TSG-RAN Meeting #18 *New-Orleans, USA, 0*3 - 06 December 2002

Title: CRs (Release '99 and Rel-4/Rel-5 category A) to TS 25.321

Source: TSG-RAN WG2

Agenda item: 7.2.3

Doc-1st-	Status-	Spec	CR	Rev	Phase	Subject	Cat	Version-	Version
R2-023270	Agreed	25.321	140	1	R99	TFC selection for RACH transmissions	F	3.13.0	3.14.0
R2-023271	Agreed	25.321	141	1	Rel-4	TFC selection for RACH transmissions	A	4.6.0	4.7.0
R2-023272	Agreed	25.321	142	1	Rel-5	TFC selection for RACH transmissions	A	5.2.0	5.3.0
R2-023050	Agreed	25.321	143	-	R99	RB id in ciphering	F	3.13.0	3.14.0
R2-023051	Agreed	25.321	144	-	Rel-4	RB id in ciphering	A	4.6.0	4.7.0
R2-023052	Agreed	25.321	145	-	Rel-5	RB id in ciphering	A	5.2.0	5.3.0
R2-023053	Agreed	25.321	146	-	R99	Correction to TFC selection for TDD	F	3.13.0	3.14.0
R2-023054	Agreed	25.321	147	-	Rel-4	Correction to TFC selection for TDD	А	4.6.0	4.7.0
R2-023055	Agreed	25.321	148	-	Rel-5	Correction to TFC selection for TDD	A	5.2.0	5.3.0
R2-023152	Agreed	25.321	149	-	R99	Unblockable TFCs in excess power state	F	3.13.0	3.14.0
R2-023153	Agreed	25.321	150	-	Rel-4	Unblockable TFCs in excess power state	A	4.6.0	4.7.0
R2-023154	Agreed	25.321	151	-	Rel-5	Unblockable TFCs in excess power state	A	5.2.0	5.3.0

#### 3GPP TSG-RAN2 Meeting #33 Sophia Antepolis, France, 11/12 – 11/15/2002

### Tdoc # R2-023270

		CHAN	GE REQ	UE	ST		CR-Form-v.
ж	25.32	1 CR 140	ж <b>rev</b>	1	ж	Current vers	<sup>ion:</sup> 3.13.0 <sup>#</sup>
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Proposed chang	e affects:	UICC apps <b>೫</b> <mark></mark>	ME	Rac	A oib	ccess Networ	k X Core Network
Title:	ដ <mark>FFC S</mark> e	election for RACH	transmissions				
Source:	ដ <mark>Qualco</mark>	mm					
Work item code:	¥ TEI					Date: ೫	12/11/2002
Category:	<ul> <li>₭ F</li> <li>Use one of F (c)</li> <li>A (c)</li> <li>B (a)</li> <li>C (f)</li> <li>D (a)</li> <li>Detailed a)</li> <li>be found</li> </ul>	of the following cate, correction) corresponds to a con addition of feature), unctional modification explanations of the a in 3GPP <u>TR 21.900</u> .	gories: rection in an ea n of feature) bove categorie	rlier re s can	eleas	Release: % Use <u>one</u> of 2 (e) R96 R97 R98 R99 Rel-4 Rel-5 Rel-6	R99 the following releases: (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5) (Release 6)

Reason for change: ೫	The current specifications do not cover how the mobile is supposed to handle power limitation when performing RACH transmissions. Since the TFC selection algorithm favors higher data-rate transmissions, this may result in UEs systematically transmitting formats that cannot be received reliably.						
Summary of change: ₩	<ul> <li>It is clarified that the TFC state transition mechanism described in 25.133 is only applicable when a dedicated physical channel is configured and therefore the closed loop power control can be used to assess which TFCs can be supported.</li> <li>It is allowed for the UE to eliminate from the TFC selection TFCs for which it expects to require more power than what is available.</li> <li>It is clarified when TFC selection is performed when transmissions are performed on the RACH.</li> </ul>						
	<ul> <li>Functionality corrected: TFC selection for transmissions on RACH</li> <li>Isolated impact statement: Correction to a function where specification was not sufficiently explicit. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.</li> </ul>						
Consequences if % not approved:	UEs will select the TF that carries the most data regardless of the amount of power required for the transmission. This would lead to large number of failed RACH transmissions, increased system load and potentially lead to some UEs being unable to access the system.						

Clauses affected: # 11.4

Other specs affected:	ж	Y	N N N N	Other core specifications <b>#</b> Test specifications O&M Specifications	
Other comments:	ж				

#### 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.

# 11.4 Transport format combination selection in UE

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

If the uplink TFCS configured by UTRAN follows the guidelines described in [7] the UE shall perform the TFC selection according to the rules specified below. If these guidelines are not followed then the UE behaviour is not specified.

In CELL\_DCH state (see [7]), Tthe UE shall continuously monitor the state for each TFC based on its required transmit power versus the maximum UE transmit power. A given TFC can be in any of the following states:

- Supported state;
- Excess-power state;
- Blocked state.

