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Marco Island, USA. 5th - 7th June 2002

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CR-Form-v5

CHANGE REQUEST

⌘ **24.008** **CR** **642** ⌘ **rev** **2~~1~~** ⌘ Current version: **5.3.0** ⌘

*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 [X]

Title:	⌘	Addition of missing code point for 8-PSK Half Rate AMR
Source:	⌘	Ericsson
Work item code:	⌘	TEI5~~OoBTC~~
Date:	⌘	2002-05-24
Category:	⌘	**F**
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:	⌘	Code point for GSM half rate speech version 6 is missing. Introducd change aligns the TS 24.008 with TS 48.008, and TS 26.103.
Summary of change:	⌘	Missing code point added. ~~For clarification, the Codec Type Names as defined in TS 26.103 have been included as well.~~
Consequences if not approved:	⌘	Missing code point.

Clauses affected:	⌘	subclause 10.5.4.5 Table 10.5.103		
Other specs affected:	⌘	[ ] Other core specifications [ ] 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.

10.5.4.5 Bearer capability

The purpose of the bearer capability information element is to describe a bearer service. The use of the bearer capability information element in relation to compatibility checking is described in annex B.
The bearer capability information element is coded as shown in figure 10.5.88/3GPP TS 24.008 and tables 10.5.102/3GPP TS 24.008 to 10.5.115/3GPP TS 24.008.
The bearer capability is a type 4 information element with a minimum length of 3 octets and a maximum length of 16 octets.

8	7	6	5	4	3	2	1	
	Bearer capability IEI							octet 1
Length of the bearer capability contents								octet 2
0/1 ext	radio channel requirement		co-ding std	trans fer mode	information transfer capability			octet 3
0/1 ext	0 co-ding	CTM e	0 spar	speech version indication				octet 3a *
0/1 ext	0 co-ding	0 spare	0 spare	Speech version Indication				octet 3b etc*
1 ext	comp -ress.	structure		dupl. mode	confi gur.	NIRR	esta-bli.	octet 4*
0/1 ext	0 access id.	0	rate adaption		signalling access protocol			octet 5*
0/1 ext	Other ITC		Other rate adaption		0	0 Spare	0	octet 5a*
1 ext	Hdr/ noHdr	Multi frame	Mode	LLI	Assig nor/e	Inb. neg	0 Spare	octet 5b*
0/1 ext	0 layer 1 id.	1	User information layer 1 protocol				sync/ async	octet 6*
0/1 ext	numb. stop bits	nego-tia-tion	numb. data bits	user rate				octet 6a*
0/1 ext	intermed. rate		NIC on TX	NIC on RX	Parity			octet 6b*
0/1 ext	connection element		modem type					octet 6c*
0/1 ext	Other modem type		Fixed network user rate					octet 6d*
0/1 ext	Acceptable channel codings				Maximum number of traffic channels			octet 6e*
0/1 ext	UIMI		Wanted air interface user rate					octet 6f*
1 ext	Acceptable channel codings extended			Asymmetry Indication		0 Spare	0	octet 6g*
1 ext	1 layer 2 id.	0	User information layer 2 protocol					octet 7*

Figure 10.5.88/3GPP TS 24.008 Bearer capability information element

NOTE 1: The coding of the octets of the bearer capability information element is not conforming to ITU Q.931.

NOTE 2: An MS shall encode the Bearer Capability infomation element according to GSM call control requirements also if it is requesting for a UMTS service.

NOTE 3: For UTRAN access the following parameter is irrelevant, because multiple traffic channels (multislot) are not deployed [3GPP TS 23.034]. The parameter shall, however, be stored in MSC, and forwarded at handover:
- UIMI, User initiated modification indication (octet 6f, bits 5-7)

NOTE 4: The following parameters are relevant in UMTS for non transparent data calls for deciding which RLP version to negotiate in order to avoid renegotiation of RLP version in case of inter-system handover, see 3GPP TS 24.022 [9]. They are otherwise irrelevant for specifying the UTRAN radio access bearer: -

NOTE 5: Maximum number of traffic channels (octet 6e, bits 1-3)
- Acceptable Channel coding(s) (octet 6e, bits 4, 5 and 7)
- Acceptable Channel Codings extended (octet 6g, bits 5-7).

NOTE 6: A mobile station not supporting GSM shall set the following parameters to the value "0":
- Maximum number of traffic channels (octet 6e, bits 1-3)
- Acceptable Channel coding(s) (octet 6e, bits 4, 5 and 7)
- UIMI, User initiated modification indication (octet 6f, bits 5-7)
- Acceptable Channel Codings extended (octet 6g, bits 5-7).

