TSG-RAN Meeting #16
Marco Island, FL, USA, 4 - 7 June 2002

RP-020326

Title: **Agreed 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	Versio
R2-021214	agreed	25.321	115		R99	Update References to include 25.123 (TDD)	F	3.11.0	3.12.0
R2-021215	agreed	25.321	116		Rel-4	Update References to include 25.123 (TDD)	A	4.4.0	4.5.0
R2-021216	agreed	25.321	117		Rel-5	Update References to include 25.123 (TDD)	A	5.0.0	5.1.0
R2-021443	agreed	25.321	118		R99	TFCS selection guideline correction	F	3.11.0	3.12.0
R2-021444	agreed	25.321	119		Rel-4	TFCS selection guideline correction	A	4.4.0	4.5.0
R2-021445	agreed	25.321	120		Rel-5	TFCS selection guideline correction	A	5.0.0	5.1.0

TSG-RAN Working Group 2 meeting #29   **R2-021214**
Gyeongju, Korea, May 13-17, 2002

CR-Form-v4

CHANGE REQUEST

⌘   **25.321 CR 115**   ⌘**rev** - ⌘   Current version: **3.11.0** ⌘

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

Proposed change affects: ⌘   (U)SIM ☐   ME/UE **X**   Radio Access Network **X**   Core Network ☐

Title: ⌘	Update References to include 25.123 (TDD)	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘	TEI	***Date:*** ⌘ 05/13/2002

Category: ⌘ **F**	***Release:*** ⌘ R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one 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)*

Reason for change: ⌘	In the References section, document 25.123 "Requirements for support of radio resource management (TDD)" is missing.
Summary of change: ⌘	Add the entry for document 25.123 in References section. Add the reference in 11.4.
Consequences if not approved: ⌘	References Section incomplete. Isolated impact analysis: Impacted functionality: None.

Clauses affected: ⌘	2, 11.4

Other specs ⌘ ☐	Other core specifications ⌘	25.321 v4.4.0, CR 116
		25.321 v5.0.0, CR 117
affected: ☐	Test specifications	
☐	O&M Specifications	
Other comments: ⌘		

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at 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.

2   References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]   3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2]   3GPP TS 25.301: "Radio Interface Protocol Architecture".

[3]   3GPP TS 25.302: "Services provided by the Physical Layer".

[4]   3GPP TS 25.303: "Interlayer Procedures in Connected Mode".

[5]   3GPP TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode".

[6]   3GPP TS 25.322: "RLC Protocol Specification".

[7]   3GPP TS 25.331: "Radio Resource Control (RRC); protocol specification".

[8]   3GPP TR 25.921: "Guidelines and Principles for Protocol Description and Error Handling".

[9]   3GPP TR 25.990: "Vocabulary for the UTRAN".

[10]   3GPP TS 33.102: "Security architecture".

[11]   3GPP TS 25.425: "UTRAN Iur Interface User Plane Protocols for Common Transport Channel Data Streams".

[12]   3GPP TS 25.133: "Requirements for support of radio resource management (FDD)".

[13]   3GPP TS 25.214: "Physical layer procedures (FDD)".

[14]   3GPP TS 25.123: "Requirements for support of radio resource management (TDD)".

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 method by which the UE performs TFC selection 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:
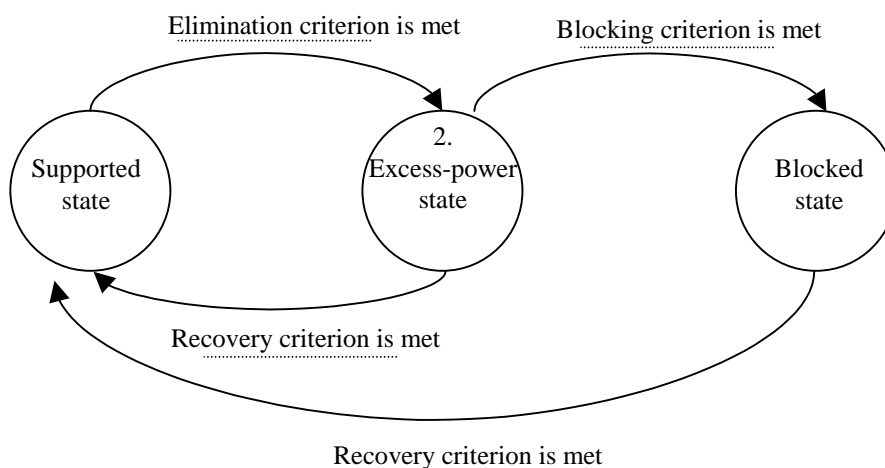

Figure 11.4.1: State transitions for the state of a given TFC

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.

