronisation for 1.28 Mcps TDD | WG1 | | RAN # 14 | RAN # 15 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.123 | | Requirements for Support of Radio Resource Management (TDD) | | RAN # 15 | | |
| 25.221 | | Physical channels and mapping of transport channels onto physical channels (TDD) | | RAN # 15 | | |
| 25.223 | | Spreading and modulation (TDD) | | RAN # 15 | | |
| 25.224 | | Physical Layer Procedures (TDD) | | RAN # 15 | | |
| 25.225 | | Physical layer – Measurements (TDD) | | RAN # 15 | | |
| 25.302 | | Services provided by the physical layer | | RAN # 15 | | |
| 25.331 | | RRC Protocol Specification | | RAN # 15 | | |
| 25.402 | | Synchronisation in UTRAN Stage 2 | | RAN # 15 | | |
| 25.433 | | UTRAN Iub Interface NBAP Signalling | | RAN # 15 | | |
| 25.423 | | UTRAN Iur Interface RNSAP Signalling | | RAN # 15 | | |

11 Work item rapporteurs

Ms. Jinling HU (CWTS/CATT)

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

CATT, China Mobile, Huawei, Motorola, Nortel Networks, Samsung, Siemens

14 Classification of the WI (if known)

3GPP TSG RAN Work Items (History)

| | |
|----------|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature
Radio Interface Improvements and RAN Improvements Features

3.4.7 UTRAN Sharing in Connected Mode

Originally RP-020246

Work Item Description

Title: UTRAN Sharing in Connected Mode (originally Shared Network support in Connected Mode)

1 **3GPP Work Area**

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 **Linked work items**

None

3 **Justification**

Based on the Release-99 specifications, the CN+UTRAN have mechanisms available to provide UE-specific access restrictions for LA's of the current PLMN and other PLMN's when the UE is in Idle Mode². These mechanisms can be used for implementing shared networks solutions in which, based on roaming agreements, the access restrictions to be applied might be different for different UE's.

Although the Release-99 specifications specify these mechanisms for handling the UE when in Idle Mode, insufficient mechanisms are specified to provide similar access restrictions in Connected Mode. In Connected mode the UE mobility is handled by the UTRAN and the UTRAN does not have the necessary information (e.g. roaming agreements) to provide a consistent access restriction handling in Connected Mode.

4 **Objective**

The objective of this WI is to enable the CN+UTRAN to provide a consistent UTRAN mobility access restriction handling based on roaming agreements in both Idle and Connected Mode.

5 **Service Aspects**

None

6 **MMI-Aspects**

None

7 **Charging Aspects**

None

8 **Security Aspects**

² Mechanisms include UE-specific LOCATION UPDATING ACCEPT/REJECT & inclusion of LA-specific/UE-specific equivalent PLMN information in LOCATION UPDATING ACCEPT.

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | | X | X | |
| No | X | X | | | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---|--------------------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2 nd ary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | Approved at plenary# | | Comments | |
| 25.401 | | UTRAN architecture description; Stage 2 | RAN#17 | | | |
| 25.413 | | UTRAN Iu Interface RANAP Signalling | RAN#17 | | | |
| 25.423 | | UTRAN Iur interface RNSAP signalling | RAN#17 | | | |

11 Work item rapporteurs

Martin Israelsson, Ericsson

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature

RAN Improvement feature

3.5 Rel-5 Location services enhancements

This is a generic Feature led by SA WG2

3.5.1 UE positioning

This is a generic Building Block led by TSG RAN. See Description Sheet in file RAN_Work_Items.

3.5.1.1 UE positioning enhancements for 1.28 Mcps TDD

Originally RP-010215

Work Item Description

Title: UE positioning enhancements for 1.28 Mcps TDD

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

UE positioning is a function of UE and UTRAN (Access Stratum) which can be utilised for a number of purposes:

- Radio Resource Management
- Support for location based services (LCS)

Different accuracy can be requested when positioning a UE for these purposes.

4 Objective

The purpose of this work item are to increase the accuracy of the UE positioning or define methods allowing UE positioning with less complexity for a given accuracy.

Examples are refinement and adoption of methods that are defined for release 5.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects*None***8 Security Aspects***None***9 Impacts**

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|---|---|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.859 | UE positioning enhancements for 1.28 Mcps TDD | WG2 | | RAN # 13 | RAN # 15 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.305 | | Stage 2 Functional Specification of Location Services in UTRAN | | RAN # 15 | | |
| 25.123 | | Requirements for Support of Radio Resource Management (TDD) | | RAN # 15 | | |
| 25.224 | | Physical Layer Procedures (TDD) | | RAN # 15 | | |
| 25.225 | | Physical layer – Measurements (TDD) | | RAN # 15 | | |
| 25.302 | | Services provided by the physical layer | | RAN # 15 | | |
| 25.303 | | Interlayer procedures in connected mode | | RAN # 15 | | |
| 25.304 | | UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode | | RAN # 15 | | |
| 25.331 | | RRC Protocol Specification | | RAN # 15 | | |
| 25.420 | | UTRAN Iur Interface: General Aspects and Principles | | RAN # 15 | | |
| 25.423 | | UTRAN Iur Interface RNSAP Signalling | | RAN # 15 | | |

3GPP TSG RAN Work Items (History)

| | | | | |
|--------|--|---|----------|--|
| 25.430 | | UTRAN Iub Interface: General Aspects and Principles | RAN # 15 | |
| 25.433 | | UTRAN Iub Interface NBAP Signalling | RAN # 15 | |

11 Work item rapporteur

Ms. Xiaohua MEI (CWTS/CATT)

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

CATT, China Mobile, Huawei, Motorola, Nortel Networks, Samsung, Siemens

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| x | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

UE positioning

14c The WI is a Work Task: parent Building Block

3.5.1.2 Open interface between the SMLC and the SRNC within the UTRAN to support A-GPS Positioning

Last distributed as: RP-010414

Work Item Description

Title: Open interface between the SMLC and the SRNC within the UTRAN to support A-GPS Positioning

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None identified.