Table 10.5.102/3GPP TS 24.008: Bearer capability information element

Radio channel requirement (octet 3), network to MS direction
In GSM, i.e. not applicable for UMTS data services.

Bits 6 and 7 are spare bits. The sending side (i.e. the network) shall set bit 7 to value 0 and bit 6 to value 1.

Radio channel requirement (octet 3) MS to network direction

When information transfer capability (octet 3) indicates other values than speech:

Bits **7 6**	
0 0	reserved
0 1	full rate support only MS
1 0	dual rate support MS/half rate preferred
1 1	dual rate support MS/full rate preferred

When information transfer capability (octet 3) indicates the value speech and no speech version indication is present in octet 3a etc.:

Bits **7 6**	
0 0	reserved
0 1	full rate support only MS/fullrate speech version 1 supported
1 0	dual rate support MS/half rate speech version 1 preferred, full rate speech version 1 also supported
1 1	dual rate support MS/full rate speech version 1 preferred, half rate speech version 1 also supported

When information transfer capability (octet 3) indicates the value speech and speech version indication(s) is(are) present in octet 3a etc.:

Bits **7 6**	
0 0	reserved
0 1	the mobile station supports at least full rate speech version 1 but does not support half rate speech version 1. The complete voice codec preference is specified in octet(s) 3a etc.
1 0	The mobile station supports at least full rate speech version 1 and half rate speech version 1. The mobile station has a greater preference for half rate speech version 1 than for full rate speech version 1. The complete voice codec preference is specified in octet(s) 3a etc.
1 1	The mobile station supports at least full rate speech version 1 and half rate speech version 1. The mobile station has a greater preference for full rate speech version 1 than for half rate speech version 1. The complete voice codec preference is specified in octet(s) 3a etc.

(continued...)

Table 10.5.102/3GPP TS 24.008: Bearer capability information element (continued)

Coding standard (octet 3)
Bit
5
0 GSM standardized coding as described below
1 reserved

Transfer mode (octet 3)
Bit
4
0 circuit mode
1 packet mode

Information transfer capability (octet 3)
Bits
3 2 1
0 0 0 speech
0 0 1 unrestricted digital information
0 1 0 3.1 kHz audio, ex PLMN
0 1 1 facsimile group 3
1 0 1 Other ITC (See Octet 5a)
1 1 1 reserved, to be used in the network.
The meaning is: alternate speech/facsimile group 3 - starting with speech.

All other values are reserved

Table 10.5.103/3GPP TS 24.008 Bearer capability information element

Octet(s) 3a etc. MS to network direction
Octet(s) 3a etc., bits 1 to 4 shall only be used to convey speech coding information belonging to a GSM radio access. When included for a UMTS call establishment they shall be used for handover to a GSM Radio Acess.
A mobile station supporting CTM text telephony, but not supporting GSM radio access shall encode octet 3a, bits 1 to 4 as “no speech version supported for GSM radio access”.

Coding

Bit
7
0 octet used for extension of information transfer capability
1 octet used for other extension of octet 3

When information transfer capability (octet 3) indicates speech and coding (bit 7 in octet 3a etc.) is coded as 0, bits 1 through 6 are coded:

CTM text telephony indication (octet 3a)
Bit
6
0 CTM text telephony is not supported
1 CTM text telephony is supported

Bit 6 in octet(s) 3b etc. is spare.

Bit 5 in octet(s) 3a etc. is spare.

Speech version indication (octet(s) 3a etc.)
Bits
4 3 2 1
0 0 0 0 GSM full rate speech version 1 (note 2)
0 0 1 0 GSM full rate speech version 2 (note 2)
0 1 0 0 GSM full rate speech version 3 (note 2)
0 1 1 0 GSM full rate speech version 4 (note 2)
1 0 0 0 GSM full rate speech version 5 (note 2)
0 0 0 1 GSM half rate speech version 1 (note 2)
0 1 0 1 GSM half rate speech version 3 (note 2)
0 1 1 1 GSM half rate speech version 4 (note 2)
1 0 1 1 GSM half rate speech version 6 (note 2)
1 1 1 1 no speech version supported for GSM radio access (note 1)
All other values have the meaning "speech version tbd" and shall be ignored when received.
NOTE 1: This value shall only be used by an MS supporting CTM text telephony, but not supporting GSM radio access.

NOTE 2: As defined in 3GPP TS 26.103 [83] and TS 48.008 [85].

