3GPP TSG_CN#6 **NP-99450**
ETSI SMG3 Plenary Meeting #6,
Nice, France
13th – 15th December 1999

Agenda item: **5.1.3**

Source: **TSG_N WG1**

Title: **CRs on Work Item QoS**

Introduction:

This document contains **"2"** CRs agreed by **TSG_N WG1** and forwarded to **TSG_N Plenary** meeting **#6** for approval.

Tdoc	Spec	CR	Rev	CAT	Rel.	Old Ver	New Ver	Subject
N1-99F50	24.008	072	2	B	R99	3.1.0	3.2.0	Parallel handling of multiple user application flows
N1-99F13	24.008	086	1	C	R99	3.1.0	3.2.0	QoS enhancements

3GPP/SMG Meeting #9
Bad Aibling, Germany, 30 Oct- 3-Dec. 1999

Document N1-99F50
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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24.008	CR	072R2	Current Version:	3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSGN#6	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*

(U)SIM		ME	X	UTRAN / Radio		Core Network	X

Source: Ericsson **Date:** 03.12.99

Subject: Parallel handling of multiple user application flows

Work item: Enhanced QoS support in GPRS

Category: *(only one category shall be marked with an X)*

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature	X		Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: This CR introduces the Traffic Flow Template (TFT) Information Element (IE). A TFT specify IP header filters which are used at the GPRS network edge nodes to decide what PDP context to forward the incoming data packets to.

Clauses affected: 10.5.6

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	23.060 CR 013r1
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:


help.doc

<--------- double-click here for help and instructions on how to create a CR.

10.5.6.x Traffic Flow Template

The purpose of the *traffic flow template* information element is to specify the TFT parameters and operations for a PDP context.

The *traffic flow template* is a type 4 information element with a minimum length of 3 octets. [FFS: No upper length limit is specified except for that given by the maximum number of octets in a L3 message.]

The *traffic flow template* information element is coded as shown in Figure 10.5.x/TS 24.008 and Table 10.5.y/TS 24.008.

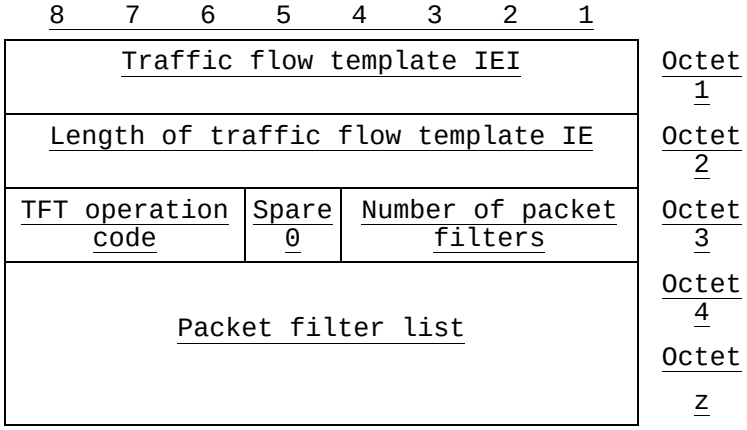

Figure 10.5.x/TS 24.008: *Traffic flow template* information element

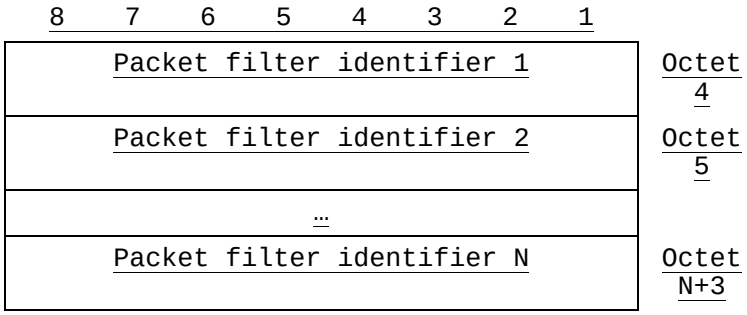

Figure 10.5.xa/TS 24.008: *Packet filter list* when the TFT operation is "delete packet filters from existing TFT" (z=N+3)