<u>UEs in CELL\_DCH state and TDD mode UEs in CELL\_FACH state using the USCH transport channel and UEs in CELL\_DCH state shall continuously monitor the state of each TFC based on its required transmit power versus the maximum UE transmit power (see [7]). The state transition criteria and the associated requirements are described in [12, 14]. The UE shall consider that the Blocking criterion is never met for TFCs included in the minimum set of TFCs (see [7]).</u>

The following diagram illustrates the state transitions for the state of a given TFC:



Recovery criterion is met



When the UE is in CELL DCH state (see [7]), Tthe state transition criteria and the associated requirements are described in [12, 14]. The UE shall consider that the Blocking criterion is never met for TFCs included in the minimum set of TFCs (see [7]).

When the FDD Mode UEs is in CELL FACH in CELL FACH state, it may estimate the channel path loss and set to excess power state all the TFCs requiring more power than the Maximum UE transmitter power (see [7]). All other TFCs shall be set to Supported state.

Every time the set of supported TFCs changes, the available bitrate shall be indicated to upper layers for each logical channel in order to facilitate the adaptation of codec data rates when codecs supporting variable-rate operation are used. The details of the computation of the available bitrate and the interaction with the application layer are not further specified.

Before selecting a TFC, i.e. at every boundary of the shortest TTI, <u>or prior to each transmission on PRACH (selected</u> <u>according to the procedure defined in [7])</u> the set of valid TFCs shall be established. All TFCs in the set of valid TFCs shall:

1. belong to the TFCS.

- 2. not be in the Blocked state.
- 3. be compatible with the RLC configuration.
- 4. not require RLC to produce padding PDUs (see [6] for definition).
- 5. not carry more bits than can be transmitted in a TTI (e.g. when compressed mode by higher layer scheduling is used and the presence of compressed frames reduces the number of bits that can be transmitted in a TTI using the Minimum SF configured).

The UE may remove from the set of valid TFCs, TFCs in Excess-power state in order to maintain the quality of service for sensitive applications (e.g. speech). Additionally, if compressed frames are present within the longest configured TTI to which the next transmission belongs, the UE may remove TFCs from the set of valid TFCs in order to account for the higher power requirements.

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The above rules for TFC selection in the UE shall apply to DCH, and the same rules shall apply for TF selection on RACH and CPCH.

# 3GPP TSG-RAN2 Meeting #33 Sophia Antepolis, France, 11/12 – 11/15/2002

### Tdoc # R2-023271

		CHANGE R	(EQ)	JE	51							
ж		25.321 CR 141 #	rev	1	ж	Current vers	ion:	4.6.0	ж			
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		<ul> <li>Ceditorial modification)</li> </ul>				R99	(Relea	ase 1990)				
		Detailed explanations of the above cat	egories	can		Rel-4	(Relei	ase 4)				
		be found in 3GPP TR 21.900.		50.1		Rel-5	(Relea	ase 5)				
		<u></u> .				Rel-6	(Relea	ase 6)				

Reason for change: ೫	The current specifications do not cover how the mobile is supposed to handle power limitation when performing RACH transmissions. Since the TFC selection algorithm favors higher data-rate transmissions, this may result in UEs systematically transmitting formats that cannot be received reliably.
Summary of change: ¥	<ul> <li>It is clarified that the TFC state transition mechanism described in 25.133 is only applicable when a dedicated physical channel is configured and therefore the closed loop power control can be used to assess which TFCs can be supported.</li> <li>It is allowed for the UE to eliminate from the TFC selection TFCs for which it expects to require more power than what is available.</li> <li>It is clarified when TFC selection is performed when transmissions are performed on the RACH.</li> </ul>
Consequences if % not approved:	UEs will select the TF that carries the most data regardless of the amount of power required for the transmission. This would lead to large number of failed RACH transmissions, increased system load and potentially lead to some UEs being unable to access the system.
Clauses affected: #	11 4
Other specs #	Y       N         N       Other core specifications       #         N       Test specifications         N       O&M Specifications

Other comments: ж

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#### 3GPP TSG-RAN2 Meeting #33 Sophia Antepolis, France, 11/12 – 11/15/2002

### Tdoc # R2-023272

CHANGE REQUEST												
æ	25.321 CR 142 # rev 1 #	Current vers	<sup>ion:</sup> 5.2.0 <sup>#</sup>									
For <u>HELP</u> or	using this form, see bottom of this page or look at th	ne pop-up text	over the 🛱 symbols.									
Proposed chang	affects: UICC apps೫ ME X Radio A	ccess Networ	k X Core Network									
Title	TEC Selection for RACH transmissions											
1100												
Source:	Qualcomm											
Work item code:	tel	<i>Date:</i>	12/11/2002									
Category:	ß A	Release: ೫	Rel-5									
	Use one of the following categories:	Use <u>one</u> of	the following releases:									
	F (correction)	2	(GSM Phase 2)									
	A (corresponds to a correction in an earlier releas	e) R96	(Release 1996)									
	B (addition of feature),R97(Release 1)C (functional modification of feature)R98(Release 1)											
	<b>D</b> (editorial modification)	R99	(Release 1999)									
	Detailed explanations of the above categories can	Rel-4	(Release 4)									
	be found in 3GPP <u>TR 21.900</u> .	Rel-5	(Release 5)									
		Rel-6	(Release 6)									