3 Justification

At the 3GPP LCS Work Shop held in London on 1/11/01 and 1/12/01 it was agreed that for A-GPS positioning, sufficient functional separation existed with RNC functions to justify the opening the interface towards a standalone SMLC.

4 Objective

The objective of this work item is to provide for support of an open interface between the SMLC and the SRNC within the UTRAN for the support of A-GPS positioning. This new interface would be analogous to the Lb interface defined in the GSM LCS specifications with the exceptions that the positioning messages are terminated at the SRNC and mapped to release 99 RRC messages and that the positioning messages also support broadcast of LCS assistance data in support of the RRC broadcast messages.

The addition of the interface should be compatible the release 99 Iu, Iur and Iub and radio interfaces. The addition of this interface does not preclude the A-GPS to be supported in the SRNC.

5 Service Aspects

None identified.

6 MMI-Aspects

None identified.

7 Charging Aspects

None identified.

8 Security Aspects

None identified.

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|--|---|-------------------|---------------------------------------|---|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| 3GPP TS 25.453 | Positioning Calculation Application Part (PCAP) | RAN 2 | RAN 3 | RAN #12 | RAN #12 | |
| 3GPP TS 25.452 | UTRAN I _{upc} Interface: Signalling Transport | RAN 2 | RAN 3 | RAN #13 | RAN #13 | |
| 3GPP TS 25.451 | UTRAN I _{upc} Interface: Layer 1 | RAN 2 | RAN 3 | RAN #12 | RAN #12 | |
| 3GPP TS 25.450 | UTRAN I _{upc} Interface: General Aspects and Principles | RAN 2 | RAN 3 | RAN #12 | RAN #12 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.401 | | UTRAN architecture description; Stage 2 | | RAN #12 | Add new lupc interface and new stand alone A-GPS SMLC network entity. | |
| 25.305 | | UTRAN Stage 2 | | RAN #11 | Modify Network Reference Model to show stand alone A-GPS SMLC and add stage 2 call flows for A-GPS positioning. | |

11 Work item raporteurs

Ie-Hong Lin (Qualcomm)
 Vince Jolley (Qualcomm)

12 Work item leadership

RAN 2

13 Supporting Companies

Qualcomm, SBC, Cingular Wireless, Samsung Electronics Research Institute, Hutchison 3G, NEC, Orange PCS, and Vodafone Group

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature UE positioning

1 Provision of SRNC - SMLC Open Interface

14c The WI is a Work Task: parent Building Block

3.6 Intra Domain Connection of RAN Nodes to Multiple CN Nodes

This feature was led by SA WG2

3.6.1 RAN work for Intra Domain Connection of RAN Nodes to Multiple CN Nodes

Originally RP-000689

Work Item Description

Title: RAN work for Intra Domain Connection of RAN Nodes to Multiple CN Nodes

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

F1 Intra Domain Connection of RAN Nodes to Multiple CN Nodes: Overall System Architecture
SA 2 is responsible for this.

BB3 GERAN work for Intra Domain Connection of RAN Nodes to Multiple CN Nodes
[GERAN 2 is predicted to lead the work in GERAN]

BB4 CN work for Intra Domain Connection of RAN Nodes to Multiple CN Nodes
[CN 1 is predicted to lead the work in CN]

3 Justification

In the current network architecture, an RNC can only be connected to one MSC and/or one SGSN. The same restriction applies to BSCs. This has the following consequences:

- a) when a BSC (or RNC) has a relatively large capacity compared to that of an MSC/SGSN there are frequently significant wastages of hardware. (For example, if a BSC has 40% of the capacity of an MSC, do you connect 2 or 3 BSCs to that MSC?)
- b) as networks carry more traffic, the geographic area covered by one MSC or SGSN (of a given capacity) decreases. However, subscribers still tend to travel the same physical distances and therefore there are more inter-MSC/SGSN registration updates. The signalling associated with these inter MSC/SGSN updates causes additional load on MSCs, SGSNs, HLRs, the core network signalling networks and on the radio interface signalling channels.

The ability to connect RNCs and BSCs to more than one MSC and to more than one SGSN could reduce the above problems. In addition, the ability to provide load sharing between MSCs (SGSNs) would further improve the efficiency of hardware utilisation.

3GPP TSG RAN Work Items (History)

This work will focus on a solution where a routing function is placed in the RNC (or BSC). This avoids most of the problems of a standalone node (TR 23.913 called it the Turbo Routing Function), while retaining the other advantages of described in R'99, TR 23.913.