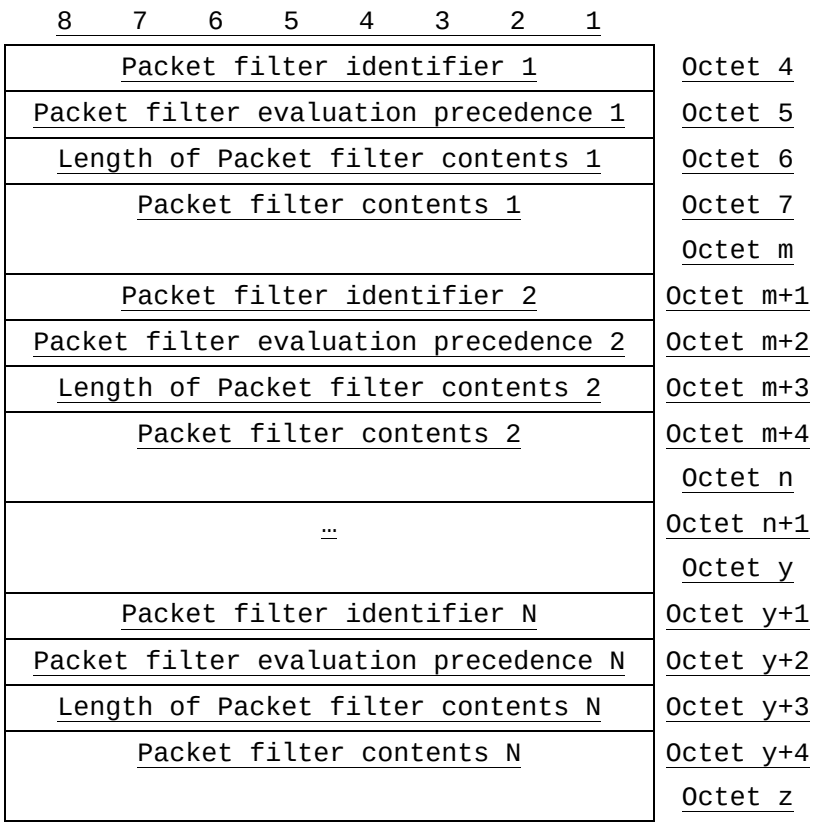

Figure 10.5.xb/TS 24.008: *Packet filter list* when the TFT operation is "create new TFT", or "add packet filters to existing TFT" or "replace packet filters in existing TFT"

Table 10.5.y/TS 24.008: *Traffic flow template* information element

TFT operation code (octet 3)
Bits
8 7 6
0 0 0 Spare
0 0 1 Create new TFT
0 1 0 Delete existing TFT
0 1 1 Add packet filters to existing TFT
1 0 0 Replace packet filters in existing TFT
1 0 1 Delete packet filters from existing TFT
1 1 0 Reserved
1 1 1 Reserved

Number of packet filters (octet 3)

The *number of packet filters* contains the binary coding for the number of packet filters in the *packet filter list*. The *number of packet filters* field is encoded in bits 4 through 1 of octet 3 where bit 4 is the most significant and bit 1 is the least significant bit. For the "delete existing TFT" operation, the *number of packet filters* shall be coded as 0. For all other operations, the number of packet filters shall be greater than 0 and less than or equal to 8.

Packet filter list (octets 4 to z)

The *packet filter list* contains a variable number of packet filters. For the "delete existing TFT" operation, the *packet filter list* shall be empty.

For the "delete packet filters from existing TFT" operation, the *packet filter list* shall contain a variable number of packet filter identifiers. This number shall be derived from the coding of the *number of packet filters* field in octet 3.

For the "create new TFT", "add packet filters to existing TFT" and "replace packet filters in existing TFT" operations, the *packet filter list* shall contain a variable number of packet filters. This number shall be derived from the coding of the *number of packet filters* field in octet 3.

Each packet filter is of variable length and consists of

- a packet filter identifier (1 octet);
- a packet filter evaluation precedence (1 octet);
- the length of the packet filter contents (1 octet); and
- the packet filter contents itself (v octets).

