RP-020051

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

Title: Agreed CRs (R99 and Rel-4 Category A) to TS 25.223

Source: TSG-RAN WG1

Agenda item: 7.1.3

No.	Spec	CR	Rev	R1 T-doc	Subject	Release	Cat	Workitem	V_old	V_new
1	25.223	024	1	R1-02-0340	Removal of quantisation of bj gain factor when calculated from a reference TFC	R99	F	TEI	3.7.0	3.8.0
2	25.223	025	1	R1-02-0340	Removal of quantisation of bj gain factor when calculated from a reference TFC	Rel-4	A	TEI	4.3.0	4.4.0
3	25.223	027	-	R1-02-0341	Channelisation code-specific multiplier operation under autonomous SF change	R99	F	TEI	3.7.0	3.8.0
4	25.223	028	-	R1-02-0341	Channelisation code-specific multiplier operation under autonomous SF change	Rel-4	A	TEI	4.3.0	4.4.0
5	25.223	029	-	R1-02-0342	Alignment of gamma(i) gains of 25.223 with SIR target of WG2 25.331	R99	F	TEI	3.7.0	3.8.0
6	25.223	030	-	R1-02-0342	Alignment of gamma(i) gains of 25.223 with SIR target of WG2 25.331	Rel-4	A	TEI	4.3.0	4.4.0

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Other specs affected:	ж	Те	her core speci st specificatio &M Specificatio	ns	ж	TS 25.2	224			
Other comments.	: ж									

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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Figure 4 illustrates the principle of combination of two different physical uplink channels within one timeslot. The DPCHs to be combined belong to same CCTrCH, did undergo spreading as described in sections before and are thus represented by complex-valued sequences. First, the amplitude of all DPCHs is adjusted according to UL open loop power control as described in [10]. Each DPCH is then separately weighted by a weight factor γ_i and combined using complex addition. After combination of Physical Channels the gain factor β_j is applied, depending on the actual TFC as described in [10].

In case of different CCTrCH, principle shown in Figure 4 applies to each CCTrCH separately.

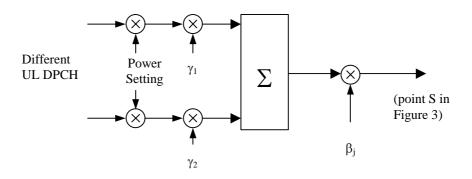


Figure 4: Combination of different physical channels in uplink

The values of weight factors γ_i are depending on the spreading factor SF of the corresponding DPCH:

SF of DPCH _i	γi
16	1
8	$\sqrt{2}$
4	2
2	$2\sqrt{2}$
1	4

In the case that β_j (corresponding to the *j*-th TFC) has been explicitly signalled to the UE, the possible values that β_j can assume are listed in the table below. In the case that β_j has been calculated by the UE from a reference TFC, β_j shall not be restricted to the quantised values.

The possible values for gain factors β_j (corresponding to *j*-th TFC) are listed in table below:

Signalling value for β_j	Quantized value β_j
15	16/8
14	15/8
13	14/8
12	13/8
11	12/8
10	11/8
9	10/8
8	9/8
7	8/8
6	7/8
5	6/8
4	5/8
3	4/8
2	3/8
1	2/8
0	1/8

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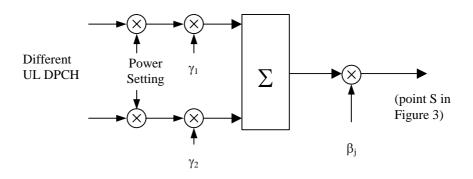


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8	9/8
7	8/8
6	7/8
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4	5/8
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Title: ೫	Char	nelis	ation code	-specific	multiplier	opera	ation	under autono	mous	SF chan	ge
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Other comments:

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6.3 Channelisation Code Specific Multiplier

Associated with each channelisation code is a multiplier $w_{Q_k}^{(k)}$ taking values from the set $\{e^{j\pi/2 \cdot p_k}\}$, where p_k is a permutation of the integer set $\{0, ..., Q_k$ -1 $\}$ and Q_k denotes the spreading factor. The multiplier is applied to the data sequence modulating each channelisation code. The values of the multiplier for each channelisation code are given in the table below:

k	$w_{Q=1}^{(k)}$	$W_{Q=2}^{(k)}$	$W_{Q=4}^{(k)}$	$W_{Q=8}^{(k)}$	$W_{Q=16}^{(k)}$
1	1	1	-j	1	-1
2		+j	1	+j	-j
3			+j	+j	1
4			-1	-1	1
5				-j	+j
6				-1	-1
7				-j	-1
8				1	1
9					-j
10					+j
11					1
12					+j
13					-j
14					-j
15					+j
16					-1

If the UE autonomously changes the SF, as described in [7], it shall always use the multiplier associated with the channelisation code allocated by higher layers.

