3GPP TSG_CN#6 **NP-99433**
ETSI SMG3 Plenary Meeting #6,
Nice, France
13th – 15th December 1999

Agenda item: **5.3.3**

Source: **TSG_N WG3**

Title: **CRs to 3G Work Item High Speed Circuit Switched Data**

Introduction:

This document contains **"4"** CR **on Work Item HSCSD** agreed by **TSG_N WG3** and forwarded to **TSG_N Plenary** meeting #6 for approval.

Tdoc	Spec	CR	Rev	CAT	Rel.	Old Ver	New Ver	Subject
N3-99431	09.07	A052		F	R96	5.9.0	5.10.0	Intermediate rate
N3-99456	09.07	A053		A	R97	6.1.0	6.2.0	Intermediate rate
N3-99457	09.07	A054		A	R98	7.1.1	7.2.0	Intermediate rate
N3-99458	29.007	007		A	R99	3.2.0	3.3.0	Intermediate rate

3GPP TSG-CN3 / ETSI SMG3 WPD
Meeting #7, Sophia Antipolis, France,
29th November – 3rd December 1999

N3-99431

Source: **Ericsson**

Title: **Correction to 09.07 regarding Intermediate rate**

Agenda item: **7.1 Circuit Switched Bearers in UMTS**

Document for: **Approval**

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1. Introduction

In Table 6B in GSM TS 09.07 Release 96, there is no code point for IR 32 kbit/s in the ISDN BC. This leads to an error in case of a UDI V.110 MT call, when the user rate is 14.4 or 19.2 kbit/s. It is propose to reintroduce this point code.

2. Background

The code point was present in 09.07 v.5.4.0, but was removed as a result of CR 09.07 A033r2. Ericsson does not understand why this was done.

The meeting report states:

"This CR for GSM 09.07 was output of earlier discussions of Tdoc SMG4 97P159. ..."

Input document SMG4 97P159 does not propose to remove the code point, bur rather to remove the code point for 64 kbit/s. The change must therefor be the result of the discussions at the meeting which are not documented.

SMG3 WPD is asked to clarify the reasons for the removal of the code point for 32 kbit/s

3. Proposal

It is propose to reintroduce 32 kbit/s as possible IR code points in the ISDN BC in Table 6B

Attachments:

CR to 09.07 v.5.9.0

For background information are enclosed:

1. CR 09.07 A033r2
2. SMG4 97P159
3. The meeting report from the SMG4 meeting where the CR was produced

3GPP N3/SMG3 WPD Meeting #7
Sophia Antipolis, France, 29 Nov-03 Dec 1999

***Document* N3-99431**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

09.07	CR	A052	Current Version:	5.9.0

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

For submission to: TSG_N#6 *list expected approval meeting # here ↑*

for approval [ ]
for information [ ]

strategic [ ]
non-strategic [ ]
(for SMG use only)

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 [ ] UTRAN / Radio [ ] Core Network [X]

Source: TSG_N3 **Date:** 26-11-1999

Subject: Correction of intermediate rate values

Work item: HSCSD

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

F	Correction	X
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	X
Release 97	
Release 98	
Release 99	
Release 00	

Reason for change: Mobile terminated UDI V.110 calls where the User rate is either 14.4 or 19.2 kbit/s will rejected because the intermediate rate in the transit network is 32 kbit/s and this is not in Table 6B.

Clauses affected:

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:

10.2.2 Network interworking mobile terminated

This subclause describes the interworking of calls where the calling subscriber can communicate ISDN compatibility information with exhaustive contents for deducing a GSM Basic Service to a PLMN (gateway MSC/interrogating node) i.e. by means of ISDN signalling.

The GMSC has to perform a mapping of the received Basic Service Information for the transport to the HLR, for details of this transport refer to GSM 09.02.

Compatibility checking of the low layers of the ISDN originated call is carried out by the MSC/IWF to determine the appropriate bearer service selection in the PLMN. This will entail the MSC/IWF in mapping appropriately the ISDN BC/LLC-IE to the GSM BC-IE.

As well as compatibility checking, subscription checking should be performed. If either the subscription check or the compatibility check fails then the call will be rejected.

For ISDN originated calls it will not be possible to signal mobile specific requirements e.g. transparent/non transparent, full/half rate channel. Therefore the MSC/IWF shall select a default setting appropriate to the visited PLMN's network capabilities. In general it will be beneficial, where a network supports both full and half rate channels and transparent/non transparent capabilities, to indicate so in the appropriate GSM BC field of GSM 04.08. The mobile subscriber has the option to indicate in the call confirmation message a change to this default setting according to the rules specified in GSM 07.01. The appropriate MSC/IWF shall be selected on the basis of this requirement.

At call Set-up, the interrogating node passes in the "send routing information" to the HLR, the ISDN BC, LLC and HLC received in the initial address message. The coding of these parameters must comply with ETS 300 102-1 edition 1, with one exception: for the mapping of the parameter modem type to/from the ISDN BC-IE, refer to tables 6A and 6B.

According to the contents of the Compatibility Information, i.e. the ISDN BC, LLC and HLC received, the HLR applies one of the following alternatives:

1) No ISDN BC is received, or one from which a GSM Basic Service cannot be deduced with the information Transfer Capability field set to "3,1 kHz audio" but without any associated modem type[1] in the ISDN BC and LLC, or without HLC indication of group 3 facsimile. Two cases have to be considered:

   a) The called MSISDN has one or two corresponding GSM BC-IE(s) stored in the HLR (see option a) of 9.2.2); then the service attached to this number in the HLR tables is applicable and the corresponding GSM BC-IE(s) is passed to the VLR in "provide roaming number". See figure 6.

      If two GSM BC-IE have to be sent to the VLR they are preceded by a repeat indicator information element according to 04.08. These three information elements shall be included within the MAP parameter "GSM Bearer Capability" of the message "Provide Roaming Number".

      NOTE: For the case of two GSM BC-IEs see subclause 10.3.

   b) The called MSISDN has no corresponding GSM BC-IE(s) stored in the HLR (see option b in 9.2.2). In this case no GSM BC is passed to the VLR in the "provide roaming number" message.

2) Compatibility Information is received from which a GSM Basic Service can be deduced, i.e. the ITC field in the ISDN BC received is "unrestricted digital" and the fields for the applicable user layer 1 protocol and user rate are available (either in the ISDN BC or LLC), or the ITC field is "3,1 kHz audio", and a modem type, user rate, etc. is indicated but the HLC does not indicate "facsimile group 3". The received ISDN BC (and possibly LLC plus HLC) is then considered applicable

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[1] "Modem type" in connection with the ITC value "3.1 kHz audio" means hereafter that either an ISDN BC modem type value is present or the autobauding modem function is indicated (see note 16 of table 6B)

regardless of the kind of MSISDN received (GSM BC associated or not) and either the equivalent GSM BC or the original ISDN BC/LLC is sent to the VLR. Additionally in both cases the originally received HLC may also be sent to the VLR, see figure 7.

When the HLR interworks with a phase 1 VPLMN (VLR/VMSC), then the HLR shall convert the ISDN BC to the equivalent GSM BC, and forward to the VLR. In this case however no LLC can be forwarded.

3) Compatibility Information is received from which the GSM Teleservice category Facsimile transmission can be deduced i.e. the ITC field in the ISDN BC received is "3,1kHz audio" and the HLC indicates "facsimile group 3" (see figure 7), the following two cases have to be considered:

   a) The called MSISDN has a corresponding GSM BC stored in the HLR (either stating TS 61 or TS 62). In this case the service attached to the MSISDN in the HLR tables is applicable and the corresponding GSM BC is passed to the VLR in the "provide roaming number" message, see also subclause 10.3.1.3.

   b) The called MSISDN has no corresponding GSM BC stored in the HLR. In this case the HLR shall forward the appropriate GSM BC to the VLR in line with the subscribers subscription to teleservice 61 or 62.

      For TS 61 the value of the GSM BC-IE parameter "Information Transfer Capability" shall be set to "alternate speech/facsimile group 3, starting with speech"

      In both cases the HLC IE should be passed to the VLR in the "provide roaming number" message.
      Alternatively the HLR may forward the originally received ISDN/LLC/HLC, when interworking with a phase 2 VLR.

4) In the case where Compatibility Information received does not allow for deducing a GSM Bearer Service but an ISDN BC is received with the ITC field indicating "unrestricted digital", but without the fields indicating applicable "user layer 1 protocol", user rate, etc., neither in the ISDN BC or the ISDN LLC then the following shall apply. The call is managed as for an udi call according to section 9.2.2, i.e either the "multi numbering" or "single numbering" scenario is applied depending on which capability is provided by home PLMN/HLR.

At the VMSC, when the incoming call arrives, the LLC/HLC and the GSM or ISDN BC associated with the MSRN is retrieved from the VLR. LLC and HLC are sent with the GSM BC in general to the MS at call set-up. In particular, however the following rules apply:

1) If the Initial Address Message (IAM) contains no ISDN BC and there is no GSM or ISDN BC/LLC/HLC retrieved from the VLR, the call is handled as subclause 9.2.2 case b.

2) If there is no ISDN BC in the IAM but a GSM or ISDN BC/LLC/HLC was signalled in the "provide roaming number" message, the retrieved GSM or ISDN BC/LLC/HLC applies.

3) If there is an ISDN BC in the IAM with the ITC field set to "3,1 kHz audio" but without any associated modem type or indication of facsimile group 3 in the HLC, the GSM or ISDN BC/LLC/HLC retrieved from the VLR is considered as applicable when it exists. If no GSM or ISDN BC is retrieved from the VLR, the call is handled as in subclause 9.2.2 case b.

4) If the ISDN BC received in the IAM has the ITC field set to the value "unrestricted digital information" and the fields for the applicable "user layer 1 protocol" and "user rate" are available (either in the ISDN BC or ISDN LLC), or if 3,1 kHz audio and a modem type is indicated, this ISDN BC is applicable regardless of what has been retrieved from the VLR. In this case the ISDN BC has to be mapped to an appropriate GSM BC (refer to table 6B).

5) If the ISDN BC received in the IAM has the ITC field set to the value "3,1kHz audio" and a HLC "facsimile group 3" is indicated, the GSM BC retrieved from the VLR is applicable when it exists. If a GSM BC-IE with the parameter "information transfer capability" set to "alternate speech/facsimile group 3, starting with speech" (stating TS61) is retrieved from the VLR, this shall be mapped to two

GSM BC-IE preceded by a repeat indicator, one representing speech, the other representing facsimile group 3.
When no GSM BC is retrieved from the VLR, either two GSM BCs preceded by a repeat indicator (stating teleservice 61), or a single GSM BC-IE (stating TS 62), are sent in the setup message, depending whether TS 61 or TS 62 is subscribed (see also subclause 10.3.1.3).

