

TSG-RAN Meeting #18
New-Orleans, USA, 03 - 06 December 2002

RP-020718

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	A	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

CR-Form-v7

CHANGE REQUEST

25.321 CR 140 # rev **1** # Current version: **3.13.0**

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	#	TFC Selection for RACH transmissions	
Source:	#	Qualcomm	
Work item code:	#	TEI	Date: # 12/11/2002
Category:	#	F	Release: # R99
		Use <u>one</u> 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 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)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	#	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 style="list-style-type: none"> ▪ 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. ▪ 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. ▪ It is clarified when TFC selection is performed when transmissions are performed on the RACH. <p>Isolated impact analysis: Functionality corrected: TFC selection for transmissions on RACH</p> <ul style="list-style-type: none"> ▪ 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.
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:		Y	N	
	⌘		N	Other core specifications ⌘
			N	Test specifications
			N	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 <http://www.3gpp.org/specs/CR.htm>. 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.
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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.

~~In CELL_DCH state (see [7]), 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.

~~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]).~~

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

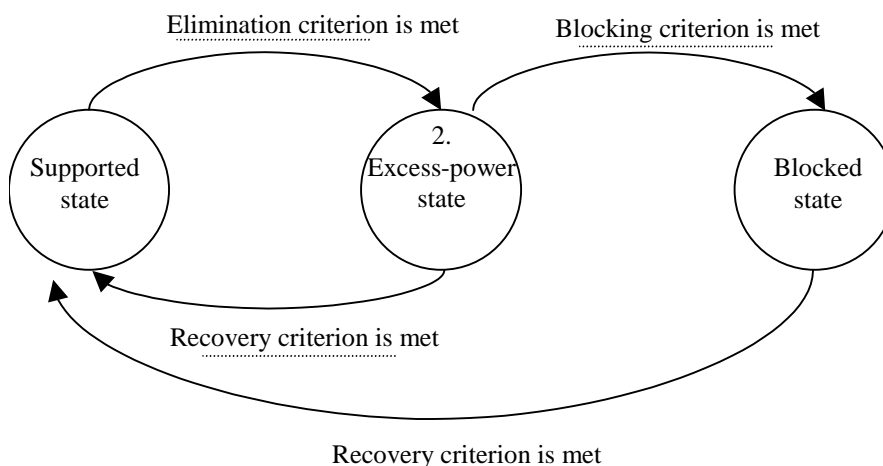


Figure 11.4.1: State transitions for the state of a given TFC

~~When the UE is in CELL_DCH state (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]).~~

~~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, or prior to each transmission on PRACH (selected according to the procedure defined in [7]), 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.

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.

CHANGE REQUEST

25.321 CR 141 # rev **1** # Current version: **4.6.0**

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	#	TFC Selection for RACH transmissions	
Source:	#	Qualcomm	
Work item code:	#	TEI	Date: # 12/11/2002
Category:	#	A	Release: # Rel-4
		Use <u>one</u> 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 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)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	#	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 style="list-style-type: none"> ▪ 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. ▪ 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. ▪ It is clarified when TFC selection is performed when transmissions are performed on the RACH.
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:	#	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="width: 20px; text-align: center;">#</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="width: 20px; text-align: center;">#</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="width: 20px; text-align: center;">#</td> <td style="width: 20px; text-align: center;">N</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	N	#	N	#	N
Y	N									
#	N									
#	N									
#	N									
Other comments:	#									

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11.4 Transport format combination selection in UE

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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.

~~In CELL_DCH state (see [7]), 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.

~~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]).~~

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

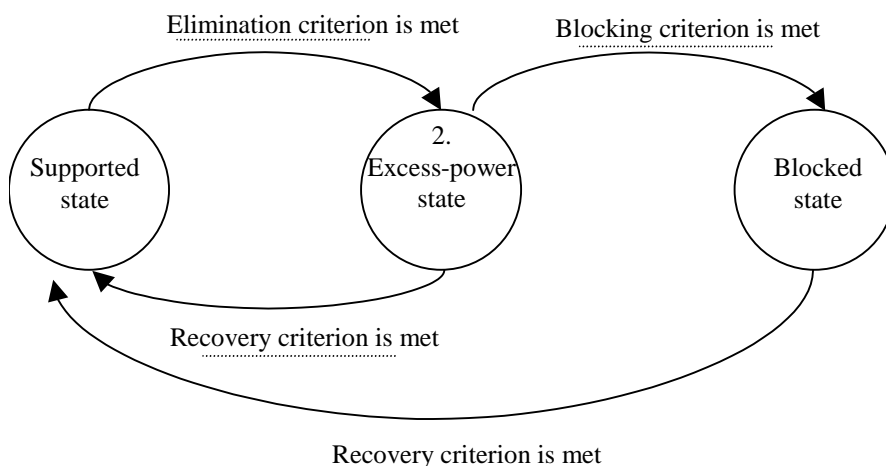


Figure 11.4.1: State transitions for the state of a given TFC

~~When the UE is in CELL_DCH state (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]).~~

