

**3GPP TSG-RAN Meeting #15  
Jeju, Korea, 5 – 8, March, 2002**

***RP-020055***

**Title: Agreed CRs (Rel-5) for the WI of "Node B Synchronisation for 1.28 Mcps TDD"**

**Source: TSG-RAN WG1**

**Agenda item: 9.3.2**

<b>No.</b>	<b>Spec</b>	<b>CR</b>	<b>Rev</b>	<b>R1 T-doc</b>	<b>Subject</b>	<b>Release</b>	<b>Cat</b>	<b>Workitem</b>	<b>V_old</b>	<b>V_new</b>
1	25.224	082	1	R1-02-0474	Introduction of "Node B synchronization for 1.28 Mcps TDD"	Rel-5	B	RANimp-NBSLCR	4.3.0	5.0.0
2	25.225	041	1	R1-02-0474	Introduction of "Node B synchronization for 1.28 Mcps TDD"	Rel-5	B	RANimp-NBSLCR	4.3.0	5.0.0

## CHANGE REQUEST

⌘ **25.224 CR 082** ⌘ rev **1** ⌘ Current version: **4.3.0** ⌘

For [HELP](#) on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

**Proposed change affects:** ⌘ (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	⌘ Introduction of "Node B synchronization for 1.28 Mcps TDD"		
<b>Source:</b>	⌘ TSG RAN WG1		
<b>Work item code:</b>	⌘ RANimp-NBSLCR	<b>Date:</b>	⌘ 21.02.2002
<b>Category:</b>	⌘ <b>B</b> Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	<b>Release:</b>	⌘ <b>REL-5</b> Use <u>one</u> of the following releases: <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>REL-4</b> (Release 4) <b>REL-5</b> (Release 5)

<b>Reason for change:</b>	⌘ Introduction of NodeB sync for 1.28 Mcps TDD / finalizing the WI to the specs
<b>Summary of change:</b>	⌘ Introduction of NodeB synchronization for 1.28 Mcps TDD according to 25.868
<b>Consequences if not approved:</b>	⌘

<b>Clauses affected:</b>	⌘ New 5.7
<b>Other specs affected:</b>	⌘ <input checked="" type="checkbox"/> Other core specifications ⌘ 25.225 <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
<b>Other comments:</b>	⌘

### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: [http://www.3gpp.org/3G\\_Specs/CRs.htm](http://www.3gpp.org/3G_Specs/CRs.htm). Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

## 5.7 Node B Synchronisation Procedure over the Air

An option exists to use the regular DwPCH transmissions to achieve and maintain Node B synchronisation [20]. This optional procedure is based on measurements of DwPCHs from neighbouring cells according to an RNC schedule. The timing offset measurements are reported back to the RNC for processing. The RNC generates cell timing updates that are transmitted to the Node Bs and cells for implementation (common with the 3.84 Mcps TDD option). Alternatively the RNC may indicate that the NodeB shall autonomously adjust the cell timings. Two distinct phases can be distinguished for Node B synchronisation over the air, with a potential additional sub-phase involving late entrant cells.

### 5.7.1 Initial Synchronisation

Common with 3.84 Mcps TDD, see [4.9.2 Initial Synchronisation], however, the regular DwPCHs are used as cell sync bursts.

### 5.7.2 Steady-State Phase

Common with 3.84 Mcps TDD, see [4.9.3 Steady-State Phase], however, the regular DwPCHs are used as cell sync bursts. If the NodeB adjusts the cell timings autonomously, it shall take into account the propagation delay, signaled by the RNC.

### 5.7.3 Late entrant cells

A procedure that may be used for introducing new cells into an already synchronised RNS involves the continuous measurement of the DwPCHs of the neighbouring cells by the late entrant cell. The RNC may use this information to adjust the late entrant cell sufficiently to allow the cell to enter steady state phase.

CR-Form-v4	
<b>CHANGE REQUEST</b>	
⌘ <b>25.225 CR 041</b> ⌘	ev <b>1</b> ⌘
Current version: <b>4.3.0</b> ⌘	

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**Proposed change affects:** ⌘ (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	⌘ Introduction of "Node B synchronization for 1.28 Mcps TDD"		
<b>Source:</b>	⌘ TSG RAN WG1		
<b>Work item code:</b>	⌘ RANimp-NBSLCR	<b>Date:</b>	⌘ 21.02.2002
<b>Category:</b>	⌘ <b>B</b>	<b>Release:</b>	⌘ REL-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	2	(GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)	R96	(Release 1996)
	<b>B</b> (addition of feature),	R97	(Release 1997)
	<b>C</b> (functional modification of feature)	R98	(Release 1998)
	<b>D</b> (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="http://www.3gpp.org/ftp/Specs/CRs.htm">TR 21.900</a> .		REL-4 (Release 4)
			REL-5 (Release 5)

<b>Reason for change:</b>	⌘ Introduction of NodeB sync for 1.28 Mcps TDD / finalizing the WI to the specs		
<b>Summary of change:</b>	⌘ Introduction of NodeB synchronization for 1.28 Mcps TDD according to 25.868		
<b>Consequences if not approved:</b>	⌘		

<b>Clauses affected:</b>	⌘ 5.2.11, 5.2.12		
<b>Other specs affected:</b>	⌘ <input checked="" type="checkbox"/> Other core specifications	⌘ 25.224	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
<b>Other comments:</b>	⌘		

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## 5.2.11 Cell Sync Burst Timing

<b>Definition</b>	<p>Cell sync burst timing is the time of start (defined by the first detected path in time) of the cell sync burst of a neighbouring cell. <a href="#">For 1.28 Mcps TDD the DwPCH represents the cell sync burst.</a> Type 1 is used for the initial phase of Node B synchronization. Type 2 is used for the steady-state phase of Node B synchronization. Both have different range.</p> <p>The reference point for the cell sync burst timing measurement shall be the Rx antenna connector.</p> <p><b>Type 1:</b>            Cell sync burst timing = <math>T_{RX} - T_{slot}</math> in chips, where</p> <p><math>T_{slot}</math> : time of start of the cell sync timeslot in the frame, where the cell sync burst was received.</p> <p><math>T_{RX}</math> : time of start (defined by the first detected path in time) of a cell sync burst received from the target UTRA cell.</p> <p><b>Type 2:</b>            Cell sync burst timing = <math>T_{RX} - T_{slot}</math>, in chips, where</p> <p><math>T_{slot}</math> : time of start of the cell sync timeslot in the frame, where the cell sync burst was received.</p> <p><math>T_{RX}</math> : time of start (defined by the first detected path in time) of a cell sync burst received from the target UTRA cell.</p>
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## 5.2.12 Cell Sync Burst SIR

<b>Definition</b>	<p>Signal to Interference Ratio for the cell sync burst, defined as: RSCP/Interference, where:</p> <p>RSCP = Received Signal Code Power, the received power on the code and code offset of a cell sync burst.</p> <p>Interference = The interference on the received signal in the same timeslot which can't be eliminated by the receiver</p> <p>The reference point for the cell sync burst SIR shall be the Rx antenna connector. <a href="#">For 1.28 Mcps TDD the DwPCH represents the cell sync burst.</a></p>
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