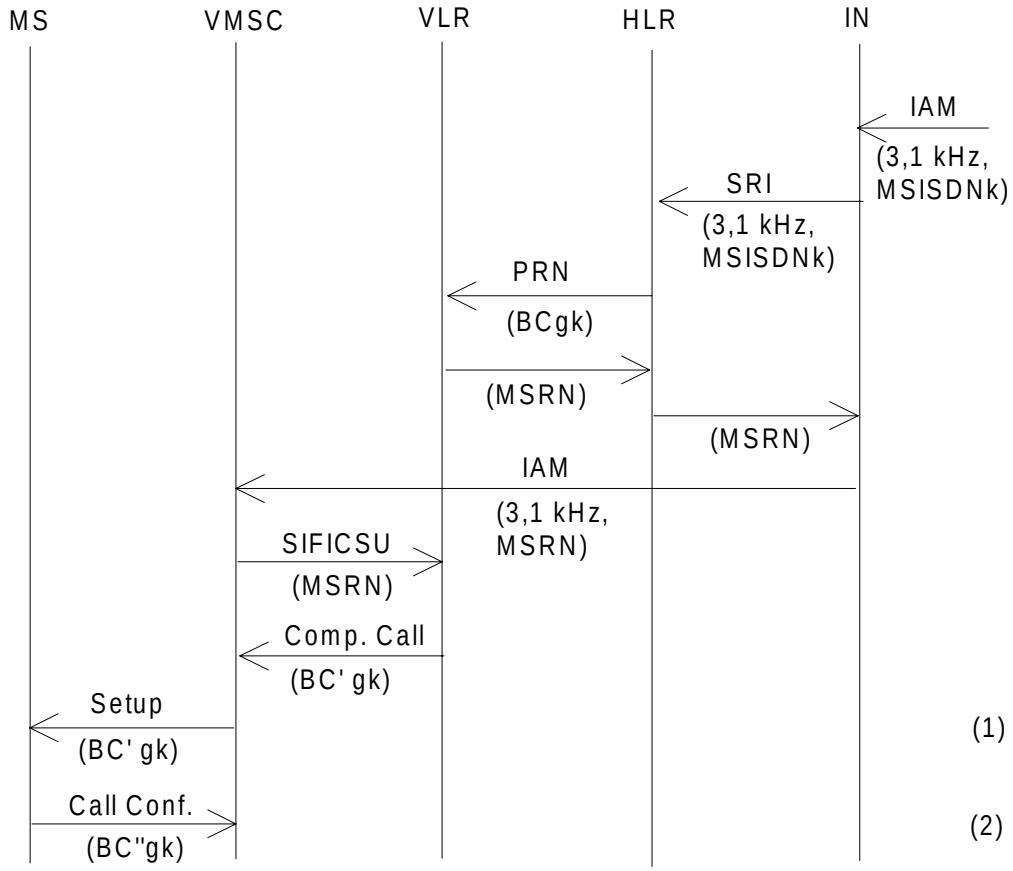
In case of TS 61, the order in which the two GSM BC-IEs are sent towards the MS, in the setup message, is a network option.

6) If the ISDN BC received in the IAM has a ITC value "unrestricted digital information" but without applicable "user layer 1 protocol" and "user rate", etc. fields, neither in the ISDN BC nor ISDN LLC, then the GSM or ISDN BC/LLC retrieved from the VLR is applicable, if available otherwise subclause 9.2.2 case b applies.
In case of an ISDN BC/LLC/HLC was attached to the MSRN this has to be mapped to an appropriate GSM BC (refer to table 6B). However in both cases (GSM or ISDN BC attached) the PLMN specific parameters of the GSM BC-IEs may be added/modified in line with procedures identified in subclause 9.2.2.

In all cases when no GSM or ISDN BC is retrieved from the VLR and no ISDN Compatibility information allowing deduction of a GSM Bearer Service is available, then no GSM BC is inserted by the VMSC and subclause 9.2.2 case b applies.

The mapping between GSM and ISDN BCs is shown in table 6.

Mobile terminated, ISDN originated call compatibility Information provided not exhaustive for deducing a GSM Bearer Service, but Information Transfer Capability = 3,1 kHz audio, no modem type and no HLC IE indicating facsimile group 3. HLR stores GSM BC against MSISDN number multi-numbering scheme.



Abbreviations: see figure 2.

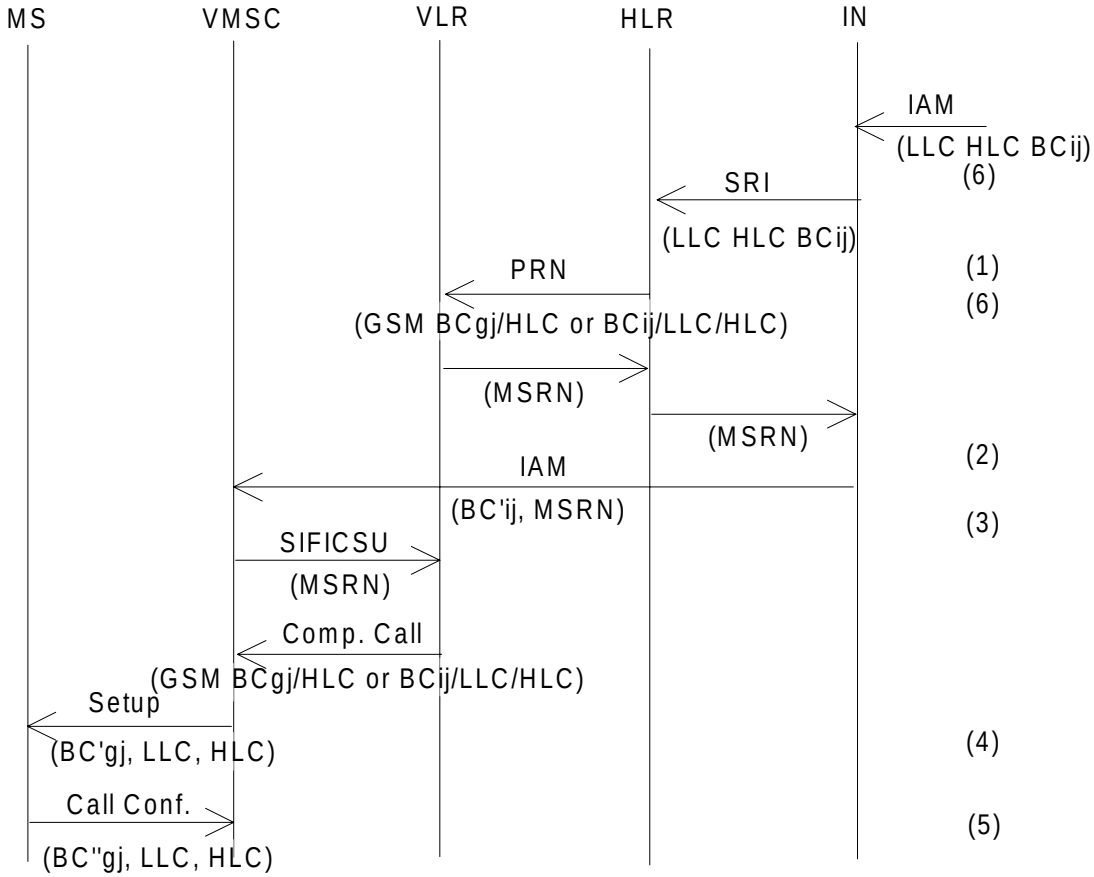
NOTE: (1) Some parameters of BCgk may be provided/modified according to the MSC's capabilities/preferences. See subclause 9.2.2

(2) In the "Call Confirm" message, the MS may modify some parameters of the GSM BC. See subclause 9.2.2.

Figure 6

Mobile terminated, ISDN originated call compatibility Information provides sufficient information to deduce:

- a GSM Bearer Service, or
- Information Transfer Capability = 3,1 kHz audio with HLC IE indicating facsimile group 3.



NOTES:
(1) BCij denotes ISDN ETS 300 102-1 BC*; BCgj is the corresponding GSM BC.

(2) Assumes signalling capabilities permit the transfer of BC between IN and VMSC. If this is not the case, the VLR uses the stored BC/LLC/HLC.

(3) BC'ij denotes BCij as maybe modified by intervening networks.

(4) Some parameters of BCgk may be provided/modified according to the MSC's capabilities/preferences. See subclause 9.2.2.

(5) In the "Call Confirm" message, the MS may modify some parameters of the BC. See subclause 9.2.2.

(6) For details on how the BC, HLC, and LLC are transported, refer to GSM 09.02.

* HLC and LLC refers to ISDN values.

Abbreviations: see figure 2.

Figure 7

The following tables (6A + 6B) show that only the ISDN BC is used for mapping (exceptions are indicated).

NOTE: The ISDN/GSM BC-IE mapping shall be performed as specified in tables 6A and 6B. This must be done to allow setup of a compatible end-to-end connection between two MSs or one MS and an ISDN terminal.

It has been acknowledged that octets 5a, 5b, 5c and 5d or a combination of them may also be sent and received in 3,1 kHz audio calls. Follow-up versions of ETS 300 102-1 (i.e. ETS 300 403-1), confirm this interpretation. This is especially important for MOC-ISDN terminating calls, where early Customer Premise Equipment (e.g. PABXs), may reject these calls.

In the following table the comparison is drawn between parameters in the GSM call set up request message and that of the ISDN call set up request message. In some cases no comparable values are available and these will be marked as such. In these cases reference will need to be made to the table of network interworking in GSM 09.07 to identify the appropriate choice. In some cases it is not necessary to support a particular option, and in this case those parameters will be annotated appropriately.

Table 6A: Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
1	**Bearer Capability IEI**	1	**Bearer Capability IEI**
2	**Length of BC contents**	2	**Length of BC contents**
3 #7..6	**Radio channel requirement** half rate channel full rate channel dual, full, rate preferred dual, half rate preferred		No comparable field
3 #4	**Coding Standard** GSM standard coding	3 #7..6	**Coding Standard** CCITT standardized coding
3 #4	**Transfer mode** circuit mode packet mode (note7)	4 #7..6	Transfer mode circuit mode packet mode
3 #3..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio ex PLMN facsimile group 3 (note 1) other ITC (see octet 5a)	3 #5..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio see table 4 in GSM 09.07 no comparable value
5a #7..6	**Other ITC** restricted digital		(note 18)
4 #7	**Compression** (note 14) data compression allowed data compression not allowed		No comparable field
4 #6..5	**Structure** SDU integrity unstructured	4a #7..5	**Structure** (note 4)
4 #4	**Duplex mode** half duplex full duplex	5d #7	**Duplex mode** half duplex full duplex

(continued)

Table 6A (continued): Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
4 #3	**Configuration** point to point	4a #4..3	**Configuration** (note 4) point to point
4 #1	**Establishment** demand	4a #2..1	**Establishment** (note 4) demand
4	**NIRR** (note 12) meaning Data ≤ 4.8kbit/s, FR nt, 6kbit/s radio interface is requested		No comparable field
5 #5..4	**Rate adaptation** no rate adaptation (note 2) V.110/X.30 rate adaptation CCITT X.31 flag stuffing No comparable value (note 11) No comparable value (note 11) No comparable value (note 11) other rate adaptation (see octet 5a)	5 #5..1	**User information layer 1 protocol** no comparable value CCITT standardized rate adaption V.110/X.30 CCITT standardized rate adaption X.31 flag stuffing Recommendation G.711 μ law Recommendation G.711 A law (note 3) Recommendation G.721 32 kbit/s ADPCM and I.460 No comparable value
5a #5..4	**Other rate adaptation** V.120 (note 17)		No comparable value
5 #3..1	**Signalling access protocol** I.440/I.450 X.21 X.28, ded.PAD, indiv.NUI X.28, ded PAD, univ.NUI X.28, non-ded PAD X.32		No comparable field
6 #1	**Synchronous/asynchronous** synchronous asynchronous	5a #7	**Synchronous/asynchronous** synchronous asynchronous
6 #5..2	**User info. layer 1 protocol** default layer 1 protocol	5 #5..1	**User info. layer 1 protocol** see section under rate adaptation for GSM 04.08 above
6a #7	**Number of stop bits** 1 bit 2 bits	5c #7..6	**Number of stop bits** 1 bit 2 bits
6a #6	**Negotiation** In band neg. not possible no comparable value	5a #6	**Negotiation** In band neg. not possible In band neg. possible (note 10)
6a #5	**Number of data bits** 7 bits 8 bits	5c #5..4	**Number of data bits excluding parity if present** 7 bits 8 bits