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Clauses affected:	ж	7.3									
Other specs affected:	ж	Tes	ner core speci st specification M Specification	าร	ж						
Other comments:	ж										

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7.3 Channelisation Code Specific Multiplier

Associated with each channelisation code is a multiplier $w_{Q_k}^{(k)}$ taking values from the set $\{e^{j\pi/2\cdot p_k}\}$, where p_k is a permutation of the integer set $\{0, ..., Q_k$ -1 $\}$ and Q_k denotes the spreading factor. The multiplier is applied to the data sequence modulating each channelisation code. The values of the multiplier for each channelisation code are given in the table below:

k	$W_{Q=1}^{(k)}$	$W_{Q=2}^{(k)}$	$W_{Q=4}^{(k)}$	$W_{Q=8}^{(k)}$	$W_{Q=16}^{(k)}$
1	1	1	-i	1	-1
2		+j	1	+j	-j
3			+j	+j	1
4			-1	-1	1
5				-j	+j
6				-1	-1
7				-j	-1
8				1	1
9					-j
10					+j
11					1
12					+j
13					-j
14					-j
15					+j
16					-1

If the UE autonomously changes the SF, as described in [7], it shall always use the multiplier associated with the channelisation code allocated by higher layers.

	CHANGE REQUEST
ж	25.223 CR 029 # rev - ^{# Current version:} 3.7.0 [#]
For <u>HELP</u> on u	ing this form, see bottom of this page or look at the pop-up text over the $#$ symbols.
Proposed change a	fects: % (U)SIM ME/UE X Radio Access Network Core Network
Title: %	Alignment of gamma(i) gains of 25.223 with SIR target of WG2 25.331
Source: ೫	TSG RAN WG1
Work item code: 郑	TEI Date: # 30-01-2002
Category: ₩	FRelease: %R99Jse 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)R99D (editorial modification)R99D (editorial modification)R99D (editorial modification)R91D (editorial modification)R92D (editorial modification)R93D (editorial modification)R10D (editorial modification)R29D (editorial modification)R21-4D (editorial modification)R21-5D (editorial modification)R21-5D (editorial modification)R21-5
Reason for change	SIR target used for uplink power control in RRC protocol specification 25.331 is not aligned with the gamma(i) physical channel gains applied by layer 1 as a function of the physical channel spreading factor. This results in an incorrect UE transmit power.
Summary of chang	All gamma(i) gains are reduced by a factor of 4, resulting in a transmit power reduction factor of 16. This is then aligned with the SIR target value used in 25.331, and the uplink physical channel SIR measurements of 25.225 which refe to SIR = (RSCP/Interference)xSF.
Consequences if not approved:	 Correct functioning of uplink power control for TDD is prohibited. Isolated Impact Analysis Correction to a function where the specification was erroneous. This change has isolated impact.
Clauses affected:	₭ 6.6.1 .
Other specs affected:	% Other core specifications % Test specifications 0&M Specifications
Other comments:	ж

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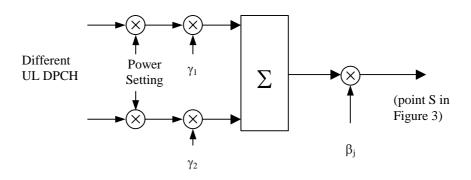


Figure 4: Combination of different physical channels in uplink

The values of weight factors γ_i are depending on the spreading factor SF of the corresponding DPCH:

SF of DPCH _i	γi
16	+1/4
8	$\frac{\sqrt{2}}{\sqrt{2}}\sqrt{2}/4$
4	-2-1/2
2	$\frac{1}{2\sqrt{2}}\sqrt{2}/2$
1	41

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8	9/8
7	8/8
6	7/8
5	6/8
4	5/8
3	4/8
2	3/8
1	2/8
0	1/8

ж	25.223 CR 030 * rev - [*] Current version: 4.3.0 [*]					
For <u>HELP</u> on us	For HELP on using 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 X Radio Access Network Core Network					
Title: ೫	Alignment of gamma(i) gains of 25.223 with SIR target of WG2 25.331					
Source: #	TSG RAN WG1					
Work item code: #	TEI Date: # 30-01-2002					
	ARelease: %REL-4Use 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)R99D tetailed explanations of the above categories canREL-4Kelease 4)REL-5Kelease 5)					
Reason for change: # SIR target used for uplink power control in RRC protocol specification 25.331 is						
j.	not aligned with the gamma(i) physical channel gains applied by layer 1 as a function of the physical channel spreading factor. This results in an incorrect UE transmit power.					
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Consequences if	# Correct functioning of uplink power control for TDD is prohibited.					
not approved:	 Isolated Impact Analysis Correction to a function where the specification was erroneous. This change has isolated impact. 					
Clauses affected:	% 7.6.1.					
Other specs affected:	% Other core specifications % Test specifications 0&M Specifications					
Other comments:	X					

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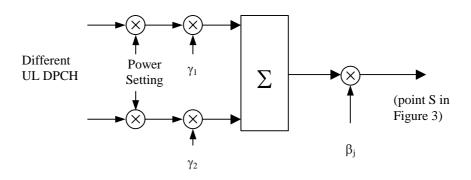


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5	6/8
4	5/8
3	4/8
2	3/8
1	2/8
0	1/8