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Technical Report

3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Typical examples of RABs and RBs supported by UTRA (Release 1999)

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Foreword

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1 Scope

The present document provides a list of examples of RABs and RAB combinations which are supported by UTRA with examples of radio interface mapping for these RABs onto Radio Bearers and Signalling Radio Bearers.

This list of examples describes typical parameters, and should only be understood as possible configurations i.e. any other configuration supported by the Core Specifications and consistent with a given UE capability shall also be supported by this UE.

The present document addresses the FDD mode as well as the TDD mode.

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] XXX

3 QoS Architecture and RAB attributes

From a user point-of-view services are considered end-to-end, this means from a Terminal Equipment (TE) to another TE. An End-to-End Service may have a certain Quality of Service (QoS) which is provided for the user through the different networks. In UMTS, it is the UMTS Bearer Service that provides the requested QoS through the use of different QoS classes as defined in TS 23.107.

The UMTS Bearer Service consists of two parts, the Radio Access Bearer Service, RAB, and the Core Network Bearer Service. The Radio Access Bearer Service is realised by a Radio Bearer Service and an Iu-Bearer Service. The relationship between the services is illustrated in figure 6.10.1.1.

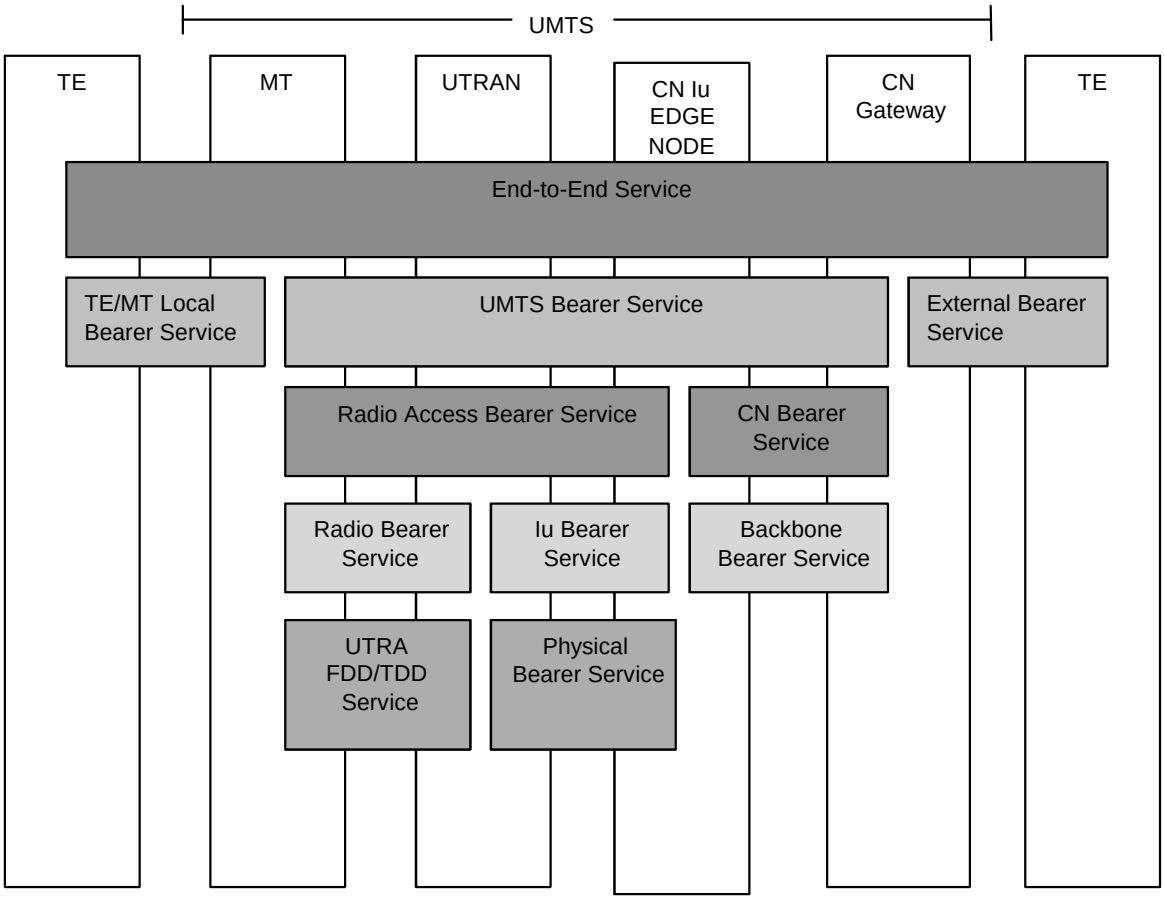

Figure 6.10.1.1: UMTS QoS Architecture

The Radio Access Bearer Service is characterised by a number of attributes such as Traffic class, Maximum bit rate, Guaranteed bit rate, SDU error ratio, Residual BER, Transfer Delay etc. As a first approach the four following attributes have been considered to come up with the parameter settings in clause 6.10.2.4 for FDD mode and 6.10.3.4 for TDD mode:

- Traffic class;
- SSD;
- Maximum bit rate;
- Residual BER.

The Traffic classes are explained in table 6.10.1.1. The Maximum bit rate has been considered at RLC layer and Physical Layer for the acknowledged and unacknowledged modes respectively. The Residual BER is understood as BER at RLC layer and Transport BLER for the acknowledged and unacknowledged modes respectively.

Table 6.10.1.1: Traffic classes