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.

TSG-RAN Working Group 2 meeting #29   **R2-021215**
Gyeongju, Korea, May 13-17, 2002

	CR-Form-v4	

CHANGE REQUEST

| ⌘ | **25.321 CR 116** | ⌘ **rev** | **-** | ⌘ | Current version: | **4.4.0** | ⌘ |

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

Proposed change affects: ⌘   (U)SIM ☐   ME/UE **X**   Radio Access Network **X**   Core Network ☐

Title: ⌘	Update References to include 25.123 (TDD)	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘ TEI		***Date:*** ⌘ 05/13/2002

Category: ⌘ **A**   ***Release:*** ⌘ REL-4

Use one of the following categories:	*Use one of the following releases:*
F *(correction)*	*2* *(GSM Phase 2)*
A *(corresponds to a correction in an earlier release)*	*R96* *(Release 1996)*
B *(addition of feature),*	*R97* *(Release 1997)*
C *(functional modification of feature)*	*R98* *(Release 1998)*
D *(editorial modification)*	*R99* *(Release 1999)*
Detailed explanations of the above categories can	*REL-4* *(Release 4)*
be found in 3GPP TR 21.900.	*REL-5* *(Release 5)*

Reason for change: ⌘	In the References section, document 25.123 "Requirements for support of radio resource management (TDD)" is missing.
Summary of change: ⌘	Add the entry for document 25.123 in References section. Add the reference in 11.4.
Consequences if not approved: ⌘	References Section incomplete. Isolated impact analysis: Impacted functionality: None.

Clauses affected: ⌘	2, 11.4

Other specs ⌘	☐	Other core specifications ⌘	25.321 v3.11.0, CR 115
affected:	☐	Test specifications	25.321 v5.0.0, CR 117
	☐	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.

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.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]   3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2]   3GPP TS 25.301: "Radio Interface Protocol Architecture".

[3]   3GPP TS 25.302: "Services provided by the Physical Layer".

[4]   3GPP TS 25.303: "Interlayer Procedures in Connected Mode".

[5]   3GPP TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode".

[6]   3GPP TS 25.322: "RLC Protocol Specification".

[7]   3GPP TS 25.331: "Radio Resource Control (RRC); protocol specification".

[8]   3GPP TR 25.921: "Guidelines and Principles for Protocol Description and Error Handling".

[9]   3GPP TR 25.990: "Vocabulary for the UTRAN".

[10]   3GPP TS 33.102: "Security architecture".

[11]   3GPP TS 25.425: "UTRAN Iur Interface User Plane Protocols for Common Transport Channel Data Streams".

[12]   3GPP TS 25.133: "Requirements for support of radio resource management (FDD)".

[13]   3GPP TS 25.214: "Physical layer procedures (FDD)".

[14]   3GPP TS 25.123: "Requirements for support of radio resource management (TDD)".

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 method by which the UE performs TFC selection 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:
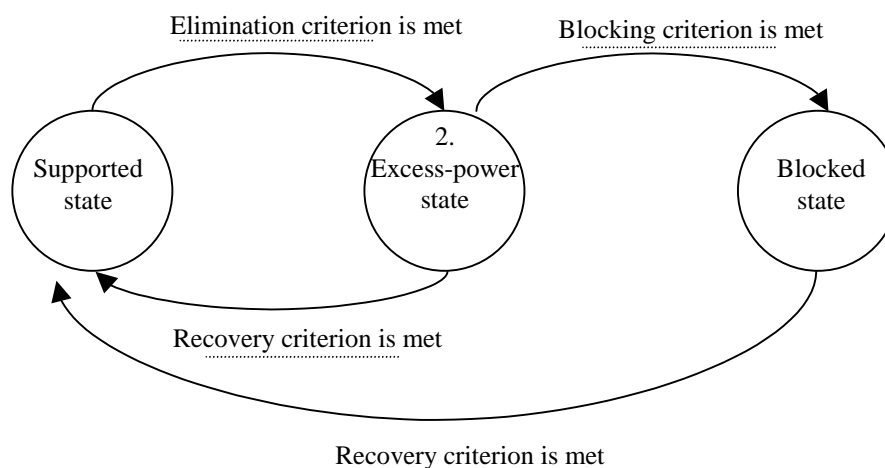

Figure 11.4.1: State transitions for the state of a given TFC

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.

