## **RP-010783**

# TSG RAN Meeting #14

Kyoto, Japan, 11 - 14 December 2001

# Title: CRs (R'99 and Rel-4/Rel-5 Category A) to TS 25.141

Source: TSG RAN WG4

Agenda Item: 8.4.3

RAN4 Tdoc	Spec	CR	Title	Cat	Phase	Curr Ver	New Ver
R4-011384	25.141	117	PCDE and TX diversity	F	Rel99	3.7.0	3.8.0
R4-011554	25.141	118	PCDE and TX diversity	А	Rel-4	4.2.0	4.3.0
R4-011555	25.141	119	PCDE and TX diversity	Α	Rel-5	5.0.0	5.1.0
R4-011406	25.141	120	Corrections to Internal BER verification	F	Rel99	3.7.0	3.8.0
R4-011539	25.141	121	Corrections to Internal BER verification	А	Rel-4	4.2.0	4.3.0
R4-011540	25.141	122	Corrections to Internal BER verification	Α	Rel-5	5.0.0	5.1.0
R4-011407	25.141	123	Corrections to Internal BLER verification	F	Rel99	3.7.0	3.8.0
R4-011541	25.141	124	Corrections to Internal BLER verification	Α	Rel-4	4.2.0	4.3.0
R4-011542	25.141	125	Corrections to Internal BLER verification	Α	Rel-5	5.0.0	5.1.0
R4-011474	25.141	126	Clarification of BMT definition for multicarrier test cases	F	Rel99	3.7.0	3.8.0
R4-011547	25.141	127	Clarification of BMT definition for multicarrier test cases	А	Rel-4	4.2.0	4.3.0
R4-011548	25.141	128	Clarification of BMT definition for multicarrier test cases	Α	Rel-5	5.0.0	5.1.0
R4-011475	25.141	129	Correction of the definition of the PICH channel (test models)	F	Rel99	3.7.0	3.8.0
R4-011549	25.141	130	Correction of the definition of the PICH channel (test models)	А	Rel-4	4.2.0	4.3.0
R4-011550	25.141	131	Correction of the definition of the PICH channel (test models)	Α	Rel-5	5.0.0	5.1.0
R4-011559	25.141	132	Correction to units and table references in Spectrum emission mask	F	Rel99	3.7.0	3.8.0
R4-011560	25.141	133	Correction to units and table references in Spectrum emission mask	Α	Rel-4	4.2.0	4.3.0
R4-011561	25.141	134	Correction to units and table references in Spectrum emission mask	Α	Rel-5	5.0.0	5.1.0
R4-011590	25.141	135	DPCH and S-CCPCH channel structure change to test models.	F	Rel99	3.7.0	3.8.0
R4-011623	25.141	136	DPCH and S-CCPCH channel structure change to test models.	A	Rel-4	4.2.0	4.3.0
R4-011624	25.141	137	DPCH and S-CCPCH channel structure change to test models.	Α	Rel-5	5.0.0	5.1.0

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Other specs affected:	ж	Other core specifications Test specifications O&M Specifications	Ħ	
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- 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.

## 6.7.2 Peak Code Domain Error

### 6.7.2.1 Definition and applicability

The Peak Code Domain Error is computed by projecting the error vector (as defined in 6.7.1) onto the code domain at a specific spreading factor. The Code Domain Error for every code in the domain is defined as the ratio of the mean power of the projection onto that code, to the mean power of the composite reference waveform. This ratio is expressed in dB. The Peak Code Domain Error is defined as the maximum value for the Code Domain Error for all codes. The measurement interval is one timeslot as defined by the C-PICH (when present), otherwise the measurement interval is one timeslot starting with the beginning of the SCH. See Annex E of this specification for further details.

### 6.7.2.2 Minimum requirement

The peak code domain error shall not exceed -33 dB at spreading factor 256.

The normative reference for this requirement is in TS 25.104[1] subclause 6.8.3.

### 6.7.2.3 Test Purpose

It is the purpose of this test to discover and limit inter-code cross-talk.

### 6.7.2.4 Method of test

#### 6.7.2.4.1 Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: B, M and T; see subclause 4.8

- Connect the measurement equipment to the BS antenna connector as shown in <u>Figure B.2</u> annex B. For nontransmit diversity modes, connect the antenna connector as shown in Figure B.2. If <u>STTD or closed loop</u> transmit diversity is supported by the BS, connect both antenna connectors as shown in Figure B.6.
- 2) Channel configuration defined in subclause 6.1.1.3 Test model 3 shall be used.

<Suggested Editor's Note: Changes to Test model 3 for TD tests are ffs>

- 3) Set BS frequency.
- 4) Start BS transmission at maximum output power.

#### 6.7.2.4.2 Procedure

1) Measure Peak code domain error according to annex E.

#### 6.7.2.5 Test requirement

The peak code domain error shall not exceed -32 dB at spreading factor 256.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

# B.1.4 Out of band emission



Figure B.4: Measuring system Set-up for Out of band emission measurements

# B.1.5 Transmit intermodulation



Figure B.5: Measuring system Set-up for Base Station Transmit Intermodulation Tests

# B.1.6 Peak code domain error for the transmit diversity modes



Figure B.6: Measuring system Set-up for peak code domain error measurements for transmit diversity modes

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How to create CRs using this form:

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# 6.7.2 Peak Code Domain Error

### 6.7.2.1 Definition and applicability

The Peak Code Domain Error is computed by projecting the error vector (as defined in 6.7.1) onto the code domain at a specific spreading factor. The Code Domain Error for every code in the domain is defined as the ratio of the mean power of the projection onto that code, to the mean power of the composite reference waveform. This ratio is expressed in dB. The Peak Code Domain Error is defined as the maximum value for the Code Domain Error for all codes. The measurement interval is one timeslot as defined by the C-PICH (when present), otherwise the measurement interval is one timeslot starting with the beginning of the SCH. See Annex E of this specification for further details.

### 6.7.2.2 Minimum requirement

The peak code domain error shall not exceed -33 dB at spreading factor 256.

The normative reference for this requirement is in TS 25.104[1] subclause 6.8.3.

### 6.7.2.3 Test Purpose

It is the purpose of this test to discover and limit inter-code cross-talk.

### 6.7.2.4 Method of test

#### 6.7.2.4.1 Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: B, M and T; see subclause 4.8

- Connect the measurement equipment to the BS antenna connector as shown in <u>Figure B.2</u> annex B. For nontransmit diversity modes, connect the antenna connector as shown in Figure B.2. If <u>STTD or closed loop</u> transmit diversity is supported by the BS, connect both antenna connectors as shown in Figure B.6.
- 2) Channel configuration defined in subclause 6.1.1.3 Test model 3 shall be used.

<Suggested Editor's Note: Changes to Test model 3 for TD tests are ffs>

- 3) Set BS frequency.
- 4) Start BS transmission at maximum output power.

### 6.7.2.4.2 Procedure

1) Measure Peak code domain error according to annex E.

### 6.7.2.5 Test requirement

The peak code domain error shall not exceed -32 dB at spreading factor 256.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

# B.1.4 Out of band emission



Figure B.4: Measuring system Set-up for Out of band emission measurements

# B.1.5 Transmit intermodulation



Figure B.5: Measuring system Set-up for Base Station Transmit Intermodulation Tests

# B.1.6 Peak code domain error for the transmit diversity modes



Figure B.6: Measuring system Set-up for peak code domain error measurements for transmit diversity modes

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- 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.

# 6.7.2 Peak Code Domain Error

### 6.7.2.1 Definition and applicability

The Peak Code Domain Error is computed by projecting the error vector (as defined in 6.7.1) onto the code domain at a specific spreading factor. The Code Domain Error for every code in the domain is defined as the ratio of the mean power of the projection onto that code, to the mean power of the composite reference waveform. This ratio is expressed in dB. The Peak Code Domain Error is defined as the maximum value for the Code Domain Error for all codes. The measurement interval is one timeslot as defined by the C-PICH (when present), otherwise the measurement interval is one timeslot starting with the beginning of the SCH. See Annex E of this specification for further details.

### 6.7.2.2 Minimum requirement

The peak code domain error shall not exceed -33 dB at spreading factor 256.

The normative reference for this requirement is in TS 25.104[1] subclause 6.8.3.

### 6.7.2.3 Test Purpose

It is the purpose of this test to discover and limit inter-code cross-talk.

### 6.7.2.4 Method of test

#### 6.7.2.4.1 Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: B, M and T; see subclause 4.8

- Connect the measurement equipment to the BS antenna connector as shown in <u>Figure B.2</u> annex B. For nontransmit diversity modes, connect the antenna connector as shown in Figure B.2. If <u>STTD or closed loop</u> transmit diversity is supported by the BS, connect both antenna connectors as shown in Figure B.6.
- 2) Channel configuration defined in subclause 6.1.1.3 Test model 3 shall be used.

<Suggested Editor's Note: Changes to Test model 3 for TD tests are ffs>

- 3) Set BS frequency.
- 4) Start BS transmission at maximum output power.

### 6.7.2.4.2 Procedure

1) Measure Peak code domain error according to annex E.

### 6.7.2.5 Test requirement

The peak code domain error shall not exceed -32 dB at spreading factor 256.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

# B.1.4 Out of band emission



Figure B.4: Measuring system Set-up for Out of band emission measurements

# B.1.5 Transmit intermodulation



Figure B.5: Measuring system Set-up for Base Station Transmit Intermodulation Tests

# B.1.6 Peak code domain error for the transmit diversity modes



Figure B.6: Measuring system Set-up for peak code domain error measurements for transmit diversity modes

# R4-011406

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Category: ⊮	Release: # Rel99         e one of the following categories:         F (correction)         A (corresponds to a correction in an earlier release)         B (addition of feature),         C (functional modification of feature)         D (editorial modification)         tailed explanations of the above categories can found in 3GPP TR 21.900.    Release: # Rel99 Use one of the following release 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) C (functional modification) R99 (Release 1998) D (editorial modification) REL-4 (Release 4) REL-5 (Release 5)	es:						
Reason for change	<ul> <li>Reason for change: # - There is a note in table 7.8 saying that 10 times larger BER generator is used to get a good confidence. The note is misleading and it could be interpreted ambiguously.</li> <li>There are TBD values which could be removed from Table 7.8. The BER verifications is used only for the BER measurements. In all BER measurements only 12.2 kbps data rate is defined. The need for other data rates is unlikely at the moment.</li> <li>Brackets for the BER verification accuracy in section 7.8.2 have been there fo a long time and the value have not been questioned.</li> </ul>							
Summary of chang	ary of change: #-Removal of note and TBDs in table 7.8Removal of square brackets in section 7.8.2.Isolated Impact Analysis:This CR has no impact with the previous version of the specification because this CR is just removing notes and square brackets.							
Consequences if not approved:	the note in table 7.8 could be interpreted ambiguously. TBDs and brackets y still remain in section 7.8.2 without reason.	will						
Clauses affected:	f 7.8.2							
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- 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

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Band	Maximum level	Measurement Bandwidth	Note
1900 – 1980 MHz and 2010 – 2025 MHz	-78 dBm	3.84 MHz	
30 MHz – 1 GHz	-57 dBm	100 kHz	
1 GHz – 12.75 GHz	-47 dBm	1 MHz	With the exception of frequencies between 12.5 MHz below the first carrier frequency and 12.5 MHz above the last carrier frequency used by the BS.