~~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.

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3. No other TFC shall have a lower bit rate than the chosen TFC.

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.

CHANGE REQUEST

25.321 CR 142 # rev **1** # Current version: **5.2.0**

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# TFC Selection for RACH transmissions		
Source:	# Qualcomm		
Work item code:	# TEI	Date:	# 12/11/2002
Category:	# A	Release:	# Rel-5
	Use <u>one</u> 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 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)	
		Rel-5 (Release 5)	
		Rel-6 (Release 6)	

Reason for change:	# 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 style="list-style-type: none"> ▪ 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. ▪ 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. ▪ It is clarified when TFC selection is performed when transmissions are performed on the RACH.
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:	# <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px;">Y</td> <td style="border: 1px solid black; padding: 2px;">N</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;"> </td> <td style="border: 1px solid black; padding: 2px;">N</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;"> </td> <td style="border: 1px solid black; padding: 2px;">N</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;"> </td> <td style="border: 1px solid black; padding: 2px;">N</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N		N		N		N
Y	N								
	N								
	N								
	N								
Other comments:	#								

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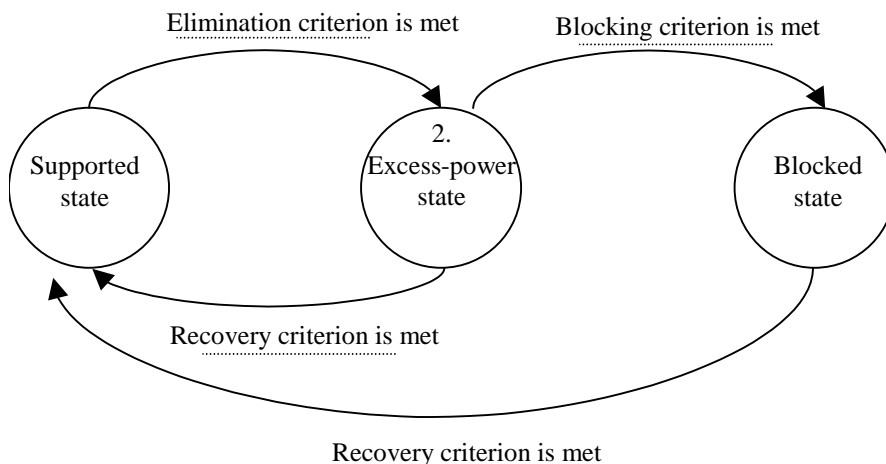


Figure 11.4.1: State transitions for the state of a given TFC

~~When the UE is in CELL_DCH state (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]).~~

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3. No other TFC shall have a lower bit rate than the chosen TFC.

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.

CHANGE REQUEST

25.321 CR 143 # rev **-** # Current version: **3.13.0**

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# RB id in ciphering				
Source:	# Ericsson				
Work item code:	# TEI	Date:	# 2002-11-12		
Category:	# F	Release:	# R99		
	Use <u>one</u> 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 release)		R96 (Release 1996)		
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	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Rel-4 (Release 4)		
			Rel-5 (Release 5)		
			Rel-6 (Release 6)		

Reason for change:	# 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:	# Risk for erroneous implementation leading to ciphering failure. However the proposed alignment is considered to be consistent with the general RAN2 understanding. Backwards compatibility analysis: 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:	# 11.5								
Other specs affected:	#								
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	X	#	X	#	X
Y	N								
#	X								
#	X								
#	X								

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 ciphpered is the MAC SDU and this is shown in Figure 11.5.1 below.