Reason for change: ೫	The current specifications do not cover how the mobile is supposed to handle power limitation when performing RACH transmissions. Since the TFC selection algorithm favors higher data-rate transmissions, this may result in UEs systematically transmitting formats that cannot be received reliably.
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Clauses affected: #	11 /
Other specs # affected:	Y     N       N     Other core specifications       N     Test specifications       N     O&M Specifications

Other comments:

ж

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# 3GPP TSG-RAN2 Meeting #33 Sophia Antipolis, France, 11<sup>th</sup>-15<sup>th</sup> November 2002

# *Tdoc* **#***R2-023050*

			СНА	NGE R	EQL	JES	Г				CR-Form-v7
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Proposed chang	e affe	ects: l	JICC apps₩[	N	1E X	Radio	Access	Networ	k <mark>X</mark> (	Core Ne	etwork
Title:	ж <mark>R</mark>	<mark>B id in c</mark>	iphering								
Source:	ж <mark>Е</mark>	ricsson									
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Category:	₩ <mark>F</mark> Us De be	e <u>one</u> of F (corr A (cor B (add C (fun D (edi tailed exp found in	the following ca rection) responds to a c lition of feature ctional modificat torial modificati blanations of th 3GPP <u>TR 21.9</u>	ategories: correction in a ), ation of featur on) e above cate 00.	an earlie re) gories c	er relea can	Rele Use se)	ease: # 2 2 R96 R97 R98 R99 Rel-4 Rel-5 Rel-6	R99 the follow (GSM P (Release (Release (Release (Release (Release (Release	wing rele hase 2) e 1996) e 1997) e 1998) e 1999) e 4) e 5) e 6)	eases:

Reason for change:	ж	According to 25.331 section 8.6.3.4, 8.6.4.1, 8.6.4.3 and 10.3.4.16 the "RB id" –1 shall be used as the value of BEARER in the ciphering algorithm. in the MAC specification this fact is not reflected (the text in MAC is to a large extent taken from 33.102 which does not go into this level of detail).
Summary of change: #		The value of BEARER is changed from "RB id" to "RB id -1" to align with 25.331
Consequences if not approved:	ж	Risk for erroneous implementation leading to ciphering failure. However the proposed alignment is considered to be consistent with the general RAN2 understanding.
		<b>Backwards compatibility analysis:</b> If the CR is not implemented in both UE and UTRAN, the UE and UTRAN may potentially use different values of the parameter BEARER in the ciphering algorithm. In this case, the ciphering will fail on all RBs and SRBs.
		Impact on T1 specifications: None. T1 is already aligned with this clarification.

Clauses affected:	ж	1	1.5			
		Y	Ν			
Other specs	ж	•	X	Other core specifications	ж	
affected:			Χ	Test specifications		
			Χ	O&M Specifications		

#### Other comments: #

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# 11.5 Ciphering

The ciphering function is performed in MAC (i.e. only in MAC-d) if a radio bearer is using the transparent RLC mode. The data unit that is ciphered is the MAC SDU and this is shown in Figure 11.5.1 below.



Figure 11.5.1: Ciphering unit for a MAC PDU

The ciphering algorithm and key to be used are configured by upper layers [7] and the ciphering method shall be applied as specified in [10].

The parameters that are required by MAC for ciphering are defined in [10] and are input to the ciphering algorithm. The parameters required by MAC which are provided by upper layers [7] are listed below:

- MAC-d HFN (Hyper frame number for radio bearers that are mapped onto transparent mode RLC)
- BEARER (Radio Bearer ID<u>1</u>) defined as the radio bearer identifier in [10]. It will use the value RB identity –1 as in [7])
- CK (Ciphering Key)

If the TTI consists of more than one 10 ms radio frame, the CFN of the first radio frame in the TTI shall be used as input to the ciphering algorithm for all the data in the TTI.

If the activation time indicated by higher layers for start or stop of ciphering or change of ciphering parameters is not the first CFN in a TTI common to all the transport channels that are multiplexed onto the same CCTrCh, the activation time shall be applied at the first CFN in the following TTI common to all the transport channels that are multiplexed onto the same CCTrCh.

#### **3GPP TSG-RAN2 Meeting #33 Sophia Antipolis, France, 11<sup>th</sup>-15<sup>th</sup> November 2002**

### *Tdoc* **#***R2-023051*

				CHANGE	E R	EQI	JE	ST				CR-Form-V7
							-	• •				
ж		25.321	CR	144	жr	ev	-	ж	Current ve	rsion:	4.6.0	ж
For <b>HELP</b> or	าม	sina this for	m. see	e bottom of th	is pac	ne or l	ook a	at th	e non-un te	xt over	the ¥ svr	nbols.
	1 01	sing the ref	,		lo pag		00/11					
											7	
Proposed chang	e a	affects:	JICC a	apps#	Μ	EX	Rac	lio A	ccess Netw	ork X	Core Ne	etwork
Title	ж	RB id in c	inherir	na								
1100.			prioriti	.9								
Source:	ж	Ericsson										
Work item code:	ж	TEI							Date:	₩ <mark>20</mark>	02-11-12	
Category:	ж	Α							Release:	₭ Re	I-4	
		Use <u>one</u> of	the follo	owing categorie	es:				Use <u>one</u> d	of the fo	ollowing rele	eases:
		F (con	rection)						2	(GSI	M Phase 2)	
		A (cor	respon	ds to a correcti	on in e	an earl	ier re	lease	e) R96	(Rele	ease 1996)	
		B (add	dition of	teature),					R97	(Rele	ease 1997)	
		<b>C</b> (fun	ctional	modification of	teatur	e)			R98	(Rele	ease 1998)	
		D (edi	torial m	odification)					R99	(Rele	ease 1999)	
		Detailed exp	Dianatic	ons of the above	e cate	gories	can		Rel-4	(Rele	ease 4)	
		be found in	3GPP	<u>IR 21.900</u> .					Rel-5	(Rele	ease 5)	
									Rel-6	(Rele	ease 6)	