Table 7.7A: Spurious emission minimum requirement

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NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

# 7.8 Verification of the internal BER calculation

# 7.8.1 Definition and applicability

Base Station System with internal BER calculation can synchronise it's receiver to known pseudo-random data sequence and calculates bit error ratio from the received data. This test is performed only if Base Station System has this kind of feature. All data rate's which are used in RX conformance testing shall be used in verification test. This test is performed by feeding measurement signal with known BER to the input of the receiver. Locations of the erroneous bits shall be randomly distributed within a frame. Erroneous bits shall be inserted to the data bit stream as shown in figure 7.1.



# 7.8.2 Minimum Requirement

BER indicated by the Base Station System shall be within  $\pm [10\%]$  of the BER generated by the RF signal source. Measurement shall be repeated performed for each measurement signal specified in table 7.8.

Transport channel combination	Data rate	BER				
DPCH	12,2 kbps	BER 0,01				
TBD	TBD	TBD				
	<del></del>					
NOTE: 10 times larger BER generator is used to get a good confidence.						

#### Table 7.8

## 7.8.3 Test purpose

To verify that the internal BER calculation accuracy shall meet requirements for conformance testing.

## R4-011539

East Brunswick, NJ, USA 12th - 16th November 2001

	CR-For	rm-v4					
CHANGE REQUEST							
ж	<b>5.141 CR 121</b> <sup>#</sup> ev _ <sup>#</sup> Current version: <b>4.2.0</b> <sup>#</sup>						
For <u>HELP</u> on us	g this form, see bottom of this page or look at the pop-up text over the $st$ symbols.	•					
Proposed change a	ects: 第 (U)SIM ME/UE Radio Access Network X Core Network	٢					
Title: ೫	Corrections to Internal BER verification						
Source: ೫	RAN WG4						
Work item code: %	Date: ೫ 14 <sup>th</sup> Nov 2001						
Category: #	Release: #       Rel-4         Se one of the following categories:       Use one of the following releases:         F (correction)       2       (GSM Phase 2)         A (corresponds to a correction in an earlier release)       R96       (Release 1996)         B (addition of feature),       R97       (Release 1997)         C (functional modification of feature)       R98       (Release 1998)         D (editorial modification)       R99       (Release 1999)         etailed explanations of the above categories can       REL-4       (Release 4)         F found in 3GPP TR 21.900.       REL-5       (Release 5)         #       There is a note in table 7.8 saying that 10 times larger BER generator is us to get a good confidence. The note is misleading and it could be interpreted ambiguously.	;ed d					
	<ul> <li>There are TBD values which could be removed from Table 7.8. The BER verifications is used only for the BER measurements. In all BER measurements only 12.2 kbps data rate is defined. The need for other data rates is unlikely at the moment.</li> <li>Brackets for the BER verification accuracy in section 7.8.2 have been there a long time and the value have not been questioned.</li> </ul>	ı ∋ for					
Summary of chang	Summary of change: #       -       Removal of note and TBDs in table 7.8.         -       Removal of square brackets in section 7.8.2.         Isolated Impact Analysis:       Isolated Impact with the previous version of the specification because this CR is just removing notes and square brackets.						
Consequences if not approved:	<sup>#</sup> The note in table 7.8 could be interpreted ambiguously. TBDs and brackets will still remain in section 7.8.2 without reason.						
Clauses affected:	<sup>ж</sup> 7.8.2						
Other specs affected:	<ul> <li>Conter core specifications</li> <li>Test specifications</li> <li>O&amp;M Specifications</li> </ul>						

#### Other comments: #

#### How to create CRs using this form:

- 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

		opunous sine	
Band	Maximum level	Measurement Bandwidth	Note
1900 – 1980 MHz and 2010 – 2025 MHz	-78 dBm	3.84 MHz	
30 MHz – 1 GHz	-57 dBm	100 kHz	
1 GHz – 12.75 GHz	-47 dBm	1 MHz	With the exception of frequencies between 12.5 MHz below the first carrier frequency and 12.5 MHz above the last carrier frequency used by the BS.

Table 7.7A: Spurious emission minimum requirement

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

# 7.8 Verification of the internal BER calculation

# 7.8.1 Definition and applicability

Base Station System with internal BER calculation can synchronise it's receiver to known pseudo-random data sequence and calculates bit error ratio from the received data. This test is performed only if Base Station System has this kind of feature. All data rate's which are used in RX conformance testing shall be used in verification test. This test is performed by feeding measurement signal with known BER to the input of the receiver. Locations of the erroneous bits shall be randomly distributed within a frame. Erroneous bits shall be inserted to the data bit stream as shown in figure 7.1.



## 7.8.2 Minimum Requirement

BER indicated by the Base Station System shall be within  $\pm [10\%]$  of the BER generated by the RF signal source. Measurement shall be repeated performed for each measurement signal specified in table 7.8.

Transport channel combination	Data rate	BER
DPCH	12,2 kbps	BER 0,01
TBD	TBD	TBD
	<del></del>	
NOTE: 10 times larger BER generator is used to get a good confidence.		

#### Table 7.8

## 7.8.3 Test purpose

To verify that the internal BER calculation accuracy shall meet requirements for conformance testing.

# R4-011540

East Brunswick, NJ, USA 12th - 16th November 2001

	CR-Form-v		
CHANGE REQUEST			
ж	25.141 CR 122 <sup>#</sup> ev - <sup>#</sup> Current version: 5.0.0 <sup>#</sup>		
	ng this form, and bottom of this page or look of the pap up toxt over the W symbols		
FOI <u>IILLF</u> OII US			
Proposed change a	fects: 第 (U)SIM ME/UE Radio Access Network X Core Network		
Title: ೫	Corrections to Internal BER verification		
Source: ೫	RAN WG4		
Work item code: %	Date: <sup>ቌ</sup> 14 <sup>th</sup> Nov 2001		
Category: ¥			
	Jse <u>one</u> of the following categories: Use <u>one</u> of the following releases:		
	<i>F</i> (correction) 2 (GSM Phase 2) <i>A</i> (corresponds to a correction in an earlier release) R96 (Release 1996)		
	<b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>B</b> (Release 1997) <b>C</b> (functional modification of feature)		
	D (editorial modification) R99 (Release 1999)		
	Detailed explanations of the above categories can REL-4 (Release 4)		
Reason for change:	* There is a note in table 7.8 saving that 10 times larger BER generator is used		
	to get a good confidence. The note is misleading and it could be interpreted ambiguously.		
- There are TBD values which could be removed from Table 7.8. The BER verifications is used only for the BER measurements. In all BER			
	rates is unlikely at the moment.		
	- Brackets for the BER verification accuracy in section 7.8.2 have been there fo a long time and the value have not been questioned.		
Summary of change	*# - Removal of note and TRDs in table 7.8		
	Removal of square brackets in section 7.8.2		
	Isolated Impact Analysis:		
	This CR has no impact with the previous version of the specification because this CR is just removing notes and square brackets.		
Consequences if	器 The note in table 7.8 could be interpreted ambiguously. TBDs and brackets will		
not approved:	still remain in section 7.8.2 without reason.		
Clauses affected:	第 7.8.2		
Other specs affected:	Test specifications		
	O&M Specifications		

#### Other comments: #

#### How to create CRs using this form:

- 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

Band	Maximum level	Measurement Bandwidth	Note
1900 – 1980 MHz and 2010 – 2025 MHz	-78 dBm	3.84 MHz	
30 MHz – 1 GHz	-57 dBm	100 kHz	
1 GHz – 12.75 GHz	-47 dBm	1 MHz	With the exception of frequencies between 12.5 MHz below the first carrier frequency and 12.5 MHz above the last carrier frequency used by the BS.

Table 7.7A: Spurious emission minimum requirement

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

# 7.8 Verification of the internal BER calculation

# 7.8.1 Definition and applicability

Base Station System with internal BER calculation can synchronise it's receiver to known pseudo-random data sequence and calculates bit error ratio from the received data. This test is performed only if Base Station System has this kind of feature. All data rate's which are used in RX conformance testing shall be used in verification test. This test is performed by feeding measurement signal with known BER to the input of the receiver. Locations of the erroneous bits shall be randomly distributed within a frame. Erroneous bits shall be inserted to the data bit stream as shown in figure 7.1.



## 7.8.2 Minimum Requirement

BER indicated by the Base Station System shall be within  $\pm [10\%]$  of the BER generated by the RF signal source. Measurement shall be repeated performed for each measurement signal specified in table 7.8.

Transport channel combination	Data rate	BER
DPCH	12,2 kbps	BER 0,01
TBD	TBD	TBD
	<del></del>	
NOTE: 10 times larger BER generator is used to get a good confidence.		

#### Table 7.8

## 7.8.3 Test purpose

To verify that the internal BER calculation accuracy shall meet requirements for conformance testing.

## R4-011407

East Brunswick, NJ, USA 12th - 16th November 2001

	CR-Form-v4			
	CHANGE REQUEST			
ж	<b>25.141</b> CR <b>123 #</b> ev <b>_ #</b> Current version: <b>3.7.0 #</b>			
For <u>HELP</u> on us	ing this form, see bottom of this page or look at the pop-up text over the $lpha$ symbols.			
Proposed change a	ffects: ¥ (U)SIM ME/UE Radio Access Network X Core Network			
Title: ೫	Corrections to Internal BLER verification			
Source: ೫	RAN WG4			
Work item code: Ж	<b>Date:</b>			
Category: #	F       Release: %       Rel99         Use one of the following categories:       Use one of the following releases:       2         F (correction)       2       (GSM Phase 2)         A (corresponds to a correction in an earlier release)       R96       (Release 1996)         B (addition of feature),       R97       (Release 1997)         C (functional modification of feature)       R98       (Release 1998)         D (editorial modification)       R99       (Release 1999)         Detailed explanations of the above categories can be found in 3GPP TR 21.900.       REL-4       (Release 4)         K - There is a note in section 8.6.2 saving that 10 times larger BLER generator is       %			
neason for change.	<ul> <li>Brackets for the BLER verification accuracy in section 8.6.2 have been there for a long time and the value have not been questioned.</li> </ul>			
Summary of change	<ul> <li>Removal of note and square brackets in section 8.6.2</li> <li>Isolated Impact Analysis:</li> <li>This CR has no impact with the previous version of the specification because this CR is just removing notes and square brackets.</li> </ul>			
Consequences if not approved:	The note in section 8.6.2 could be interpreted ambiguously. Brackets will still remain in section 8.6.2 without reason.			
Clauses affected:	¥ 8.6.2			
Other specs affected:	%       Other core specifications       %         Test specifications       O&M Specifications			
Other comments:	¥			

#### How to create CRs using this form:

- 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

### 8.6.2 Conformance requirement

BLER indicated by the Base Station System shall be within  $\pm [10\%]$  of the BLER generated by the RF signal source. Measurement shall be repeated for each signal rate as specified in table 8.13.

Transport channel combination	Data rate	BLER
DPCH	12,2 kbps	BLER 0.01
DPCH	64 kbps	BLER 0.01
DPCH	144 kbps	BLER 0.01
DPCH	384 kbps	BLER 0.01

Table	8.13
-------	------

NOTE: 10 times larger BLER generator is used to get a good confidence.

### 8.6.3 Test purpose

To verify that the internal BLER calculation accuracy shall met requirements for conformance testing.