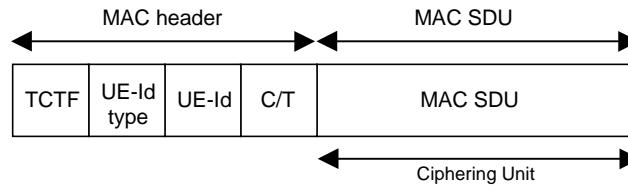


Figure 11.5.1: Ciphering unit for a MAC PDU

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 -1~~) 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.

CR-Form-v7

CHANGE REQUEST

25.321 CR 144 # rev **-** # Current version: **4.6.0**

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# RB id in ciphering		
Source:	# Ericsson		
Work item code:	# TEI	Date:	# 2002-11-12
Category:	# A	Release:	# Rel-4
	Use <u>one</u> 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) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) 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:	# 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:	# Risk for erroneous implementation leading to ciphering failure. However the proposed alignment is considered to be consistent with the general RAN2 understanding. Backwards compatibility analysis: 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:	# 11.5								
Other specs affected:	<table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px;">Y</td> <td style="border: 1px solid black; padding: 2px;">N</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">#</td> <td style="border: 1px solid black; padding: 2px;">X</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">#</td> <td style="border: 1px solid black; padding: 2px;">X</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">#</td> <td style="border: 1px solid black; padding: 2px;">X</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	X	#	X	#	X
Y	N								
#	X								
#	X								
#	X								

Other comments: ☹

How to create CRs using this form:

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

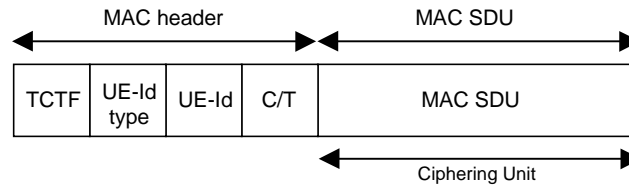


Figure 11.5.1: Ciphering unit for a MAC PDU

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 -1~~) 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.

CHANGE REQUEST

25.321 CR 145 # rev - # Current version: 5.2.0

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	# RB id in ciphering		
Source:	# Ericsson		
Work item code:	# TEI	Date:	# 2002-11-12
Category:	# A	Release:	# Rel-5
	Use <u>one</u> 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) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) 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:	# 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:	# Risk for erroneous implementation leading to ciphering failure. However the proposed alignment is considered to be consistent with the general RAN2 understanding. Backwards compatibility analysis: 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:	# 11.5								
Other specs affected:	<table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px;">Y</td> <td style="border: 1px solid black; padding: 2px;">N</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">#</td> <td style="border: 1px solid black; padding: 2px;">X</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">#</td> <td style="border: 1px solid black; padding: 2px;">X</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">#</td> <td style="border: 1px solid black; padding: 2px;">X</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	X	#	X	#	X
Y	N								
#	X								
#	X								
#	X								

Other comments: ☹

How to create CRs using this form:

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

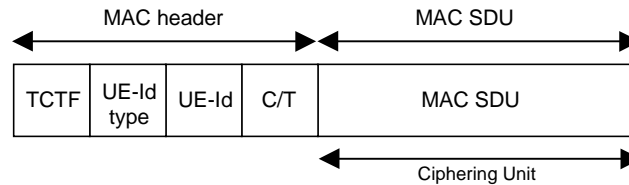


Figure 11.5.1: Ciphering unit for a MAC PDU

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 -1~~) 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.

CHANGE REQUEST

25.321 CR 146 # rev **-** # Current version: **3.13.0**

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Correction to TFC selection for TDD		
Source:	# IPWireless		
Work item code:	# TEI	Date:	# 13/11/2002
Category:	# F	Release:	# R99
	Use <u>one</u> 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 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)
			Rel-5 (Release 5)
			Rel-6 (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:	# <ol style="list-style-type: none"> 1. The current transport channels on which the rules for TFC/TF selection apply are labelled for FDD. 2. A separate set of transport channels on which TFC selection is applied is specified for TDD. <p>Isolated Impact Analysis Functionality corrected: TDD mode UE TFC selection.</p> <p>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.</p>
Consequences if not approved:	# If the CR is not approved then TFC selection for TDD will not operate 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 affected:	# <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Y	N								
<input type="checkbox"/>	<input checked="" type="checkbox"/>								
<input type="checkbox"/>	<input checked="" type="checkbox"/>								
<input type="checkbox"/>	<input checked="" type="checkbox"/>								
Other comments:	#								

How to create CRs using this form:

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

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

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:

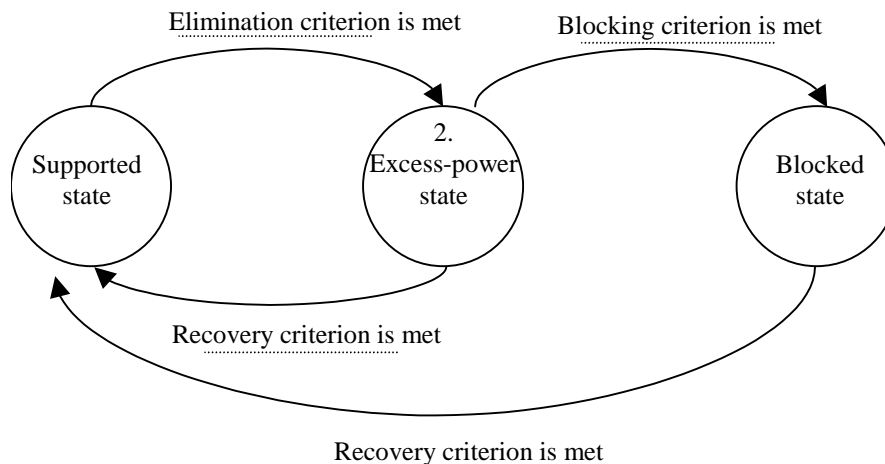


Figure 11.4.1: State transitions for the state of a given TFC

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 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.

CR-Form-v7

CHANGE REQUEST

25.321 CR 147 # rev **-** # Current version: **4.6.0**

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Correction to TFC selection for TDD		
Source:	# IPWireless		
Work item code:	# TEI	Date:	# 13/11/2002
Category:	# A	Release:	# Rel-4
	Use <u>one</u> 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 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)
			Rel-5 (Release 5)
			Rel-6 (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:	# <ol style="list-style-type: none"> 1. The current transport channels on which the rules for TFC/TF selection apply are labelled for FDD. 2. A separate set of transport channels on which TFC selection is applied is specified for TDD. <p>Isolated Impact Analysis Functionality corrected: TDD mode UE TFC selection.</p> <p>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.</p>
Consequences if not approved:	# If the CR is not approved then TFC selection for TDD will not operate 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 affected:	# <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px; text-align: center;">Y</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">N</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px; text-align: center;">#</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">X</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px; text-align: center;">#</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">X</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px; text-align: center;">#</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">X</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	X	#	X	#	X
Y	N								
#	X								
#	X								
#	X								
Other comments:	#								

How to create CRs using this form:

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

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:

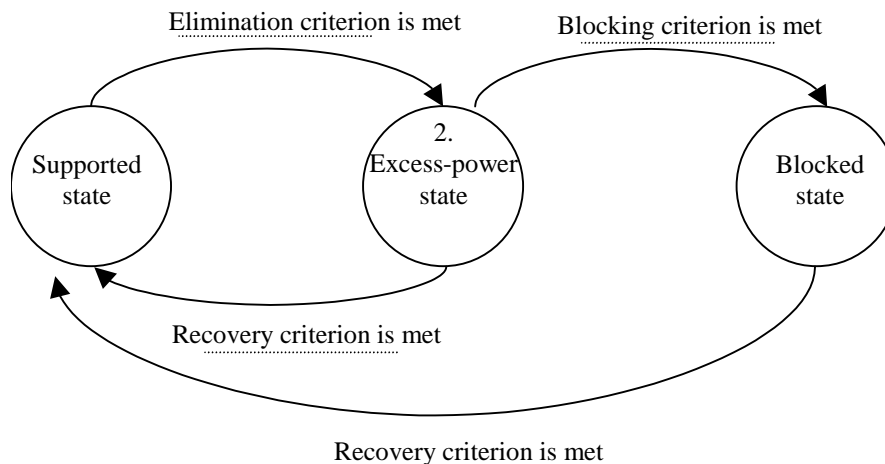


Figure 11.4.1: State transitions for the state of a given TFC

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 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.