Reason for change: ३	According to 25.331 section 8.6.3.4, 8.6.4.1, 8.6.4.3 and 10.3.4.16 the "RB id" –1 shall be used as the value of BEARER in the ciphering algorithm. in the MAC specification this fact is not reflected (the text in MAC is to a large extent taken from 33.102 which does not go into this level of detail).
Summary of change: ៖	The value of BEARER is changed from "RB id" to "RB id -1" to align with 25.331
Consequences if and approved:	Risk for erroneous implementation leading to ciphering failure. However the proposed alignment is considered to be consistent with the general RAN2 understanding.
	<ul> <li>Backwards compatibility analysis:</li> <li>If the CR is not implemented in both UE and UTRAN, the UE and UTRAN may potentially use different values of the parameter BEARER in the ciphering algorithm. In this case, the ciphering will fail on all RBs and SRBs.</li> <li>Impact on T1 specifications:</li> <li>None. T1 is already aligned with this clarification.</li> </ul>
	None. T1 is already aligned with this clarification.

Y     N       Other specs     %     X       affected:     X     Other core specifications	Clauses affected:	ж	11	1.5			
Other specs       #       X       Other core specifications       #         affected:       X       Test specifications       #		Г	v	N			
affected:	Other specs	¥	I	X	Other core specifications	ж	
	affected:			X	Test specifications		
X O&M Specifications				Х	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.

# 11.5 Ciphering

The ciphering function is performed in MAC (i.e. only in MAC-d) if a radio bearer is using the transparent RLC mode. The data unit that is ciphered is the MAC SDU and this is shown in Figure 11.5.1 below.



Figure 11.5.1: Ciphering unit for a MAC PDU

The ciphering algorithm and key to be used are configured by upper layers [7] and the ciphering method shall be applied as specified in [10].

The parameters that are required by MAC for ciphering are defined in [10] and are input to the ciphering algorithm. The parameters required by MAC which are provided by upper layers [7] are listed below:

- MAC-d HFN (Hyper frame number for radio bearers that are mapped onto transparent mode RLC)
- BEARER (Radio Bearer ID<u>1</u>) defined as the radio bearer identifier in [10]. It will use the value RB identity –1 as in [7])
- CK (Ciphering Key)

If the TTI consists of more than one 10 ms radio frame, the CFN of the first radio frame in the TTI shall be used as input to the ciphering algorithm for all the data in the TTI.

If the activation time indicated by higher layers for start or stop of ciphering or change of ciphering parameters is not the first CFN in a TTI common to all the transport channels that are multiplexed onto the same CCTrCh, the activation time shall be applied at the first CFN in the following TTI common to all the transport channels that are multiplexed onto the same CCTrCh.

### 3GPP TSG-RAN2 Meeting #33 Sophia Antipolis, France, 11<sup>th</sup>-15<sup>th</sup> November 2002

### *Tdoc* **#***R2-023052*

CHANGE REQUEST										
¥	25.321 CR 145 * rev - *	Current version: <b>5.2.0</b> <sup>#</sup>								
For <b>HELP</b> on using this form, see bottom of this page or look at the pop-up text over the <b>#</b> symbols.										
Proposed chang	<i>Proposed change affects:</i> UICC apps# ME X Radio Access Network X Core Network									
Title:	RB id in ciphering									
Source:	f Ericsson									
Work item code:	f TEI	<i>Date:</i> ೫ <mark>2002-11-12</mark>								
Category:	<ul> <li>A</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: %         Rel-5           Use one of the following releases:         2           (GSM Phase 2)         9           R96         (Release 1996)           R97         (Release 1997)           R98         (Release 1998)           R99         (Release 1999)           Rel-4         (Release 4)           Rel-5         (Release 5)           Rel-6         (Release 6)								

Reason for change:	ж	According to 25.331 section 8.6.3.4, 8.6.4.1, 8.6.4.3 and 10.3.4.16 the "RB id" –1 shall be used as the value of BEARER in the ciphering algorithm. in the MAC specification this fact is not reflected (the text in MAC is to a large extent taken from 33.102 which does not go into this level of detail).
Summary of change:	ж	The value of BEARER is changed from "RB id" to "RB id -1" to align with 25.331
Consequences if not approved:	ж	Risk for erroneous implementation leading to ciphering failure. However the proposed alignment is considered to be consistent with the general RAN2 understanding.
		<b>Backwards compatibility analysis:</b> If the CR is not implemented in both UE and UTRAN, the UE and UTRAN may potentially use different values of the parameter BEARER in the ciphering algorithm. In this case, the ciphering will fail on all RBs and SRBs.
		Impact on T1 specifications: None. T1 is already aligned with this clarification.