### 8.6.4 Method of test

#### 8.6.4.1 Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: B, M and T; see subclause 4.8

1) Connect the BS tester generating the wanted signal to both BS antenna connectors for diversity reception via a combining network as shown in annex B.

Parameter	Level/status	Unit
UL signal level	Ref.sens +10 dB	dBm/3.84 MHz
Data sequence	PN9	

#### 8.6.4.2 Procedure

- 1) The characteristics of the wanted signal shall be configured according to the corresponding UL reference measurement channel defined in annex A.
- 2) The BLER insertion to the wanted signal shall be configured according to the corresponding data rate in table 8.7.
- 3) Adjust the BS tester so that the required UL signal level specified in table 8.14 is achieved.

For each of the data rates in table 8.13 applicable for the base station, measure the BLER at least over 50 000 blocks.

### 8.6.5 Test requirement

BLER indicated by the Base Station System shall be within requirement as specified in subclause 8.6.2.

## R4-011541

East Brunswick, NJ, USA 12th - 16th November 2001

	CR-Form-v4		
CHANGE REQUEST			
ж	<b>25.141</b> CR <b>124 #</b> ev <b>_ #</b> Current version: <b>4.2.0 #</b>		
For <u>HELP</u> on us	sing this form, see bottom of this page or look at the pop-up text over the X symbols.		
Proposed change a	ffects: # (U)SIM ME/UE Radio Access Network X Core Network		
Title: ೫	Corrections to Internal BLER verification		
Source: ೫	RAN WG4		
Work item code: ₩	<b>Date:</b>		
Category: #	A       Release: # Rel-4         Use one of the following categories:       Use one of the following releases:         F (correction)       2       (GSM Phase 2)         A (corresponds to a correction in an earlier release)       R96       (Release 1996)         B (addition of feature),       R97       (Release 1997)         C (functional modification of feature)       R98       (Release 1998)         D (editorial modification)       R99       (Release 1999)         Detailed explanations of the above categories can be found in 3GPP TR 21.900.       REL-4       (Release 4)         * **       There is a note in section 8.6.2 saying that 10 times larger BLER generator is used to get a good confidence. The note is misleading and it could be interpreted ambiguously.		
Summary of change	<ul> <li>Brackets for the BLER verification accuracy in section 8.6.2 have been there for a long time and the value have not been questioned.</li> <li>Removal of note and square brackets in section 8.6.2</li> <li>Isolated Impact Analysis: This CR has no impact with the previous version of the specification because this CR is just removing notes and square brackets.</li> </ul>		
Consequences if not approved:	# The note in section 8.6.2 could be interpreted ambiguously. Brackets will still remain in section 8.6.2 without reason.		
Clauses affected:	策 <mark>8.6.2</mark>		
Other specs affected:	%       Other core specifications       %         Test specifications       O&M Specifications		
Other comments:	¥		

#### How to create CRs using this form:

- 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

### 8.6.2 Conformance requirement

BLER indicated by the Base Station System shall be within  $\pm [10\%]$  of the BLER generated by the RF signal source. Measurement shall be repeated for each signal rate as specified in table 8.13.

Transport channel combination	Data rate	BLER
DPCH	12,2 kbps	BLER 0.01
DPCH	64 kbps	BLER 0.01
DPCH	144 kbps	BLER 0.01
DPCH	384 kbps	BLER 0.01

Table	8.13
-------	------

NOTE: 10 times larger BLER generator is used to get a good confidence.

## 8.6.3 Test purpose

To verify that the internal BLER calculation accuracy shall met requirements for conformance testing.

### 8.6.4 Method of test

#### 8.6.4.1 Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: B, M and T; see subclause 4.8

1) Connect the BS tester generating the wanted signal to both BS antenna connectors for diversity reception via a combining network as shown in annex B.

Parameter	Level/status	Unit
UL signal level	Ref.sens +10 dB	dBm/3.84 MHz
Data sequence	PN9	

#### 8.6.4.2 Procedure

- 1) The characteristics of the wanted signal shall be configured according to the corresponding UL reference measurement channel defined in annex A.
- 2) The BLER insertion to the wanted signal shall be configured according to the corresponding data rate in table 8.7.
- 3) Adjust the BS tester so that the required UL signal level specified in table 8.14 is achieved.

For each of the data rates in table 8.13 applicable for the base station, measure the BLER at least over 50 000 blocks.

### 8.6.5 Test requirement

BLER indicated by the Base Station System shall be within requirement as specified in subclause 8.6.2.

## R4-011542

East Brunswick, NJ, USA 12th - 16th November 2001

	CR-Form-v4
	CHANGE REQUEST
ж	<b>25.141</b> CR <b>125</b> * ev _ * Current version: <b>5.0.0</b> *
For <u>HELP</u> on us	ing this form, see bottom of this page or look at the pop-up text over the $\Re$ symbols.
Proposed change a	ffects: ೫ (U)SIM ME/UE Radio Access Network X Core Network
Title:	Corrections to Internal BLER verification
Source: ೫	RAN WG4
Work item code: ₩	Date: 第 14 <sup>th</sup> Nov 2001
Category: #	A       Release: %       Rel-5         Use one of the following categories:       Use one of the following releases:       2         F (correction)       2       (GSM Phase 2)         A (corresponds to a correction in an earlier release)       R96       (Release 1996)         B (addition of feature),       R97       (Release 1997)         C (functional modification of feature)       R98       (Release 1998)         D (editorial modification)       R99       (Release 1999)         Detailed explanations of the above categories can       REL-4       (Release 4)         be found in 3GPP TR 21.900.       REL-5       (Release 5)
Reason for change:	<ul> <li>* There is a note in section 8.6.2 saying that 10 times larger BLER generator is used to get a good confidence. The note is misleading and it could be interpreted ambiguously.</li> <li>Brackets for the BLER verification accuracy in section 8.6.2 have been there for a long time and the value have not been questioned.</li> </ul>
Summary of change	e: #       - Removal of note and square brackets in section 8.6.2         Isolated Impact Analysis:         This CR has no impact with the previous version of the specification because this CR is just removing notes and square brackets.
Consequences if not approved:	# The note in section 8.6.2 could be interpreted ambiguously. Brackets will still remain in section 8.6.2 without reason.
Clauses affected:	¥ 8.6.2
Other specs affected:	Image: Specification state       Image: Specification state
Other comments:	¥

#### How to create CRs using this form:

- 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

### 8.6.2 Conformance requirement

BLER indicated by the Base Station System shall be within  $\pm [10\%]$  of the BLER generated by the RF signal source. Measurement shall be repeated for each signal rate as specified in table 8.13.

Transport channel combination	Data rate	BLER
DPCH	12,2 kbps	BLER 0.01
DPCH	64 kbps	BLER 0.01
DPCH	144 kbps	BLER 0.01
DPCH	384 kbps	BLER 0.01

Table	8.13
-------	------

NOTE: 10 times larger BLER generator is used to get a good confidence.

### 8.6.3 Test purpose

To verify that the internal BLER calculation accuracy shall met requirements for conformance testing.

### 8.6.4 Method of test

#### 8.6.4.1 Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: B, M and T; see subclause 4.8

1) Connect the BS tester generating the wanted signal to both BS antenna connectors for diversity reception via a combining network as shown in annex B.

Parameter	Level/status	Unit
UL signal level	Ref.sens +10 dB	dBm/3.84 MHz
Data sequence	PN9	

#### 8.6.4.2 Procedure

- 1) The characteristics of the wanted signal shall be configured according to the corresponding UL reference measurement channel defined in annex A.
- 2) The BLER insertion to the wanted signal shall be configured according to the corresponding data rate in table 8.7.
- 3) Adjust the BS tester so that the required UL signal level specified in table 8.14 is achieved.

For each of the data rates in table 8.13 applicable for the base station, measure the BLER at least over 50 000 blocks.

### 8.6.5 Test requirement

BLER indicated by the Base Station System shall be within requirement as specified in subclause 8.6.2.

R4-011474

East Brunswick, NJ, USA 12th - 16th November 2001

										CP Form
			CH	IANG	<b>SE RE</b>	EQUE	EST			CK-FOIIII-V
ж	25	.141	CR 12	26	Ħ	ev 🗕	ж	Current vers	sion: <b>3.7</b>	<sup>#</sup>
For <u>HELP</u> on	using	this for	rm, see bo	ottom of	this page	e or lool	k at the	e pop-up text	t over the a	₿ symbols.
Proposed change	e affec	ts: #	(U)SIN	1 1	ME/UE	Ra	dio Aco	cess Networ	k X Co	re Network
Title:	ដ <mark>Cla</mark>	rificati	on of BMT	definitio	on for m	ulticarrie	e <mark>r equi</mark> l	pment		
Source:	<mark>೫ R</mark> A	N WG	4							
Work item code:	ж							Date: #	08 Nov.	01
Category:	₩ <mark>F</mark> Use Deta be fo	one of <b>F</b> (corr <b>A</b> (corr <b>B</b> (add <b>C</b> (fun <b>D</b> (edit iled exp bund in	the followir rection) responds to dition of fea ctional modif torial modif olanations of 3GPP <u>TR 2</u>	ng catego o a correc ture), dification iication) of the abo 21.900.	ories: ction in a of feature ove categ	n earlier e) ories cai	<i>release</i> , n	Release: # Use <u>one</u> of 2 R96 R97 R98 R99 REL-4 REL-5	Rel99 the followin (GSM Pha (Release (Release (Release (Release (Release	1g releases: 1se 2) 1996) 1997) 1998) 1999) 4) 5)
Reason for chan	<b>де:</b> Ж	The a cha	<mark>channel n</mark> annel num	umberin Ibering [	<mark>g scherr</mark> 0N-1]).	ie is not	specif	ied (the curr	ent text im	plicitely uses
Summary of chai	nge: ೫	The form	CR adds a ula accord	an explic lingly.	cit chann	<mark>el num</mark> t	pering s	sheme [1N	and revis	es the
Consequences if not approved:	· ¥	The carrie sche	carrier numer position me of [0 ated Impace ection to a ection to a amuld not affe ementatio function c es. This co	mbering ing for t N-1] or [ t Analys a function biguous ect imple ns suppo orrected	scheme he test o 1N]. sis: n where or not s mentatio orting th l is the c will imp	the spe ufficient ons beha e correct hannel i act test	be spe ependir cification ly expli- aving li- ted fur numbe cases	ecified: this y ng whether t on was : icit. ike indicated nctionality ot ring in the d that determ	will lead to he reader l in the CR herwise. efinition of ine perforr	different assumes a , would affect the BMT test nance but wil

Clauses affected:	¥ 4.8
Other specs affected:	#       Other core specifications       #         Test specifications       O&M Specifications
Other comments:	¥

not impact operational functions for the UE or the network.

#### How to create CRs using this form:

- 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

3

# 4.8 Specified frequency range

The manufacturer shall declare:

- which of the frequency bands defined in sub-clause 3.4 is supported by the BS.
- the frequency range within the above frequency band(s) supported by the BS.

Many tests in this TS are performed with appropriate frequencies in the bottom, middle and top of the operating frequency band of the BS. These are denoted as RF channels B (bottom), M (middle) and T (top).

Unless otherwise stated, the test shall be performed with a single carrier at each of the RF channels B, M and T.

