TSG RAN Meeting #19 **RP-030047**
Birmingham, United Kingdom, 11 - 14 March, 2003

Title **CRs (Rel-5) for WI "High Speed Downlink Packet Access" (TDD UE)**
Source **TSG RAN WG4**
Agenda Item **9.4.1**

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-020306	25.102	134		F	Rel-5	5.3.0	Clarification of HSDPA FRC test procedure on HS-SCCH signalling error	HSDPA-RF
R4-020307	25.102	135		F	Rel-5	5.3.0	Addition of VRC definition for 3.84 Mcps & 1.28 Mcps TDD in Annex A	HSDPA-RF
R4-020309	25.102	136		B	Rel-5	5.3.0	Additional VRC performance requirement for 1.28 Mcps TDD option	HSDPA-RF

3GPP TSG RAN WG4 (Radio) Meeting #26 **R4-030306**

Madrid, Spain 17 - 22 February, 2003

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CHANGE REQUEST

⌘ **25.102** **CR** **134** ⌘ **rev** ⌘ Current version: **5.3.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Clarification of HSDPA FRC Test Procedure on HS-SCCH Signalling Error
Source:	⌘	RAN WG4
Work item code:	⌘	HSDPA-RF
Date:	⌘	05/03/2003
Category:	⌘	**F**
Release:	⌘	Rel-5

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F *(correction)*
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2	*(GSM Phase 2)*
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R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The action of the Node-B emulator in response to the HS-SICH ACK/NACK signalling field during Fixed Reference Channel (FRC) testing is not clear when there is a possibility of HS-SCCH signalling failure at the UE.
Summary of change:	⌘	The required behaviour of the Node-B emulator to each possible state of the ACK/NACK field (up to the maximum number of transmissions) is specified to be: ACK: transmit 1st redundancy version (RV) of a new HS-DSCH packet NACK: transmit the next RV (up to the maximum permitted number) DTX: transmit the RV previously transmitted to the same H-ARQ proces
Consequences if not approved:	⌘	The required behaviour of the Node-B emulator during FRC testing is ambiguous.

Clauses affected:	⌘	9.1.1 and 9.2.1			
Other specs affected:	⌘	Y / N	Other core specifications	⌘	
			Test specifications		34.122
			O&M Specifications		
Other comments:	⌘				

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9 Performance requirements (HSDPA)

9.1 Performance requirement for 3.84 Mcps TDD option

The requirements are stated for the HSDPA UE reference combination classes specified in [2] and under the multipath propagation conditions specified in Annex B. The performance metric for HS-DSCH requirements in multi-path propagation conditions is the throughput R measured on HS-DSCH.

9.1.1 HS-DSCH throughput for fixed reference channels

The performance requirements in this subclause apply for the reference measurement channels specified in Annex A.3.2.

During the Fixed Reference Channel tests the behaviour of the Node-B emulator in response to the ACK/NACK signalling field of the HS-SICH is specified in Table 9.xx:

Table 9.xx Node-B Emulator Behaviour in response to ACK/NACK/DTX

HS-DPCCH ACK/NACK Field State	Node-B Emulator Behaviour
ACK	ACK: new transmission using 1st redundancy version (RV)
NACK	NACK: retransmission using the next RV (up to the maximum permitted number or RV's)
DTX	DTX: retransmission using the RV previously transmitted to the same H-ARQ process

<NEXT CHANGED SECTION>

9.2 Performance requirements for 1.28 Mcps TDD option

The requirements are stated for the HSDPA UE reference combination classes specified in [2] and under the multipath propagation conditions specified in Annex B. The performance metric for HS-DSCH requirements in multi-path propagation conditions is the throughput R measured on HS-DSCH.

9.2.1 HS-DSCH throughput for fixed reference channels

The performance requirements in this subclause apply for the reference measurement channels specified in Annex A.3.2.