If octet 3 is extended with speech version indication(s) (octets 3a etc.), all speech versions supported shall be indicated and be included in order of preference (the first octet (3a) has the highest preference and so on).

If information transfer capability (octet 3) indicates speech and coding (bit 7 in octet 3a etc.) is coded as 1, or the information transfer capability does not indicate speech, then the extension octet shall be ignored.

Octet(s) 3a etc. network to MS direction

The octet(s) 3a etc. shall be ignored by the MS.

Table 10.5.104/3GPP TS 24.008: Bearer capability information element

Compression (octet 4), network to MS direction:
Bit
7
0 data compression not possible
1 data compression possible

Compression (octet 4), MS to network direction:
Bit
7
0 data compression not allowed
1 data compression allowed

Structure (octet 4)

Bits
6 5
0 0 service data unit integrity
1 1 unstructured

All other values are reserved.

Duplex mode (octet 4)
Bit
4
0 half duplex
1 full duplex

Configuration (octet 4)
Bit
3
0 point-to-point

All other values are reserved.

NIRR (octet 4)
(Negotiation of Intermediate Rate Requested)
In GSM, i.e. not applicable for UMTS data services.

Bit
2
0 No meaning is associated with this value.
1 Data up to and including 4.8 kb/s, full rate, non-transparent, 6 kb/s radio interface rate is requested.

Establishment (octet 4)
Bit
1
0 demand

All other values are reserved

Table 10.5.105/3GPP TS 24.008: Bearer capability information element

Access identity (octet 5)
Bits
7 6
0 0 octet identifier

All other values are reserved

Rate adaption (octet 5)
Bits
5 4
0 0 no rate adaption
0 1 V.110, I.460/X.30 rate adaptation
1 0 ITU-T X.31 flag stuffing
1 1 Other rate adaption (see octet 5a)

Signalling access protocol (octet 5)

Bits
3 2 1
0 0 1 I.440/450
0 1 0 reserved: was allocated in earlier phases of the protocol
0 1 1 reserved: was allocated in earlier phases of the protocol
1 0 0 reserved: was allocated in earlier phases of the protocol.
1 0 1 reserved: was allocated in earlier phases of the protocol
1 1 0 reserved: was allocated in earlier phases of the protocol

All other values are reserved.

Table 10.5.106/3GPP TS 24.008: Bearer capability information element

Other ITC (octet 5a)
If the value "Other ITC" is not signalled in the field "ITC" then the contents of this field shall be ignored.

Bit
7 6
0 0 restricted digital information

All other values are reserved

Other rate adaption (octet 5a)
If the value " Other rate adaption" is not signalled in the field "Rate adaption" then the contents of this field shall be ignored.
In UMTS, PIAFS shall be considered. In GSM, call shall be rejected if PIAFS requested.

Bit
5 4
0 0 V.120
0 1 H.223 & H.245
1 0 PIAFS

All other values are reserved.

Table 10.5.107/3GPP TS 24.008: Bearer capability information element

Rate adaption header/no header (octet 5b)

Bit
7
0 Rate adaption header not included
1 Rate adaption header included

Multiple frame establishment support in data link (octet 5b)

Bit
6
0 Multiple frame establishment not supported, only UI frames allowed
1 Multiple frame establishment supported

Mode of operation (octet 5b)

Bit
5
0 Bit transparent mode of operation
1 Protocol sensitive mode of operation

Logical link identifier negotiation (octet 5b)

Bit
4
0 Default, LLI=256 only
1 Full protocol negotiation, (note: A connection over which protocol negotiation will be executed is indicated in bit 2 of octet 5b)

Assignor/Assignee (octet 5b)

Bit
3
0 Message originator is "default assignee"
1 Message originator is "assignor only"

In band/Out of band negotiation (octet 5b)

Bit
2
0 Negotiation is done in-band using logical link zero
1 Negotiation is done with USER INFORMATION messages on a temporary signalling connection

Bit 1 is spare and set to the value "0"

Table 10.5.108/3GPP TS 24.008: Bearer capability information element

Layer 1 identity (octet 6)
Bits
7 6
0 1 octet identifier

All other values are reserved

User information layer 1 protocol (octet 6)
Bits
5 4 3 2
0 0 0 0 default layer 1 protocol

All other values reserved.