When the requirements are specific to multiple carriers, and the BS is declared to support N>1 carriers, numbered from 1 to N, the interpretation of B, M and T for test purposes shall be as follows:

For testing at B,

- the carrier of lowest frequency shall be centred on B

For testing at M,

- if the number N of carriers supported is odd, the carrier  $(N-\pm 1)/2$  shall be centred on M,
- if the number N of carriers supported is even, the carrier N/2 shall be centred on M.

For testing at T

- the carrier of highest frequency shall be centred on T

When a test is performed by a test laboratory, the UARFCNs to be used for RF channels B, M and T shall be specified by the laboratory. The laboratory may consult with operators, the manufacturer or other bodies.

When a test is performed by a manufacturer, the UARFCNs to be used for RF channels B, M and T may be specified by an operator.

R4-011547

East Brunswick, NJ, USA 12th - 16th November 2001

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The function corrected is the channel numbering in the definition of the BMT test
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#### How to create CRs using this form:

- 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.
# 4.8 Specified frequency range

The manufacturer shall declare:

- which of the frequency bands defined in sub-clause 3.4 is supported by the BS.
- the frequency range within the above frequency band(s) supported by the BS.

Many tests in this TS are performed with appropriate frequencies in the bottom, middle and top of the operating frequency band of the BS. These are denoted as RF channels B (bottom), M (middle) and T (top).

Unless otherwise stated, the test shall be performed with a single carrier at each of the RF channels B, M and T.

When the requirements are specific to multiple carriers, and the BS is declared to support N>1 carriers, <u>numbered from</u> 1 to N, the interpretation of B, M and T for test purposes shall be as follows:

For testing at B,

- the carrier of lowest frequency shall be centred on B

For testing at M,

- if the number N of carriers supported is odd, the carrier  $(N\pm-1)/2$  shall be centred on M,
- if the number N of carriers supported is even, the carrier N/2 shall be centred on M.

For testing at T

- the carrier of highest frequency shall be centred on T

When a test is performed by a test laboratory, the UARFCNs to be used for RF channels B, M and T shall be specified by the laboratory. The laboratory may consult with operators, the manufacturer or other bodies.

When a test is performed by a manufacturer, the UARFCNs to be used for RF channels B, M and T may be specified by an operator.

R4-011548

East Brunswick, NJ, USA 12th - 16th November 2001

	CHANGE REQUEST
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For <u>HELP</u> on us	sing this form, see bottom of this page or look at the pop-up text over the $#$ symbols.
Proposed change a	affects: 第 (U)SIM ME/UE Radio Access Network X Core Network
Title: ೫	Clarification of BMT definition for multicarrier equipment
Source: ೫	RAN WG4
Work item code: #	Date: <sup>쁐</sup> 14 Nov. 01
Category: #	ARelease: \$ Rel-5Use one of the following categories:Use one of the following releases:F (correction)2A (corresponds to a correction in an earlier release)R96B (addition of feature),R97C (functional modification of feature)R98D (editorial modification)R99Detailed explanations of the above categories canREL-4be found in 3GPP TR 21.900.REL-5
Reason for change	: * The channel numbering scheme is not specified (the current text implicitely uses a channel numbering [0N-1]).
Summary of chang	e: # The CR adds an explicit channel numbering sheme [1N] and revises the formula accordingly.
Consequences if not approved:	<ul> <li>The carrier numbering scheme will not be specified: this will lead to different carrier positioning for the test cases depending whether the reader assumes a scheme of [0N-1] or [1N].</li> <li>Isolated Impact Analysis:</li> <li>Correction to a function where the specification was:         <ul> <li>ambiguous or not sufficiently explicit.</li> </ul> </li> <li>Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.</li> </ul>

		cases. This correction will impact test cases that determine performance but will not impact operational functions for the UE or the network.
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Clauses affected:	¥ 4.8
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#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G\_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

# 4.8 Specified frequency range

The manufacturer shall declare:

- which of the frequency bands defined in sub-clause 3.4 is supported by the BS.
- the frequency range within the above frequency band(s) supported by the BS.

Many tests in this TS are performed with appropriate frequencies in the bottom, middle and top of the operating frequency band of the BS. These are denoted as RF channels B (bottom), M (middle) and T (top).

Unless otherwise stated, the test shall be performed with a single carrier at each of the RF channels B, M and T.

When the requirements are specific to multiple carriers, and the BS is declared to support N>1 carriers, <u>numbered from</u> 1 to N, the interpretation of B, M and T for test purposes shall be as follows:

For testing at B,

- the carrier of lowest frequency shall be centred on B

For testing at M,

- if the number N of carriers supported is odd, the carrier  $(N\pm-1)/2$  shall be centred on M,
- if the number N of carriers supported is even, the carrier N/2 shall be centred on M.

For testing at T

- the carrier of highest frequency shall be centred on T

When a test is performed by a test laboratory, the UARFCNs to be used for RF channels B, M and T shall be specified by the laboratory. The laboratory may consult with operators, the manufacturer or other bodies.

When a test is performed by a manufacturer, the UARFCNs to be used for RF channels B, M and T may be specified by an operator.

# R4-011475

East Brunswick, NJ, USA 12th - 16th November 2001

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ж	<b>25.141</b> CR 129 <sup>#</sup> ev _ <sup>#</sup> C	Current version: <b>3.7.0</b> <sup>#</sup>
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Proposed chang	e affects: # (U)SIM ME/UE Radio Acce	ess Network X Core Network
Title:	Clarification of the definition of the PICH channel to	be used in test models
Source:	₩ RAN WG4	
Work item code:	¥	<i>Date:</i>
Category:	<ul> <li>F F</li> <li>Use <u>one</u> of the following categories:</li> <li>F (correction)</li> <li>A (corresponds to a correction in an earlier release)</li> <li>B (addition of feature),</li> <li>C (functional modification of feature)</li> <li>D (editorial modification)</li> <li>Detailed explanations of the above categories can be found in 3GPP <u>TR 21.900</u>.</li> </ul>	Release: # Rel99Use one of the following releases:2(GSM Phase 2)R96R97(Release 1996)R97R98(Release 1997)R98R99Release 1999)REL-4(Release 4)REL-5(Release 5)
Reason for chan	ge: # The acronym for the Paging Indicator is not co specification 25.212	nsistent with the one used in

Summary of change: #	Replace PI by Pq
Consequences if #	The inconsistency will remain in the specification making the definition of the
not approved:	PICH to be used in test models unclear.
	Isolated Impact Analysis:
	Correction to a function where the specification was:
	<ul> <li>ambiguous or not sufficiently explicit.</li> </ul>
	Would not affect implementations behaving like indicated in the CR, would affect
	implementations supporting the corrected functionality otherwise.
	This correction will impact test cases that determine performance but will not
	impact operational functions for the UE or the network.

Clauses affected:	₩ <u>6.1.1.6.2</u>
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#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G\_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

### 6.1.1.6.2 PICH

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# R4-011549

East Brunswick, NJ, USA 12th - 16th November 2001

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Source:	ж	RAN WG	64						
Work item c	ode: <sup>भ्र</sup>						Date: ₩	14 Nov. 01	
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_	specification 25.212
Summary of change:	Replaces PI by Pq
Consequences if 🛛 🕷	The inconsistency will remain in the specification making the definition of the
not approved:	PICH to be used in test models unclear.
	Isolated Impact Analysis:
	Correction to a function where the specification was:
	<ul> <li>ambiguous or not sufficiently explicit.</li> </ul>
	Would not affect implementations behaving like indicated in the CR, would affect
	implementations supporting the corrected functionality otherwise.
	This correction will impact test cases that determine performance but will not
	impact operational functions for the UE or the network.

Clauses affected:	<b>₩</b> 6.1.1.6.2
Other specs affected:	#       Other core specifications       #         Test specifications       O&M Specifications
Other comments:	¥

## How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G\_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

### 6.1.1.6.2 PICH

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# R4-011550

East Brunswick, NJ, USA 12th - 16th November 2001

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æ	<b>25.141</b> CR <b>131 *</b> ev <b>- *</b> Current version: <b>5.0.0</b>	ж	
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Proposed chang	e affects: 第 (U)SIM ME/UE Radio Access Network X Core Network	work	
Title:	Clarification of the definition of the PICH channel to be used in test models		
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	Correction to a function where the specification was:
	<ul> <li>ambiguous or not sufficiently explicit.</li> </ul>
	Would not affect implementations behaving like indicated in the CR, would affect
	implementations supporting the corrected functionality otherwise.
	This correction will impact test cases that determine performance but will not
	impact operational functions for the UE or the network.

Clauses affected:	<sup>₭</sup> 6.1.1.6.2
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#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G\_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

## 6.1.1.6.2 PICH

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R4-011559

East Brunswick, NJ, USA 12th - 16th November 2001

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Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G\_Specs/CRs.htm</u>. Below is a brief summary:

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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.

# 6.5.2 Out of band emission

Out of band emissions are unwanted emissions immediately outside the channel bandwidth resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. This out of band emission limit is specified in terms of a spectrum emission mask and adjacent channel leakage power ratio for the transmitter.

# 6.5.2.1 Spectrum emission mask

### 6.5.2.1.1 Definitions and applicability

The mask defined in Tables 6.311 to 6.614 below may be mandatory in certain regions. In other regions this mask may not be applied.

### 6.5.2.1.2 Minimum Requirements

For regions where this clause applies, the requirement shall be met by a base station transmitting on a single RF carrier configured in accordance with the manufacturer's specification. Emissions shall not exceed the maximum level specified in tables 6.11 to 6.14 for the appropriate BS maximum output power, in the frequency range from  $\Delta f = 2.5$  MHz to  $\Delta f_{max}$  from the carrier frequency, where:

- $\Delta f$  is the separation between the carrier frequency and the nominal –3dB point of the measuring filter closest to the carrier frequency.
- f\_offset is the separation between the carrier frequency and the centre of the measurement filter;
- f\_offset<sub>max</sub> is either 12.5 MHz or the offset to the UMTS Tx band edge as defined in subclause 3.4.1, whichever is the greater.
- $\Delta f_{max}$  is equal to f\_offset<sub>max</sub> minus half of the bandwidth of the measuring filter.

#### Table 6.11: Spectrum emission mask values, BS maximum output power P $\ge$ 43 dBm

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_offset < 3.515MHz$	14 <u>dBm</u> – 15 (f_offset- 2.715) dB <del>m</del>	30 kHz
	$3.515MHz \leq f_offset < 4.0MHz$	-26 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-13 dBm	1 MHz
$7.5 \le \Delta f MHz$	8.0 MHz $\leq$ f_offset < f_offset <sub>max</sub>	-13 dBm	1 MHz

#### Table 6.12: Spectrum emission mask values, BS maximum output power $39 \le P < 43$ dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	-14 <u>dBm</u> – 15 (f_offset - 2.715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	-26 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-13 dBm	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \le f_offset < f_offset_max$	P – 56 dB <del>m</del>	1 MHz

Frequency offset of measurement filter – 3dB point,∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	P – 53 dB <del>m</del>	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	P – 53 <u>dB</u> – 15 (f_offset – 2.715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	P – 65 dB <del>m</del>	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	P – 52 dB <del>m</del>	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \leq f_offset < f_offset_max$	P – 56 dB <del>m</del>	1 MHz

#### Table 6.13: Spectrum emission mask values, BS maximum output power $31 \le P < 39$ dBm

#### Table 6.14: Spectrum emission mask values, BS maximum output power P < 31 dBm

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-22 dBm	30 kHz
$2.7 \le \Delta f < 3.5 \text{ MHz}$	$2.715MHz \le f_{offset} < 3.515MHz$	-22 <u>dBm</u> – 15 (f_offset - 2.715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	-34 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-21 dBm	1 MHz
7.5 ≤ ∆f MHz	8.0MHz $\leq$ f_offset < f_offset <sub>max</sub>	-25 dBm	1 MHz

The normative reference for this requirement is in TS 25.104 [1] subclause 6.6.2.1

### 6.5.2.1.3 Test purpose

This test measures the emissions of the BS, close to the assigned channel bandwidth of the wanted signal, while the transmitter is in operation.