This Work Item (which is a Feature) proposes to provide a standardised mechanism for the connection of multiple MSCs (and SGSNs) to an RNC or a BSC (both A/Gb mode and Iu mode) which reduces mobility management signalling and permits improved efficiency in hardware utilisation.

It is intended that this new concept is an architectural option for any PLMN. Its deployment, or non-deployment, by one network operator should not place requirements on other network operators.

4 Objective

The objective of this Work Item is to produce the necessary updates to the RAN TSs.

The list of affected existing specifications is given in section 10.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| : | | | | | |
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|--|--|--------------------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2 nd ary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.875 | RAN work for Intra Domain Connection of RAN Nodes to Multiple CN Nodes | R3 | | RAN#14 | RAN#15 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.331 | | Inclusion of NAS routing parameter in Initial Direct Transfer message. | | | | |
| 25.401 | | RAN architecture description | | | | |
| 25.413 | | Addition of "current MSC/SGSN load" message to RANAP | | | | |

11 Work item rapporteurs

Brendan McWilliams, Vodafone

12 Work item leadership

RAN 3

13 Supporting Companies

Vodafone, Nokia, Ericsson, Nortel, Mannesmann

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block

Parent feature: F1: Intra Domain Connection of RAN Nodes to Multiple CN Nodes:
Overall
System Architecture

SA 2 is responsible for this.

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

4 Release 6

4.1 Rel-6 Improvements of the Radio Interface

4.1.1 Base station classification

This Building Block is split between Release 5 and Release 6. The Work Tasks are as follows:

- FDD BS classification (Rel-6)
- TDD BS classification (Rel-5)
- LCR TDD BS classification (Rel-5)

See WI Description Sheet in section 3.3.1 of this document

4.1.1.1 FDD Base station classification

Last distributed as: RAN_Work_Items_after_RAN_15 (originally RP-000183)

Work Item Description

Title: FDD Base Station Classification

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

none

3 Justification

Current TSG RAN WG4 specifications have been done according to the requirements for the macrocell base stations (NodeBs). For the UTRA evolution requirements specific for other type of base stations are needed as well (e.g. micro, pico)

4 Objective

- definition of base station classes according to deployment scenarios (e.g. macro, micro, pico)
- identification, review and possible update of radio parameters dependent on deployment scenarios
- identification, review and possible update of UTRAN (Node B) measurement requirements and conformance where the maximum base station output power is reflected, dependent on deployment scenarios
- review and possible update of conformance test specifications
- recording of related information into RF System Scenarios

3GPP TSG RAN Work Items (History)

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|---------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|------------------------------------|---|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| 25.951 | FDD Base station classification | R4 | | RAN #18 | RAN #18 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.104 | | UTRA (BS) FDD, Radio Transmission and Reception | | RAN #18 | | |
| 25.141 | | Base Station Conformance Testing (FDD) | | RAN #18 | | |
| 25.133 | | Requirements for Support of Radio Resource Management (FDD) | | RAN #18 | ? | |
| 25.942 | | RF System Scenarios | | RAN #18 | | |

11 Work item rapporteurs

Antti Toskala, Nokia Networks

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14c The WI is a Work Task: parent Building Block: Base Station Classification

(one Work Item identified as a building block)

4.1.2 Improving Receiver Performance Requirements for the FDD UE

Work Item Description

Last distributed as: RAN_Work_Items_after_RAN_16 (originally RP-020124)

Title: Improving Receiver Performance Requirements for the FDD UE

1 **3GPP Work Area**

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 **Linked work items**

None

3 **Justification**

Feasible methods exist which can enable improved performance requirements for the UE.

4 **Objective**

The objective of this Work Item is to establish improvements in the currently existing UE performance requirements.

5 **Service Aspects**

None

6 **MMI-Aspects**

None

7 **Charging Aspects**

None

8 **Security Aspects**

None

9 **Impacts**

| Affects : | USIM | ME | AN | CN | Others |
|-----------------------|------|----|----|----|--------|
| Yes | | X | | | |
| No | X | | X | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| Affected existing specifications | | | | |
|----------------------------------|----|---|----------------------|----------|
| Spec No. | CR | Subject | Approved at plenary# | Comments |
| 25.101 | | UE Radio transmission and reception (FDD) | RAN #21 | |

11 Work item raporteurs

Shimon Moshavi, Intel (Shimon.Moshavi@intel.com)

12 Work item leadership

TSG-RAN WG4

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature (list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature
Improvements of Radio Interface

14c The WI is a Work Task: parent Building Block
(one Work Item identified as a building block)

4.1.3 UMTS 850

Approved at TSG RAN#18 as RP-020875. Modified at TSG RAN #19 as RP-030197. Finished at TSG RAN #22, last status report in RP-030560.

Work Item Description

Title: UMTS 850

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

WRC 2000 extended the current IMT 2000 frequency allocation to include bands currently occupied with-in the 850 MHz. band. In particular, ITU-R Working Party 8F has recently forwarded into the ITU approval process a revision to ITU-R Recommendation M.[1036-1]. This revision includes recognition of the WRC 2000 bands identified for IMT-2000, in particular the band range 806-960 MHz.

