RP#16(02) 0400

Technical Specification Group Radio Access Network Marco Island, USA 4 - 7 June 2002

TSG_Doc_Num	Specification	CR_Num	Revision_Num	3G_Release	CR_Subject	CR_Category	Cur_Ver_Num	New_Ver_Num	Tdoc_Num	WorkItem
RP-020400	25.402	035		R99	Reference corrections	F	3.9.0	3.10.0	R3-021363	TEI
RP-020400	25.402	036		Rel-4	Reference corrections	А	4.4.0	4.5.0	R3-021364	TEI
RP-020400	25.402	037		Rel-5	Reference corrections	A	5.0.0	5.1.0	R3-021365	TEI

3GPP TSG-RAN WG3 Meeting #29 Gyeongju, Korea, 13th – 17th May 2002

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[17]	3GPP TS 25.105: "UTRA (BS) TDD; Radio transmission and Reception".	
[1 <u>68</u>]	ITU-T Recommendation G.811 (029/1997): "Timing Characteristics of Primary Reference Clocks".	
[1 <mark>79</mark>]	ITU-T Recommendation G.812 (096/19978): "Timing Requirements of Slave Clocks suitable for use as Node Clocks in Synchronization Network".	
[18 <u>20</u>]	ITU-T Recommendation G.813 (08/1996): "Timing Characteristics of SDH equipment slave clocks (SEC)".	
[19 <u>21</u>]	ETSI EN 300 462-4-1(03/1998): "Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 4-1: Timing characteristics of slave clocks suitable for synchronization supply to Synchronous Digital Hierarchy (SDH) and Plesiochronous Digital	

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[2 <mark>02</mark>]	ETSI EN 300 462-5-1 (09/1996): "Transmission and Multiplexing (TM); Generic requirements for synchronization networks; Part 5-1: Timing characteristics of slave clocks suitable for operation in Synchronous Digital Hierarchy (SDH) equipment".
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Network Synchronisation relates to the distribution of synchronisation references to the UTRAN Nodes and the stability of the clocks in the UTRAN (and performance requirements on UTRAN internal interfaces).

The distribution of an accurate frequency reference to the network elements in the UTRAN is related to several aspects. One main issue is the possibility to provide a synchronisation reference with a frequency accuracy better than 0.05 ppm at the Node B in order to properly generate signals on the radio interface (see references [10] and [2417]).

A general recommendation is to supply a traceable synchronisation reference according to reference [18].

The clock to be implemented in UTRAN Nodes shall be chosen with characteristics that depends on the L1 adopted (see reference [8] and [9]) and on the Network Synchronisation strategy adopted. Already standardized clocks may be used (see references [19], [20], [21], [22] and [23]).

For example in order to support STM-N interfaces at the RNC, the ITU-T Recommendation G.813 (see reference [4920]) may be sufficient. The implementation in the UTRAN of a better performing clock (in terms of holdover) may be recommended for distribution of a 0.05 ppm during failures in the synchronisation network (EN 300 462-7-1, see reference [23], EN 300 462-4-1, see reference [21], or ITU-T Recommendation G.812 type 1, type 2 or type 3, see reference [19]).

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