TSG-RAN Meeting #28 **RP-~~050340~~050362**
Quebec, Canada, 1st – 3rd, June 2005 **Agenda Item 8.14**

Source:

Title: **New Work Item Proposal: Enhanced Performance Requirements based on Receive Diversity & LMMSE Equalizer Receiver for HSDPA UE**

Document for: Approval

Work Item Description

Title: Improved Performance Requirements for HSDPA UE based on Rx Diversity (type 1) & LMMSE equalizer (type 2)

1 3GPP Work Area

X	Radio Access
	Core Network
	Services

2 Linked work items
None

3 Justification

It is beneficial to introduce further improvements in REL7 for HSDPA performance requirements for 10 code UEs (i.e., for categories 7 and 8), to further increase the attractiveness and performance of the higher code capability UE classes. Initial improvements were introduced for REL6 based on reference receiver LMMSE chip-level equalizer and a reference receiver with receive diversity.

Receive diversity combined with LMMSE chip-level equaliser would provides the benefits of Rx diversity for all (Ior/Ioc) geometries while the LMMSE will augment the benefits of Rx diversity when effectively operating at the higher (Ior/Ioc) geometries. This combined reference receiver can be based on the receiver structures that were used for defining HSDPA performance improvements in REL6 (Type 1 and Type 2 performance improvements).

It is proposed to define optional performance requirements for categories 7 and 8 using receiver diversity combined with LMMSE chip level equalizer as the baseline receiver. However, no specific implementation solution is mandated by the performance requirements.

4 Objective

The purpose of this work item is to introduce further improvements to the optional HSDPA performance requirements for UE categories 7 and 8, according to a baseline receiver with 2 antenna port receive diversity combined with LMMSE chip level equalizer. No specific UE implementation is mandated by these enhanced HSDPA requirements.

Work Task Breakdown

- TSG RAN WG4#36 (August 2005): Simulation assumptions and test cases agreed
- TSG RAN WG4#37 (November 2005): Review of simulation results, agreements on further simulations to conclude performance requirements.
- TSG RAN WG4#38 (February 2006): 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
25.101		UE Radio transmission and reception (FDD)	RAN#31 (March 2006)	

11 **Work item rapporteurs**
Marc Grant, Cingular Wireless

12 **Work item leadership**
RAN WG 4

13 **Supporting Companies**
Cingular Wireless, Nokia, Motorola, Telecom Italia, T-Mobile, Qualcomm, Panasonic, Orange

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 is Improvements of Radio Interface.
14c The WI is a Work Task: parent Building Block