The *packet filter identifier* field is used to identify each packet filter in a TFT. Since the maximum number of packet filters in a TFT is 8, only the least significant 3 bits are used. Bits 8 through 4 are spare bits.

The *packet filter evaluation precedence* field is used to specify the precedence for the packet filter among all packet filters in all TFTs associated with this PDP address. Higher the value of the *packet filter evaluation precedence* field, lower the precedence of that packet filter is. The first bit in transmission order is the most significant bit.

The *length of the packet filter contents* field contains the binary coded representation of the length of the *packet filter contents* field of a packet filter. The first bit in transmission order is the most significant bit.

Table 10.5.y/TS 24.008 (continued): *Traffic flow template* information element

The *packet filter contents* field is of variable size and contains a variable number (at least one) of *packet filter components*. Each *packet filter component* shall be encoded as a sequence of a one octet *packet filter component type identifier* and a fixed length *packet filter component value* field. The *packet filter component type identifier* shall be transmitted first.

In each packet filter, there shall not be more than one occurrence of each packet filter component type. Among the "IPv4 source address type" and "IPv6 source address type" packet filter components, only one shall be present in one packet filter. Among the "single destination port type" and "destination port range type" packet filter components, only one shall be present in one packet filter. Among the "single source port type" and "source port range type" packet filter components, only one shall be present in one packet filter.

Packet filter component type identifier
Bits
8 7 6 5 4 3 2 1
0 0 0 1 0 0 0 0 IPv4 source address type
0 0 1 0 0 0 0 0 IPv6 source address type
0 0 1 1 0 0 0 0 Protocol identifier/Next header type
0 1 0 0 0 0 0 0 Single destination port type
0 1 0 0 0 0 0 1 Destination port range type
0 1 0 1 0 0 0 0 Single source port type
0 1 0 1 0 0 0 1 Source port range type
0 1 1 0 0 0 0 0 Security parameter index type
0 1 1 1 0 0 0 0 Type of service/Traffic class type
1 0 0 0 0 0 0 0 Flow label type
All other values are reserved.

For "IPv4 source address type", the *packet filter component value* field shall be encoded as a sequence of a four octet *IPv4 address* field and a four octet *IPv4 address mask* field. The *IPv4 address* field shall be transmitted first.

For "IPv6 source address type", the *packet filter component value* field shall be encoded as a sequence of a sixteen octet *IPv6 address* field and a sixteen octet *IPv6 address mask* field. The *IPv6 address* field shall be transmitted first.

For "Protocol identifier/Next header type", the *packet filter component value* field shall be encoded as one octet which specifies the IPv4 protocol identifier or IPv6 next header.

For "Single destination port type" and "Single source port type", the *packet filter component value* field shall be encoded as two octet which specifies a port number.

For "Destination port range type" and "Source port range type", the *packet filter component value* field shall be encoded as a sequence of a two octet *port range low limit* field and a two octet *port range high limit* field. The *port range low limit* field shall be transmitted first.

For "Security parameter index", the *packet filter component value* field shall be encoded as four octet which specifies the IPSec security parameter index.

For "Type of service/Traffic class type", the *packet filter component value* field shall be encoded as a sequence of a one octet *Type-of-Service/Traffic Class* field and a one octet *Type-of-Service/Traffic Class mask* field. The *Type-of-Service/Traffic Class* field shall be transmitted first.

For "Flow label type", the *packet filter component value* field shall be encoded as three octet which specifies the IPv6 flow label. The bits 8 through 5 of the first octet shall be spare whereas the remaining 20 bits shall contain the IPv6 flow label.

3GPP/SMG Meeting TSG-CN-WG1
Bad Aibling, Germany, 30 Nov – 3 Dec 1999

***Document* N1-99F13**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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24.008	CR	086r1	Current Version:	3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	CN#6	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME	X	UTRAN / Radio	X	Core Network	X

Source: Nokia, NTT Software **Date:** 1999-12-2

Subject: QoS enhancements

Work item: QoS

Category: *(only one category shall be marked with an X)*

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature	X		Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: The Quality of service information element (QoS IE) for Release 99 along the definition of TS 23.107 is added to TS 24.008. This change contains the realization of interworking with Release 97/98 and Release 99.