The supporters of this WI proposal believe that GPRS/EDGE at 850 will eventually begin evolving into UMTS at 850 in the 2007 – 2008 time frame with-in ITU Region 2. This band is currently occupied by a variety of technologies so studies of migration paths of the likely combinations of technologies should be considered (both internal and external to 3GPP). While progressing the specification work for UMTS 850 3GPP TSG RAN WG4 should consider studies performed by and recommendations given by Committee T1 (T1P1) concerning band plans, interference, and ITU Region 2 implementation issues.

It is suggested that the changes to incorporate UMTS in the 1900 MHz band could be used as the basis for this work which would reduce the effort required within 3GPP.

4 Objective

The purpose of this work item is to generate necessary information of the 850 MHz FDD system for potential deployment only in ITU Region 2 detailed below:

- 4.1 Generate a report summarizing a study of UTRA FDD in the 850 band (as described below) which includes, or will include the migration (including co-existing studies) of the following technologies: GPRS/EDGE, TIA/EIA-136, TIA/EIA/IS-95, and Analog AMPS into UMTS 850.

The specific bands to be studied are These uplink/downlink pairings are consistent with the revision of ITU-R M.[1036-1]

824 – 849 MHz: Up-link (UE transmit, Node B receive)

869 – 894 MHz: Down-link (Node B transmit, UE receive)

3GPP TSG RAN Work Items (History)

- 4.2 Generate CR's to update the appropriate documents
- 4.3 TSG RAN WG2 - study any issues related to UMTS at 850 MHz.
- 4.4 TSG RAN WG3 - study any possible interface impacts to UMTS networks.
- 4.5 Any additional related issues.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USI M | ME | AN | CN | Others |
|-----------------------|------------------|-----------|-----------|-----------|---------------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale

| New specifications | | | | | | |
|---|-------|--|-------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| 25.101 | | UE Radio transmission and reception (FDD) | | RAN#23 (March 2004) | | |
| 25.104 | | UTRA (BS) FDD; Radio transmission and reception | | RAN#23 (March 2004) | | |
| 25.113 | | Base Station Electromagnetic compatibility | | RAN#23 (March 2004) | | |
| 25.133 | | Requirements for Support of Radio Resource Management (FDD) | | RAN#23 (March 2004) | | |
| 25.141 | | Base station conformance testing (FDD) | | RAN#23 (March 2004) | | |
| 25.331 | | RRC Protocol | | RAN#23 (March 2004) | | |
| 25.942 | | RF System Scenarios | | RAN#23 (March 2004) | | |
| 25.306 | | Radio UE capability | | RAN#23 (March 2004) | | |
| 25.307 | | Requirements on UEs supporting a Release Independent Frequency Band | | RAN#23 (March 2004) | | |
| 34.121 | | Terminal Conformance Specification, Radio Transmission and Reception | | T#23 (March 2004) | | |

11 Work item raporteurs

Don Zelmer, Cingular Wireless LLC

12 Work item leadership

RAN WG 4

13 Supporting Companies

TSG RAN

(Cingular Wireless LLC, AT&T Wireless Services, Rogers Wireless, Nortel Networks, Motorola, Siemens, Nokia, Ericsson)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block:

This WI is a building block part of the radio interface improvement feature.

14c Proposed Work Plan:

The following Table contains a break down of items needed to complete the WI and assigns the responsibility to various parties. The items in this Table are not necessarily in proper chronological order.

| Item# | Effort Required | Responsibility |
|-------|--|----------------|
| 1 | Provide description of existing band plan | T1P1.2 |
| 2 | Define overall deployment scenarios for UMTS850 | T1P1.2 |
| 3 | Provide requirements for co-existence with other technologies | T1P1.2 |
| 3.5 | Provide guidance on simulation assumptions | T1P1.2 |
| 4 | Define detailed simulation assumptions to cater for items # 3 and 3.5 and collect them into a TR | RAN4 |
| 5 | Perform simulations based on agreed upon simulation assumptions and collect results into a TR | RAN4 |
| 6 | Give guidance on simulation results. Recommend more simulation as needed to complete task | T1P1.2 |
| 7 | Generate CRs to update the appropriate specifications and other documents. | RAN4 |
| 8 | Study any signaling issues related to UMTS at 850 MHz | RAN2 |
| 9 | Study any possible interface (lu, lub, lur) impacts to UMTS network | RAN3 |
| 10 | Any additional related issues | ALL |

15 WIDS History

| |
|--|
| Item 14c was accepted by T1P1.2 in the 6 March 2003 conference call. It has been updated and is proposed to be approved by RAN 19. |
| Item 4, the Objective, has been updated. It is proposed that the changes to item 4 be approved by RAN 19. |

4.1.4 DS-CDMA Introduction in the 800 MHz Band

First distributed at TSG RAN #19 as RP-030178. Finished at TSG RAN #22, last status report in RP-030561.

Work Item Description

Title: DS-CDMA Introduction in the 800 MHz Band

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

As for IMT-2000, spectrum was first identified by WARC-92. WRC-2000 also considered issues related to IMT-2000, resulting in the additional spectrum identification for the terrestrial component of IMT-2000. In addition, ITU-R Study Group 8 has recently forwarded into the ITU approval process a revision to ITU-R Recommendation M. [1036-1]. This revision includes recommended frequency arrangements for the additional IMT-2000 spectrum identified at WRC-2000; in particular the band 806-960 MHz.