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.

TSG-RAN Working Group 2 meeting #29 R2-021216
Gyeongju, Korea, May 13-17, 2002

CR-Form-v4

CHANGE REQUEST

| ⌘ | **25.321** CR **117** | ⌘ **rev** - | ⌘ Current version: | **5.0.0** | ⌘ |

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☒ Core Network ☐

Title: ⌘	Update References to include 25.123 (TDD)	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘	TEI	***Date:*** ⌘ 05/13/2002

Category: ⌘ **A**	***Release:*** ⌘ REL-5
Use one of the following categories: ***F*** *(correction)* ***A*** *(corresponds to a correction in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)* Detailed explanations of the above categories can be found in 3GPP TR 21.900.	*Use one 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)*

Reason for change: ⌘	In the References section, document 25.123 "Requirements for support of radio resource management (TDD)" is missing.
Summary of change: ⌘	Add the entry for document 25.123 in References section. Add the reference in 11.4.
Consequences if not approved: ⌘	References Section incomplete. Isolated impact analysis: Impacted functionality: None.

Clauses affected: ⌘	2, 11.4	
Other specs ⌘ ***affected:***	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications	25.321 v3.11.0, CR 115 25.321 v4.4.0, CR 116
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.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 25.301: "Radio Interface Protocol Architecture".

[3] 3GPP TS 25.302: "Services provided by the Physical Layer".

[4] 3GPP TS 25.303: "Interlayer Procedures in Connected Mode".

[5] 3GPP TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode".

[6] 3GPP TS 25.322: "RLC Protocol Specification".

[7] 3GPP TS 25.331: "Radio Resource Control (RRC); protocol specification".

[8] 3GPP TR 25.921: "Guidelines and Principles for Protocol Description and Error Handling".

[9] 3GPP TR 25.990: "Vocabulary for the UTRAN".

[10] 3GPP TS 33.102: "Security architecture".

[11] 3GPP TS 25.425: "UTRAN Iur Interface User Plane Protocols for Common Transport Channel Data Streams".

[12] 3GPP TS 25.133: "Requirements for support of radio resource management (FDD)".

[13] 3GPP TS 25.214: "Physical layer procedures (FDD)".

[14] 3GPP TS 25.123: "Requirements for support of radio resource management (TDD)".

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 method by which the UE performs TFC selection 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:
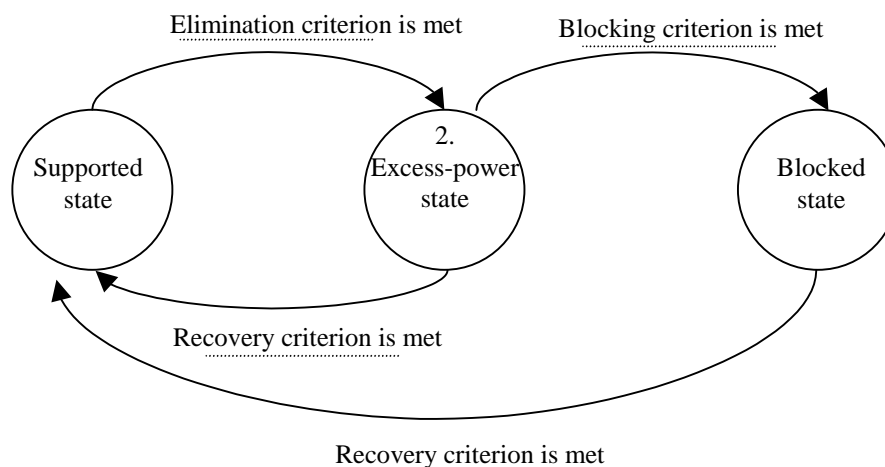

Figure 11.4.1: State transitions for the state of a given TFC

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.

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.