Clauses affected: 9.5.1 Active PDP context request, 9.5.2 Active PDP context accept, 9.5.6 Modify PDP context request, 9.5.10 Activate AA PDP context request, 9.5.11 Activate AA PDP context accept, 10.5.6.5 Quality of Service.

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

9.5 GPRS Session Management Messages

9.5.1 Activate PDP context request

This message is sent by the MS to the network to request activation of a PDP context.
See table 9.5.1/TS 24.008.

Message type: ACTIVATE PDP CONTEXT REQUEST

Significance: global

Direction: MS to network

Table 9.5.1/TS 24.008: ACTIVATE PDP CONTEXT REQUEST message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2
	Activate PDP context request message identity	Message type 10.4	M	V	1
	Requested NSAPI	Network service access point identifier 10.5.6.2	M	V	1
	Requested LLC SAPI	LLC service access point identifier 10.5.6.9	M	V	1
	Requested QoS	Quality of service 10.5.6.5	M	LV	19~~204~~
	Requested PDP address	Packet data protocol address 10.5.6.4	M	LV	3 - 19
28	Access point name	Access point name 10.5.6.1	O	TLV	3 - 102
27	Protocol configuration options	Protocol configuration options 10.5.6.3	O	TLV	3 - 253

~~NOTE: The length of QoS varies in Release 97/98 or Release 99.~~

9.5.1.1 Access point name

This IE is included in the message when the MS selects a specific external network to be connected to.

9.5.1.2 Protocol configuration options

This IE is included in the message when the MS provides protocol configuration options for the external PDN.

9.5.2 Activate PDP context accept

This message is sent by the network to the MS to acknowledge activation of a PDP context.
See table 9.5.2/TS 24.008.

Message type: ACTIVATE PDP CONTEXT ACCEPT

Significance: global

Direction: network to MS

Table 9.5.2/TS 24.008: ACTIVATE PDP CONTEXT ACCEPT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2
	Activate PDP context accept message identity	Message type 10.4	M	V	1
	Negotiated LLC SAPI	LLC service access point identifier 10.5.6.9	M	V	1
	Negotiated QoS	Quality of service 10.5.6.5	M	LV	19~~20~~4
	Radio priority	Radio priority 10.5.7.2	M	V	1/2
	Spare half octet	Spare half octet 10.5.1.8	M	V	1/2
2B	PDP address	Packet data protocol address 10.5.6.4	O	TLV	4 - 20
27	Protocol configuration options	Protocol configuration options 10.5.6.3	O	TLV	3 - 253

~~NOTE: The length of QoS varies in Release 97/98 or Release 99.~~

9.5.2.1 PDP address

If the MS did not request a static address in the corresponding ACTIVATE PDP CONTEXT REQUEST message, the network shall include the PDP address IE in this ACTIVATE PDP CONTEXT ACCEPT message.

If the MS requested a static address in the corresponding ACTIVATE PDP CONTEXT REQUEST message, the network shall not include the PDP address IE in this ACTIVATE PDP CONTEXT ACCEPT message.

9.5.2.2 Protocol configuration options

This IE is included in the message when the network wishes to transmit protocol configuration options for the external PDN.

Next Modified Section

9.5.6 Modify PDP context request

This message is sent by the network to the MS to request modification of an active PDP context. See table 9.5.6/TS 24.008.

Message type: MODIFY PDP CONTEXT REQUEST

Significance: global

Direction: network to MS

Table 9.5.6/TS 24.008: MODIFY PDP CONTEXT REQUEST message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2
	Modify PDP context request message identity	Message type 10.4	M	V	1
	Radio priority	Radio priority 10.5.7.2	M	V	1/2
	Spare half octet	Spare half octet 10.5.1.8	M	V	1/2
	Requested LLC SAPI	LLC service access point identifier 10.5.6.9	M	V	1
	New QoS	Quality of service 10.5.6.5	M	LV	19~~20~~4

~~NOTE: The length of QoS varies in Release 97/98 or Release 99.~~

Next Modified Section

9.5.10 Activate AA PDP context request (FFS in UMTS)

This message is sent by the MS to the network to initiate activation of an AA PDP context.
See table 9.5.10/TS 24.008.