In Japan, currently the band 806-960MHz is mainly used for several Mobile Services. The allocation for the services are rather fragmented and complicated compared with other countries. A working group has been established under the national telecommunication council in Japan to consider the technical condition of the frequency re-arrangement in 800MHz band in order to enhance frequency efficiency. Therefore, the proponents of this work item believe that there is high possibility that IMT-2000 would be introduced in Japan in the band near future.

It is suggested that the consideration of the evolution and migration to introduce DS-CDMA in the band 806-960MHz being studied in the working group under the national telecommunication council in Japan could be used as the basis for this work, which would reduce the effort required within 3GPP.

4 Objective

The purpose of this work item is to:

- 4.1 Study of DS-CDMA in the 800 MHz band (as described below) for a potential deployment only in Japan. The study includes co-existing studies with the following technologies: ARIB STD-27(PDC), ARIB STD-T53(IS-95), and ARIB STD-T64 (cdma 2000), taking the frequency reframing plan in Japan into account. Generate a new technical report based on study results.

The specific bands to be studied are (These uplink/downlink pairings are consistent with the revision of ITU-R M.[1036-1]):

[810 – 855] MHz: Up-link (UE transmit, Node B receive)

3GPP TSG RAN Work Items (History)

[855 – 900] MHz: Down-link (Node B transmit, UE receive)

- 4.2 Generate CR's to update the appropriate documents
- 4.3 TSG RAN WG2 - study signaling issues related to IMT-2000 DS-CDMA in 800 MHz band.
- 4.4 TSG RAN WG3 - study any possible interface impacts to IMT-2000 DS-CDMA networks.
- 4.5 Any additional related issues.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USI M | ME | AN | CN | Others |
|-----------------------|------------------|-----------|-----------|-----------|---------------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

11 Expected Output and Time scale

| New specifications | | | | | | |
|---|--|--|--------------------|---------------------------------------|----------------------|-----------------------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | [DS-CDMA Introduction in the 800 MHz Band] | RAN4 | RAN2 | RAN#22 | RAN#22 | New technical report. |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| 25.101 | | UE Radio transmission and reception (FDD) | | RAN#22 (September 2003) | | |
| 25.104 | | UTRA (BS) FDD; Radio transmission and reception | | RAN#22 (September 2003) | | |
| 25.113 | | Base Station Electromagnetic compatibility | | RAN#22 (September 2003) | | |
| 25.133 | | Requirements for Support of Radio Resource Management (FDD) | | RAN#22 (September 2003) | | |
| 25.141 | | Base station conformance testing (FDD) | | RAN#22 (September 2003) | | |
| 25.331 | | RRC Protocol | | RAN#22 (September 2003) | | |
| 25.942 | | RF System Scenarios | | RAN#22 (September 2003) | | |
| 25.306 | | Radio UE capability | | RAN#22 (September 2003) | | |
| 25.307 | | Requirements on UEs supporting a Release Independent Frequency Band | | RAN#22 (September 2003) | | |
| 34.121 | | Terminal Conformance Specification, Radio Transmission and Reception | | T#22 (September 2003) | | |

11 Work item rapporteurs

Takehiro Nakamura (NTT DoCoMo)

12 Work item leadership

RAN WG 4

13 Supporting Companies

TSG RAN

(NTT DoCoMo, Fujitsu, Mitsubishi Electric, NEC, Panasonic)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block:

This WI is a building block part of the radio interface improvement feature.

4.1.5 UMTS 1.7/2.1 GHz

First distributed at TSG RAN #19 as RP-030186.

Work Item finished at TSG RAN #23 March 2004.

Work Item Description

Title: UMTS 1.7/2.1 GHz

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

In the WRC 2000, additional spectrum was identified for IMT-2000, including the band 1710-1885 MHz. As a result of this decision the UMTS1800 work was concluded in rel-5 time frame in TSG RAN.

Recently there have been initiatives taken by one Administration in Region 2 that allows the band pairing between 1710 MHz UL and 2110 MHz DL. It is expected that other Administrations will follow.

3GPP has specified the band 2110-2170 MHz in its original rel-99 activity, and is also well suited for using with 1710-1770 MHz as uplink. Such an urgent specification work in 3GPP will allow for a timely global WCDMA arrangement so that the entire 2x60 MHz paired spectrum bands 1710-1770 and 2110-2170 MHz or parts of these bands may also be used with a consistent 400 MHz frequency separation between the uplink and the downlink.

While working with UMTS 1.7/2.1 GHz, 3GPP TSG RAN WG4 should consider information made available by FCC and Committee T1 (T1P1) concerning band plans, and ITU Region 2 implementation issues what may consider this new frequency allocation in North America.

4 Objective

The purpose of this work item is to generate necessary information of 1.7/2.1 GHz FDD system for potential deployment only in ITU Region 2 detailed below:

4.1 Generate a report summarizing a study of radio requirements UTRA FDD in the 1.7/2.1 GHz Band

- 1710 – 1770 MHz: Up-link (UE transmit, Node B receive)
- 2110 – 2170 MHz: Down-link (Node B transmit, UE receive)

It has to be noted that this WRC 1.7/2.1 GHz Band includes the current FCC band allocation given below for information

1710 – 1755 MHz: Up-link (UE transmit, Node B receive)

2110 – 2155 MHz: Down-link (Node B transmit, UE receive)

3GPP TSG RAN Work Items (History)

This report, while considering the radio requirements for UTRA FDD in the 1.7/2.1 GHz Band, shall investigate

- The need of 2 sets of Node B's requirements : One for the full band and another one for the restricted FCC bands given above.
- Scenarios about the use of UE's operating over 2*60 MHz in North America with possible interferers in 1755- 1770 MHz and 2155-2170 MHz.