Synchronous/asynchronous (octet 6)
Bit
1
0 synchronous
1 asynchronous

Table 10.5.109/3GPP TS 24.008: Bearer capability information element

Number of Stop Bits (octet 6a)
Bit
7
0 1 bit (This value is also used in the case of synchronous mode)
1 2 bits

Negotiation (octet 6a)
Bit
6
0 in-band negotiation not possible

NOTE: See Rec. V.110 and X.30

All other values are reserved

Number of data bits excluding parity bit if present (octet 6a)
Bit
5
0 7 bits
1 8 bits (this value is also used in the case of bit oriented protocols)

User rate (octet 6a)
In GSM only.

Bits
4 3 2 1
0 0 0 1 0.3 kbit/s Recommendation X.1 and V.110
0 0 1 0 1.2 kbit/s Recommendation X.1 and V.110
0 0 1 1 2.4 kbit/s Recommendation X.1 and V.110
0 1 0 0 4.8 kbit/s Recommendation X.1 and V.110
0 1 0 1 9.6 kbit/s Recommendation X.1 and V.110
0 1 1 0 12.0 kbit/s transparent (non compliance with X.1 and V.110)
0 1 1 1 reserved: was allocated in earlier phases of the protocol.

All other values are reserved.

For facsimile group 3 calls the user rate indicates the first and maximum speed the mobile station is using.

Table 10.5.110/3GPP TS 24.008: Bearer capability information element

Octet 6b for V.110/X.30 rate adaptation Intermediate rate (octet 6b)
In GSM only.

Bits
7 6
0 0 reserved
0 1 reserved
1 0 8 kbit/s
1 1 16 kbit/s

Network independent clock (NIC) on transmission (Tx) (octet 6b) (See Rec. V.110 and X.30).
in GSM only.

Bit
5
0 does not require to send data with network independent clock
1 requires to send data with network independent clock

Network independent clock (NIC) on reception (Rx) (octet 6b) (See Rec. V.110 and X.30)
In GSM only.

Bit
4
0 cannot accept data with network independent clock (i.e. sender does not support this optional procedure)
1 can accept data with network independent clock (i.e. sender does support this optional procedure)

Parity information (octet 6b)
Bits
3 2 1
0 0 0 odd
0 1 0 even
0 1 1 none
1 0 0 forced to 0
1 0 1 forced to 1

All other values are reserved.

Table 10.5.111/3GPP TS 24.008: Bearer capability information element

Connection element (octet 6c)
Bit
7 6
0 0 transparent
0 1 non transparent (RLP)
1 0 both, transparent preferred
1 1 both, non transparent preferred

The requesting end (e.g. the one sending the SETUP message) should use the 4 values depending on its capabilities to support the different modes. The answering party shall only use the codings 00 or 01, based on its own capabilities and the proposed choice if any. If both MS and network support both transparent and non transparent, priority should be given to the MS preference.

Modem type (octet 6c)
Bits
5 4 3 2 1
0 0 0 0 0 none
0 0 0 0 1 V.21 (note 1)
0 0 0 1 0 V.22 (note 1)
0 0 0 1 1 V.22 bis (note 1)
0 0 1 0 0 reserved: was allocated in earlier phases of the protocol
0 0 1 0 1 V.26 ter (note 1)
0 0 1 1 0 V.32
0 0 1 1 1 modem for undefined interface
0 1 0 0 0 autobauding type 1

All other values are reserved.
Note 1: In GSM only.

Table 10.5.112/3GPP TS 24.008: Bearer capability information element

Other modem type (octet 6d)
Bits
7 6
0 0 no other modem type specified in this field
1 0 V.34

All other values are reserved.

Fixed network user rate (octet 6d)
Bit
5 4 3 2 1
0 0 0 0 0 Fixed network user rate not applicable/No meaning is associated with this value.
0 0 0 0 1 9.6 kbit/s Recommendation X.1 and V.110
0 0 0 1 0 14.4 kbit/s Recommendation X.1 and V.110
0 0 0 1 1 19.2 kbit/s Recommendation X.1 and V.110
0 0 1 0 0 28.8 kbit/s Recommendation X.1 and V.110
0 0 1 0 1 38.4 kbit/s Recommendation X.1 and V.110
0 0 1 1 0 48.0 kbit/s Recommendation X.1 and V.110(synch) (note 1)
0 0 1 1 1 56.0 kbit/s Recommendation X.1 and V.110(synch) /bit transparent
0 1 0 0 0 64.0 kbit/s bit transparent
0 1 0 0 1 33.6 kbit/s bit transparent (note 2)
0 1 0 1 0 32.0 kbit/s Recommendation I.460
0 1 0 1 1 31.2 kbit/s Recommendation V.34 (note 2)

The value 31.2 kbit/s Recommendation V.34 shall be used only by the network to inform the MS about FNUR modification due to negotiation between the modems in a 3.1 kHz multimedia call.