Message type: ACTIVATE AA PDP CONTEXT REQUEST

Significance: global

Direction: MS to network

Table 9.5.10/TS 24.008: ACTIVATE AA PDP CONTEXT REQUEST message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2
	Activate AA PDP context request message identity	Message type 10.4	M	V	1
	Requested NSAPI	Network service access point identifier 10.5.6.2	M	V	1
	Requested LLC SAPI	LLC service access point identifier 10.5.6.9	M	V	1
	Requested QoS	Quality of service 10.5.6. 5	M	LV	19~~20~~4
	Requested packet data protocol address	Packet data protocol address 10.5.6.4	M	LV	3 - 19
28	Access point name	Access point name 10.5.6.1	O	TLV	3 - 102
27	Protocol configuration options	Protocol configuration options 10.5.6.3	O	TLV	3 - 253
29	Requested AA-READY timer value	GPRS Timer 10.5.7.3	O	TV	2

~~NOTE: The length of QoS varies in Release 97/98 or Release 99.~~

9.5.10.1 Access point name

This IE is included in the message when the MS selects a specific external network to be connected to.

9.5.10.2 Protocol configuration options

This IE is included in the message when the MS provides protocol configuration options for the external PDN.

9.5.10.3 Requested AA-READY timer value

This IE may be included if the MS wants to indicate a preferred value for the AA-READY timer.

9.5.11 Activate AA PDP context accept (FFS in UMTS)

This message is sent by the network to the MS to acknowledge the activation of an AA PDP context. See table 9.5.11/TS 24.008.

Message type: ACTIVATE AA PDP CONTEXT ACCEPT

Significance: global

Direction: network to MS

Table 9.5.11/TS 24.008: ACTIVATE AA PDP CONTEXT ACCEPT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2
	Activate AA PDP context accept message identity	Message type 10.4	M	V	1
	Negotiated LLC SAPI	LLC service access point identifier 10.5.6.9	M	V	1
	Negotiated QoS	Quality of service 10.5.6. 5	M	LV	19~~20~~4
	Allocated P-TMSI	Mobile identity 10.5.1.4	M	LV	6
	Packet data protocol address	Packet data protocol address 10.5.6.4	M	LV	3 - 19
	Radio priority	Radio priority 10.5.7.2	M	V	1/2
	Spare half octet	Spare half octet 10.5.1.8	M	V	1/2
27	Protocol configuration options	Protocol configuration options 10.5.6.3	O	TLV	3 - 253
29	Negotiated AA-Ready timer value	GPRS Timer 10.5.7.3	O	TV	2

~~NOTE: The length of QoS varies in Release 97/98 or Release 99.~~

9.5.11.1 Protocol configuration options

This IE may be included if the network wishes to transmit protocol configuration options from the external PDN.

9.5.11.2 Negotiated AA-Ready timer value

This IE may be included if the network wants to indicate a value for the AA-READY timer.

Next Modified Section

10.5.6.5 Quality of service

The purpose of the *quality of service* information element is to specify the QoS parameters for a PDP context.

The QoS IE is defined to allow backward compatibility to earlier version of ~~guarantee Interworking between~~ Session Management Protocol~~Release 97/98 and Release 99. QoS IE for Release 99 is made of two part. First, the release 97/98 fields (octets 3 to 5) and then the release 99 fields.~~.

The *quality of service* is a type 4 information element with a length of 20~~5~~ octets.

The *quality of service* information element is coded as shown in figure 10.5.138/TS 24.008 and table 10.5.156/TS 24.008.