4.2 Generate CR's to update the appropriate documents.

4.3 TSG RAN WG2 - study any issues related to UMTS at 1.7/2.1 GHz FDD band-signalling aspects.

4.4 TSG RAN WG3 - study any possible interface impacts to UMTS networks.

4.5 Any additional related issues.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USI M | ME | AN | CN | Others |
|-----------------------|------------------|-----------|-----------|-----------|---------------|
| Yes | | X | X | | |
| No | X | | | X | X |
| Don't know | | | | | |

12 Expected Output and Time scale

| New specifications | | | | | | |
|---|-------|--|--------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| 25.101 | | UE Radio transmission and reception (FDD) | | RAN#23 (March 2004) | | |
| 25.104 | | UTRA (BS) FDD; Radio transmission and reception | | RAN#23 (March 2004) | | |
| 25.113 | | Base Station Electromagnetic compatibility | | RAN#23 (March 2004) | | |
| 25.133 | | Requirements for Support of Radio Resource Management (FDD) | | RAN#23 (March 2004) | | |
| 25.141 | | Base station conformance testing (FDD) | | RAN#23 (March 2004) | | |
| 25.331 | | RRC Protocol | | RAN#23 (March 2004) | | |
| 25.942 | | RF System Scenarios | | RAN#23 (March 2004) | | |
| 25.306 | | Radio UE capability | | RAN#23 (March 2004) | | |
| 25.307 | | Requirements on UEs supporting a Release Independent Frequency Band | | RAN#23 (March 2004) | | |
| 34.121 | | Terminal Conformance Specification, Radio Transmission and Reception | | T#24 (June 2004) | | |

11 Work item rapporteurs

Jussi Numminen, Nokia

12 Work item leadership

RAN WG 4

13 Supporting Companies

TSG RAN

(Cingular Wireless LLC, Nokia, Siemens, Nortel Networks, Ericsson)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block:

This WI is a building block part of the radio interface improvement feature.

4.2 Location services enhancements 2 (Rel-6)

This is a generic Feature led by SA WG2

4.2.1 UE positioning

This is a generic Building Block led by TSG RAN. See Description Sheet in file RAN_Work_Items.

4.2.1.1 Open interface between the SMLC and the SRNC within the UTRAN to support Rel-4 positioning methods

Last distributed as: RAN_Work_Items_after_RAN_16 (originally RP-010719)

Work Item Description

Title: Open interface between the SMLC and the SRNC within the UTRAN to support Rel-4 positioning methods

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None identified.

3 Justification

In 3GPP standalone SMLC has been specified for A-GPS method and it is needed to consider also other Rel'4 positioning methods .

4 Objective

The objective of this work item is to extend the Iupc interface for the support of all Rel'4 positioning methods positioning, i.e. Cell ID based, OTDOA based and A-GPS

It shall be transparent for the UE whether standalone SMLC is used or not.

5 Service Aspects

None identified.

6 MMI-Aspects

None identified.

7 Charging Aspects

None identified.

8 Security Aspects

None identified.

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|---|---|-------------------|---------------------------------------|--|-------------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| New TR | SRNC – SMLC Location Protocol Architecture and Protocol Aspects | RAN 2 | RAN 3 | RAN #20 | RAN #21 | See Note 1. |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| 25.401 | | UTRAN architecture description; Stage 2 | | RAN #21 | Extend current Iu-PC interface as defined in 25.305 | |
| 25.305 | | UTRAN Stage 2 | | RAN #21 | Modify Network Reference Model, to allow for Cell ID based, OTDOA and A-GPS positioning methods. | |

Note 1 : the TR should identify the architectural alternatives with their pros and cons from the SMLC/SRNC functional split point of view

The SMLC principle will be such that the SRNC can query the standalone SMLC for the position of the UE.

11 Work item rapporteurs

Meik Kottkamp, Siemens, Germany

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature UE positioning

14c The WI is a Work Task: parent Building Block

4.3 Rel-6 RAN improvement feature

This is a generic feature. See Description Sheet in file RAN_Work_Items.

4.3.1 Beamforming enhancements

Last distributed as: RAN_Work_Items_after_RAN_15 (originally RP-010711)

Work Item Description

Title: Beamforming Enhancements (originally Beamforming)

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

Beamforming with dedicated pilot symbols or with S-CPICH has potential to improve system capacity. Also UTRAN RRM could be improved by defining support for measurements that take into account the possible use of beamforming with S-CPICH or with dedicated pilots only.

4 Objective

This work item should define potential new measurements for UTRA FDD for efficient support of RRM in case beamforming is used in UTRAN.