CR-Form-v5

CHANGE REQUEST

| ⌘ | **25.321** CR **118** | ⌘ **rev** | **-** | ⌘ | Current version: | **3.11.0** | ⌘ |

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title: ⌘	TFCS selection guideline correction	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘	TEI	***Date:*** ⌘ 15.05.2002

Category: ⌘ **F**	***Release:*** ⌘ R99
Use one of the following categories: **F** *(correction)* **A** *(corresponds to a correction in an earlier release)* **B** *(addition of feature),* **C** *(functional modification of feature)* **D** *(editorial modification)* Detailed explanations of the above categories can be found in 3GPP TR 21.900.	*Use one 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)*

Reason for change: ⌘	The TFC selection algorithm behaviour is not defined when UTRAN does not include at least the minimum set of TFCs in the TFCS. The interaction between the TFC selection and the UE is unclear.
Summary of change: ⌘	- It is clarified that the UTRAN behaviour is undefined when the TFCs in the minimum set of TFCs (see 25.331) is missing. - The interaction between the TFC selection and AMR codec is clarified. **The CR has only UE impact. If the CR is not implemented in the UE:** The interaction between TFC selection and AMR codec is unclear. **Impact on T1 test specs:** - No impact foreseen
Consequences if not approved: ⌘	Unclear behaviour. Ambiguous interaction between TFC selection and AMR codec.

Clauses affected: ⌘	11.4	
Other specs ⌘ ***affected:***	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications	25.321 v4.4.0, CR 119 25.321 v5.0.0, CR 120
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/3G_Specs/CRs.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 ~~method by which the~~ UE ~~performs TFC selection~~behavior 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.

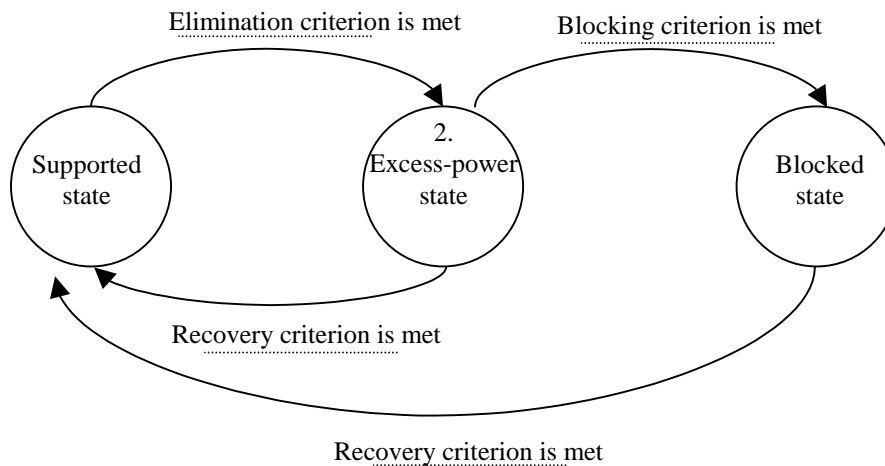The following diagram illustrates the state transitions for the state of a given TFC:

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]. 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.

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.

CR-Form-v5

CHANGE REQUEST

| ⌘ | **25.321 CR 119** | ⌘ rev | **-** | ⌘ | Current version: | **4.4.0** | ⌘ |

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title: ⌘	TFCS selection guideline correction	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘	TEI	***Date:*** ⌘ 15.05.2002

Category: ⌘ **A**

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.

Release: ⌘ REL-4

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)

Reason for change: ⌘	The TFC selection algorithm behaviour is not defined when UTRAN does not include at least the minimum set of TFCs in the TFCS. The interaction between the TFC selection and the UE is unclear.
Summary of change: ⌘	- It is clarified that the UTRAN behaviour is undefined when the TFCs in the minimum set of TFCs (see 25.331) is missing. - The interaction between the TFC selection and AMR codec is clarified. **The CR has only UE impact. If the CR is not implemented in the UE:** The interaction between TFC selection and AMR codec is unclear. **Impact on T1 test specs:** - No impact foreseen
Consequences if not approved: ⌘	Unclear behaviour. Ambiguous interaction between TFC selection and AMR codec.

Clauses affected: ⌘	11.4

Other specs ⌘	☐	Other core specifications ⌘	25.321 v3.11.0, CR 118 25.321 v5.0.0, CR 120
affected:	☐	Test specifications	
	☐	O&M Specifications	

Other comments: ⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at:
http://www.3gpp.org/3G_Specs/CRs.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 ~~method by which the~~ UE ~~performs TFC selection~~behavior 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.