8	7	6	5	4	3	2	1	
Quality of service IEI								octet 1
Length of quality of service IE								Octet 2
0	0	spare	Delay class			Reliability class		octet 3
Peak throughput				0	spare	Precedence class		octet 4
0	0	0	spare	Mean throughput				octet 5
Traffic Class			0	spare	Delivery order		Delivery of erroneous SDU	Octet 6
Maximum SDU size								Octet 7
								Octet 8
Maximum bit rate for up~~down~~link								Octet 9
								Octet 10
Maximum bit rate for down~~up~~link								Octet 11
								Octet 12
Residual BER								Octet 13
SDU error ratio								Octet 14
Transfer delay								Octet 15
Guaranteed bit rate for uplink								Octet 16
								Octet 17
Guaranteed bit rate for downlink								Octet 18
								Octet 19
0	0	0	0	0	0	spare	Traffic handling priority	Octet 20

Figure 10.5.138/TS 24.008: *Quality of service* information element

Table 10.5.156/TS 24.008: *Quality of service* information element

Reliability class, octet 3 (see TS 23.060)
Bits
3 2 1
In MS to network direction:
0 0 0 Subscribed reliability class
In network to MS direction:
0 0 0 Reserved
In MS to network direction and in network to MS direction :
0 0 1 Acknowledged GTP, LLC, and RLC; Protected data
0 1 0 Unacknowledged GTP; Acknowledged LLC and RLC, Protected data
0 1 1 Unacknowledged GTP and LLC; Acknowledged RLC, Protected data
1 0 0 Unacknowledged GTP, LLC, and RLC, Protected data
1 0 1 Unacknowledged GTP, LLC, and RLC, Unprotected data
1 1 1 Reserved

All other values are interpreted as *Unacknowledged GTP and LLC; Acknowledged RLC, Protected data* in this version of the protocol.

~~**The release version, octet 3**~~
~~Bits~~
~~8.7~~
~~0 0 Release 97/98~~
~~0 1 Release 99~~
~~All other values are interpreted as *release 99* in this version of the protocol.~~
Delay class, octet 3 (see TS 22.060 and TS 23.060)
Bits
6 5 4
In MS to network direction:
0 0 0 Subscribed delay class
In network to MS direction:
0 0 0 Reserved
In MS to network direction and in network to MS direction :
0 0 1 Delay class 1
0 1 0 Delay class 2
0 1 1 Delay class 3
1 0 0 Delay class 4 (best effort)
1 1 1 Reserved

All other values are interpreted as *Delay class 4 (best effort)* in this version of the protocol.

Bit 7 and 8 of octet 3 are spare and shall be coded all 0.

Precedence class, octet 4 (see TS 23.060)
Bits
3 2 1
In MS to network direction:
0 0 0 Subscribed precedence
In network to MS direction:
0 0 0 Reserved
In MS to network direction and in network to MS direction :
0 0 1 High priority
0 1 0 Normal priority
0 1 1 Low priority
1 1 1 Reserved

All other values are interpreted as *Normal priority* in this version of the protocol.

Bit 4 of octet 4 is spare and shall be coded as 0.

Peak throughput, octet 4
Bits
8 7 6 5
In MS to network direction:
0 0 0 0 Subscribed peak throughput
In network to MS direction:
0 0 0 0 Reserved
In MS to network direction and in network to MS direction :
0 0 0 1 Up to 1 000 octet/s
0 0 1 0 Up to 2 000 octet/s
0 0 1 1 Up to 4 000 octet/s
0 1 0 0 Up to 8 000 octet/s
0 1 0 1 Up to 16 000 octet/s
0 1 1 0 Up to 32 000 octet/s
0 1 1 1 Up to 64 000 octet/s
1 0 0 0 Up to 128 000 octet/s
1 0 0 1 Up to 256 000 octet/s
1 1 1 1 Reserved

All other values are interpreted as *Up to 1 000 octet/s* in this version of the protocol.