During the Fixed Reference Channel tests the behaviour of the Node-B emulator in response to the ACK/NACK signalling field of the HS-SICH is specified in Table 9.yy:

Table 9.yy Node-B Emulator Behaviour in response to ACK/NACK/DTX

HS-DPCCH ACK/NACK Field State	Node-B Emulator Behaviour
ACK	ACK: new transmission using 1st redundancy version (RV)
NACK	NACK: retransmission using the next RV (up to the maximum permitted number or RV's)
DTX	DTX: retransmission using the RV previously transmitted to the same H-ARQ process

3GPP TSG RAN WG4 (Radio) Meeting #26 **R4-030307**

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CHANGE REQUEST

⌘ **25.102** **CR** **135** ⌘ **rev** ⌘ Current version: **5.3.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Addition of VRC definition for 3,84 Mcps and 1,28 Mcps TDD option in Annex A
Source:	⌘	RAN WG4
Work item code:	⌘	HSDPA-RF
Date:	⌘	05/03/2003
Category:	⌘	**F**
Release:	⌘	Rel-5

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R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	VRC definition for both TDD options is missing in Annex A.
Summary of change:	⌘	VRC definition for both TDD options is added in Annex A.3.3 Reference to Annex A.3.3 is added in 3,84 Mcps TDD option section on variable reference channel.
Consequences if not approved:	⌘	VRC definition for both TDD options will not be specified

Clauses affected:	⌘	9.1.2.1, A.3.3 (new)			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	
		N: X			
		Y: X	Test specifications		34.122
		N: X	O&M Specifications		
Other comments:	⌘				

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9.1.2 HS-DSCH throughput for Variable Reference Channels

9.1.2.1 Minimum requirement Variable Reference Channel, 7,3 Mbps – Category 8 - UE

For the parameters specified in Table [9.5] the measured throughput R shall exceed the throughput specified in Table [9.6] for each radio condition. The Variable Reference Channel is specified in Annex A.3.3.

Table [9.5]: Test parameters for variable reference measurement channel requirements for 7,3 Mbps – Category 8 - UE (3,84 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Scrambling code and basic midamble code number*	-	0, 1			
Number of TS	-	8			
HS-PDSCH Channelization Codes*	C(k,Q)	C(i,16) i=1..16			
Number of Hybrid ARQ processes**	-	4			
Maximum number of Hybrid ARQ transmissions	-	1			
Redundancy and constellation version coding sequence	(Xrv, s, r, b)	(0, 1, 0, 0)			
$HS\text{-}PDSCH_i\_Ec/Ior$	dB	–12,04			
$\frac{\sum_{1}^{i} HS-PDSCH\_Ec_i}{Ior}$	dB	0			
I_{oc}	dBm/3,84MHz	-60			
Note *: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code. Note **: For timing requirements, HARQ is not active					

Table [9.6]: Performance requirements for variable reference measurement channel requirement in multipath channels for 7,3 Mbps – Category 8 - UE (3,84 Mcps TDD Option)

Test Number	Propagation conditions	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	R (Throughput) [kbps]
1	PA3	8,8	1240
		14,8	2500
		18,8	3600
		24,8	5000
2	PB3	8,8	1220
		14,8	2430
		20,8	4030
		24,8	5080
3	VA30	10,1	1190
		16,1	2290
		20,1	3220
		24,1	4260
4	VA120	7,1	590
		11,1	1180
		15,1	1840
		19,1	2390

<NEXT CHANGED SECTION>

A.3. 3 Variable Reference Channel definition for 3,84 Mcps and 1,28 Mcps TDD options

The variable reference measurement channels are defined by:

a) The maximum information bit payload that is determined by the UE capability class under test and the allocated resource units (and hence implicitly by the CQI table applicable to the UE under test as derived from TS25.321).

b) The most recently received UE CQI report.

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CHANGE REQUEST

⌘ **25.102** **CR** **136** ⌘ **rev** ⌘ Current version: **5.3.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Addition VRC performance requirement for 1,28 Mcps TDD option
Source:	⌘	RAN WG4
Work item code:	⌘	HSDPA-RF
Date:	⌘	05/03/2003
Category:	⌘	**B**
Release:	⌘	Rel-5

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R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Requirements for HSDPA with variable reference channel are missing.
Summary of change:	⌘	Requirements for HSDPA with variable reference channel are added for PA3, PB3 and VA30.
Consequences if not approved:	⌘	Variable reference channel requirement will not be covered by the specifications.

Clauses affected:	⌘	9.2.2 (new)			
Other specs affected:	⌘	Y / N	Other core specifications	⌘	
			Test specifications		34.122
			O&M Specifications		
Other comments:	⌘				

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9.2 Performance requirements for 1.28 Mcps TDD option

The requirements are stated for the HSDPA UE reference combination classes specified in [2] and under the multipath propagation conditions specified in Annex B. The performance metric for HS-DSCH requirements in multi-path propagation conditions is the throughput R measured on HS-DSCH.