#### 6.5.2.1.4 Method of test

6.5.2.1.4.1 Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: B, M and T; see subclause 4.8

- 1) Set-up the equipment as shown in annex B.
- 2) Measurements with an offset from the carrier centre frequency between 2,515 MHz and 4.0 MHz shall use a 30 kHz measurement bandwidth.
- 3) Measurements with an offset from the carrier centre frequency between 4.0 MHz and (f\_offset<sub>max</sub> 500 kHz).shall use a 1 MHz measurement bandwidth. The 1MHz measurement bandwidth may be calculated by integrating multiple 50 kHz or narrower filter measurements
- 4) Detection mode: True RMS.

### 6.5.2.1.4.2 Procedures

- 1) Set the BS to transmit a signal in accordance to test model 1, subclause 6.2.1.1.1 at the manufacturer's specified maximum output power.
- 2) Measure the emission at the specified frequencies with specified measurement bandwidth and note that the measured value does not exceed the specified value.

# 6.5.2.1.5 Test requirements

The measurement result in step 2 of 6.5.2.1.4.2 shall not exceed the maximum level specified in tables 6.15 to 6.18 for the appropriate BS maximum output power.

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-12.5 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	- 12.5 <u>dBm</u> – 15 (f_offset- 2.715) dB <del>m</del>	30 kHz
	$3.515MHz \leq f_offset < 4.0MHz$	-24.5 dBm	30 kHz
$3.5 \le \Delta f < 7.5 \text{ MHz}$	4.0 MHz ≤ f_offset < 8.0MHz	-11.5 dBm	1 MHz
7.5 ≤ ∆f MHz	8.0 MHz ≤ f_offset < f_offset <sub>max</sub>	-11.5 dBm	1 MHz

#### Table 6.15: Spectrum emission mask values, BS maximum output power P ≥ 43 dBm

#### Table 6.16: Spectrum emission mask values, BS maximum output power $39 \le P < 43$ dBm

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-12.5 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	-12.5 <u>dBm</u> – 15 (f_offset - 2.715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	-24.5 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-11.5 dBm	1 MHz
$7.5 \le \Delta f MHz$	$8.0MHz \le f_offset < f_offset_{max}$	P – 54.5 dB <del>m</del>	1 MHz

#### Table 6.17: Spectrum emission mask values, BS maximum output power $31 \le P < 39$ dBm

Frequency offset of measurement filter – 3dB point,∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	P – 51.5 dB <del>m</del>	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	P – 51.5 <u>dB</u> – 15 (f_offset – 2 715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	P – 63.5 dB <del>m</del>	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz $\leq$ f_offset < 8.0MHz	P – 50.5 dB <del>m</del>	1 MHz
7.5 ≤ ∆f MHz	8.0MHz $\leq$ f_offset < f_offset <sub>max</sub>	P – 54.5 dB <del>m</del>	1 MHz

#### Table 6.18: Spectrum emission mask values, BS maximum output power P < 31 dBm

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-20.5 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	-20.5 <u>dBm</u> – 15 (f_offset - 2.715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	-32.5 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-19.5 dBm	1 MHz
7.5 ≤ ∆f MHz	8.0MHz $\leq$ f_offset < f_offset <sub>max</sub>	-23.5 dBm	1 MHz

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

R4-011560

East Brunswick, NJ, USA 12th - 16th November 2001

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#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G\_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u>. 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.

# 6.5.2 Out of band emission

Out of band emissions are unwanted emissions immediately outside the channel bandwidth resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. This out of band emission limit is specified in terms of a spectrum emission mask and adjacent channel leakage power ratio for the transmitter.

# 6.5.2.1 Spectrum emission mask

### 6.5.2.1.1 Definitions and applicability

The mask defined in Tables 6.311 to 6.614 below may be mandatory in certain regions. In other regions this mask may not be applied.

### 6.5.2.1.2 Minimum Requirements

For regions where this clause applies, the requirement shall be met by a base station transmitting on a single RF carrier configured in accordance with the manufacturer's specification. Emissions shall not exceed the maximum level specified in tables 6.11 to 6.14 for the appropriate BS maximum output power, in the frequency range from  $\Delta f = 2.5$  MHz to  $\Delta f_{max}$  from the carrier frequency, where:

- $\Delta f$  is the separation between the carrier frequency and the nominal –3dB point of the measuring filter closest to the carrier frequency.
- f\_offset is the separation between the carrier frequency and the centre of the measurement filter;
- f\_offset<sub>max</sub> is either 12.5 MHz or the offset to the UMTS Tx band edge as defined in subclause 3.4.1, whichever is the greater.
- $\Delta f_{max}$  is equal to f\_offset<sub>max</sub> minus half of the bandwidth of the measuring filter.

#### Table 6.11: Spectrum emission mask values, BS maximum output power P $\ge$ 43 dBm

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_offset < 3.515MHz$	14 <u>dBm</u> – 15 (f_offset- 2.715) dB <del>m</del>	30 kHz
	$3.515MHz \leq f_offset < 4.0MHz$	-26 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-13 dBm	1 MHz
$7.5 \le \Delta f MHz$	8.0 MHz $\leq$ f_offset < f_offset <sub>max</sub>	-13 dBm	1 MHz

#### Table 6.12: Spectrum emission mask values, BS maximum output power $39 \le P < 43$ dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth		
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	≤ f_offset < 2.715MHz -14 dBm			
2.7 ≤ ∆f < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	-14 <u>dBm</u> – 15 (f_offset - 2.715) dB <del>m</del>	30 kHz		
	3.515MHz ≤ f_offset < 4.0MHz	-26 dBm	30 kHz		
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-13 dBm	1 MHz		
7.5 ≤ ∆f MHz	$8.0MHz \le f_offset < f_offset_max$	P – 56 dB <del>m</del>	1 MHz		

Frequency offset of measurement filter – 3dB point,∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	P – 53 dB <del>m</del>	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	P – 53 <u>dB</u> – 15 (f_offset – 2.715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	P – 65 dB <del>m</del>	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz $\leq$ f_offset < 8.0MHz	P – 52 dB <del>m</del>	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \leq f_offset < f_offset_max$	P – 56 dB <del>m</del>	1 MHz

#### Table 6.13: Spectrum emission mask values, BS maximum output power $31 \le P < 39$ dBm

#### Table 6.14: Spectrum emission mask values, BS maximum output power P < 31 dBm

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	cy offset of measurement Maximum level entre frequency, f_offset			
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-22 dBm	30 kHz		
$2.7 \le \Delta f < 3.5 \text{ MHz}$	$2.715MHz \le f_{offset} < 3.515MHz$	-22 <u>dBm</u> – 15 (f_offset - 2.715) dB <del>m</del>	30 kHz		
	3.515MHz ≤ f_offset < 4.0MHz	-34 dBm	30 kHz		
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-21 dBm	1 MHz		
7.5 ≤ ∆f MHz	8.0MHz $\leq$ f_offset < f_offset <sub>max</sub>	-25 dBm	1 MHz		

The normative reference for this requirement is in TS 25.104 [1] subclause 6.6.2.1

### 6.5.2.1.3 Test purpose

This test measures the emissions of the BS, close to the assigned channel bandwidth of the wanted signal, while the transmitter is in operation.

#### 6.5.2.1.4 Method of test

6.5.2.1.4.1 Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: B, M and T; see subclause 4.8

- 1) Set-up the equipment as shown in annex B.
- 2) Measurements with an offset from the carrier centre frequency between 2,515 MHz and 4.0 MHz shall use a 30 kHz measurement bandwidth.
- 3) Measurements with an offset from the carrier centre frequency between 4.0 MHz and (f\_offset<sub>max</sub> 500 kHz).shall use a 1 MHz measurement bandwidth. The 1MHz measurement bandwidth may be calculated by integrating multiple 50 kHz or narrower filter measurements
- 4) Detection mode: True RMS.

### 6.5.2.1.4.2 Procedures

- 1) Set the BS to transmit a signal in accordance to test model 1, subclause 6.2.1.1.1 at the manufacturer's specified maximum output power.
- 2) Measure the emission at the specified frequencies with specified measurement bandwidth and note that the measured value does not exceed the specified value.

# 6.5.2.1.5 Test requirements

The measurement result in step 2 of 6.5.2.1.4.2 shall not exceed the maximum level specified in tables 6.15 to 6.18 for the appropriate BS maximum output power.

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-12.5 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	- 12.5 <u>dBm</u> – 15 (f_offset- 2.715) dB <del>m</del>	30 kHz
	$3.515MHz \leq f_offset < 4.0MHz$	-24.5 dBm	30 kHz
$3.5 \le \Delta f < 7.5 \text{ MHz}$	4.0 MHz ≤ f_offset < 8.0MHz	-11.5 dBm	1 MHz
7.5 ≤ ∆f MHz	8.0 MHz ≤ f_offset < f_offset <sub>max</sub>	-11.5 dBm	1 MHz

#### Table 6.15: Spectrum emission mask values, BS maximum output power P ≥ 43 dBm

#### Table 6.16: Spectrum emission mask values, BS maximum output power $39 \le P < 43$ dBm

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-12.5 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	-12.5 <u>dBm</u> – 15 (f_offset - 2.715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	-24.5 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-11.5 dBm	1 MHz
$7.5 \le \Delta f MHz$	$8.0MHz \le f_offset < f_offset_max$	P – 54.5 dB <del>m</del>	1 MHz

#### Table 6.17: Spectrum emission mask values, BS maximum output power $31 \le P < 39$ dBm

Frequency offset of measurement filter – 3dB point,∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth		
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	Hz $\leq$ f_offset < 2.715MHz P – 51.5 dBm			
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	P – 51.5 <u>dB</u> – 15 (f_offset – 2 715) dB <del>m</del>	30 kHz		
	3.515MHz ≤ f_offset < 4.0MHz	P – 63.5 dB <del>m</del>	30 kHz		
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz $\leq$ f_offset < 8.0MHz	P – 50.5 dB <del>m</del>	1 MHz		
7.5 ≤ ∆f MHz	8.0MHz $\leq$ f_offset < f_offset <sub>max</sub>	P – 54.5 dB <del>m</del>	1 MHz		

#### Table 6.18: Spectrum emission mask values, BS maximum output power P < 31 dBm

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	ency offset of measurement Maximum level Centre frequency, f_offset			
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-20.5 dBm	30 kHz		
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	-20.5 <u>dBm</u> – 15 (f_offset - 2.715) dB <del>m</del>	30 kHz		
	3.515MHz ≤ f_offset < 4.0MHz	-32.5 dBm	30 kHz		
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-19.5 dBm	1 MHz		
7.5 ≤ ∆f MHz	8.0MHz $\leq$ f_offset < f_offset <sub>max</sub>	-23.5 dBm	1 MHz		

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

R4-011561

East Brunswick, NJ, USA 12th - 16th November 2001

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#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G\_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u>. 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.