(continued)

Table 6A (continued): Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
6a #4..1	**User rate** 0.3 kbit/s 1.2 kbit/s 2.4 kbit/s 4.8 kbit/s 9.6 kbit/s 12 kbit/s (note 7) 1.2 kbit/s / 75 bit/s any value no comparable value	5a #5..1	**User rate** 0.3 kbit/s 1.2 kbit/s 2.4 kbit/s 4.8 kbit/s 9.6 kbit/s 12 kbit/s 75 bit/s / 1.2 kbit/s 19.2 kbit/s (note 14) Ebits or inband negotiation (note 10)
6b #7..6	**Intermediate rate** 8 kbit/s 16 kbit/s any value	5b #7..6	**Intermediate rate** (note 13) 8 kbit/s or not used 16 kbit/s or not used 32 kbit/s or not used (note 14)
6b #5	**NIC on Tx** does not require requires (note7)	5b #5b	**NIC on Tx** does not require requires (note 8)
6b #4	**NIC on Rx** cannot accept can accept (note 7)	5b #4	**NIC on Rx** cannot accept can accept (note 8)
6b #3..1	**Parity information** odd even none forced to 0 forced to 1	5c #3..1	**Parity information** odd even none forced to 0 forced to 1
6c #7..6	**Connection element** transparent non-transparent (RLP) both, transp. preferred both, non-transp. preferred		No comparable field
6c #5..1	**Modem type** none V.21 V.22 V.22bis V.23 V.26ter V.32 modem for undef. interface autobauding type 1	5d #6..1	**Modem type** (note 9) no comparable value (note 5) V.21 V.22 V.22bis V.23 V.26ter V.32 No comparable value (note 5) No comparable value (note 5, note 10)
7 #5..1	**User info. layer 2 protocol** X.25 link level ISO 6429, codeset 0 COPnoFlCt videotex profile 1 (note 7) X.75 layer 2 modified (CAPI)	6	**User info.layer 2 prot.** (note 6) X.25 link level no comparable value no comparable value no comparable value X.25 link level

Table 6A (concluded): Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

6d #5..1	**Fixed network user rate** (note 15) FNUR not applicable (note 7) 9,6 kbit/s 12 kbit/s (note 7) 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48,0 kbit/s 56,0 kbit/s 64,0 kbit/s	5a #5..1	**User rate** no comparable value 9,6 kbit/s 12 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48,0 kbit/s 56,0 kbit/s no comparable value (note 16)
6e #3..1	**Maximum number of traffic channels** 1 TCH 2 TCH 3 TCH 4 TCH 5 TCH 6 TCH 7 TCH (note 7) 8 TCH (note 7)		No comparable field
6f #4..1	**Wanted air interface user rate** air interface user rate not applicable (note 7) 9,6 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 43,2 kbit/s 57,6 kbit/s interpreted by the network as 38.4 kbit/s (note 7)		No comparable field
6d #7..6	**Other modem type** (note 15) No other modem type V.34	5d #6..1	**Modem type** no comparable value V.34
6e #7..4	**Acceptable channel coding(s)** TCH/F4.8 acceptable (note 19) TCH/F9.6 acceptable TCH/F14.4 acceptable		No comparable field
6f #7..5	**User initiated modification indicator** User initiated modification not required User initiated modification upto 1 TCH/F may be requested User initiated modification upto 2 TCH/F may be requested User initiated modification upto 3 TCH/F may be requested User initiated modification upto 4 TCH/F may be requested		No comparable field

The application rules for coding the information elements ISDN-BC/LLC/HLC as set out in ETR 018 and ETS 300 102-1 shall apply.

Other field values in the ISDN BC-IE of ETS 300 102-1 not supported in GSM 04.08 are:

Information transfer rate: In this case default 64 kbit/s is selected.

Symmetry: In this case default bi-directional symmetric is selected for all user data rates (note 5).

Flow control on transmission: This shall be selected if outband flow control applies.

Flow control on reception: This shall be selected if outband flow control applies.

NOTE: Outband flow control is indicated by the absence of the UIL2P parameter for non-transparent connections.

User information layer 3 protocol:

Octet 7 shall not be sent unless specific application rules are given for particular cases (to be defined by GSM). End-to-end significant User Information layer 3 protocol shall be sent by LLC.

NOTE 1: In the case where GSM BC "Information Transfer Capability" indicates "Facsimile group 3" and only a single GSM BC is contained in the call set-up request then this shall be mapped to an ISDN BC with:

Coding standard: CCITT
Information Transfer capability 3,1 kHz audio
Transfer mode circuit
Information transfer rate 64 kbit/s
User layer 1 protocol G711 A Law
and

- If an HLC is not present, the network will insert a "Facsimile group 2/3" HLC.
- If an HLC element is present, the network will pass it through unmodified.

In the case where GSM BC "Information Transfer Capability" indicates "Facsimile group 3" and two GSM BCs are contained in the call set-up request, then the same ISDN BC as mentioned above is created. If the first GSM BC indicates "facsimile group 3" an HLC "facsimile group 2/3" will be inserted by the network (if not received from the MS). However if the first GSM BC indicates "speech", the network will not send a HLC, irrespective where a HLC was received from the MS or not.

NOTE 2: This value is present in combination with information transfer capability parameter value "3,1 kHz audio Ex PLMN" or "facsimile group 3" and will therefore be mapped to the value "CCITT Recommendation G.711 A Law" of the ETS 300 102-1 parameter user layer 1 protocol (see note 3).

NOTE 3: The value "CCITT Recommendation G.711 A Law" applies only when the ETS 300 102-1 parameter information transfer capability indicates "3,1 kHz audio" or "speech".

NOTE 4: Octets 4a and 4b shall not be included because default values apply.

NOTE 5: In this case octet 5d shall not be included.

NOTE 6: Octet 6 shall not be sent unless specific application rules are given for a particular case (GSM specified). End-to-end significant user information layer 2 protocol shall be sent by LLC.

NOTE 7: Not used for currently defined Bearer Services and Teleservices.

NOTE 8: These values will only be set if the "Information Transfer Capability" indicates "3,1 kHz audio", synchronous data transmission is used and octet 5b of the ISDN BC is present.

NOTE 9: The mapping of the modem type shall be according to Draft ETS 300 102-1/prA1.

NOTE 10: The GSM BC-IE parameter value "autobauding modem type 1" will be mapped to the ISDN BC-IE parameter values "inband negotiation possible" and "user rate indicated by E-bits specified in CCITT Rec I.460 or may be negotiated inband" (octet 5a of ISDN BC-IE). In case of data compression high speed modems, like V.32bis and/or V.34 may be used in the IWF.

NOTE 11: The ITC value of the GSM BC-IE "speech", "3,1 kHz audio Ex PLMN" will indicate these requirements.

NOTE 12: For the use of NIRR see GSM 07.01.

NOTE 13: The value of the Intermediate Rate field of the ISDN Bearer Capability information element shall only depend on the values of the User Rate and the Information Transfer Capability in the same information element. The correspondence is:

Intermediate Rate = not used if User Rate > than 19.2 kbit/s
Intermediate Rate = 32 kbit/s if User Rate = 19,2 kbit/s or 14.4 kbit/s
Intermediate Rate = 16 kbit/s if User Rate = 9,6 kbit/s
Intermediate Rate = 8 kbit/s otherwise.

In case of Audio calls the value of the Intermediate Rate may be set to "not used".

NOTE 14: If compression is supported by the MSC and "data compression allowed" is indicated, then the ISDN user rate for UDI calls shall be set as follows. If the parameter “FNUR” is present the ISDN user rate shall be set to this value. Otherwise the GSM user rate shall be mapped to an equal or any higher ISDN user rate value (in case of V.110 the highest ISDN user rate shall be 19.2 kbit/s). The Intermediate Rate shall be set to an appropriate value.(see subclause 10.2.4.11).

In case of "3,1 kHz audio" the modem must try to negotiate data compression and flow control (see subclause 9.2.4.11). In case of "autobauding type 1" high speed modems may be used (see note 10).

NOTE 15: User rate of the GSM-BC is overriden by the fixed network user rate of the GSM BC-IE if available. When the MT indicates „autobauding“, „modem for undefined interface“ or „none“, the other modem type shall be set to „no other modem type“; any other value of the modem type is overridden by the other modem type value (see GSM 07.01).

NOTE 16: The ISDN-BC will consist of the octets 1 to 4 only, coded:

Coding standard:	CCITT
Information Transfer capability	UDI
Transfer mode	circuit
Information transfer rate	64 kbit/s

NOTE 17: V.120 interworking is selected.

If an LLC element is not present, the network will insert an LLC. If an LLC is present it may be modified. The GSM-BC parameters negotiated with the MS shall be mapped to the LLC parameters. The LLC parameter Rate Adaptation will be set to "V.120".

When interworking with unrestricted 64 kbit/s networks the ISDN BC shall be coded according to note 16.

NOTE 18: When the MSC is directly connected to a restricted 64 kbit/s network, the ISDN BC-IE is coded with an ITC = RDI (not applicable to ISDNs conforming to ETS 300 102-1). When indirectly interworking with a restricted 64 kbit/s network the ISDN BC-IE shall be coded according to ETR 018, as shown below:

Coding standard:	CCITT
Information Transfer capability:	UDI
Transfer mode:	circuit
Information transfer rate:	64 kbit/s
User information layer 1 protocol:	V.110/X.30
Synchronous/Asynchronous:	synchronous
Negotiation:	In-band negotiation not possible
User rate:	56 kbit/s

If an LLC element is not present, the network will insert an LLC. If an LLC is present it may be modified. The GSM-BC parameters negotiated with the MS shall be mapped to the LLC parameters according to the rules in this table. The LLC parameter Information Transfer Capability will be set to „restricted digital“

NOTE 19: In case the MS signals an ACC containing TCH/F4.8 only and the network does not support TCH/F4.8 channel coding, then the MSC may act as if TCH/F9.6 were included in the ACC.