9.2.1 HS-DSCH throughput for fixed reference channels

The performance requirements in this subclause apply for the reference measurement channels specified in Annex A.3.2.

9.2.1.1 Minimum requirement QPSK, Fixed Reference Channel, 1.4 Mbps UE class

For the parameters specified in Table [9.7], the measured throughput R shall exceed the throughput specified in Table [9.8] for each radio condition.

Table [9.7]: Test parameters for fixed reference measurement channel requirements for 1.4 Mbps UE class (1.28 Mcps TDD Option) QPSK

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
HS-PDSCH Modulation	-	QPSK			
Scrambling code and basic midamble code number*	-	0			
HS-PDSCH Channelization Codes*	C(k,Q)	C(i,16) i=1..10			
Number of Hybrid ARQ processes	-	4			
Maximum number of Hybrid ARQ transmissions	-	4			
Redundancy and constellation version coding sequence	-	{0,0,0,0}			
$\frac{HS-PDSCH\_E_c}{I_{or}}$	dB	-10			
I_{oc}	dBm/1.28 MHz	-60			
*Note: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.					

Table [9.8]: Performance requirements for fixed reference measurement channel requirement in multipath channels for 1.4 Mbps UE class (1.28 Mcps TDD Option) QPSK

Test Number	Propagation conditions	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	R (Throughput) [kbps]
1	PA3	10	375
2	PB3	10	378
3	VA30	10	338
4	VA120	10	281

9.2.1.2 Minimum requirement 16QAM, Fixed Reference Channel, 1.4 Mbps UE class

For the parameters specified in Table [9.9], the measured throughput R shall exceed the throughput specified in Table [9.10] for each radio condition.

Table [9.9]: Test parameters for fixed reference measurement channel requirements for 1.4 Mbps UE class (1.28 Mcps TDD Option) 16QAM

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
HS-PDSCH Modulation	-	16QAM			
Scrambling code and basic midamble code number*	-	0			
HS-PDSCH Channelization Codes*	C(k,Q)	C(i,16) i=1..9			
Number of Hybrid ARQ processes	-	4			
Maximum number of Hybrid ARQ transmissions	-	4			
Redundancy and constellation version coding sequence	-	{6,2,1,5}			
$\frac{HS-PDSCH\_E_c}{I_{or}}$	dB	-9.5			
I_{oc}	dBm/1.28 MHz	-60			
*Note: Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code.					

Table [9.10]: Performance requirements for fixed reference measurement channel requirement in multipath channels for 1.4 Mbps UE class (1.28 Mcps TDD Option) 16QAM

Test Number	Propagation conditions	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	R (Throughput) [kbps]
1	PA3	10	379
2	PB3	10	353
3	VA30	10	326
4	VA120	10	289

9.2.2 HS-DSCH throughput for Variable Reference Channels

9.2.2.1 Minimum requirement, Variable Reference Channel - 1.4 Mbps UE class

For the parameters specified in Table [9.11] the measured throughput R shall exceed the throughput specified in Table [9.12] for each radio condition. The Variable Reference Channel is specified in Annex A.3.3.

Table [9.11]: Test parameters for variable reference measurement channel requirements for 1.4 Mbps UE class (1.28 Mcps TDD Option)

Parameters	Unit	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
HS-PDSCH Modulation and transport block size	-	* See note 1					
Scrambling code and basic midamble code number * See note 2	-	0					
HS-PDSCH Channelization Codes * See note 2	C(k,Q)	C(i,16) i=1..10			TBD		
Number of Hybrid ARQ processes	-	4					
Maximum number of Hybrid ARQ transmissions	-	1					
Redundancy and constellation version coding sequence	Xrv	0					
$\frac{HS-PDSCH\_E_c}{I_{or}}$	dB	-10			TBD		
I_{oc}	dBm/1.28 MHz	-60					
* Notes 1) As requested by the last received CQI report 2) Refer to TS 25.223 for definition of channelization codes, scrambling code and basic midamble code. 3) If the indicated CQI is 0, the Node-B emulator shall format the next HS-PDSCH transmission with the transport block size and the modulation scheme that were previously used.							

Table [9.12]: Performance requirements for variable reference measurement channel requirement in multipath channels for 1.4 Mbps UE class (1.28 Mcps TDD Option)

Test Number	Propagation conditions	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	R (Throughput) [kbps]
1	PA3	10	445
2	PB3	10	446
3	VA30	10	271
4	PA3	TBD	TBD
5	PB3	TBD	TBD
6	VA30	TBD	TBD