5 Service Aspects

None/Text

6 MMI-Aspects

None/Text

7 Charging Aspects

None/Text

8 Security Aspects

None/Text

9 Impacts

| Affects: | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | X |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|-----------------------------|-------------------|----------------------|---|----------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| New TR | Beamforming Enhancements | TSG RAN WG1 | TSG RAN WG4 | | TSG RAN#22 | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| TS 25.133 | | | | TSG RAN#22 | | |
| TS 25.433 | | | | TSG RAN#22 | | |
| TS 25.215 | | | | TSG RAN#22 | | |

11 Work item rapporteurs

Jussi Kähtävä, Nokia.

12 Work item leadership

TSG-RAN WG1

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

14c The WI is a Work Task: parent Building Block

UTRAN Improvement Feature

4.3.2 Rel-6 RRM optimizations for Iur and Iub

Generic Building Block, see RAN_Work_Items file.

4.3.2.1 Improved access UE measurement data for CRNC to support TDD RRM

First distributed and approved at TSG RAN #21 as RP-030539.
Work Item finished at TSG RAN #23 March 2004.

Work Item Description

Title: Improved access to User Equipment (UE) measurement data for Controlling Radio Network Controller (CRNC) to support Time Division Duplex (TDD) Radio Resource Management (RRM)

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

The Controlling RNC (CRNC) is a critical element of the Radio Resource Management (RRM) function. In TDD the CRNC is responsible for Dynamic Channel Allocation (DCA). In order to effectively perform DCA, the CRNC needs access to measurements that characterize interference and path loss on both a cell and time slot basis.

Currently the Serving RNC (SRNC) requests and receives UE specific measurements. In the case that the SRNC and CRNC are not collocated, the CRNC will be unable to access these critical measurement data, even though they are inherently available to the network.

It is desirable for the CRNC to have access to UE related measurements such as:

- Downlink CCPCH RSCP
- UE TX power
- DL ISCP

The current Iur interface allows the SRNC to forward some UE related measurements in certain scenarios (e.g. DL ISCP data to support Downlink Power Control). However, there is no mechanism to allow the CRNC to request this information according to its own needs.

To better implement DCA, especially for multi-vendor configurations, it may be beneficial to provide the CRNC with a means to initiate the transfer of UE measurement data, rather than be limited by the scheduling dictated by the SRNC.

The study item Feasibility study for improved access to User Equipment (UE) measurement data for Controlling Radio Network Controller (CRNC) to support Time Division Duplex (TDD) Radio Resource Management (RRM) showed that there are benefits for the CRNC access to UE measurements and that there are feasible methods to provide the measurements without a significant amount of additional complexity.

4 Objective

The objective of this Work Item is to establish means of providing the CRNC with UE measurement data without adding unacceptable complexity or burden to the CRNC or SRNC.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|--------------------------------------|--------------------|---------------------------------------|----------------------|----------|
| Spec No. | Title | Prime resp. WG | 2ndary resp. WG(s) | Presented for information at plenary# | Approved at plenary# | Comments |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | | Comments |
| 25.423 | | UTRAN Iur Interface RNSAP Signalling | | RAN#23 | | |
| | | | | | | |
| | | | | | | |

11 Work item rapporteurs

Jim Miller, InterDigital

12 Work item leadership

TSG-RAN WG3

13 Supporting Companies

TSG-RAN
(Interdigital, Siemens, Samsung and CATT)

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| | Building Block (go to 14b) |
| X | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature
(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature

14c The WI is a Work Task: parent Building Block
RRM optimizations for Iur and Iub

Annex A: Work Items with anomalous conclusion

A.1 UE positioning in UTRA TDD

Originally RP-000053

This WI and WI 6. were replaced by WIs "Iub/Iur interfaces for UE positioning methods supported on the radio interface release 99" and " UE positioning enhancements" in TSG-RAN #9.

A.2 UE positioning in UTRA FDD

Originally RP-000135

This WI and WI 5. were replaced by WIs "Iub/Iur interfaces for UE positioning methods supported on the radio interface release 99" and " UE positioning enhancements" in TSG-RAN #9.

A.3 Hybrid ARQ II/III

Originally RP-000054

This Work Item was deleted from the approved Work Items at TSG-RAN #14

A.4 Radio Interface Testing

This Work Item was deleted from the approved Work Items at TSG-RAN #9

A.5 Requirement on Equipment

This Work Item was deleted from the approved Work Items at TSG-RAN #10

A.6 Smart antenna

Originally RP-000314

This Work Item was deleted from the approved Work Items at TSG-RAN #10

A.7 RAN Technical Small Enhancements and Improvements

Originally in RP-000468 as R4-000729

This WI was replaced by a general WI for all TSGs established during TSG-SA #10 in Bangkok. No WI sheet was needed.

A.8 Gated DPCCH Transmission

Last distributed as: RP-010266

This Work Item was deleted from the approved Work Items at TSG-RAN #12

A.9 Improved usage of downlink resource in FDD for CCTrCHs of dedicated type

This Work Item was closed at TSG RAN #17 (September 2002) due to the lack of progress. It was intended for Release 6.

Originally RP-000169

Work Item Description

Title: Improved usage of downlink resource in FDD for CCTrCHs of dedicated type

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None

3 Justification

In the RAN 1 specifications, one CCTrCH of dedicated type may be mapped onto several physical channels (channelisation codes). However these codes must have the same spreading factor in order to have an equal physical channel segmentation. In order to have some flexibility in the resource allocation in downlink, the possibility to have multiple CCTrCHs of dedicated type was introduced in the RAN 1 specifications for R99. This allows to have codes with different spreading factors and distribute transport channels onto separate CCTrCHs taking into account possibly very different QoS requirements, which results in some cases in a smaller amount of allocated resource. RAN 2 and RAN 3 specifications do not support multiple CCTrCHs of dedicated types in R99, limiting hence the flexibility on resource allocation.