Table 6B: Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
1	**Bearer Capability IEI**	1	**Bearer Capability IEI**
2	**Length of BC contents**	2	**Length of BC contents**
	no comparable field	3 #7..6	**Radio channel requirement** (note 1) half rate channel full rate channel both, half rate preferred both, full rate preferred
3 #7..6	**Coding standard** CCITT standardized coding	3 #5	**Coding standard** GSM standardized coding
3 #5..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio no comparable value no comparable value 7 kHz audio video	3 #3..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio ex PLMN (note2) facsimile group 3 (note 3) other ITC (see octet 5a) not supported not supported
	(note 23)	5a #7..6	**Other ITC** restricted digital
4 #7..6	**Transfer mode** circuit mode packet mode	3 #4	**Transfer mode** circuit mode circuit mode

(continued)

Table 6B (continued): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
4 #5..1	**Information transfer rate** 64 kbit/s		no comparable field
	No comparable field	4 #7	**Compression** (note 18) data compression possible data compression not possible
4a #7..5	**Structure** default 8 kHz integrity SDU integrity unstructured	(4) 4 #6..5	**Structure** no comparable value no comparable value SDU integrity (note 9) unstructured (note 5)
4a #4..3	**Configuration** point-to-point	4 #3	**Configuration** point-to-point (*)
	No comparable field	4 #2	**NIRR** (note 17) No meaning Data ≤ 4.8 kbit/s, FR nt, 6 kbit/s radio interface requested
4a #2..1	**Establishment** demand	4 #1	**Establishment** demand (*)
4b #7..6	**Symmetry** bi-directional symmetric		no comparable field
4b #5..1	**Information transfer rate (dest->orig.)** 64 kbit/s		no comparable field
5 #5..1	**User information layer 1 protocol** no comparable value CCITT V.110 / X.30 CCITT G.711 A-law CCITT X.31 flag stuffing no comparable value	5 #5..4	**Rate adaption** no rate adaption (note 11) V.110/X.30 rate adaption no comparable value CCITT X.31 flag stuffing other rate adaption (see octet 5a)
	No comparable value	5a #5..4	**Other rate adaptation** V.120 (note 24)
	no comparable field	5 #3..1	**Signalling access protocol** I.440/I.450 X.21 X.28, ded.PAD, indiv.NUI X.28, ded.PAD, univ.NUI X.28, non-ded.PAD X.32
	see above	6 #5..2	**User information layer 1 protocol** default layer 1 protocol
5a #7	**Synchronous / asynchronous** synchronous asynchronous	6 #1	**Synchronous/asynchronous** synchronous asynchronous

(continued)

Table 6B (continued): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
5a #6	**Negotiation** not possible inband neg, possible (note 16)	6a #6	**Negotiation** not possible no comparable value
5a #5..1	**User rate** 0,3 kbit/s 1,2 kbit/s 2,4 kbit/s 4,8 kbit/s 9,6 kbit/s 12 kbit/s rate is indicated by Ebit as specified in CCITT rec. I.460 0,6 kbit/s 3,6 kbit/s 7,2 kbit/s 8 kbit/s 14,4 kbit/s 16 kbit/s 28.8 kbit/s 32 kbit/s 38.4 kbit/s 48 kbit/s 56 kbit/s 64 kbit/s 0,1345 kbit/s 0,1 kbit/s 75 bit/s / 1,2 kbit/s 1,2 kbit/s / 75 bit/s 0,110 kbit/s 0,115 kbit/s 0,2 kbit/s	6a #4..1	**User rate (note 18)** 0,3 kbit/s 1,2 kbit/s 2,4 kbit/s 4,8 kbit/s 9,6 kbit/s 12 kbit/s (note 13) **(**note 16) not supported not supported not supported not supported (note 20) not supported (note 20) not supported (note 20) (note 20) (note 20) not supported
5b #7..6	**Intermediate rate** not used (note 19) 8 kbit/s 16 kbit/s 32 kbit/s	6b #7..6	**Intermediate rate** (note 6) (note 18) 8 or 16 kbit/s 8 kbit/s 16 kbit/s
5b #5	**NIC on Tx** (note 14) does not require requires	6b #5	**NIC on Tx** does not require requires (note 13)
5b #4	**NIC on Rx** (note 14) cannot accept can accept	6b #4	**NIC on Rx** cannot accept can accept (note 13)
5b #3	**Flow control on Tx** (note 15) Not Required Required		no comparable field
5b #2	**Flow control on Rx** (note 15) Cannot Accept Accept		no comparable field

(continued)

Table 6B (continued): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
5c #7..6	**Number of stop bits** 1 bit 2 bits not used 1.5 bits	6a #7	**Number of stop bits** 1 bit 2 bits no comparable value not supported
5c #5..4	**Number of data bits** 7 bits 8 bits not used 5 bits	6a #5	**Number of data bits** 7 bits 8 bits no comparable value not supported
5c #3..1	**Parity information** odd even none forced to 0 forced to 1	6b #3..1	**Parity information** odd even none forced to 0 forced to 1
	no comparable field	6c #7..6	**Connection element** (note 1) transparent non-transparent (RLP) both, transp. preferred both, non-transp preferred
5d #7	**Duplex mode** half duplex full duplex	4 #4	**Duplex mode** half duplex (note 13) full duplex (*)
5d #6..1	**Modem type** reserved V.21 V.22 V.22bis V.23 V.26ter V.32 V.26 V.26bis V.27 V.27bis V.29 V.35 no comparable value	6c #5..1	**Modem type** (note 12) none (note 7) V.21 V.22 V.22bis V.23 V.26ter V.32 not supported autobauding type 1 (note 16)

(continued)

Table 6B (concluded): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
5a #5..1	**User rate** no comparable value 9,6 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48 kbit/s 56 kbit/s no comparable value	6d #5..1	**Fixed network user rate** (note 20) FNUR not applicable 9,6 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48,0 kbit/s 56,0 kbit/s 64,0 kbit/s (note 22)
	Modem type no comparable value (note 21) V.34	6d #7..6	**Other modem type** No other modem type V.34
	No comparable field	6f #7..5	**User initiated modification indicator** (note 1) User initiated modification not required User initiated modification upto 1 TCH/F may be requested User initiated modification upto 2 TCH/F may be requested User initiated modification upto 3 TCH/F may be requested User initiated modification upto 4 TCH/F may be requested
6 #5..1	**User information layer 2 protocol** (note 10) Q.921 (I.441) X.25, link level no comparable value	7	**User information layer 2 protocol** (note 8) no comparable value X.25, link level ISO 6429, codeset 0
7	**User information layer 3 protocol** (note 10) Q.931 (I.451) X.25, packet level		not supported

General notes:

1) Other ETS 300 102-1 parameter values than those listed in the table, if indicated in the BC-IE, will be rejected by clearing the call.

2) Only the GSM 04.08 parameter values listed in the table may be generated (comparable values) during a mobile-terminated call by mapping the ETS 300 102-1 parameter values, exception see (10).

3) According to ETS 300 102-1 and GSM 04.08, respectively, the octets are counted from 1 to n onwards; the bit position in a particular octet is indicated by #x..y, with {x,y} = 1..8 (bit 1 is the least and bit 8 the most significant bit).

4) If octets 5 to 5d of the ISDN BC are absent but present in the LLC, the LLC octets should apply for the mapping as indicated above. In the case of V.120 interworking (see note 24) these LLC octets shall apply.

5) If within the ISDN BC the parameters information transfer capability indicates "3,1 kHz audio" and user layer 1 protocol indicates "G711 A Law" but no modem type is available and the HLC does not indicate "facsimile group 3", octets 5 to 5d of the LLC, if available, apply for the above mapping procedure.

6) The number of octets which shall be encoded for the GSM BC-IE must comply to encoding rules in GSM 04.08 and the combination of the different parameter values shall be in accordance to GSM 07.01.

Notes regarding the mapping:

(*) This GSM 04.08 parameter value is inserted, if the comparable ETS 300 102-1 parameter value is missing.

1) This GSM 04.08 parameter value is inserted according to user rate requirements and network capabilities / preferences.

2) This GSM 04.08 parameter value is inserted, if the information transfer capability in ISDN BC is "3,1kHz audio" and a comparable modem type is specified.

3) This GSM 04.08 parameter value is inserted, if the information transfer capability is "3,1 kHz audio" and the content of the HLC-IE, if any, indicates "facsimile group 2/3", (for details refer to subclause 10.2.2 case 3 for HLR action and case 5 for VMSC action). Note that via MAP the value "alternate speech/facsimile group 3 - starting with speech" shall be used, when TS 61 applies.

4) If octet 4a is omitted the default condition according to ETS 300 102-1 applies.

5) The GSM 04.08 parameter value shall be set to "unstructured" where the network indicates connection element "transparent".

6) The value of the Intermediate Rate field of the GSM Bearer Capability information element shall only depend on the values of the user rate or the radio channel requirement in the same information element. If the connection element is "transparent“, the value is 16 kbit/s, if the user rate is 9.6 or 12 kbit/s, and 8 kbit/s otherwise. For any other connection element setting the value is 16 kbit/s, if the radio channel requirements are "full rate" or "dual, full rate preferred", or "dual, half rate preferred", and 8 kbit/s, if the radio channel requirements is "half rate".

7) This GSM 04.08 parameter value is inserted, if the GSM BC parameter "Information Transfer Capability" indicates "Unrestricted digital information", "facsimile group 3" or "alternate speech/facsimile group 3, starting with speech".

8) Where the network indicates "asynchronous" and connection elements "non-transparent", "both, transparent preferred" or "both, non-transparent preferred" , then the GSM BC should be forwarded without parameter user information layer 2 protocol, see also (10).

9) Where the network indicates connection elements "non transparent" "both, transparent preferred" or "both, non transparent preferred" the value of the parameter structure shall be set to "SDU Integrity".

10) Mapping of parameter values of this octet to GSM BC parameters and values are subject to specific application rules, i.e. unless otherwise explicitly stated in an appropriate TS mapping to GSM BC parameters shall not take place.

11) This value shall be used when the value of the GSM BC parameter "Information Transfer Capability" indicates the value "3,1 kHz audio ex PLMN", "facsimile group 3" or "alternate speech/facsimile group 3, starting with speech" which is reserved for MAP operations.

12) The modem encoding of both Draft ETS 300 102-1/prA1 and ETS 300 102-1 version 1 shall be accepted and mapped according to GSM 04.08.

13) Value not used for currently defined bearer services and Teleservices.

14) NIC is only supported for "3,1 kHz Ex PLMN audio" interworking with synchronous data transmission.

15) Because the required flow control mechanism can not be indicated to the MS (refer to GSM 07.01), the network shall check if the flow control mechanism selected by the MS and indicated in the CALL CONFIRMED message suits to the requirements requested by the ISDN terminal adaptor. In case of a mismatch the call shall be released in the IWF.

    Because an asymmetric flow control mechanism (with respect to transmitting and receiving side) is not supported in GSM PLMNs, the different values of the ISDN BC-IE parameters "flow control on Tx" and "flow control on Rx" shall be interpreted in the following way:

    - "Flow control on Rx" set to "accepted" matches with "outband flow control", irrespective of the value of the parameter "flow control on Tx"
    - "Flow control on Rx" set to "not accepted" and "flow control on Tx" set to "not required" matches with "inband flow control" and "no flow control"
    - where "Flow control on Rx" is set to "not accepted" and "flow control on Tx" to "required" the call shall be released by the IWF

16) If in case of 3,1 kHz audio interworking "inband negotiation possible" is indicated and the parameter user rate is set to "rate is indicated by E bits specified in Recommendation I.460 or may be negotiated inband" the user rate in the GSM BC-IE shall be set according to a network preferred value, whereas the preferred value of the Radio Channel Requirement shall be considered. If parameter ISDN-BC modem type is present, its value shall be ignored. The parameter GSM-BC modem shall be set according to the user rate in case of connection element "transparent" and to "autobauding type 1" in case of connection element "non transparent", "both, transparent preferred" or "both, non transparent preferred". In case of data compression high speed modems, like V.32bis and/or V.34 may be used in the IWF.
    For unrestricted digital interworking the call shall be rejected if these values are indicated.

17) For the use of NIRR see GSM 07.01. The VMSC shall set this parameter dependent upon its capabilities and preferences.

18) If compression is supported by the MSC, the value "data compression possible" may be set. Depending on the capabilities of the MSC, the user rate value and the intermediate rate value is set to an appropriate value.

19) Only applicable if the parameter ISDN-BC ITC indicates "3.1 kHz audio" and for "UDI" calls if User Rate > "19.2 kbit/s".

20) The user rate of the GSM BC is set to the value for the fall-back bearer service. In case the mobile station does not support the fixed network user rate (i.e. the call confirmation message does not contain the fixed network user rate parameter), the network may release the call for a transparent connection element.