Mean throughput, octet 5
Bits
5 4 3 2 1
In MS to network direction:
0 0 0 0 0 Subscribed mean throughput
In network to MS direction:
0 0 0 0 0 Reserved
In MS to network direction and in network to MS direction :
0 0 0 0 1 100 octet/h
0 0 0 1 0 200 octet/h
0 0 0 1 1 500 octet/h
0 0 1 0 0 1 000 octet/h
0 0 1 0 1 2 000 octet/h
0 0 1 1 0 5 000 octet/h
0 0 1 1 1 10 000 octet/h
0 1 0 0 0 20 000 octet/h
0 1 0 0 1 50 000 octet/h
0 1 0 1 0 100 000 octet/h
0 1 0 1 1 200 000 octet/h
0 1 1 0 0 500 000 octet/h
0 1 1 0 1 1 000 000 octet/h
0 1 1 1 0 2 000 000 octet/h
0 1 1 1 1 5 000 000 octet/h
1 0 0 0 0 10 000 000 octet/h
1 0 0 0 1 20 000 000 octet/h
1 0 0 1 0 50 000 000 octet/h
1 1 1 1 0 Reserved
1 1 1 1 1 Best effort

The value Best effort indicates that throughput shall be made available to the MS on a per need and availability basis.

All other values are interpreted as *Best effort* in this version of the protocol.

Bits 8 to 6 of octet 5 are spare and shall be coded all 0.

Delivery of erroneous SDUs, octet 6~~3~~ (see TS 23.107)
Bits
2 1
In MS to network direction:
0 0 Subscribed delivery of erroneous SDUs
In network to MS direction:
0 0 Reserved
In MS to network direction and in network to MS direction :
0 1 No detect (‘-‘)
1 0 Erroneous SDUs are delivered (‘yes’)
1 1 Erroneous SDUs are not delivered (‘no’)

All other values are reserved.

Delivery order, octet 6~~3~~ (see TS 23.107)
Bits
4 3
In MS to network direction:
0 0 Subscribed delivery order
In network to MS direction:
0 0 Reserved
In MS to network direction and in network to MS direction :
0 1 With delivery order (‘yes’)
1 0 Without delivery order (‘no’)

All other values are reserved.

Bit 5 of octet 6 is spare and shall be coded all 0.

Traffic class, octet 6~~3~~ (see TS 23.107)
Bits
8 7 6~~ 5~~
In MS to network direction:
0 0 0 Subscribed traffic class
In network to MS direction:
0 0 0 Reserved
In MS to network direction and in network to MS direction :
0 0 1 Conversational class
0 1 0 Streaming class
0 1 1 Interactive class
1 0 0 Background class

All other values are reserved.

~~Expansion class, Bit 8 of octet 3~~
~~The value of expansion class is set on 1 in case of Release 99. All other values are reserved.~~

Maximum SDU size, octet 7**4** and 8~~5~~
In MS to network direction:
All bits 1 Subscribed maximum SDU size~~, and shall be coded all 1~~
In network to MS direction:
All bits 1 Reserved~~, and shall be coded all 1~~
In MS to network direction and in network to MS direction :
The Maximum SDU size value consists of 16 bits. Refer to TS 23.107 for the maximum value. The granularity is 1 octet.

Maximum bit rate for uplink, octet 9~~6~~ and 10~~7~~
In MS to network direction:
All bits 1 Subscribed maximum bit rate for uplink~~, and shall be coded all 1~~
In network to MS direction:
All bits 1 Reserved~~, and shall be coded all 1~~
In MS to network direction and in network to MS direction :
The Maximum bit rate for uplink value consists of 16 bits. Maximum value is 2000 kbps. The granularity is 4 kbps.

Maximum bit rate for downlink, octet 11~~8~~ and 12~~9~~
In MS to network direction:
All bits 1 Subscribed maximum bit rate for downlink~~, and shall be coded all 1~~
In network to MS direction:
All bits 1 Reserved~~, and shall be coded all 1~~
In MS to network direction and in network to MS direction :
The Maximum bit rate for downlink value consists of 16 bits. Maximum value is 2000 kbps. The granularity is 4 kbps.

Residual BER, octet 13~~0~~ (see TS 23.107)
Bits
8 7 6 5 4 3 2 1
In MS to network direction:
0 0 0 0 0 0 0 0 Subscribed residual BER
In network to MS direction:
0 0 0 0 0 0 0 0 Reserved
In MS to network direction and in network to MS direction :
The Residual BER value consists of 8 bits. The ranges from $5*10^{-2}$ to $6*10^{-8}$. 4 bits is assigned to multiplicand and exponent, respectively.

