Study Item Description

Title

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
- 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#20	

Affected existing specifications					
Spec No.	CR	Subject		Approved at plenary#	Comments

11 Work item raporteurs

Tim Wilkinson (IPWireless)

12 Work item leadership

WG1

13 Supporting Companies

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)