21) The modem type parameter of the GSM-BC is taken into account, only.

22) In case no LLC is received and the ISDN-BC received consists of octets 1 to 4 only, coded:

Coding standard:	CCITT
Information Transfer capability	UDI
Transfer mode	circuit
Information transfer rate	64kbit/s,

the following GSM-BC parameters, indicating a 64 kbit/s bit transparent service, shall be set to:

fixed network user rate	64 kbit/s
connection element	transparent

The other parameters of the GSM-BC shall be set to values indicating a fall-back service.

(23) When the MSC is directly connected to a restricted 64 kbit/s network, the ISDN BC-IE is coded with an ITC = RDI (not applicable to ISDNs conforming to ETS 300 102-1). An ISDN BC-IE, as specified in ETR 018 and shown below, shall be taken to indicate that interworking with an indirectly connected restricted 64 kbit/s network is required

Coding standard:	CCITT
Information Transfer capability:	UDI
Transfer mode:	circuit
Information transfer rate:	64 kbit/s
User information layer 1 protocol:	V.110/X.30
Synchronous/Asynchronous:	synchronous
Negotiation:	In-band negotiation not possible
User rate:	56 kbit/s

In this case the GSM BC parameter Information Transfer Capability is set to „Other ITC“ and Other ITC parameter is set to „restricted digital“. All the corresponding fields in the GSM BC shall be derived from the ISDN LLC.

24) V.120 interworking is required if the ISDN LLC parameter User Information Layer 1 Protocol is set to „V.120“. In this case the GSM BC parameter Rate Adaptation is set to „Other rate adaptation“ and Other Rate Adaptation parameter is set to „V.120“. All the corresponding fields in the GSM BC shall be derived from the ISDN LLC.

10.2.2.1 Circuit switched calls

Where the bearer capability information indicated that the call is a circuit switched unrestricted digital call, then the MSC/IWF shall select the appropriate rate adapted PLMN bearer service.

10.2.2.2 Packet calls

The mobile network offers only Bm channel access for the packet mode service. The ISDN offers both B and D channel access for the packet mode service. The interworking of mobile packet calls is described in GSM 09.06.

Tdoc SMG4 97p325

ETSI STC SMG4 #2/97
Whistler, 1. - 5. September 1997

CHANGE REQUEST No. A033r2

Technical Specification GSM 09.07	**version 5.4.0**	
Submitted to SMG for approval	**without presentation ("non-strategic")**	**[x]**
	with presentation ("strategic")	**[ ]**
Status at SMG [ ]:	**Approved [ ] Rejected [ ] Postponed [ ]**	

Phase 1: [ ] Phase 2: [ ] Phase 2+: [x] Work item: 14.4 kbit/s , HSCSD

Other phase(s) affected: [ ] If yes, linked CR(s):

Proposed change affects: SIM [ ] ME [x] Network [x]

Source: SMG4 **Date**: 09/04/97

Subject: 14.4 and HSCSD

Category:

F - Correction	**[ ]**
A - Corresponds to a Phase 2 correction	**[ ]**
B - Addition of Feature	**[ ]**
C - Functional modification of Feature	**[x]**
D - Editorial modification	**[ ]**

Reason for change:

The data compression function needs to be described for 14.4 and HSCSD.

Sections affected, and additional explanation of details of change (if needed):

Note 14/table 6A and note 18/table 6B

If other core Specifications are affected, necessary (and attached) Joint CRs:

Affects (possibly):	**MS Test Specifications [ ]**	**BSS Test Specifications [ ]**	**O&M Specifications [ ]**
Attached CRs?:			

Cross Phase Compatibility:		
Change affects operation of:	Phase 1 MS in Phase 2(+) NW [ ]	Phase 2(+) MS in Phase 1 NW [ ] CR to 09.90 attached:

Change affects operation of:	Phase 1 SIM in Phase 2(+) ME[ ] CR to 09.91 attached:	Phase 2(+) SIM in Phase 1 ME [ ] CR to 09.91 attached:

Other comments:

NOTE 10: The GSM BC-IE parameter value "autobauding modem type 1" will be mapped to the ISDN BC-IE parameter values "inband negotiation possible" and "user rate indicated by E-bits specified in CCITT Rec I.460 or may be negotiated inband" (octet 5a of ISDN BC-IE). In case of data compression high speed modems, like V.32bis and/or V.34 may be used in the IWF.

NOTE 11: The ITC value of the GSM BC-IE "speech", "3,1 kHz audio Ex PLMN" will indicate these requirements.

NOTE 12: For the use of NIRR see GSM 07.01.

NOTE 13: The value of the Intermediate Rate field of the ISDN Bearer Capability information element shall only depend on the values of the User Rate and the Information Transfer Capability in the same information element. The correspondence is:

Intermediate Rate = 64 kbit/s if User Rate > than 19.2 kbit/s
Intermediate Rate = 32 kbit/s if User Rate = 19,2 kbit/s or 14.4 kbit/s
Intermediate Rate = 16 kbit/s if User Rate = 9,6 kbit/s
Intermediate Rate = 8 kbit/s otherwise.

In case of Audio calls the value of the Intermediate Rate may be set to "not used".

NOTE 14: ~~For non-HSCSD-operations, if~~If ~~-~~compression is supported by the MSC and "data compression allowed" is indicated, then the ISDN user rate for UDI calls shall be set as follows. If the parameter “FNUR” is present the ISDN user rate shall be set to this value. Otherwise the GSM user rate shall be mapped ~~the User Rate can be mapped~~ to an equal~~the same~~ or any higher ISDN u~~U~~ser r~~R~~ate value ~~up to / equal to 19,2 kbit/s~~ (in case of V.110 the highest ISDN user rate shall be 19.2 kbit/s). The ~~with an~~ Intermediate Rate shall be set to an appropriate value. ~~value in case of "UDI"~~ (see subclause 10.2.4.11).

In case of "3,1 kHz audio" the modem must try to negotiate data compression and flow control (see subclause 9.2.4.11). In case of "autobauding type 1" high speed modems may be used (see note 10).

NOTE 15: User rate of the GSM-BC is overriden by the fixed network user rate of the GSM BC-IE if available. The modem type is overriden by the other modem type, see GSM 07.01

Table 6B-09.07 (continued): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
5a #6	**Negotiation** not possible inband neg, possible (note 16)	6a #6	**Negotiation** not possible no comparable value
5a #5..1	**User rate** 0,3 kbit/s 1,2 kbit/s 2,4 kbit/s 4,8 kbit/s 9,6 kbit/s 12 kbit/s ~~19,2 kbit/s~~ rate is indicated by Ebit as specified in CCITT rec. I.460 0,6 kbit/s 3,6 kbit/s 7,2 kbit/s 8 kbit/s 14,4 kbit/s 16 kbit/s 28.8 kbit/s 32 kbit/s 38.4 kbit/s 48 kbit/s 56 kbit/s 64 kbit/s 0,1345 kbit/s 0,1 kbit/s 75 bit/s / 1,2 kbit/s 1,2 kbit/s / 75 bit/s 0,110 kbit/s 0,115 kbit/s 0,2 kbit/s	6a #4..1	**User rate** (note 18) 0,3 kbit/s 1,2 kbit/s 2,4 kbit/s 4,8 kbit/s 9,6 kbit/s 12 kbit/s (note 13) ~~9,6 kbit/s (note 18) (note 20)~~ **(**note 16) not supported not supported not supported not supported (note 20) not supported (note 20) not supported (note 20) (note 20) (note 20) not supported
5b #7..6	**Intermediate rate** not used (note 19) 8 kbit/s 16 kbit/s ~~32 kbit/s~~ 64 kbit/s	6b #7..6	**Intermediate rate** (note 6) (note 18) 8 or 16 kbit/s 8 kbit/s 16 kbit/s ~~16 kbit/s (note 18)~~ 16 kbit/s
5b #5	**NIC on Tx** (note 14) does not require requires	6b #5	**NIC on Tx** does not require requires (note 13)
5b #4	**NIC on Rx** (note 14) cannot accept can accept	6b #4	**NIC on Rx** cannot accept can accept (note 13)
5b #3	**Flow control on Tx** (note 15) Not Required Required		no comparable field

5b #2	**Flow control on Rx** (note 15) Cannot Accept Accept		no comparable field

(continued)

15) Because the required flow control mechanism can not be indicated to the MS (refer to GSM 07.01), the network shall check if the flow control mechanism selected by the MS and indicated in the CALL CONFIRMED message suits to the requirements requested by the ISDN terminal adaptor. In case of a mismatch the call shall be released in the IWF.

Because an asymmetric flow control mechanism (with respect to transmitting and receiving side) is not supported in GSM PLMNs, the different values of the ISDN BC-IE parameters "flow control on Tx" and "flow control on Rx" shall be interpreted in the following way:

- "Flow control on Rx" set to "accepted" matches with "outband flow control", irrespective of the value of the parameter "flow control on Tx"
- "Flow control on Rx" set to "not accepted" and "flow control on Tx" set to "not required" matches with "inband flow control" and "no flow control"
- where "Flow control on Rx" is set to "not accepted" and "flow control on Tx" to "required" the call shall be released by the IWF

16) If in case of 3,1 kHz audio interworking "inband negotiation possible" is indicated and the parameter user rate is set to "rate is indicated by E bits specified in Rec I.460 or may be negotiated inband" the user rate in the GSM BC-IE shall be set according to a network preferred value, whereas the preferred value of the Radio Channel Requirement shall be considered. If parameter ISDN-BC modem type is present, its value shall be ignored. The parameter GSM-BC modem shall be set according to the user rate in case of connection element "transparent" and to "autobauding type 1" in case of connection element "non transparent", "both, transparent preferred" or "both, non transparent preferred". In case of data compression high speed modems, like V.32bis and/or V.34 may be used in the IWF.
For unrestricted digital interworking the call shall be rejected if these values are indicated.

17) For the use of NIRR see GSM 07.01. The VMSC shall set this parameter dependent upon its capabilities and preferences.

(18) If compression is supported by the MSC, the value "data compression possible" ~~can~~ may be set. Depending on the capabilities of the MSC, the user rate value and the intermediate rate value is set to an appropriate value~~In case of "3.1 kHz audio" it will be set for all calls. In case of "UDI" it will only be set if the ISDN-BC indicates a User Rate of "19,2 kbit/s" and an Intermediate Rate of "32 kbit/s". The values will be mapped as shown in the table. A "3.1 kHz audio" call with a User Rate of "19.2 kbit/s" will be rejected if HSCSD-operations are not supported.~~

(19) Only applicable if the parameter ISDN-BC ITC indicates "3.1 kHz audio".

(20) The user rate of the GSM BC is set to the value for the fall-back bearer service. In case the mobile station does not support the fixed network user rate (i.e. the call confirmation message does not contain the fixed network user rate parameter), the network may release the call for a transparent connection element.

(21) The modem type parameter of the GSM-BC is taken into account, only.

ETSI/STC/SMG4 TDoc SMG4 97P159
Whistler, Canada
Sept. 01-05, 1997

Subject: HSCSD and 14.4: Inconsistencies
Source: T-Mobil, France Télécom, Alcatel, Siemens

For HSCSD and 14.4 some inconsistencies can be found in the GSM specifications.