Clauses affected:	ж	1	1.5			
		Y	Ν			
Other specs	ж	•	X	Other core specifications	ж	
affected:			Χ	Test specifications		
			Χ	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.

# 11.5 Ciphering

The ciphering function is performed in MAC (i.e. only in MAC-d) if a radio bearer is using the transparent RLC mode. The data unit that is ciphered is the MAC SDU and this is shown in Figure 11.5.1 below.



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The ciphering algorithm and key to be used are configured by upper layers [7] and the ciphering method shall be applied as specified in [10].

The parameters that are required by MAC for ciphering are defined in [10] and are input to the ciphering algorithm. The parameters required by MAC which are provided by upper layers [7] are listed below:

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- BEARER (Radio Bearer ID<u>1</u>) defined as the radio bearer identifier in [10]. It will use the value RB identity –1 as in [7])
- CK (Ciphering Key)

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# 3GPP TSG-RAN2 Meeting #33 Sophia Antipolis, France, 12-15 November 2002

### *Tdoc* **#***R2-023053*

CHANGE REQUEST											
x		25.321 CR 146 * rev - *	ŧ	Current vers	<sup>ion:</sup> 3.13.0 <sup>#</sup>						
For <b>HELP</b> on using this form, see bottom of this page or look at the pop-up text over the <b>#</b> symbols.											
Proposed change affects: UICC apps # ME X Radio Access Network Core Network											
Title:	ж	Correction to TFC selection for TDD									
Source:	ж	IPWireless									
Work item code	:Ж	TEI		<i>Date:</i> ೫	13/11/2002						
Category:	ж	<ul> <li>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 rele</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>	ease	Release: ₩ Use <u>one</u> of 2 P) R96 R97 R98 R99 Rel-4 Rel-5 Bel-6	R99 the following releases: (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5) (Release 6)						

Reason for change: #	The current TFC selection rules are applied to cases which only apply to FDD. The transport channels for which TFC selection should apply must be specified.
Summary of change: ℜ	<ol> <li>The current transport channels on which the rules for TFC/TF selection apply are labelled for FDD.</li> <li>A separate set of transport channels on which TFC selection is applied is specified for TDD.</li> </ol>
	Isolated Impact Analysis Functionality corrected: TDD mode UE TFC selection.
	Isolated impact statement: Correction to a function where specification was incorrect/missing for TDD. This CR has is assumed to have isolated impact since it only affects TDD mode.
Consequences if ೫	If the CR is not approved then TFC selection for TDD will not operare for USCH.
not approved:	Also since the statement that TF selection can occur for RACH and CPCH is incorrect for TDD mode incorrect implementations will be possible.
Clauses affected: #	11.4
	YN
Other specs अ	X Other core specifications #
affected:	X     Test specifications       X     O&M Specifications
Other comments: #	

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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.

# 11.4 Transport format combination selection in UE

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

If the uplink TFCS configured by UTRAN follows the guidelines described in [7] the UE shall perform the TFC selection according to the rules specified below. If these guidelines are not followed then the UE behaviour is not specified.

The UE shall continuously monitor the state for each TFC based on its required transmit power versus the maximum UE transmit power. A given TFC can be in any of the following states:

- Supported state;
- Excess-power state;
- Blocked state.

The following diagram illustrates the state transitions for the state of a given TFC:



Recovery criterion is met

Figure 11.4.1: State transitions for the state of a given TFC

The state transition criteria and the associated requirements are described in [12, 14]. The UE shall consider that the Blocking criterion is never met for TFCs included in the minimum set of TFCs (see [7]).

Every time the set of supported TFCs changes, the available bitrate shall be indicated to upper layers for each logical channel in order to facilitate the adaptation of codec data rates when codecs supporting variable-rate operation are used. The details of the computation of the available bitrate and the interaction with the application layer are not further specified.

Before selecting a TFC, i.e. at every boundary of the shortest TTI, the set of valid TFCs shall be established. All TFCs in the set of valid TFCs shall:

- 1. belong to the TFCS.
- 2. not be in the Blocked state.
- 3. be compatible with the RLC configuration.
- 4. not require RLC to produce padding PDUs (see [6] for definition).
- 5. not carry more bits than can be transmitted in a TTI (e.g. when compressed mode by higher layer scheduling is used and the presence of compressed frames reduces the number of bits that can be transmitted in a TTI using the Minimum SF configured).

The UE may remove from the set of valid TFCs, TFCs in Excess-power state in order to maintain the quality of service for sensitive applications (e.g. speech). Additionally, if compressed frames are present within the longest configured TTI to which the next transmission belongs, the UE may remove TFCs from the set of valid TFCs in order to account for the higher power requirements.

The chosen TFC shall be selected from within the set of valid TFCs and shall satisfy the following criteria in the order in which they are listed below:

- 1. No other TFC shall allow the transmission of more highest priority data than the chosen TFC.
- 2. No other TFC shall allow the transmission of more data from the next lower priority logical channels. Apply this criterion recursively for the remaining priority levels.
- 3. No other TFC shall have a lower bit rate than the chosen TFC.