# 6.5.2 Out of band emission

Out of band emissions are unwanted emissions immediately outside the channel bandwidth resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. This out of band emission limit is specified in terms of a spectrum emission mask and adjacent channel leakage power ratio for the transmitter.

# 6.5.2.1 Spectrum emission mask

### 6.5.2.1.1 Definitions and applicability

The mask defined in Tables 6.311 to 6.614 below may be mandatory in certain regions. In other regions this mask may not be applied.

### 6.5.2.1.2 Minimum Requirements

For regions where this clause applies, the requirement shall be met by a base station transmitting on a single RF carrier configured in accordance with the manufacturer's specification. Emissions shall not exceed the maximum level specified in tables 6.11 to 6.14 for the appropriate BS maximum output power, in the frequency range from  $\Delta f = 2.5$  MHz to  $\Delta f_{max}$  from the carrier frequency, where:

- $\Delta f$  is the separation between the carrier frequency and the nominal –3dB point of the measuring filter closest to the carrier frequency.
- f\_offset is the separation between the carrier frequency and the centre of the measurement filter;
- f\_offset<sub>max</sub> is either 12.5 MHz or the offset to the UMTS Tx band edge as defined in subclause 3.4.1, whichever is the greater.
- $\Delta f_{max}$  is equal to f\_offset<sub>max</sub> minus half of the bandwidth of the measuring filter.

#### Table 6.11: Spectrum emission mask values, BS maximum output power P $\ge$ 43 dBm

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-14 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_offset < 3.515MHz$	14 <u>dBm</u> – 15 (f_offset- 2.715) dB <del>m</del>	30 kHz
	$3.515MHz \leq f_offset < 4.0MHz$	-26 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-13 dBm	1 MHz
$7.5 \le \Delta f MHz$	8.0 MHz $\leq$ f_offset < f_offset <sub>max</sub>	-13 dBm	1 MHz

#### Table 6.12: Spectrum emission mask values, BS maximum output power $39 \le P < 43$ dBm

Frequency offset of measurement filter – 3dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth		
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	≤ f_offset < 2.715MHz -14 dBm			
2.7 ≤ ∆f < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	-14 <u>dBm</u> – 15 (f_offset - 2.715) dB <del>m</del>	30 kHz		
	3.515MHz ≤ f_offset < 4.0MHz	-26 dBm	30 kHz		
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-13 dBm	1 MHz		
7.5 ≤ ∆f MHz	$8.0MHz \le f_offset < f_offset_max$	P – 56 dB <del>m</del>	1 MHz		

Frequency offset of measurement filter – 3dB point,∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	P – 53 dB <del>m</del>	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	P – 53 <u>dB</u> – 15 (f_offset – 2.715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	P – 65 dB <del>m</del>	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	P – 52 dB <del>m</del>	1 MHz
7.5 ≤ ∆f MHz	$8.0MHz \leq f_offset < f_offset_max$	P – 56 dB <del>m</del>	1 MHz

#### Table 6.13: Spectrum emission mask values, BS maximum output power $31 \le P < 39$ dBm

#### Table 6.14: Spectrum emission mask values, BS maximum output power P < 31 dBm

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement Maximum level filter centre frequency, f_offset		Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-22 dBm	30 kHz
$2.7 \le \Delta f < 3.5 \text{ MHz}$	$2.715MHz \le f_{offset} < 3.515MHz$	-22 <u>dBm</u> – 15 (f_offset - 2.715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	-34 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-21 dBm	1 MHz
7.5 ≤ ∆f MHz	8.0MHz $\leq$ f_offset < f_offset <sub>max</sub>	-25 dBm	1 MHz

The normative reference for this requirement is in TS 25.104 [1] subclause 6.6.2.1

### 6.5.2.1.3 Test purpose

This test measures the emissions of the BS, close to the assigned channel bandwidth of the wanted signal, while the transmitter is in operation.

#### 6.5.2.1.4 Method of test

6.5.2.1.4.1 Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: B, M and T; see subclause 4.8

- 1) Set-up the equipment as shown in annex B.
- 2) Measurements with an offset from the carrier centre frequency between 2,515 MHz and 4.0 MHz shall use a 30 kHz measurement bandwidth.
- 3) Measurements with an offset from the carrier centre frequency between 4.0 MHz and (f\_offset<sub>max</sub> 500 kHz).shall use a 1 MHz measurement bandwidth. The 1MHz measurement bandwidth may be calculated by integrating multiple 50 kHz or narrower filter measurements
- 4) Detection mode: True RMS.

### 6.5.2.1.4.2 Procedures

- 1) Set the BS to transmit a signal in accordance to test model 1, subclause 6.2.1.1.1 at the manufacturer's specified maximum output power.
- 2) Measure the emission at the specified frequencies with specified measurement bandwidth and note that the measured value does not exceed the specified value.

# 6.5.2.1.5 Test requirements

The measurement result in step 2 of 6.5.2.1.4.2 shall not exceed the maximum level specified in tables 6.15 to 6.18 for the appropriate BS maximum output power.

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-12.5 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	2.715MHz ≤ f_offset < 3.515MHz	- 12.5 <u>dBm</u> – 15 (f_offset- 2.715) dB <del>m</del>	30 kHz
	$3.515MHz \leq f_offset < 4.0MHz$	-24.5 dBm	30 kHz
$3.5 \le \Delta f < 7.5 \text{ MHz}$	4.0 MHz ≤ f_offset < 8.0MHz	-11.5 dBm	1 MHz
7.5 ≤ ∆f MHz	8.0 MHz ≤ f_offset < f_offset <sub>max</sub>	-11.5 dBm	1 MHz

#### Table 6.15: Spectrum emission mask values, BS maximum output power P ≥ 43 dBm

#### Table 6.16: Spectrum emission mask values, BS maximum output power $39 \le P < 43$ dBm

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-12.5 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	-12.5 <u>dBm</u> – 15 (f_offset - 2.715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	-24.5 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-11.5 dBm	1 MHz
$7.5 \le \Delta f MHz$	$8.0MHz \le f_offset < f_offset_max$	P – 54.5 dB <del>m</del>	1 MHz

#### Table 6.17: Spectrum emission mask values, BS maximum output power $31 \le P < 39$ dBm

Frequency offset of measurement filter – 3dB point,∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	P – 51.5 dB <del>m</del>	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	P – 51.5 <u>dB</u> – 15 (f_offset – 2 715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	P – 63.5 dB <del>m</del>	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz $\leq$ f_offset < 8.0MHz	P – 50.5 dB <del>m</del>	1 MHz
7.5 ≤ ∆f MHz	8.0MHz $\leq$ f_offset < f_offset <sub>max</sub>	P – 54.5 dB <del>m</del>	1 MHz

#### Table 6.18: Spectrum emission mask values, BS maximum output power P < 31 dBm

Frequency offset of measurement filter – 3dB point, ∆f	Frequency offset of measurement filter centre frequency, f_offset	Maximum level	Measurement bandwidth
2.5 ≤ ∆f < 2.7 MHz	2.515MHz ≤ f_offset < 2.715MHz	-20.5 dBm	30 kHz
2.7 ≤ ∆f < 3.5 MHz	$2.715MHz \le f_{offset} < 3.515MHz$	-20.5 <u>dBm</u> – 15 (f_offset - 2.715) dB <del>m</del>	30 kHz
	3.515MHz ≤ f_offset < 4.0MHz	-32.5 dBm	30 kHz
3.5 ≤ ∆f < 7.5 MHz	4.0 MHz ≤ f_offset < 8.0MHz	-19.5 dBm	1 MHz
7.5 ≤ ∆f MHz	8.0MHz $\leq$ f_offset < f_offset <sub>max</sub>	-23.5 dBm	1 MHz

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

# R4-011590

East Brunswick, NJ, USA 12th - 16th November 2001

	CR-Form-v4								
¥	25.141 CR 135 <sup>#</sup> ev _ <sup>#</sup> Current version: 3.7.0 <sup>#</sup>								
For <u>HELP</u> on us	ing this form, see bottom of this page or look at the pop-up text over the $#$ symbols.								
Proposed change a	ffects: \$\$ (U)SIM ME/UE Radio Access Network X Core Network								
Title: ដ	DPCH and S-CCPCH channel structure change to test models.								
Source: ೫	RAN WG4								
Work item code: ℜ	<b>Date:</b>								
Category: #	FRelease: %Rel99Jse one of the following categories: F (correction)Use one of the following releases: 2 (GSM Phase 2)A (corresponds to a correction in an earlier release)R96 (Release 1996)B (addition of feature), C (functional modification of feature) D (editorial modification)R97 R98 Release 1998) R99 R99 Release 1999)D (editorial modification)R99 R99 Release 1999)Detailed explanations of the above categories can be found in 3GPP TR 21.900.Rel-4 REL-5 (Release 5)								
Reason for change:	<ul> <li>Current specification states that "the aggregate 15x20=300 S-CCPCH bits per frame are filled with PN9 sequence". PN9 sequence is only transmitted on the data bits and not on the Pilot or TFCI bits. This means that only slot format 0 is applicable because this has 20 data bits and no Pilot nor TFCI bits. Because the aim is to allow all slot formats 0, 1, 2 and 3 to be used, there is an error in current specification.</li> <li>There is also problem for the DPCH channel structure. There is an aggregate of 15*30=450 DPDCH bits per frame which has to be mapped to 150 DPDCH bits in case of slot format 6, but the specification of the mapping itself is missing in 25.141.</li> </ul>								
Summary of change: # A sentence: "In case there are less data bits/frame needed then the first bits aggregate shall be selected" is added to the DPCH and S-CCPCH channel structures. It's defined that only data bits are filled with a PN9 sequence. Als clarification sentence for the pilot bits, similar like already stated for DPCH, i added for the S-CCPCH. For the TFCI bits a clause is added, where the value defined. Isolated Impact Analysis:									
	This CR has no impact with the previous version of the specification because this CR is just clarifying the mapping of data bits and using of slot formats for test purposes.								
Consequences if not approved:	Mapping of the data bits is missing. Only slot format 0 can be used with S-CCPCH channel structure. Pilot and TFCI bits would be filled incorrectly with a PN9 sequence.								

Clauses affected:	<b>#</b> 6.1.1.5 ; 6.1.1.6.4						
Other specs affected:	%       Other core specifications       %         Test specifications       0&M Specifications						
Other comments:	¥						

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- 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

Code	T <sub>offset</sub>	Level settings (dB) (16 codes)	Level settings dB) (32 codes)
64	86	-14	-16
69	134	-14	-16
74	52	-14	-16
78	45	-14	-16
83	143	-14	-16
89	112	-14	-16
93	59	-14	-16
96	23	-14	-16
100	1	-14	-16
105	88	-14	-16
109	30	-14	-16
111	18	-14	-16
115	30	-14	-16
118	61	-14	-16
122	128	-14	-16
125	143	-14	-16
67	83		-16
71	25		-16
76	103		-16
81	97		-16
86	56		-16
90	104		-16
95	51		-16
98	26		-16
103	137		-16
108	65		-16
110	37		-16
112	125		-16
117	149		-16
119	123		-16
123	83		-16
126	5		-16

Table 6.5: DPCH Spreading Code, Toffset and Power for Test Model 3

30

NOTE: The figures for code power are nominal and have tolerance of  $\pm 1$  dB.