All other values are reserved.
Note 1: In GSM only.
Note 2: In UMTS only

Table 10.5.113/3GPP TS 24.008: Bearer capability information element

Acceptable channel codings (octet 6e), mobile station to network direction:

Bit
7
0 TCH/F14.4 not acceptable
1 TCH/F14.4 acceptable

Bit
6
0 Spare

Bit
5
0 TCH/F9.6 not acceptable
1 TCH/F9.6 acceptable

Bit
4
0 TCH/F4.8 not acceptable
1 TCH/F4.8 acceptable

Acceptable channel codings (octet 6e), network to MS direction:
Bits 4 to 7 are spare and shall be set to "0".

Maximum number of traffic channels (octet 6e), MS to network direction:

Bits
3 2 1
0 0 0 1 TCH
0 0 1 2 TCH
0 1 0 3 TCH
0 1 1 4 TCH
1 0 0 5 TCH
1 0 1 6 TCH
1 1 0 7 TCH
1 1 1 8 TCH

Maximum number of traffic channels (octet 6e), network to MS direction:
Bits 1 to 3 are spare and shall be set to "0".

Table 10.5.114/3GPP TS 24.008: Bearer capability information element

UIMI, User initiated modification indication (octet 6f),

7 6 5
0 0 0 User initiated modification not allowed/required/applicable
0 0 1 User initiated modification up to 1 TCH/F allowed/may be requested
0 1 0 User initiated modification up to 2 TCH/F allowed/may be requested
0 1 1 User initiated modification up to 3 TCH/F allowed/may be requested
1 0 0 User initiated modification up to 4 TCH/F allowed/may be requested

All other values shall be interpreted as "User initiated modification up to 4 TCH/F may be requested".

User initiated modification indication is not applicable for transparent connection.

Wanted air interface user rate (octet 6f), MS to network direction:
Bits
4 3 2 1
0 0 0 0 Air interface user rate not applicable/No meaning associated with this value
0 0 0 1 9.6 kbit/s
0 0 1 0 14.4 kbit/s
0 0 1 1 19.2 kbit/s
0 1 0 1 28.8 kbit/s
0 1 1 0 38.4 kbit/s
0 1 1 1 43.2 kbit/s
1 0 0 0 57.6 kbit/s
1 0 0 1 interpreted by the network as 38.4 kbit/s in this version of the protocol
1 0 1 0 interpreted by the network as 38.4 kbit/s in this version of the protocol
1 0 1 1 interpreted by the network as 38.4 kbit/s in this version of the protocol
1 1 0 0 interpreted by the network as 38.4 kbit/s in this version of the protocol

All other values are reserved.

Wanted air interface user rate (octet 6f), network to MS direction:
Bits 1 to 4 are spare and shall be set to "0".

Table 10.5.115/3GPP TS 24.008: Bearer capability information element

Layer 2 identity (octet 7)
Bits
7 6
1 0 octet identifier

All other values are reserved

User information layer 2 protocol (octet 7)

Bits
5 4 3 2 1
0 0 1 1 0 reserved: was allocated in earlier phases of the protocol
0 1 0 0 0 ISO 6429, codeset 0 (DC1/DC3)
0 1 0 0 1 reserved: was allocated but never used in earlier phases of the protocol
0 1 0 1 0 videotex profile 1
0 1 1 0 0 COPnoFlCt (Character oriented Protocol with no Flow Control mechanism)
0 1 1 0 1 reserved: was allocated in earlier phases of the protocol

All other values are reserved.

Table 10.5.115a/3GPP TS 24.008: Bearer capability information element

Acceptable Channel Codings extended (octet 6g) mobile station to network direction:

Bit
7
0 TCH/F28.8 not acceptable
1 TCH/F28.8 acceptable

Bit
6
0 TCH/F32.0 not acceptable
1 TCH/F32.0 acceptable

Bit
5
0 TCH/F43.2 not acceptable
1 TCH/F43.2 acceptable
Channel Coding Asymmetry Indication

Bits
4 3
0 0 Channel coding symmetry preferred
1 0 Downlink biased channel coding asymmetry is preferred
0 1 Uplink biased channel coding asymmetry is preferred
1 1 Unused, if received it shall be interpreted as "Channel coding symmetry preferred"

EDGE Channel Codings (octet 6g), network to MS direction:

Bits 3 to 7 are spare and shall be set to "0".

Bits 2 and 1 are spare.