1 Other modem type „V.32bis“

For HSCSD/14.4 „V.32bis“ was defined as a new modem type. This modem type can be signalled in the GSM-BC, but not in the ISDN-BC. Table 6A in case of a MOC doesn't give the answer, how the mapping in this case can be done in a way that the terminating side recognizes the incoming call as a V.32bis call request. According to 09.07 only the user rate parameter in the ISDN-BC is set to 14.4 kbit/s and no modem type is set.

The consequences of the missing modem type are as follows:

1.1 Fixed network interworking

Setting up a call towards a fixed network modem should not cause problems, because there is no need to signal the modem type and the user rate, the ITC „3.1 kHz audio“ is sufficient.

1.2 Mobile-to-mobile call

The following will happen at the terminating side:

The MSC cannot take a clear decision whether a V.32bis or V.34 modem shall be activated, because both modems support 14.4 kbit/s. Since the signalling is incomplete, the GSM-BC associated with the MSISDN will be taken from the HLR and will then be transferred in the SETUP message to the MS. If the GSM-BC contains, e.g., the modem type V.22bis, the call will fail.

1.3 Possible solutions

1) Since the missing modem type causes problems at the terminating side, the originating side could set the modem type to V.34 or V.32 depending on the user rate. This will again lead to inconsistencies, because the MSC/IWF with V.32bis modems only, will have to be able to accept a call request for a modem which it does not support.

2) Call requests with a missing modem type could be mapped to autobauding at the terminating side. This will only work as long as the MS does not change the NT call to a transparent call in the CALL CONFIRMED message.

The following note could be added to table 6B:

> Note xx: If a user rate higher than 9.6 kbit/s is indicated in the ISDN-BC and the modem type is missing for 3.1 kHz audio calls, then the autobauding function can be activated.

Additionally section 10.2.2 in 09.07 needs to be aligned

3) Another solution could be to delete the V.32bis codepoint from the GSM specifications, in order to align them with the ISDN recommendations.

4) An incoming call with a user rate of 14400 bit/s and without a modem type could be mapped to V.32bis. For the time being this works, because only for V.32bis calls the modem type will be missing. But if, in the near future, a new modem type, that is to be signalled in the same way like V.32bis, is introduced and this new modem type also supports 14.4 kbit/s, then a clear distinction between these modem types is no longer possible at the terminating side

SMG4 are asked to find a solution.

2 Autobauding function

Note 15 of 09.07 table 6A states that the „The modem type is overridden by the other modem type, see GSM 07.01“. When reading this one may get the impression, that the modem type „autobauding type 1“ is overridden by every possible OMT value whenever the GBS signalling is used. But this is not the case, because one of the notes in 07.01 states that the MT „autobauding type 1“ is not overridden, when the OMT indicates „no other modem type“. Since autobauding is an important network function, GSM 09.07 should reflect this very clearly.
Therefore the following clarification is proposed to be added to note 15:

> NOTE 15: User rate of the GSM-BC is overriden by the fixed network user rate of the GSM BC-IE if available. When the MT indicates „autobauding“, „modem for undefined interface“ or „none“, the other modem type shall be set to „no other modem type“; any other value of the modem type is overridden by the other modem type value.~~The modem type is overriden by the other modem type (see GSM 07.01).~~

3 Other Modem Type „V.34“

GSM 09.07 states in table 6A and 6B that V.34 is a parameter that is standardized in ETS 300102-1. This is not the case, because the parameter is to be found in EN 300 403-1 (2nd edition dated April 1997). The same applies to the user rates of 28.8 and 38.4 kbit/s. Therefore the reference in the tables needs to be updated.
But updating this reference has some effects on 09.07 and 04.08, because in the EN octets 4a and 4b of the BC-IE, which exist in the ETS, have been removed. Some parameters of the removed octets are included in 09.07 and 04.08.
Therefore, it is proposed, that SMG4 should inform SMG3 about the necessary new reference and the effects.

4 Data compression

The data compression function is not defined very clearly in note 18 of table 6B for a MTC in case of HSCSD. I.e., it doesn't make sense to set the DC bit for UDI calls only when the user rate equals 19.2 kbit/s, because the ISDN user rate can be reached by using 2 * 9.6 kbit/s over the radio interface.

1) For HSCSD a solution could be as follows:
The MSC always indicates in the SETUP message its DC capability. If the MS agrees to activate the DC capability, the following rules apply:

UDI calls:
AIUR < ISDN user rate => DC will be activated by the MSC by means of RLP-XID
AIUR >= ISDN user rate => DC will not be activated, i.e. P0=0 in RLP-XID

Audio calls:
AIUR <= ISDN user rate => DC is activated
AIUR > ISDN user rate => DC is not activated

Note: The AIUR above is derived from the information contained in the ASSIGNMENT COMPLETE message (see GSM 08.08)

2)For HSCSD another possible solution would be to always indicate that data compression is possible:

(18) If compression is supported by the MSC, the value "data compression possible" can be set and the following rules apply:~~.~~

Non GBS operations:
In case of "3.1 kHz audio" it will be set for all calls. In case of "UDI" it will only be set if the ISDN-BC indicates a User Rate of "19,2 kbit/s" and an Intermediate Rate of "32 kbit/s". The values will be mapped as shown in the table. A "3.1 kHz audio" call with a User Rate of "19.2 kbit/s" will be rejected~~. if HSCSD operations are not supported.~~
GBS operations (user rate > 9600 bit/s):
The value „data compression possible" shall always be set.

5 Intermediate rate

In Table 6A (note 13) and Table 6B (octet 5b bits 7-6) it is mentioned that the Intermediate Rate in ISDN-BC could be set to 64 kbit/s. This makes no sense, the codepoint applicable to IR in those cases is « Not Used ».
It is proposed to modify those 2 sections by :

Table 6A :

NOTE 13: ...
Intermediate Rate = Not used~~64 kbit/s~~ if User Rate > than 19.2 kbit/s
....

Table 6B :

5b #7..6	**Intermediate rate** not used (note 19) 8 kbit/s 16 kbit/s 32 kbit/s Not used~~64 kbit/s~~	6b #7..6	**Intermediate rate** (note 6) 8 or 16 kbit/s 8 kbit/s 16 kbit/s 16 kbit/s (note 18) ~~16 kbit/s~~

(18) If conpression is supported by the MSC, the value for the value ‘data compression possible’ can be set. In case of ‘udi’ it will be set if the ISDN-BC indicates a User Rate of ‘19,2 kbit/s’ and an Intermediate Rate of ‘32 kbit/s’. The values will be mapped as shown in the table. A ‘3.1 kHz audio’ call with a User Rate of ‘19.2 kbit/s’ will be rejected if HSCSD-operations are not supported.
(18) has to be changed according to the decision on data compression

(19) Only applicable if the parameter ISDN-BC indicates ‘3.1 kHz audio’ and for ‘udi’ calls if User Rate > ‘19.2 kbit/s’

6 Wanted Air Interface User Rate

For the WAIUR following values are defined in GSM 04.08 and 07.01:

- ...., 38.4kbit/s, 43.2kbit/s and 57.6kbit/s

Whereas in GSM 09.07 only values up to 38.4kbit/s are defined. SMG4 is asked to align GSM 09.07

7 Parameters for ‘14.4kbit/s interworking’

Chapter 8.3.3.2 of GSM 07.01 requires the WAIUR for all MOC TCH/F14.4 operations. As FNUR specifies clearly the radio interface requirements for transparent services, the following change is proposed:

For multislot and TCH/F14.4 operations the MS shall include an appropriate set of the parameters ‘fixed network user rate’, ‘other modem type’, ‘maximum number of TCH’ and ‘acceptable channel codings’ in the BC-IE of the SETUP message. In a non-transparent multislot operation, the MS shall also include the parameters ‘wanted air interface user rate’ and ‘user initiated modification indication’ in the BC-IE of the SETUP message. In a non-transparent TCH/F14.4 operation the MS shall also include the parameter ‘wanted air interface user rate’ It shall also set the other parameters of the BC-IE (i.e. ‘user rate’) to values identifying a fall-back bearer service. The fall-back bearer service shall be within the same bearer service group as the general bearer service. Depending on the network two situations can be distinguished:

8 UIMI handling

The following text is extracted from chapter 9.2.1.1 of GSM 09.07. The change indicated in the text is proposed to align the text of this section with the other specifications and other chapters of GSM 09.07.
If the MSC supports the multislot or 14.4kbit/s-operation, the GSM-BC(s) shall include the “fixed network user rate”, “other modem type” and possibly “user initiated modification indicator” parameters. The MSC shall apply a singleslot configuration when the “maximum number of traffic channels” indicates ‘1 TCH’ and the “user initiated modification indicator” indicates either ‘user initiated modification not requested’ or ‘user initiated modification upto 1 TCH/F requested’, otherwhise a multislot configuration (refer to GSM 08.20 and GSM 04.21) shall be used on the MSC/IWF-BSS link.

9 Usage of the parameter ACC

The parameter ‘Acceptabe Channel Codings’ defines the Mobile Station capabilities. The MS sets the bit for all Channel Codings it’s able to support
Chapter B.1.12.2 of GSM 07.01 defines all valid combinations of ACC and MaxNumTCH for a given WAIUR.
The following example shows the issue:
A MS is able to support Channel Codings ‘14.4kbit/s’ and ‘9.6kbit/s’. Therefore both values are set in ACC. The MS subscriber wants an air interface user rate around 40 kbit/s and is willing to pay for 3 or 4 channels. With the current definition in 07.01 he has two possibilities:

1. WAIUR = 38.4kbit/s and MaxNumTCH = 4, the network then has to select 4 channels with 9.6kbit/s

2. WAIUR = 43.2kbit/s and MaxNUmTCH = 4, the network then has to select 3 channels with 14.4kbit/s

With the current definition in 07.01 there's no possibility for the subscriber to leave the decision to the network. It should be possible to support WAIUR = 38.4kbit/s with both channel codings (as it is for 28.8kbi/s).

A proposed solution is to authorize the signalling of all Channel Codings supported by the Mobile Station in addition to those mandated by the table of section B.1.12.2. The text should then be changed as follow :

9.1.1 B.1.12.2 Non-transparent services

For a given WAIUR the following combinations of MaxNumTCH and ACC valuesе are valid ~~only~~and shall be supported by the MS. All other supported channel codings can be signalled by the MS in ACC parameter.

10 Channel Configuration after CMM

GSM 07.01 and 09.07 require a singleslot configuration for the following case:

If the MSC supports the multislot or 14.4kbit/s-operation, the GSM-BC(s) shall include the "fixed network user rate", "other modem type" and possibly "user initiated modification indicator" parameters. The MSC shall apply a singleslot configuration when the "maximum number of traffic channels" indicates '1 TCH' and the "user initiated modification indicator" indicates either 'user initiated modification not requested' or 'user initiated modification upto 1 TCH/F requested', otherwhise a multislot configuration (refer to GSM 08.20 and GSM 04.21) shall be used on the MSC/IWF-BSS link.

This handling was introduced to avoid two configurations for calls using one radio channel (e.g. for transparent services with TCH/F9.6: one with subchannel numbering and one without).
This problem arises not only at call setup, but also during a Channel Mode Modify which reduces the number of radio channels to one (e.g. from 2*9.6 to 1*9.6 after a CMM from 12kbit/s to 9.6kbit/s).
Therefore the following clarification is proposed:

In case of a CMM which reduces the number of used traffic channels to one, a singleslot configuration shall be used.

This clarification could either be placed at an approporiate place in GSM 07.01 or 09.07, or what might be better in GSM 03.45.

