

Source: Rapporteur, RAN1 chair

Title: Latest update of Study Item description : Analysis of OFDM for UTRAN enhancement

Agenda item:

The Study item description could not be agreed by RAN1#28 after email discussion. This document contains the latest updated version based on agreed points and recommendation by the chairman.

The following point was not agreed to be included in the description :

- possibility to study the applicability of OFDM in higher bandwidth than 5MHz in a later phase

It should be noted that agreement had been reached during RAN1#27 that RAN1 would only study the applicability of OFDM in 5MHz spectrum allocation.

Study Item Description

Title: **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 the minimum impact on current protocols. Changes others than those needed to introduce the signalling necessary to support a new modulation in UTRAN will not be considered.

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
- ?? Various options of UE receiving OFDM carrier in combination with Release 99/Release 5 UMTS
- ?? Support for MIMO and other advanced antenna array techniques
- ?? Support for personal, multimedia and broadcast services
- ?? 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 and potential benefits of introducing OFDM in UTRAN, and a recommendation to RAN Plenary on a potential work item time-frame and work plan.

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 resp. WG	2ndary resp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
TR		RAN1 WG1	RAN WG4	19	20	
Affected existing specifications						
Spec No.	CR	Subject		Approved at plenary#	Comments	

11 Work item raporteurs

Sarah Boumendil (Nortel Networks)

12 Work item leadership

RAN1

13 Supporting Companies

Nortel Networks, Wavecom, France Telecom, Alcatel, Philips, Samsung

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

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