In FDD mode T the above rules for TFC selection in the UE shall apply to DCH, and the same rules shall apply for TF selection on RACH and CPCH.

In TDD mode the above rules for TFC selection in the UE shall apply to DCH and USCH.

# 3GPP TSG-RAN2 Meeting #33 Sophia Antipolis, France, 12-15 November 2002

### *Tdoc* **#***R2-023054*

CHANGE REQUEST										
æ		25.321 CR 147 * r	ev	-	Ħ	Current vers	ion:	4.6.0	ж	
For <b>HELP</b> on using this form, see bottom of this page or look at the pop-up text over the <b>#</b> symbols.										
Proposed change affects: UICC apps# ME X Radio Access Network Core Network										
Title:	ж	Correction to TFC selection for TD	D							
Source:	ж	IPWireless								
Work item code:	ж	TEI				<i>Date:</i>	13/1	1/2002		
Category:	ж	<ul> <li>A</li> <li>Use <u>one</u> of the following categories:</li> <li><i>F</i> (correction)</li> <li><i>A</i> (corresponds to a correction in a B (addition of feature),</li> <li><i>C</i> (functional modification of feature)</li> <li><i>D</i> (editorial modification)</li> <li>Detailed explanations of the above cate be found in 3GPP <u>TR 21.900</u>.</li> </ul>	an ear re) •gories	lier re	eleas	Release: ¥ Use <u>one</u> of 2 e) R96 R97 R98 R99 Rel-4 Rel-5 Rel-6	Rel-4 the follo (GSM I (Relea (Relea (Relea (Relea (Relea	4 Dwing rele Phase 2) se 1996) se 1997) se 1998) se 1999) se 4) se 5) se 6)	eases:	

Reason for change: ೫	The current TFC selection rules are applied to cases which only apply to FDD. The transport channels for which TFC selection should apply must be specified.
Summary of change: ೫	<ol> <li>The current transport channels on which the rules for TFC/TF selection apply are labelled for FDD.</li> <li>A separate set of transport channels on which TFC selection is applied is specified for TDD.</li> </ol>
	Isolated Impact Analysis Functionality corrected: TDD mode UE TFC selection.
	Isolated impact statement: Correction to a function where specification was incorrect/missing for TDD. This CR has is assumed to have isolated impact since it only affects TDD mode.
Consequences if अ	If the CR is not approved then TFC selection for TDD will not operare for USCH.
not approved:	Also since the statement that TF selection can occur for RACH and CPCH is incorrect for TDD mode incorrect implementations will be possible.
Clauses affected: #	11.4
	YN
Other specs ೫	X Other core specifications #
affected:	X     Test specifications       X     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.
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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.

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If the uplink TFCS configured by UTRAN follows the guidelines described in [7] the UE shall perform the TFC selection according to the rules specified below. If these guidelines are not followed then the UE behaviour is not specified.

The UE shall continuously monitor the state for each TFC based on its required transmit power versus the maximum UE transmit power. A given TFC can be in any of the following states:

- Supported state;
- Excess-power state;
- Blocked state.

The following diagram illustrates the state transitions for the state of a given TFC:



Recovery criterion is met

Figure 11.4.1: State transitions for the state of a given TFC

The state transition criteria and the associated requirements are described in [12, 14]. The UE shall consider that the Blocking criterion is never met for TFCs included in the minimum set of TFCs (see [7]).

Every time the set of supported TFCs changes, the available bitrate shall be indicated to upper layers for each logical channel in order to facilitate the adaptation of codec data rates when codecs supporting variable-rate operation are used. The details of the computation of the available bitrate and the interaction with the application layer are not further specified.

Before selecting a TFC, i.e. at every boundary of the shortest TTI, the set of valid TFCs shall be established. All TFCs in the set of valid TFCs shall:

- 1. belong to the TFCS.
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In FDD mode <u>T</u>the above rules for TFC selection in the UE shall apply to DCH, and the same rules shall apply for TF selection on RACH and CPCH.

In 3.84Mcps TDD mode the above rules for TFC selection in the UE shall apply to DCH and USCH.

# 3GPP TSG-RAN2 Meeting #33 Sophia Antipolis, France, 12-15 November 2002

### *Tdoc* **#***R2-023055*

CHANGE REQUEST										
ж		25.321 CR 148 * r	ev	-	ж	Current vers	ion:	5.2.0	ж	
For <b>HELP</b> on using this form, see bottom of this page or look at the pop-up text over the <b>#</b> symbols.										
Proposed change affects: UICC apps# ME X Radio Access Network Core Network										
Title:	ж	Correction to TFC selection for TD	D							
Source:	ж	IPWireless								
Work item code:	ж	TEI				Date: ೫	13/1	1/2002		
Category:	Ħ	A Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in a B (addition of feature), C (functional modification of featu D (editorial modification) Detailed explanations of the above cate be found in 3GPP <u>TR 21.900</u> .	an earl re) egories	lier re	elease	Release: ₩ Use <u>one</u> of 2 ≈) R96 R97 R98 R99 Rel-4 Rel-5 Rel-6	Rel- the foll (GSM (Relea (Relea (Relea (Relea (Relea (Relea	5 lowing rele Phase 2) ase 1996) ase 1997) ase 1998) ase 1999) ase 4) ase 5) ase 6)	eases:	