0 1 0 1 0 0 1 0	$5*10^{-2}$
0 0 0 1 0 0 1 0	$1*10^{-2}$
0 1 0 0 0 0 1 1	$4*10^{-3}$
0 0 0 1 0 0 1 1	$1*10^{-3}$
0 0 0 1 0 1 0 0	$1*10^{-4}$
0 0 0 1 0 1 0 1	$1*10^{-5}$
0 0 0 1 0 1 1 0	$1*10^{-6}$
0 1 1 0 1 0 0 0	$6*10^{-8}$

All other values are reserved.

SDU error ratio, octet 14~~1~~ (see TS 23.107)
Bits
8 7 6 5 4 3 2 1
In MS to network direction:
0 0 0 0 0 0 0 0 Subscribed SDU error ratio
In network to MS direction:
0 0 0 0 0 0 0 0 Reserved
In MS to network direction and in network to MS direction :
The SDU error ratio value consists of 8 bits. The ranges from $1*10^{-2}$ to $1*10^{-6}$. 4 bits is assigned to multiplicand and exponent, respectively.

0 0 0 1 0 0 1 0	$1*10^{-2}$
0 0 0 1 0 0 1 1	$1*10^{-3}$
0 0 0 1 0 1 0 0	$1*10^{-4}$
0 0 0 1 0 1 0 1	$1*10^{-5}$
0 0 0 1 0 1 1 0	$1*10^{-6}$

All other values are reserved.

Transfer delay, octet 15~~2~~
In MS to network direction:
All bits 1 Subscribed transfer delay~~, and shall be coded all 1~~
In network to MS direction:
All bits 1 Reserved~~, and shall be coded all 1~~
In MS to network direction and in network to MS direction :
The Transfer delay value consists of 8 bits. Maximum value is 2560ms. The granularity is 10 ms.

The Transfer delay value is ignored if the Trafic Class is Interactive class or Background class.

Guaranteed bit rate for uplink, octet 16~~3~~ and 17~~4~~
In MS to network direction:
All bits 1 Subscribed guaranteed bit rate for uplink~~, and shall be coded all 1~~
In network to MS direction:
All bits 1 Reserved~~, and shall be coded all 1~~
In MS to network direction and in network to MS direction :
The Guaranteed bit rate for uplink value consists of 16 bits. Maximum value is 2000 kbps. The granularity is 4 kbps.

The Guaranteed bit rate for uplink value is ignored if the Trafic Class is Interactive class or Background class.

Guaranteed bit rate for downlink, octet 18~~5~~ and 19~~6~~
In MS to network direction:
All bits 1 Subscribed guaranteed bit rate for downlink~~, and shall be coded all 1~~
In network to MS direction:
All bits 1 Reserved~~, and shall be coded all 1~~
In MS to network direction and in network to MS direction :
The Guaranteed bit rate for downlink value consists of 16 bits. Maximum value is 2000 kbps. The granularity is 4 kbps.

The Guaranteed bit rate for downlink value is ignored if the Trafic Class is Interactive class or Background class.

Traffic handling priority, octet 20~~17~~ (see TS 23.107)
Bits
2 1
In MS to network direction:
0 0 Subscribed traffic handling priority
In network to MS direction:
0 0 Reserved
In MS to network direction and in network to MS direction :
0 1 Priority level 1
1 0 Priority level 2
1 1 Priority level 3

All other values are reserved.

The Traffic handling priority value is ignored if the Trafic Class is Conversation class, Streaming class or Background class.

Bit 3 to 8~~and 4~~ of octet 20~~17~~ are spare and shall be coded all 0.

~~Allocation/Retension priority, octet 17 (see TS 23.107)~~
~~Bits~~
~~6 5~~
~~In MS to network direction:~~
~~0 0 Subscribed allocation/retension priority~~
~~In network to MS direction:~~
~~0 0 Reserved~~
~~In MS to network direction and in network to MS direction :~~
~~0 1 Priority level 1~~
~~1 0 Priority level 2~~
~~1 1 Priority level 3~~

~~All other values are reserved.~~

~~Bit 7 and 8 of octet 17 are spare and shall be coded all 0.~~