Report of the SMG4 meeting #2/97
Whistler, Canada -BC[1]-, 1 to 5 September 1997

held concurrently with T1P1.5 ad hoc

			Fax:	Email:
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[1] Even SMG4 know that in Canada this stands for Britsh Columbia !

Contents

1 Opening of the meeting

The chairman opened the meeting. There were more than __ participants (see Annex B). Mr. HATALA and Mr. SCHOLEFIELD welcomed the delegates to Whistler, Canada, on behalf of Motorola that hosted the meeting.

2 Approval of the Agenda and Workplan

The **Agenda and the Workplan for SMG4 #2/97 (TDoc SMG4 97P158)** were reviewed. The draft workplan and agenda were approved.

3 Reports of the last meeting

There was a comment that on page 11 the rapporteurship does not list GSM 03.40. It had been agreed and was confirmed that Mr. Harris would take over the rapporteurship of GSM 03.40. PT SMG will update the workitem database accordingly.

The report of the last SMG4 meeting was approved.

4 Reports from other groups and Liaison Statements

The LS were briefly presented and allocated to the working groups.

4.1 SMG#22

Tdoc SMG4 97P196: Results of SMG#22 relevant to SMG4, roadmap, statuslist, WI list, meeting schedule (PT SMG)

The document was presented by Mr. APRATH. Focus was put on the version management of GSM specifications and also the new MAE2 workitem.

Comments on Identification of changes pertaining to Release 97:
- It was commented that the appearance of the specification may suffer under insertion of many tags. A number of arguments were exchanged. The following was finally decided:

Conclusion: @Go ToC>

In the absence of any better solution to fulfill the SMG requirement of a single specification for phase 2+, it was agreed to use the scheme proposed in Tdoc SMG4 97P196. The DGMH and TAIWF subroups shall look at the Release 97 changes and that the authors produce a change request that identifies the change along the proposal given in Tdoc SMG4 97P196 Annex 5.
Any other comment or proposal should be given to Mr. APRATH.

4.2 SMG1

There are a numbe of LS received from SMG1 on SMS Forwarding , Network indication of alerting in the MS.

Tdoc SMG4 97P187 on Forwarding of SMS and Tdoc SMG4 97P191 on SMS enhancements were directly referred to the DGMH subgroup.

Tdoc SMG4 97P190: LS from SMG1 on Network's indication of alerting in the MS

This LS answers the questions raised by SMG4 in their last meeting concerning the applicability of the feature. A CR to GSM 02.07 is attached for information.

Conclusion: @Go ToC>

Since there is no immediate requirement on circuit switched calls that affect SMG4 work the document is referred to DGMH only.

4.3 SMG2

Tdoc SMG4 97P225: LS on Allocation of responsibility for Specifications between SMG2, SMG3 and SMG4

This LS suggests changes to the prime and secondary responsibilities of GSM 04.12, 04.21, 08.20, 03.10, 03.41.

Comments:
GSM 03.10, 04.21 and 08.20: The TA/IWF group will discuss to which extend the maintenance of the new workitems HSCSD and 14.4 kbit/s is affected. Involvement of SMG4 in UMTS issues would also at least suggest a secondary responsibiliy for SMG4.
04.11 should quote SMG4 as a secondary responsibility.

Conclusion: @Go ToC>

The change of responsibility for 04.12 is accepted. The issue of 03.10, 04.21 and 08.20 is referred to the TA/IWF group.

4.4 SMG3

Tdoc SMG4 97P193, 194 are directly referred to DGMH group.

Tdoc SMG4 97P195: LS from SMG3 WPB on USSD Enhancements

Conclusion: @Go ToC>

DGMH should note that WAP group is dealing with the subject. A LS should make this aware to SMG3.

4.5 SMG9

The issues of SMG9 are input to the DGMH via documents from Motorola.

4.6 MDI

Mr. HOLLEY attended a meeting of the MDI and presented the ETSI SMG4. He reported that MDI commented on the variety of data compression schemes which make application in the market difficult. Generally there is positive response from MDI concerning collaboration with ETSI SMG on certain issues.

Tdoc SMG4 97P247: Letter from Andy Keates of Mobile Data Initiative (MDI) (SMG4 Chairman)

Tdoc SMG4 97P247 is a letter from an MDI representative. It is commented that GSM 07.05 and 07.07 should be made available more publicly.

Comments:
- It is difficult to draw the line from where on information should be not available for free. It was not seen as a problem that people purchase the specification. It was proposed that ETSI offers on- line purchase of documents. The visibility of the documents could be increased, the summary could be made available. There is a lot of advantage in making the specs available as easily as possible. However, a practical approach would be to make a summary of GSM 07.05 and GSM 07.07 and a link to ETSI or PT SMG where the documents could be obtained.
- At this moment it is open which degree of formality in the relationship with MDI is sought.

Conclusion: @Go ToC>

It is agreed that it should not be attempted GSM 07.05 and 07.07 should not be made available free of charge. It is agreed that Mr. HARRIS and Mr. HEINONEN produce a maximum Din A4 summary of their specifications. Mr. Moughton offers his assistance. This text could be sent to MDI to be made available on their home page until SMG has its own webpages.
Mr. APRATH will make sure that ETSI Secretariat is notified about this and gives its formal permission for any copyright issue. SMG will also be informed.
Mr. APRATH will make ETSI Secretariat aware of the demand for online download of SMG specifications.

Tdoc SMG4 97P288 contains the summary for GSM 07.05. Tdoc SMG4 97P313 contains the summary of GSM 07.07. Mr. HARRIS will update the summary of GSM 07.05 in order to reflect Cell Broadcast. This shall be forwarded to MDI via PT SMG

4.7 GPRS

Mr. Heaton reported on an SMG4 ad hoc meeting on GPRS, that resolved an outstanding issues on X.25/X.28. Further, Study of SMS over GPRS was started.

Another meeting on SMS via GPRS took place the last week of August. The meeting produced a CR to 03.40. Alert functionality may be impacted needs careful discussion that has to be concluded at this meeting with priority. The issue concerns the DGMH (CP-RP layer, MNRF and MNRG flags, CR to 03.40) and the GPRS group as far as the underlying layer is concerned. DGMH and GPRS chairmen try to minimize the overlap of delegates interests.

4.8 SMS Busy

There was a joint SMG2,3 and SMG4 ad hoc on SMS busy that took place in June 97. A LS resulted from that which is answered in Tdoc SMG4 97P 276.

4.9 USSD Enhancements

A session dedicated to the so called USSD enhancements took place during the SMG1 meeting. A list of service requirements resulted from that meeting. It was recommended by SMG3 SA and SMG3 WPB that a stage 1 and stage 2 description should be produced. It was said that a future proposal for dividing GSM 03.40 should be discussed after the stage 1 is available.

4.10 MTA

Tdoc SMG4 97P189: LS from ETSI MTA: Response concerning GSM-API

This LS represents an answer to an SMG4 liaison statement. It clarifies on the status of the new ETS 300 838 that replaces ETS 300 325 ed2. The latter was used as the basis for GSM 07.08. It was decided at the last SMG4 meeting that SMG4 will wait until 300 838 has been published.

Conclusion: @Go ToC>

The rapporteur of GSM 07.08 is invited to align the GSM specification with the last draft of 300 838 ed1. GSM 07.08 will be presented to the

4.11 DECT/GSM WP

Tdoc SMG4 97P197: LS from DECT/GSM WP on DECT/GPRS interworking

This LS proposes to start the work on DECT GPRS interworking. Some questions are raised and GSM GPRS experts are invited to the meetings of the DECT group. The document is referred to the GPRS subgroup .

4.12 UMTS

The PT SMG UMTS work programme was made available for information.

Tdoc SMG4 97P245: Division of Responsibility for Data Services in UMTS (SMG4 Chairman)

This paper was submitted to the SMG steering group by the SMG4 chairman. The SMG steering group (all SMG STC chairmen) asked SMG4 to further elaborate on the proposal, i.e. SMG4 role in UMTS standardization.

Comments:

- GPRS nodes were found missing. The architecture is only an example. It is proposed to look to the reference points/ interfaces and logical architecture currently studied by SMG3 SA.

Conclusion: @Go ToC>

A small group should work on the proposal. (Mr. CANDISH, SCHOLEFIEL, VALO, MOUGHTON, BERTIN, OUVRIER, APRATH, LOPEZ-TORRES, HATALA, HOLLEY etc.). The group had a short brainstorming session, the results of which were collided by Mr. HOLLEY. See Tdoc SMG4 97P342.

5 Presentations on CDPD

Mr. HOLLEY opened the session and welcomed also the delegates from T1P1.5. Mr. SCHOLEFIELD welcomed and introduced the invited presenters of the North American Cellular Digital Packet Data system, Mr. W. WAUNG (ComMunicaTions LTD.) and Mr. N. TOMS (SIERRA WIRELESS).

Tdoc SMG4 97P318: Presentation of CDPD (Mr. William WAUNG)

Mr. WAUNG, who also is a representative of the SDPD forum. gave a very comprehensive presentation on the historical and technical background of the system , which was introduced in 1993 in Vancouver as an overlay system to AMPS . CPDP architecture (IS-732) offers today the following services network services: Accounting services (packet oriented), Network managment services (includingSNMP to the mobile end system) , Network administration, Message Transfer Service.

Current work seeks to use the CDPD mobility management as a basis for other mobile data systems. Circuit switch CDPD is being deployed during 1997, work is continuing on CDMA access for higher speed CDPD. CDPD over TDMA is currently being defined.

There are 30 international markets, 13 of which signed interconnectivity agreements for CDPD and 28 radio modem products available on the market.

Questions/ Answers:
- Screening mechanism for receiving packets is currently not implemented. However, CUG application is under investigation.
- Major competitors to CDPD worldwide are all mobile data system, e.g. GPRS. Hoever AMPS infrastructure is more adequately served by CDPD.
- X.25 access is not supported, IP is the protocol being supported.
- Expected user bit rate is ca. 12 - 13 kbit/s IP traffic.
- The presentation was of particular interest to SMG delegates being in the stage of specifying GSM GPRS. There are a number of analogies.

Tdoc SMG4 97P317: Presentation of Applications of CDPD (Mr. Norman TOMS)

Mr. TOMS focussed on the applications for CDPD and CDPDdevices aimed at the major market segments public safety, transportation, healthcare, field service, telemetry etc. .

The typical rugged mobile modem has an output power of 0.6 or 3 Watts and can operate in CDPD mode, circuit switched (AMPS). Voice, GPS or application boards are examples of available options.

Other CDPD modem products are OEM type modems, portable modems or phones voice centric 'super phones'.

An important component is PC resident software which provides for a powerful user interface. Configuration problems were encountered and addressed by appropriate wizards and on-line help.

Questions/ Answers:
- 30 000 CDPD users are estimated, growth at 2000 - 3000 users per month
- Pricing schemes are in an experimental state balancing usage / subscription related billing. Example 15 cents per kilobyte.

Tdoc SMG4 97P330: Presentation of PCCA forum (Mr. Christopher BURKE)

Mr. C. BURKE (Motorola) gave a presentation on the areas of work of this forum, fucussing on Integrated Service Modem. Portable Computers Communication Association (PCCA) has elaborated a number of open standards.

STD101: Is a specification of an AT command interface.user

Integrated Service Modem: PCCA has undertaken effort to standardize support of end users access to multiple data services simultaneously. This is an issue closely related to the new workitem multiplexing protocol but is taking a significantly different approach. There was concern over the market development. A DTE to DCE profile is under study.

