TSG-RAN Meeting #23 RP-040082
Phoenix, Arizona, USA, 10 - 13 March 2004

Agenda Item: **8.12**
Source: **Nortel Networks**
Title: **Proposed Work Item on Optimisation of downlink channelisation code utilisation**
Document for: **Approval**

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.

A typical example of improvement is fractional DPCH that was studied in RAN1.

The proposed work item follows.

Optimisation of downlink channelisation code utilisation

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 paquets 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 so as to minimize the need for secondary scrambling codes.

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

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)

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

14b The WI is a Building Block: parent Feature
RAB support enhancements
(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.