Reason for change: ೫	The current TFC selection rules are applied to cases which only apply to FDD. The transport channels for which TFC selection should apply must be specified.
Summary of change: ೫	<ol> <li>The current transport channels on which the rules for TFC/TF selection apply are labelled for FDD.</li> <li>A separate set of transport channels on which TFC selection is applied is specified for TDD.</li> </ol>
	Isolated Impact Analysis Functionality corrected: TDD mode UE TFC selection. Isolated impact statement: Correction to a function where specification was incorrect/missing for TDD. This CR has is assumed to have isolated impact since it only affects TDD mode
Consequences if अ not approved:	If the CR is not approved then TFC selection for TDD will not operare for USCH. Also since the statement that TF selection can occur for RACH and CPCH is incorrect for TDD mode incorrect implementations will be possible.
Clauses affected: #	11.4
Other specs अ affected:	Y       N         X       Other core specifications       #         X       Test specifications       #         X       O&M Specifications       #
Other comments: #	

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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.

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Recovery criterion is met

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The UE may remove from the set of valid TFCs, TFCs in Excess-power state in order to maintain the quality of service for sensitive applications (e.g. speech). Additionally, if compressed frames are present within the longest configured TTI to which the next transmission belongs, the UE may remove TFCs from the set of valid TFCs in order to account for the higher power requirements.

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- 2. No other TFC shall allow the transmission of more data from the next lower priority logical channels. Apply this criterion recursively for the remaining priority levels.
- 3. No other TFC shall have a lower bit rate than the chosen TFC.

In FDD mode <u>T</u>the above rules for TFC selection in the UE shall apply to DCH, and the same rules shall apply for TF selection on RACH and CPCH.

In 3.84Mcps TDD mode the above rules for TFC selection in the UE shall apply to DCH and USCH.

### 3GPP TSG-RAN-WG2 Meeting #33 Sophia Antipolis, France, 12-15 November 2002

### *Tdoc* **#***0*23152

	CHANGE REQUEST										
ж	25.321 CR 149 * rev - *	Current vers	<sup>ion:</sup> 3.13.0 <sup>#</sup>								
For <u>HELP</u> or	using this form, see bottom of this page or look at the	e pop-up text	over the ¥ symbols.								
Proposed chang	Proposed change affects: UICC apps# ME X Radio Access Network Core Network										
Title:	Unblockable TFCs in excess power state										
Source:	€ Nokia										
Work item code:	<mark>٤ TEI</mark>	<i>Date:</i>	14/11/2002								
Category:	<ul> <li>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: ₩ Use <u>one</u> of 2 ) R96 R97 R98 R99 Rel-4 Rel-5 Rel-6	R99 the following releases: (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 4) (Release 5) (Release 6)								

Reason for change: ೫	Currently, the spec allows for TFCs in excess power state to be moved into blocked state. This should not apply to the TFCs included in the minimum set of TFCs as defined in 25.331.
Summary of change: ೫	It is stated that the UE shall not move TFCs included in the minimum set of TFCs from 'Excess Power State' to 'Blocked State'.
	<b>Impact Analysis:</b> If a UE implementation conforms to the minimum TFCs description in 25.331 there is no impact. Otherwise, the UE implementation will require changes to avoid blocking the minimum set of TFCs. There is no impact on the network.
Consequences if % not approved:	The UE may decide to block TFCs that are included in the minimum set of TFCs, which means that the UE fulfilling all the core requirements is likely to fail the "Reference Sensitivity Level" test case in 34.121. This could also lead to mixed interpretations of UE behaviour due to the inconsistency of requirements from 25.331 (minimum set of TFCs) and 25.321.

Clauses affected:	ж	11.4			
		YN			
Other specs affected:	Ħ	X X X	Other core specifications Test specifications O&M Specifications	Ħ	
Other comments:	ж		•		

#### 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.
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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.

# 11.4 Transport format combination selection in UE

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

If the uplink TFCS configured by UTRAN follows the guidelines described in [7] the UE shall perform the TFC selection according to the rules specified below. If these guidelines are not followed then the UE behaviour is not specified.

The UE shall continuously monitor the state for each TFC based on its required transmit power versus the maximum UE transmit power. A given TFC can be in any of the following states:

- Supported state;
- Excess-power state;
- Blocked state.

The following diagram illustrates the state transitions for the state of a given TFC:



Recovery criterion is met

Figure 11.4.1: State transitions for the state of a given TFC

The state transition criteria and the associated requirements are described in [12, 14]. The UE shall consider that the Blocking criterion is never met for TFCs included in the minimum set of TFCs (see [7]).

Every time the set of supported TFCs changes, the available bitrate shall be indicated to upper layers for each logical channel in order to facilitate the adaptation of codec data rates when codecs supporting variable-rate operation are used. The details of the computation of the available bitrate and the interaction with the application layer are not further specified.