### 6.1.1.4 Test Model 4

This model shall be used for tests on:

- EVM measurement.

Table 6.6: Test Model 4 Active Chann
--------------------------------------

Туре	Number of Channels	Fraction of Power (%)	Level setting (dB)	Channelization Code	Timing offset
PCCPCH+SCH	1	50 to 1.6	-3 to -18	1	0
Primary CPICH <sup>1</sup>	1	10	-10	0	0
Note 1: The CPICH cha	annel is optional	_			

## 6.1.1.5 DPCH Structure of the Downlink Test Models

For the above test models the following structure is adopted for the DPCH. The DPDCH and DPCCH have the same power level. The timeslot structure should be as described by TS 25.211-slot format 10 and 6 that are reproduced in table 6.7.

Slot Format	Channel Bit	Channel Symbol	SF	В	its/Frame		Bits/ Slot	DPDCH	Bits/Slot	DPO	CCH Bits/	Slot
#I	Rate (kbps)	Rate (ksps)		DPDCH	DPCCH	тот		NData1	Ndata2	NTFCI	NTPC	Npilot
10	60	30	128	450	150	600	40	6	24	0	2	8
6	30	15	256	150	150	300	20	2	8	0	2	8

Table 6.7: DPCH structure of the downlink test models

The test DPCH has frame structure so that the pilot bits are defined over 15 timeslots according to the relevant columns of TS 25.211, which are reproduced in table 6.8.

	Npilot = 8			
Symbol #	0	1	2	3
Slot #0	11	11	11	10
1	11	00	11	10
2	11	01	11	01
3	11	00	11	00
4	11	10	11	01
5	11	11	11	10
6	11	11	11	00
7	11	10	11	00
8	11	01	11	10
9	11	11	11	11
10	11	01	11	01
11	11	10	11	11
12	11	10	11	00
13	11	00	11	11
14	11	00	11	11

Table 6.8: Frame structure of DPCH

The TPC bits alternate 00 / 11 starting with 00 in timeslot 0.

The aggregate 15 x 30 = 450 DPDCH bits per frame are filled with a PN9 sequence generated using the primitive trinomial  $x^9 + x^4 + 1$ . In case there are less data bits/frame needed then the first bits of the aggregate shall be selected. To ensure non-correlation of the PN9 sequences, each DPDCH shall use its channelization code as the seed for the PN sequence at the start of each frame, according to its timing offset.

The sequence shall be generated in a nine-stage shift register whose  $5^{\text{th}}$  and  $9^{\text{th}}$  stage outputs are added in a modulo-two addition stage, and the result is fed back to the input of the first stage. The generator shall be seeded so that the sequence begins with the channelization code starting from the LSB, and followed by 2 consecutive ONEs for SF=128 and 1 consecutive ONE for SF=256.



Figure 6.2

#### 6.1.1.6 Common channel Structure of the Downlink Test Models

#### 6.1.1.6.1 P-CCPCH

The aggregate 15 x 18 = 270 P-CCPCH bits per frame are filled with a PN9 sequence generated using the primitive trinomial  $x^9 + x^4 + 1$ . Channelization code of the P-CCPCH is used as the seed for the PN sequence at the start of each frame.

The generator shall be seeded so that the sequence begins with the 8 bit channelization code starting from the LSB, and followed by a ONE.

#### 6.1.1.6.2 PICH

PICH carries 18 Paging Indicators (PI) sent in the following sequence from left to right [1 0 1 1 0 0 0 1 0 1 1 0 0 0 1 0 1 0]. This defines the 288 first bits of the PICH. No power is transmitted for the 12 remaining unused bits.

#### 6.1.1.6.3 Primary scrambling code and SCH

The scrambling code should be 0.

Where multiple repetitions of the Test Model signals are being used to simulate a multi-carrier signal the scrambling code for the lower frequency is 0. Carriers added at successively higher frequencies use codes 1, 2,... and their frame structures are time offset by 1/5, 2/5... of a time slot duration.

The scrambling code defines the SSC sequence of the secondary SCH. In their active part, primary and secondary SCH share equally the power level defined for "PCCPCH+SCH".

## 6.1.1.6.4 S-CCPCH containing PCH

The aggregate  $15 \times 20 = 300$  S CCPCH bits per frame are filled with a PN9 sequence generated using the primitive trinomial  $x^9 + x^4 + 1$ . The aggregate  $15 \times 20 = 300$  S-CCPCH bits per frame are used. Data bits are filled with a PN9 sequence generated using the primitive trinomial  $x^9 + x^4 + 1$ . In case there are less data bits/frame needed then the first bits of the aggregate shall be selected. Channelization code of the S-CCPCH is used as the seed for the PN sequence at the start of each frame. For test purposes, any one of the four possible slot formats 0,1, 2 and 3 can be used supported. The support for all four slot formats is not needed.

The generator shall be seeded so that the sequence begins with the 8 bit channelization code starting from the LSB, and followed by a ONE. The test on S-CCPCH has a frame structure so that the pilot bits are defined over 15 timeslots to the relevant columns of TS 25.211. The TFCI bits are filled with ONEs whenever needed.

# R4-011623

East Brunswick, NJ, USA 12th - 16th November 2001

	CR-Form-v4				
CHANGE REQUEST					
X	<b>25.141</b> CR <b>136</b> <sup>#</sup> ev _ <sup>#</sup> Current version: <b>4.2.0</b> <sup>#</sup>				
For <u>HELP</u> on usi	ing this form, see bottom of this page or look at the pop-up text over the $#$ symbols.				
Proposed change at	f <b>ects:</b> 第 (U)SIM ME/UE Radio Access Network X Core Network				
Title: ೫	DPCH and S-CCPCH channel structure change to test models.				
Source: ೫	RAN WG4				
Work item code: #	<b>Date:</b>				
Category: #	A       Release: %       Rel-4         Jse one of the following categories:       Use one of the following releases:       2         F (correction)       2       (GSM Phase 2)         A (corresponds to a correction in an earlier release)       R96       (Release 1996)         B (addition of feature),       R97       (Release 1997)         C (functional modification of feature)       R98       (Release 1998)         D (editorial modification)       R99       (Release 1999)         Detailed explanations of the above categories can       REL-4       (Release 4)         De found in 3GPP TR 21.900.       REL-5       (Release 5)				
Reason for change:	<ul> <li><sup>34</sup> Current specification states that "the aggregate 15x20=300 S-CCPCH bits per frame are filled with PN9 sequence". PN9 sequence is only transmitted on the data bits and not on the Pilot or TFCI bits. This means that only slot format 0 is applicable because this has 20 data bits and no Pilot nor TFCI bits. Because the aim is to allow all slot formats 0, 1, 2 and 3 to be used, there is an error in current specification.</li> <li>There is also problem for the DPCH channel structure. There is an aggregate of 15*30=450 DPDCH bits per frame which has to be mapped to 150 DPDCH bits in case of slot format 6, but the specification of the mapping itself is missing in 25.141.</li> </ul>				
Summary of change	A sentence: "In case there are less data bits/frame needed then the first bits of the aggregate shall be selected" is added to the DPCH and S-CCPCH channel structures. It's defined that only data bits are filled with a PN9 sequence. Also a clarification sentence for the pilot bits, similar like already stated for DPCH, is added for the S-CCPCH. For the TFCI bits a clause is added. where the value is defined. Isolated Impact Analysis:				
	This CR has no impact with the previous version of the specification because this CR is just clarifying the mapping of data bits and using of slot formats for test purposes.				
Consequences if not approved:	Mapping of the data bits is missing. Only slot format 0 can be used with S-CCPCH channel structure. Pilot and TFCI bits would be filled incorrectly with a PN9 sequence.				

Clauses affected:	¥ 6.1.1.5 ; 6.1.1.6.4
Other specs affected:	%       Other core specifications       %         Test specifications       0&M Specifications
Other comments:	¥

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69	134	-14	-16	
74	52	-14	-16	
78	45	-14	-16	
83	143	-14	-16	
89	112	-14	-16	
93	59	-14	-16	
96	23	-14	-16	
100	1	-14	-16	
105	88	-14	-16	
109	30	-14	-16	
111	18	-14	-16	
115	30	-14	-16	
118	61	-14	-16	
122	128	-14	-16	
125	143	-14	-16	
67	83		-16	
71	25		-16	
76	103		-16	
81	97		-16	
86	56		-16	
90	104		-16	
95	51		-16	
98	26		-16	
103	137		-16	
108	65		-16	
110	37		-16	
112	125		-16	
117	149		-16	
119	123		-16	
123	83		-16	
126	5		-16	

Table 6.5: DPCH Spreading Code, Toffset and Power for Test Model 3

30

NOTE: The figures for code power are nominal and have tolerance of  $\pm 1$  dB.

### 6.1.1.4 Test Model 4

This model shall be used for tests on:

- EVM measurement.

Table 6.6: Test Model 4 Active Chann
--------------------------------------

Туре	Number of Channels	Fraction of Power (%)	Level setting (dB)	Channelization Code	Timing offset
PCCPCH+SCH	1	50 to 1.6	-3 to -18	1	0
Primary CPICH <sup>1</sup>	1	10	-10	0	0
Note 1: The CPICH cha	annel is optional	_			

## 6.1.1.5 DPCH Structure of the Downlink Test Models

For the above test models the following structure is adopted for the DPCH. The DPDCH and DPCCH have the same power level. The timeslot structure should be as described by TS 25.211-slot format 10 and 6 that are reproduced in table 6.7.
Slot Format	Channel Bit	Channel Symbol	SF	Bits/Frame		Bits/ Slot	DPDCH Bits/Slot		DPCCH Bits/Slot			
#I	Rate (kbps)	Rate (ksps)		DPDCH	DPCCH	тот		NData1	Ndata2	NTFCI	NTPC	Npilot
10	60	30	128	450	150	600	40	6	24	0	2	8
6	30	15	256	150	150	300	20	2	8	0	2	8

Table 6.7: DPCH structure of the downlink test models

The test DPCH has frame structure so that the pilot bits are defined over 15 timeslots according to the relevant columns of TS 25.211, which are reproduced in table 6.8.

	Npilot = 8							
Symbol #	0	1	2	3				
Slot #0	11	11	11	10				
1	11	00	11	10				
2	11	01	11	01				
3	11	00	11	00				
4	11	10	11	01				
5	11	11	11	10				
6	11	11	11	00				
7	11	10	11	00				
8	11	01	11	10				
9	11	11	11	11				
10	11	01	11	01				
11	11	10	11	11				
12	11	10	11	00				
13	11	00	11	11				
14	11	00	11	11				

Table 6.8: Frame structure of DPCH

The TPC bits alternate 00 / 11 starting with 00 in timeslot 0.

The aggregate 15 x 30 = 450 DPDCH bits per frame are filled with a PN9 sequence generated using the primitive trinomial  $x^9 + x^4 + 1$ . In case there are less data bits/frame needed then the first bits of the aggregate shall be selected. To ensure non-correlation of the PN9 sequences, each DPDCH shall use its channelization code as the seed for the PN sequence at the start of each frame, according to its timing offset.