4 Objective

Introduction of the possibility to map transport channels belonging to a radio link onto multiple codes with different spreading factors as a way to minimise the overall amount of allocated resource, while fulfilling possibly very different QoS requirements for each of the transport channels,

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | X | X | | |
| No | X | | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|----------------------------------|-------|---------------------|-------------------------|--|------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary | Approved at plenary | Comments |
| | | | | | | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary | Comments | |
| 25.331 | | | | RAN #18 | | |
| 25.423 | | | | RAN #18 | | |
| 25.433 | | | | RAN #18 | | |
| 25.212 | | | | RAN #18 | ? | |
| 25.214 | | | | RAN #18 | | |
| 25.926 | | | | RAN #18 | | |
| | | | | | | |

11 Work item rapporteurs

Claudiu Mihailescu (Nortel Networks)

12 Work item leadership

TSG-RAN WG2

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| x | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

3GPP TSG RAN Work Items (History)

14b The WI is a Building Block: parent Feature
radio interface improvement feature

14c The WI is a Work Task: parent Building Block
(one Work Item identified as a building block)

A.10 Terminal power saving features

This Generic Feature was closed at TSG RAN #19 (March 2003) due to the lack of progress.

Last distributed as: RP-010485 (originally RP-000189)

Work Item Description

Title: Terminal power saving

1. 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2. Linked work items

None

3. Justification

The UE battery is an essential resource which has direct impact on standby and connected time and can be enhanced by new features defined for UTRA.

4. Objective

The objective of this Work Item is to define new features which can contribute to gains in terms of battery saving. This encompasses both enhancements on the radio interface or network interfaces which would allow a network to optimise battery utilisation.

5. Service Aspects

None

6. MMI-Aspects

None

7. Charging Aspects

None

8. Security Aspects

None

9. Impacts

| Affects: | USIM | ME | AN | CN | Others |
|------------|------|----|----|----|--------|
| Yes | | × | × | | |
| No | | | | | × |
| Don't know | × | | | × | |

10 Expected Output and Time scale (to be updated at each plenary)

| New specifications | | | | | | |
|---|-------|------------------|----------------------|---|-------------------------|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | | |

11 Work item rapporteurs
Denis Fauconnier, Nortel Networks

12 Work item leadership
TSG-RAN WG2

13 Supporting Companies
TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14b The WI is a Building Block: parent Feature is "Radio Interface improvement"

A.11 Improvement of RRM across RNS and RNS/BSS

This Block under the RAN improvements feature was closed at TSG RAN #21 (September 2003) due to the lack of progress.

Last distributed as: RAN_Work_Items_after_RAN_16 (originally RP-010947)

Work Item Description

Title: Improvement of RRM across RNS and RNS/BSS

1 3GPP Work Area

| | |
|---|--------------|
| X | Radio Access |
| | Core Network |
| | Services |

2 Linked work items

None identified.

3 Justification

Radio resource management across RNS and RNS/BSS is a necessary tool for operators with GSM and UMTS networks. The operator must be able to place traffic on the technology that meets the operator's strategy and requirements be it for coverage, service or load. .

4 Objective

The objective of this work item is to identify tools for facilitating an efficient and cost effective method for radio resource management across RNS and RNS/BSS. The method, which allows resource management across RNS and RNS/BSS shall not affect UE/MS. The method is targeted for operation between UTRAN & Iu mode GERAN.

If there is a need to define new interface, then this interface shall be open.

5 Service Aspects

None identified.

6 MMI-Aspects

None identified.

7 Charging Aspects

None identified.

8 Security Aspects

None identified.

9 Impacts

| Affects : | USIM | ME | AN | CN | Others |
|--------------|------|----|----|----|--------|
| Yes | | | X | | |
| No | X | X | | X | |
| Don't know | | | | | |

10 Expected Output and Time scale (to be updated at each plenary)

This is a Release 6 work Item

| New specifications | | | | | | |
|----------------------------------|-----------------------------|---------------|-------------------|---------------------------------------|--|----------|
| Spec No. | Title | Prime rsp. WG | 2ndary rsp. WG(s) | Presented for endorsement at plenary# | Approved at plenary# | Comments |
| New 3GPP TR | RRM between RNS and RNS/BSS | RAN WG3 | TSG GERAN | RAN#17 | RAN#22 | |
| | | | | | | |
| Affected existing specifications | | | | | | |
| Spec No. | CR | Subject | | Approved at plenary# | Comments | |
| | | | | | To be determined based on the method(s) agreed | |
| | | | | | | |
| | | | | | | |

11 Work item raporteurs

Antti Toskala, Nokia, Helsinki, Finland

12 Work item leadership

RAN 3

13 Supporting Companies

TSG-RAN

14 Classification of the WI (if known)

| | |
|---|----------------------------|
| | Feature (go to 14a) |
| X | Building Block (go to 14b) |
| | Work Task (go to 14c) |

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: Parent Feature: RAN Improvement

14c The WI is a Work Task: parent Building Block