Before selecting a TFC, i.e. at every boundary of the shortest TTI, the set of valid TFCs shall be established. All TFCs in the set of valid TFCs shall:

- 1. belong to the TFCS.
- 2. not be in the Blocked state.
- 3. be compatible with the RLC configuration.
- 4. not require RLC to produce padding PDUs (see [6] for definition).
- 5. not carry more bits than can be transmitted in a TTI (e.g. when compressed mode by higher layer scheduling is used and the presence of compressed frames reduces the number of bits that can be transmitted in a TTI using the Minimum SF configured).

The UE may remove from the set of valid TFCs, TFCs in Excess-power state in order to maintain the quality of service for sensitive applications (e.g. speech). <u>However, this shall not apply to TFCs included in the minimum set of TFCs (see [7])</u>. Additionally, if compressed frames are present within the longest configured TTI to which the next transmission belongs, the UE may remove TFCs from the set of valid TFCs in order to account for the higher power requirements.

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The above rules for TFC selection in the UE shall apply to DCH, and the same rules shall apply for TF selection on RACH and CPCH.

### 3GPP TSG-RAN-WG2 Meeting #33 Sophia Antipolis, France, 12-15 November 2002

### *Tdoc* **#***0*23153

CHANGE REQUEST									
ж	25.321 CR 150 * rev - *	Current version: <b>4.6.0</b> <sup>#</sup>							
For <b><u>HELP</u></b> on using this form, see bottom of this page or look at the pop-up text over the <b>#</b> symbols.									
Proposed chang	affects: UICC apps# ME X Radio	Access Network Core Network							
Title:	Unblockable TFCs in excess power state								
Source:	Nokia								
Work item code:	TEI	Date: ೫ <u>14/11/2002</u>							
Category:	<ul> <li>A</li> <li>Use <u>one</u> of the following categories:</li> <li>F (correction)</li> <li>A (corresponds to a correction in an earlier releated (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: %Rel-4Use one 2of the following releases: 22(GSM Phase 2)se)R96R97(Release 1996)R97(Release 1997)R98(Release 1998)R99(Release 1999)Rel-4(Release 4)Rel-5(Release 5)Rel-6(Release 6)							

Reason for change: ೫	Currently, the spec allows for TFCs in excess power state to be moved into blocked state. This should not apply to the TFCs included in the minimum set of TFCs as defined in 25.331.
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Consequences if # not approved:	The UE may decide to block TFCs that are included in the minimum set of TFCs, which means that the UE fulfilling all the core requirements is likely to fail the "Reference Sensitivity Level" test case in 34.121. This could also lead to mixed interpretations of UE behaviour due to the inconsistency of requirements from 25.331 (minimum set of TFCs) and 25.321.

Clauses affected:	ж	1	1.4		
Other specs affected:	ж	Y	N X X X	Other core specifications <b>%</b> Test specifications O&M Specifications	
Other comments:	ж				

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### 3GPP TSG-RAN-WG2 Meeting #33 Sophia Antipolis, France, 12-15 November 2002

### Tdoc #023154

CHANGE REQUEST								
ж		25.321 CR 151 #r	ev -	Ħ	Current vers	<sup>ion:</sup> <b>5.2.0</b>	ж	
For <b>HELP</b> on using this form, see bottom of this page or look at the pop-up text over the <b>#</b> symbols.								
Proposed char	ige (	affects: UICC apps <b>೫</b> №	E X Rad	dio A	ccess Networ	k Core Ne	etwork	
Title:	ж	Unblockable TFCs in excess powe	r state					
Source:	ж	Nokia						
Work item cod	e:Ж	TEI			<i>Date:</i> ೫	14/11/2002		
Category:	¥	<ul> <li>A</li> <li>Use <u>one</u> of the following categories:</li> <li>F (correction)</li> <li>A (corresponds to a correction in a B (addition of feature),</li> <li>C (functional modification of feature)</li> <li>D (editorial modification)</li> <li>Detailed explanations of the above cate be found in 3GPP <u>TR 21.900</u>.</li> </ul>	nn earlier re e) gories can	eleas	Release: % Use <u>one</u> of 2 e) R96 R97 R98 R99 Rel-4 Rel-5 Rel-6	Rel-5 the following rel (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5) (Release 6)	eases:	

Summary of change: # It	is stated that the UE shall not move TFCs included in the minimum set of TFCs rom 'Excess Power State' to 'Blocked State'.
ln lf ສາ T	mpact Analysis: a UE implementation conforms to the minimum TFCs description in 25.331 here is no impact. Otherwise, the UE implementation will require changes to woid blocking the minimum set of TFCs. There is no impact on the network.
Consequences if # T not approved: w "F in 25	The UE may decide to block TFCs that are included in the minimum set of TFCs, which means that the UE fulfilling all the core requirements is likely to fail the Reference Sensitivity Level" test case in 34.121. This could also lead to mixed interpretations of UE behaviour due to the inconsistency of requirements from (5.331 (minimum set of TFCs) and 25.321.

Clauses affected:	ж	1	1.4			
		Y	Ν			
Other specs	ж		Χ	Other core specifications	ж	
affected:			Χ	Test specifications		
			Χ	O&M Specifications		
Other comments:	ж					

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