Traffic class	**Conversational class** conversational RT	**Streaming class** streaming RT	**Interactive class** Interactive best effort	**Background** Background best effort
Fundamental characteristics	- Preserve time relation (variation) between information entities of the stream Conversational pattern (stringent and low delay)	- Preserve time relation (variation) between information entities of the stream (i.e. some but constant delay)	Request response pattern Preserve payload content	Destination is not expecting the data within a certain time Preserve payload content
Example of the application	- speech, video, …	- facsimile (NT) - streaming audio and video	- Web browsing	- background download of emails

4 List of RABs

The following table provides examples of RABs and signalling RBs which will be considered in the following clauses. The data rate given for each RAB is the maximum data rate that can be supported by that RAB.

Table XX: Examples of RABs.

#	Traffic class [15]	SSD [15]	Max. rate, kbps	CS/PS
1	Conversational	Speech	UL:12.2 DL:12.2	CS
2	Conversational	Speech	UL:10.2 DL:10.2	CS
3	Conversational	Speech	UL:7.95 DL:7.95	CS
4	Conversational	Speech	UL:7.4 DL:7.4	CS
5	Conversational	Speech	UL:6.7 DL:6.7	CS
6	Conversational	Speech	UL:5.9 DL:5.9	CS
7	Conversational	Speech	UL:5.15 DL:5.15	CS
8	Conversational	Speech	UL:4.75 DL:4.75	CS
9	Conversational	Unknown	UL:28.8 DL:28.8	CS
10	Conversational	Unknown	UL:64 DL:64	CS
11	Conversational	Unknown	UL:32 DL:32	CS
12	Streaming	Unknown	UL:14.4 DL:14.4	CS
13	Streaming	Unknown	UL:28.8 DL:28.8	CS
14	Streaming	Unknown	UL:57.6 DL:57.6	CS
15	Streaming	Unknown	UL:0 DL:64	CS
16	Streaming	Unknown	UL:64 DL:0	CS
17	Streaming	Unknown	UL:0 DL:128	CS
18	Streaming	Unknown	UL:128 DL:0	CS
19	Streaming	Unknown	UL:0 DL:384	CS
20	Interactive or Background	N/A	UL:32 DL:8	PS
21	Interactive or Background	N/A	UL:64 DL:8	PS
22	Interactive or Background	N/A	UL:32 DL:64	PS
23	Interactive or Background	N/A	UL:64 DL:64	PS
24	Interactive or Background	N/A	UL:64 DL:128	PS
25	Interactive or Background	N/A	UL:128 DL:128	PS
26	Interactive or Background	N/A	UL:64 DL:384	PS
27	Interactive or Background	N/A	UL:128 DL:384	PS
28	Interactive or Background	N/A	UL:384 DL:384	PS
29	Interactive or Background	N/A	UL:64 DL:2048	PS
30	Interactive or Background	N/A	UL:128 DL:2048	PS
31	Interactive or Background	N/A	UL:384 DL:2048	PS
32	Interactive or Background	N/A	UL:64 DL:256	PS
33	Interactive or Background	N/A	UL:0 DL:32	PS
34	Interactive or Background	N/A	UL:32 DL: 0	PS
35	Interactive or Background	N/A	UL:64 DL:144	PS
36	Interactive or Background	N/A	UL:144 DL:144	PS