CR-Form-v7

CHANGE REQUEST

25.321 CR 148 # rev **-** # Current version: **5.2.0**

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Correction to TFC selection for TDD		
Source:	# IPWireless		
Work item code:	# TEI	Date:	# 13/11/2002
Category:	# A	Release:	# Rel-5
	Use <u>one</u> 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 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)
			Rel-5 (Release 5)
			Rel-6 (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:	# <ol style="list-style-type: none"> 1. The current transport channels on which the rules for TFC/TF selection apply are labelled for FDD. 2. A separate set of transport channels on which TFC selection is applied is specified for TDD. <p>Isolated Impact Analysis Functionality corrected: TDD mode UE TFC selection.</p> <p>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.</p>
Consequences if not approved:	# If the CR is not approved then TFC selection for TDD will not operate 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 affected:	# <table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications # <table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Y	N					
<input type="checkbox"/>	<input checked="" type="checkbox"/>					
<input checked="" type="checkbox"/>						
	# <table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;"><input checked="" type="checkbox"/></td> </tr> </table> Test specifications # <table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;"><input type="checkbox"/></td> </tr> </table>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
<input checked="" type="checkbox"/>						
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<input checked="" type="checkbox"/>						
<input type="checkbox"/>						
Other comments:	#					

How to create CRs using this form:

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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:

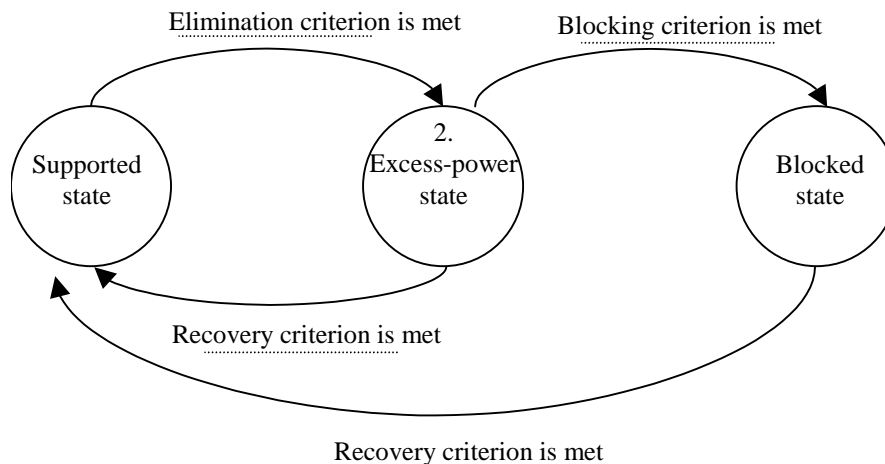


Figure 11.4.1: State transitions for the state of a given TFC

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 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.

CHANGE REQUEST

25.321 CR 149 # rev **-** # Current version: **3.13.0**

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Unblockable TFCs in excess power state		
Source:	# Nokia		
Work item code:	# TEI	Date:	# 14/11/2002
Category:	# F	Release:	# R99
	Use <u>one</u> 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 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)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	# 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:	# It is stated that the UE shall not move TFCs included in the minimum set of TFCs from 'Excess Power State' to 'Blocked State'.
	Impact Analysis: 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:	# 11.4								
Other specs affected:	#								
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	X	#	X	#	X
Y	N								
#	X								
#	X								
#	X								
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:

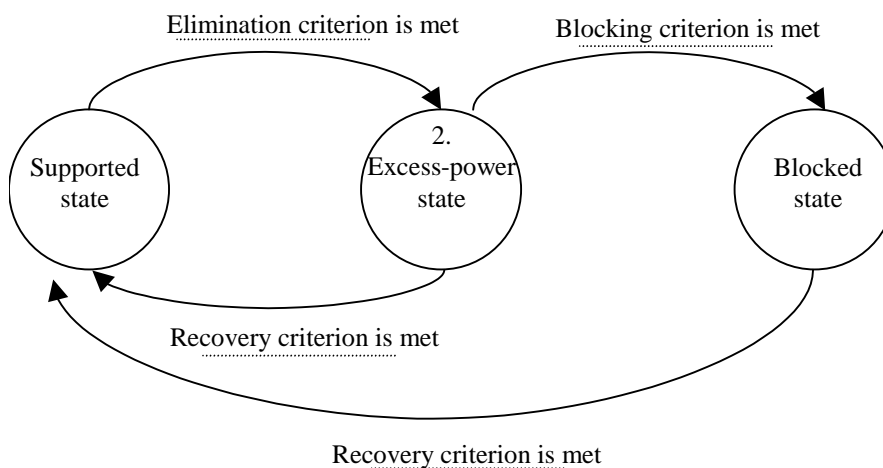


Figure 11.4.1: State transitions for the state of a given TFC

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). However, this shall not apply to TFCs included in the minimum set of TFCs (see [7]). 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.