The sequence shall be generated in a nine-stage shift register whose  $5^{\text{th}}$  and  $9^{\text{th}}$  stage outputs are added in a modulo-two addition stage, and the result is fed back to the input of the first stage. The generator shall be seeded so that the sequence begins with the channelization code starting from the LSB, and followed by 2 consecutive ONEs for SF=128 and 1 consecutive ONE for SF=256.



Figure 6.2

## 6.1.1.6 Common channel Structure of the Downlink Test Models

### 6.1.1.6.1 P-CCPCH

The aggregate 15 x 18 = 270 P-CCPCH bits per frame are filled with a PN9 sequence generated using the primitive trinomial  $x^9 + x^4 + 1$ . Channelization code of the P-CCPCH is used as the seed for the PN sequence at the start of each frame.

The generator shall be seeded so that the sequence begins with the 8 bit channelization code starting from the LSB, and followed by a ONE.

# 6.1.1.6.2 PICH

PICH carries 18 Paging Indicators (PI) sent in the following sequence from left to right [1 0 1 1 0 0 0 1 0 1 1 0 0 0 1 0 1 0]. This defines the 288 first bits of the PICH. No power is transmitted for the 12 remaining unused bits.

# 6.1.1.6.3 Primary scrambling code and SCH

The scrambling code should be 0.

Where multiple repetitions of the Test Model signals are being used to simulate a multi-carrier signal the scrambling code for the lower frequency is 0. Carriers added at successively higher frequencies use codes 1, 2,... and their frame structures are time offset by 1/5, 2/5... of a time slot duration.

The scrambling code defines the SSC sequence of the secondary SCH. In their active part, primary and secondary SCH share equally the power level defined for "PCCPCH+SCH".

# 6.1.1.6.4 S-CCPCH containing PCH

The aggregate  $15 \times 20 = 300$  S CCPCH bits per frame are filled with a PN9 sequence generated using the primitive trinomial  $x^9 + x^4 + 1$ . The aggregate  $15 \times 20 = 300$  S-CCPCH bits per frame are used. Data bits are filled with a PN9 sequence generated using the primitive trinomial  $x^9 + x^4 + 1$ . In case there are less data bits/frame needed then the first bits of the aggregate shall be selected. Channelization code of the S-CCPCH is used as the seed for the PN sequence at the start of each frame. For test purposes, any one of the four possible slot formats 0,1, 2 and 3 can be used supported. The support for all four slot formats is not needed.

The generator shall be seeded so that the sequence begins with the 8 bit channelization code starting from the LSB, and followed by a ONE. The test on S-CCPCH has a frame structure so that the pilot bits are defined over 15 timeslots to the relevant columns of TS 25.211. The TFCI bits are filled with ONEs whenever needed.

# 3GPP TSG RAN WG4 Meeting #20

# R4-011624

East Brunswick, NJ, USA 12th - 16th November 2001

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<sup>ж</sup> 2	25.141 CR 137 <sup>#</sup> ev _ <sup>#</sup> Current version: 5.0.0 <sup>#</sup>								
For <u>HELP</u> on using	g this form, see bottom of this page or look at the pop-up text over the $#$ symbols.								
Proposed change affe	ects: 第 (U)SIM ME/UE Radio Access Network X Core Network								
Title: ೫ C	PCH and S-CCPCH channel structure change to test models.								
Source: ೫ R	RAN WG4								
Work item code: #	<b>Date:</b> 第 <mark>15<sup>th</sup> Nov 2001</mark>								
Category: # A Us De be	Release: %       Rel-5         se one of the following categories:       Use one of the following releases:         F (correction)       2       (GSM Phase 2)         A (corresponds to a correction in an earlier release)       R96       (Release 1996)         B (addition of feature),       R97       (Release 1997)         C (functional modification of feature)       R98       (Release 1998)         D (editorial modification)       R99       (Release 1999)         etailed explanations of the above categories can       REL-4       (Release 4)         e found in 3GPP TR 21.900.       REL-5       (Release 5)								
Reason for change: 5	<ul> <li>Current specification states that "the aggregate 15x20=300 S-CCPCH bits per frame are filled with PN9 sequence". PN9 sequence is only transmitted on the data bits and not on the Pilot or TFCI bits. This means that only slot format 0 is applicable because this has 20 data bits and no Pilot nor TFCI bits. Because the aim is to allow all slot formats 0, 1, 2 and 3 to be used, there is an error in curre specification.</li> <li>There is also problem for the DPCH channel structure. There is an aggregate or 15*30=450 DPDCH bits per frame which has to be mapped to 150 DPDCH bits case of slot format 6, but the specification of the mapping itself is missing in 25.141.</li> </ul>	e ent ∍f ⊊in							
Summary of change:	A sentence: "In case there are less data bits/frame needed then the first bits of aggregate shall be selected" is added to the DPCH and S-CCPCH channel structures. It's defined that only data bits are filled with a PN9 sequence. Also a clarification sentence for the pilot bits, similar like already stated for DPCH, is added for the S-CCPCH. For the TFCI bits a clause is added, where the value i defined.	the i							
Consequences if not approved:	Mapping of the data bits is missing. Only slot format 0 can be used with S-CCP channel structure. Pilot and TFCI bits would be filled incorrectly with a PN9 sequence.	СН							
Clauses affected:	₩ 6.1.1.5 ; 6.1.1.6.4								
Other specs affected:	<ul> <li>Conter core specifications</li> <li>Test specifications</li> <li>O&amp;M Specifications</li> </ul>								

#### Other comments: #

#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G\_Specs/CRs.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

Code	T <sub>offset</sub>	Level settings (dB) (16 codes)	Level settings dB) (32 codes)
64	86	-14	-16
69	134	-14	-16
74	52	-14	-16
78	45	-14	-16
83	143	-14	-16
89	112	-14	-16
93	59	-14	-16
96	23	-14	-16
100	1	-14	-16
105	88	-14	-16
109	30	-14	-16
111	18	-14	-16
115	30	-14	-16
118	61	-14	-16
122	128	-14	-16
125	143	-14	-16
67	83		-16
71	25		-16
76	103		-16
81	97		-16
86	56		-16
90	104		-16
95	51		-16
98	26		-16
103	137		-16
108	65		-16
110	37		-16
112	125		-16
117	149		-16
119	123		-16
123	83		-16
126	5		-16

Table 6.5: DPCH Spreading Code, Toffset and Power for Test Model 3

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NOTE: The figures for code power are nominal and have tolerance of  $\pm 1$  dB.

# 6.1.1.4 Test Model 4

This model shall be used for tests on:

- EVM measurement.

Table 6.6:	<b>Test Model 4</b>	Active	Channels
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Туре	Number of Channels	Fraction of Power (%)	Level setting (dB)	Channelization Code	Timing offset
PCCPCH+SCH	1	50 to 1.6	-3 to -18	1	0
Primary CPICH <sup>1</sup>	1	10	-10	0	0
Note 1: The CPICH cha	annel is optional	_			

# 6.1.1.5 DPCH Structure of the Downlink Test Models

For the above test models the following structure is adopted for the DPCH. The DPDCH and DPCCH have the same power level. The timeslot structure should be as described by TS 25.211-slot format 10 and 6 that are reproduced in table 6.7.

Slot Format	Channel Bit	Channel Symbol	SF	Bits/Frame		Bits/ Slot	DPDCH Bits/Slot		DPCCH Bits/Slot			
#I	Rate (kbps)	Rate (ksps)		DPDCH	DPCCH	тот		NData1	Ndata2	NTFCI	NTPC	Npilot
10	60	30	128	450	150	600	40	6	24	0	2	8
6	30	15	256	150	150	300	20	2	8	0	2	8

Table 6.7: DPCH structure of the downlink test models

The test DPCH has frame structure so that the pilot bits are defined over 15 timeslots according to the relevant columns of TS 25.211, which are reproduced in table 6.8.

	Npilot = 8							
Symbol #	0	1	2	3				
Slot #0	11	11	11	10				
1	11	00	11	10				
2	11	01	11	01				
3	11	00	11	00				
4	11	10	11	01				
5	11	11	11	10				
6	11	11	11	00				
7	11	10	11	00				
8	11	01	11	10				
9	11	11	11	11				
10	11	01	11	01				
11	11	10	11	11				
12	11	10	11	00				
13	11	00	11	11				
14	11	00	11	11				

Table 6.8: Frame structure of DPCH

The TPC bits alternate 00 / 11 starting with 00 in timeslot 0.

The aggregate 15 x 30 = 450 DPDCH bits per frame are filled with a PN9 sequence generated using the primitive trinomial  $x^9 + x^4 + 1$ . In case there are less data bits/frame needed then the first bits of the aggregate shall be selected. To ensure non-correlation of the PN9 sequences, each DPDCH shall use its channelization code as the seed for the PN sequence at the start of each frame, according to its timing offset.

The sequence shall be generated in a nine-stage shift register whose  $5^{\text{th}}$  and  $9^{\text{th}}$  stage outputs are added in a modulo-two addition stage, and the result is fed back to the input of the first stage. The generator shall be seeded so that the sequence begins with the channelization code starting from the LSB, and followed by 2 consecutive ONEs for SF=128 and 1 consecutive ONE for SF=256.



Figure 6.2

## 6.1.1.6 Common channel Structure of the Downlink Test Models

### 6.1.1.6.1 P-CCPCH

The aggregate 15 x 18 = 270 P-CCPCH bits per frame are filled with a PN9 sequence generated using the primitive trinomial  $x^9 + x^4 + 1$ . Channelization code of the P-CCPCH is used as the seed for the PN sequence at the start of each frame.

The generator shall be seeded so that the sequence begins with the 8 bit channelization code starting from the LSB, and followed by a ONE.

# 6.1.1.6.2 PICH

PICH carries 18 Paging Indicators (PI) sent in the following sequence from left to right [1 0 1 1 0 0 0 1 0 1 1 0 0 0 1 0 1 0]. This defines the 288 first bits of the PICH. No power is transmitted for the 12 remaining unused bits.

# 6.1.1.6.3 Primary scrambling code and SCH

The scrambling code should be 0.

Where multiple repetitions of the Test Model signals are being used to simulate a multi-carrier signal the scrambling code for the lower frequency is 0. Carriers added at successively higher frequencies use codes 1, 2,... and their frame structures are time offset by 1/5, 2/5... of a time slot duration.

The scrambling code defines the SSC sequence of the secondary SCH. In their active part, primary and secondary SCH share equally the power level defined for "PCCPCH+SCH".

# 6.1.1.6.4 S-CCPCH containing PCH

The aggregate  $15 \times 20 = 300$  S CCPCH bits per frame are filled with a PN9 sequence generated using the primitive trinomial  $x^9 + x^4 + 1$ . The aggregate  $15 \times 20 = 300$  S-CCPCH bits per frame are used. Data bits are filled with a PN9 sequence generated using the primitive trinomial  $x^9 + x^4 + 1$ . In case there are less data bits/frame needed then the first bits of the aggregate shall be selected. Channelization code of the S-CCPCH is used as the seed for the PN sequence at the start of each frame. For test purposes, any one of the four possible slot formats 0,1, 2 and 3 can be used supported. The support for all four slot formats is not needed.

The generator shall be seeded so that the sequence begins with the 8 bit channelization code starting from the LSB, and followed by a ONE. The test on S-CCPCH has a frame structure so that the pilot bits are defined over 15 timeslots to the relevant columns of TS 25.211. The TFCI bits are filled with ONEs whenever needed.