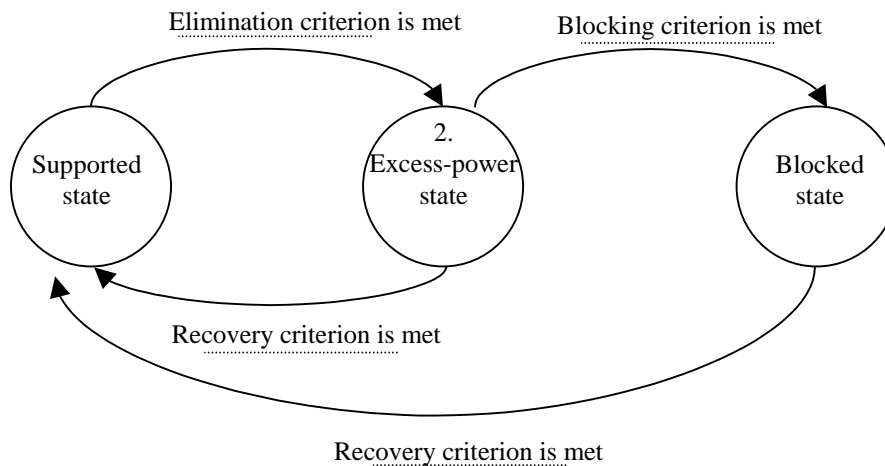The following diagram illustrates the state transitions for the state of a given TFC:

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]. 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.

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.

CR-Form-v5

CHANGE REQUEST

| ⌘ | **25.321** CR **120** | ⌘ **rev** | **-** | ⌘ | Current version: | **5.0.0** | ⌘ |

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

Proposed change affects: ⌘   (U)SIM ☐   ME/UE **X**   Radio Access Network ☐   Core Network ☐

Title: ⌘	TFCS selection guideline correction	
Source: ⌘	TSG-RAN WG2	
Work item code: ⌘	TEI	***Date:*** ⌘ 17.05.2002

Category: ⌘ **A**	***Release:*** ⌘ REL-5

Use one of the following categories:
  F *(correction)*
  A *(corresponds to a correction in an earlier release)*
  B *(addition of feature),*
  C *(functional modification of feature)*
  D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one 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)*

Reason for change: ⌘	The TFC selection algorithm behaviour is not defined when UTRAN does not include at least the minimum set of TFCs in the TFCS. The interaction between the TFC selection and the UE is unclear.

Summary of change: ⌘	- It is clarified that the UTRAN behaviour is undefined when the TFCs in the minimum set of TFCs (see 25.331) is missing. - The interaction between the TFC selection and AMR codec is clarified. **The CR has only UE impact. If the CR is not implemented in the UE:** The interaction between TFC selection and AMR codec is unclear. **Impact on T1 test specs:** - No impact foreseen

Consequences if not approved: ⌘	Unclear behaviour. Ambiguous interaction between TFC selection and AMR codec.

Clauses affected: ⌘	11.4	
Other specs ⌘ ***affected:***	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications	25.321 v3.11.0, CR 118 25.321 v4.4.0, CR 119
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/3G_Specs/CRs.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 ~~method by which the~~ UE ~~performs TFC selection~~behavior 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.

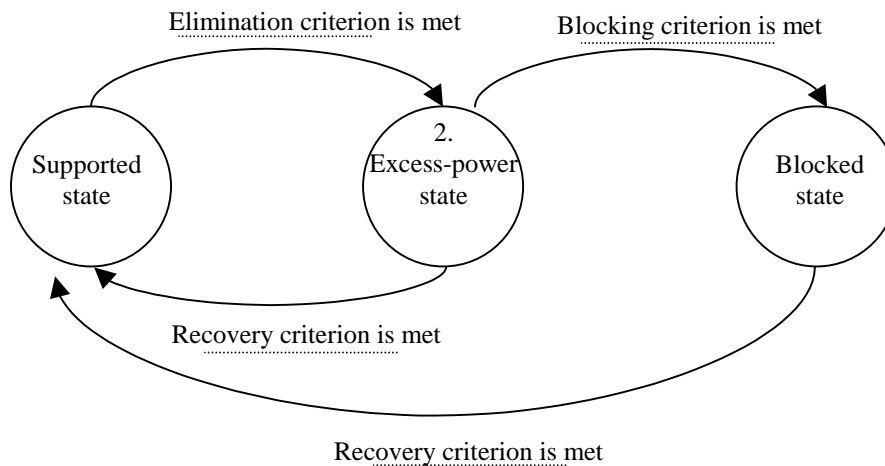The following diagram illustrates the state transitions for the state of a given TFC:

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]. 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.

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.