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.

CHANGE REQUEST

25.321 CR 150 # rev **-** # Current version: **4.6.0**

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Unblockable TFCs in excess power state		
Source:	# Nokia		
Work item code:	# TEI	Date:	# 14/11/2002
Category:	# A	Release:	# Rel-4
	Use <u>one</u> 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 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)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	# 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:	# It is stated that the UE shall not move TFCs included in the minimum set of TFCs from 'Excess Power State' to 'Blocked State'.
	Impact Analysis: 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:	# 11.4								
Other specs affected:	#								
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	X	#	X	#	X
Y	N								
#	X								
#	X								
#	X								
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:

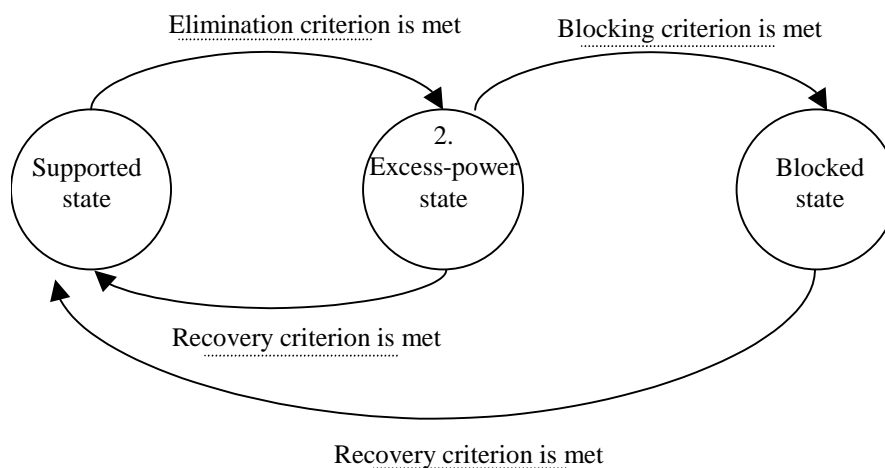


Figure 11.4.1: State transitions for the state of a given TFC

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.

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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.

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.

CHANGE REQUEST

25.321 CR 151 # rev **-** # Current version: **5.2.0**

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Unblockable TFCs in excess power state		
Source:	# Nokia		
Work item code:	# TEI	Date:	# 14/11/2002
Category:	# A	Release:	# Rel-5
	Use <u>one</u> 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 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)
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Reason for change:	# 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:	# It is stated that the UE shall not move TFCs included in the minimum set of TFCs from 'Excess Power State' to 'Blocked State'.
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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:	# 11.4								
Other specs affected:	#								
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications # Test specifications # O&M Specifications #	Y	N	#	X	#	X	#	X
Y	N								
#	X								
#	X								
#	X								
Other comments:	#								

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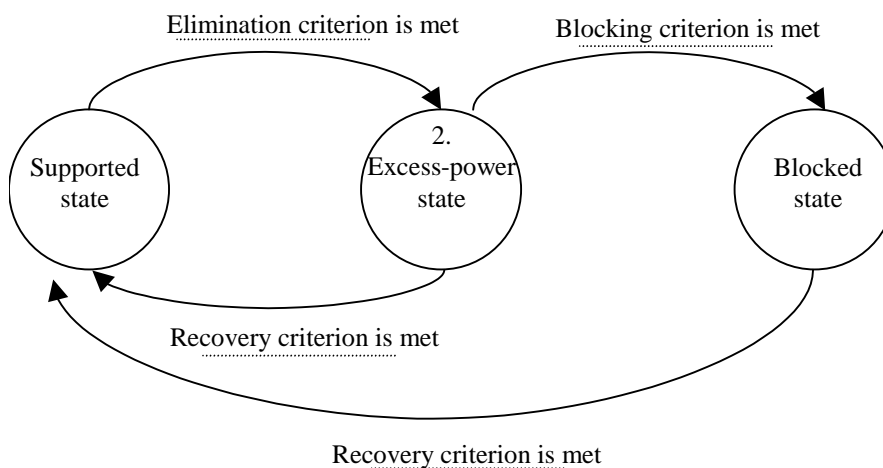


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The above rules for TFC selection in the UE shall apply to DCH, and the same rules shall apply for TF selection on RACH and CPCH.