Table 6.10.2.1.2: Signalling RBs

#	Maximum rate, kbps	Logical channel	PhyCh onto which SRBs are mapped
1	UL:1.7 DL:1.7	DCCH	DPCH
2	UL:3.4 DL:3.4	DCCH	DPCH
3	UL:13.6 DL:13.6	DCCH	DPCH
4	DL:27.2 (alt. 40.8)	DCCH	SCCPCH
5	UL:16.6	CCCH	PRACH
6	DL:30.4 (alt. 45.6)	CCCH	SCCPCH
7	DL:33.2 (alt. 49.8)	BCCH:	SCCPCH
8	DL:24 (alt. 6.4)	PCCH	SCCPCH

5 Combinations of RABs

The present document contains examples of Radio configuration for following combinations of RABs.

NOTE: It is understood that for speech service the AMR mode may be operated asymmetrically for the uplink and downlink.

List of RAB combinations…

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6 Examples of Radio Bearers and Signalling Radio Bearers for FDD

6.1 Combinations on DPCH

6.1.1. xxx

6.1.1.1 Uplink

6.1.1.1.1 Transport channel parameters

6.1.1.1.1.1 Transport channel parameters for XXX

Higher layer	RAB/signalling RB					
	User of Radio Bearer					
RLC	Logical channel type					
	RLC mode					
	Payload sizes, bit					
	Max data rate, bps					
	AMD/UMD PDU header, bit					
MAC	MAC header, bit					
	MAC multiplexing					
Layer 1	TrCH type					
	TB sizes, bit					
	TFS	TF0, bits				
		TF1, bits				
	TTI, ms					
	Coding type					
	CRC, bit					
	Max number of bits/TTI before rate matching					
	Uplink: Max number of bits/radio frame before rate matching					
	RM attribute					

6.1.1.1.1.2 TFCS

TFCS size	
TFCS	

6.1.1.1.2 Physical channel parameters

DPCH Uplink		
	Min spreading factor	
	Max number of DPDCH data bits/radio frame	
	Puncturing Limit	

6.1.1.2 Downlink

6.1.1.2.1 Transport channel parameters

6.1.1.2.1.1 Transport channel parameters for XXX

Higher layer	RAB/signalling RB					
	User of Radio Bearer					
RLC	Logical channel type					
	RLC mode					
	Payload sizes, bit					
	Max data rate, bps					
	AMD/UMD PDU header, bit					
MAC	MAC header, bit					
	MAC multiplexing					
Layer 1	TrCH type					
	TB sizes, bit					
	TFS	TF0, bits				
		TF1, bits				
	TTI, ms					
	Coding type					
	CRC, bit					
	Max number of bits/TTI before rate matching					
	RM attribute					

6.1.1.2.1.2 TFCS

TFCS size	
TFCS	

6.1.1.2.2. Physical channel parameters

DPCH Downlink		

6.1.1.3. UE capability

The UE capability needed in support of the radio configuration is XXX

7 Examples of Radio Bearers and signalling Radio Bearers for TDD

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Annex X:
Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
09/2002	RP-17	RP-02XXX	-		creation	-	