Question/Answer:
- Standardized drivers in the TE were said to have to be easy understandable and implementable.
- PCCA is currently studying a particula solution which is one of a number of solutions, such as Virtual COM: ports, PPP, virtual circuits, HDLC synchronous or asynchronous protocols. However, some of those methods are layer 3 functions wereas multiplexing is a layer 2 function. Further, the methods are not exclusive, but may be questioned in terms of efficiency.
- A history of stability and long term stability is found a major factor to be fulfilled by the final solution.
- Co-operation is needed because fragmentation of the market in undesirable by everybody. Therefore the ad hoc meeting on the multiplexing protocol in September will have to analyse the PCCA approach, but set out to forward the first draft to be presented in September to SMG#23.
- It was said that the "GUTS proposal and a PCCA white paper white paper are currently the most advanced. TIA -45.3 or 5 was said to be the body to deal with this issue.

6 GSM future work

7 Registration and allocation of documents

Documents were allocated to the following working groups: TA/IWF, DGMH, GPRS, UMTS , SMG4 Plenary as shown in this report.

8 Other opening plenary issues

The chairman encouraged delegates to be active in the various conferences on Data over GSM in order to present ETSI's position and also to learn about market requirements in this area.

9 Multiplexing over a serial interface

The following documents on the subject were received: Tdoc SMG4 97P162, 227, 252, 262. The authors gave a brief outline of their documents.

Tdoc SMG4 97P162: The new protocol was considered as absolutely fundamental. An encapsulating protocol (similarly of GSM 07.05) was suggested that allows the use of other fully specified protocols.

Tdoc SMG4 97P262: The paper proposes a protocol, that will be used if multiplexing is required. The protocol would be initiated by an GSM AT command. A full description will be made available if Tdoc SMG4 97P262 is received positively.

Tdoc SMG4 97P227: This paper reviews the requirement of the protocol, focussing on the relay of voice over that protocol. Some candidate protocols were analysed and a description of a Hayes proprietory protocol is included.
Comments:
If speech needs to be transported, SMG11 needs to be involved.
It was said that error correction means are needed over the interface, activation of this this could be part of the protocol negotiation.
However, during the last meeting HDLC was found to be too complex. However, this argument seems not valid anymore.

Tdoc SMG4 97P252: This document discusses the functional limitations of the workitem, i.e. point to point connection and some other detailed considerations.

Conclusion:

@Go ToC>

The authors of the document will try to achieve a common understanding of the requirments and the options for the new protocol. It was found useful that the documents will be looked at during the small working group meeting on SMS via GPRS. The authors of the above mentioned documents will join that group.
The results shall be reported to TA/IWF.
Liaison to MDI and MTA should be considered after the work has been further progressed.

Tdoc SMG4 97P280: Ad-hoc meeting report on Multiplexing protocol at TE/MS interface

This document summarizes the outcome of two ad hoc meetings that were held during the SMG4 meeting in Whistler. The input documents mentioned above were analysed and a list of requirements was generated which need to be fulfilled by the multiplexing protocol.

Some other documents were also looked at: The specification of the Ericsson proprietary solution and the HDLC standard (Tdoc SMG4 97P268). It is proposed to incorporate parts of the Ericsson proposal to the asynchronous HDLC solution, i.e. merge the two proposals in order to fulfill all the requirements. However, the extent to which the requirements can be met, has to be carefully evaluated.

This workitem touches on all SMG4 working groups: TA/IWF, DGMH as well as GPRS. It is proposed to continue the work on the proposal for a new ETSI GSM standard within an additional ad hoc group.

Comments:
- The speed of the link is limited by the characteristics of a serial connection.
- It is proposed to take the text from HDLC and adapt it to the special needs.
- It was discussed whether an error detection on its own without error correction is also reasonble to be developped as a third mode of operation of the protocol.
- It is stressed that the protocol is transparent to existing application.

Conclusion: @Go ToC>

The ad hoc group is mandated by SMG4 to forward a document to SMG#23. The results of that subgroup will be distributed. Mr. Aprath will obtain a GSM specification number in the 07-series.

10 Approval of results

10.1 Liaison Statements

The list of LS was followed when presenting the LS. See Annex B.2. Only debated documents are listed here:

Tdoc SMG4 97P297: LS to SMG1, SMG3 WPC SMS Enhancement (DGMH)

Two alternative methods are analysed. One of those makes use of the CAMEL Service Center to screen SM.

Comments:
- It was stated by Mr. APRATH, who is the PT SMG Workitem manager for CAMEL, that the workitem is tightly confined to a project schedule. It is extremely unlikely that a solution using CAMEL will be part of R97. However, the assessment can be left to SMG3 WPC and SMG1.

Conclusion: @Go ToC>

The LS is agreed.

Tdoc SMG4 97P341: LS to SMG3 on new references (FT)

This LS is the result of discussions on changing the reference from ETS 300 102-1 to EN 300 403-1.

Comments:
- A sentence shall be added saying: As SMG should be consistent with references. SMG4 needs to discuss this further with SMG3. SPS5 is also queried on strategy regarding the new specification EN 300 403-1.

Conclusion: @Go ToC>

The LS will be revised to consider the comment above and some editorial comments. See Tdoc SMG4 97P350.

Tdoc SMG4 97P347: LS to SMG2/3 WPA chairman: Transfer of TS responsibility

The LS was agreed. It had been discussed in TA/IWF in more detail before.

Tdoc SMG4 97P342: SMG4 role in UMTS (letter to SMG4 steering group) (Chairman SMG4)

Mr. HOLLEY presented a paper that is intended to be sent to the SMG steering group. It is an outline of proposed SMG4 involvement in UMTS standardization work. A meeting with SMG3 SA is envisaged after the steering group agreed this document.

Conclusion: @Go ToC>

The LS is agreed.

10.2 Change Requests

Some documents although aimed at Release 97, do not introduce the tagging. The proposed CR in Tdoc SMG4 97P196 was not discussed in DGMH.

Tdoc SMG4 97P282: Due to the size of this CR and the interweaving of the changes with the existing text there are serious concerns about the practicability of the scheme suggested by PT SMG. Especially readibility is thought to suffer from the tags. The concept was found to be useful, however, other means of representation should be considered.

Since other STSs have to investigate the feasibility of the approach, an adoption of the $()$ notation seems not appropriate at this point of time. SMG should first confirm a harmonized solution that applies to all STCs.

It was accepted that the identification of features is a useful task as such, as it avoids multiple proliferation of specifications at each year which would have to be maintained and kept consistent in the process of introducing new features.

Comments or alternative proposals are invited to be forwarded to Mr. APRATH.

Tdoc SMG3 97P315: Proposed change request 03.02: Support of SIWF (Telia)

It was decided in TA/IWF that SMG4 should send this CR which introduces the SIWF entity into the GSM architecture specification, to SMG3 SA for approval. Unfortunately, this was forgotten in the plenary session.

Conclusion: @Go ToC>

PT SMG will initiate approval by correspondence.

10.3 Reports of the Working groups

Mr. Heaton presented the report of the GPRS group in Tdoc SMG4 97P309. The report is agreed.
Mr. GIDLOW presented the draft report of the DGMH group in Tdoc SMG4 97P281. The report is agreed.

Mr. LOPEZ-TORRES presented the draft report of the TA/WF group in Tdoc SMG4 97P345. An item resulting from the report.

The GPRS AT commands are found to be more adequately placed in GSM 07.07. This recommendation is confirmed by SMG4. The GPRS group should draft the necessary CR to move the text in the next meeting.

11 Further work plan and next meetings

11.2 Meeting schedule and location for future SMG4 meetings:

	Date	Host	Location	Purpose
SMG4 Plenary #3/97	24-28 November 1997	T-Mobil	Germany	
SMG4 Plenary #1/98	09 - 13 February	Ericsson	Norway, Lillehammer	
SMG4 Plenary #2/98	11-15 May	SIEMENS (to be confirmed)	Germany	

An SMG4 ad-hoc meeting on the multiplexing protocol is proposed for 30 - 31October in Oxford. The SMG4 delegates wishing to take part in the planned meeting should make their name known to Mr. APRATH in order to receive the invitation. The following SMG4 delegates are interested to participate:

AMBROSE Tim	PANASONIC EUROPE	HOLLEY Kevin A.	BT
APRATH Stefan	ETSI/PT12	LAM Kit Y.	PANASONIC PMDC
BERTIN Philippe	FRANCE TELECOM	LOPEZ-TORRES Oscar	ERICSSON EUROLAB
CHILDREN Philip	NEC TECHNOLOGIES (UK) LTD	NEUMANN Peter Dr.	SIEMENS AG
HARRIS Ian	VODAFONE	NOVAK Lars	ERICSSON MOBILE COMMUNICATIONS AB
HATALA Ted	MOTOROLA LTD	PECHEY Bill	HAYES
HEATON Graham	PAKNET (VODAFONE GROUP)	VARALDI Jean	ALCATEL MOBILE PHONES
HEINONEN Petri	NOKIA MOBILE PHONES	CANDISH John	Nortel
MOGHTON John	Hayes		

An SMG4 ad hoc meeting on SM-CB, 2- 3 October, Utrecht on Tdoc SMG4 97P182-185, 198, 203-206 , 210, 211 hosted by CMG. Delegates shall bring thosed documents along to the meeting.

Ad hoc SMG1, SMG4 on SMS Enhancements should be arranged to progress the workitem. There is no firm arrangement yet.

Ad hoc SMG3 SA with SMG4 on UMTS work, depending on results of SMG steering group discussions. There is no firm arrangement yet.

12 Closing of the meeting

Mr. HOLLEY thanked the host (Motorola) for the arrangements and the support and he thanked the delegates for their participation. He also thanked Motorola for the organization of the invited presentations.

Annex A List of Input Documents

STC_DOC	Subject	Source
97p156	CR 07.01 A023 Initial synchronization for HSCSD	Ericsson
97p157	CR 09.07 A029 Initial synchronization for HSCSD	Ericsson
97p158	Agenda meeting Vancouver	Chairman
97p159	HSCSD and 14.4: Inconsistencies in GSM 09.07	T-Mobil
97p160	withdrawn	
97p161	CR 07.07 A___ V.120 Interworking	Hayes
97p162	MS/TE multiplexing interface protocol proposal.	Vodafone
97p163	CR 03.42 A002 Editorial	Vodafone
97p164	SMS support over GPRS considerations	Vodafone
97p165	CR 03.41 A040 SMSCB: Editorial changes	Lucent
97p166	CR 03.49 A___ SMSCB: Correction of 03.49 misalignment and inconsistencies with 03.41	Lucent
97p167	CR 03.41 A039 SMSCB: CBCH loading	Lucent
97p168	CR 03.49 A020 SMSCB: CBCH loading	Lucent
97p169	CR 03.41 A038 SMSCB: 03.41 Repetition Rate	Lucent
97p170	CR 03.49 A019 SMSCB: 03.49 Repetition Rate	Lucent
97p171	CR 03.41 A___ SMSCB: 03.41 Unique identification of an SMSCB message text	Lucent
97p172	CR 03.41 A___ SMSCB: 03.41 Correction and Clarification of Write Replace	Lucent
97p173	CR 03.41 A___ SMSCB: 03.41 Clarification of the Kill message	Lucent
97p174	CR 03.41 A___ SMSCB: 03.41 Correction and clarification of the No-of-Broadcasts-Completed-List	Lucent
97p175	CR 03.49 A___ SMSCB: 03.49 Clarification of the No-of-Broadcasts-Completed-List parameter	Lucent
97p176	CR 03.41 A___ SMSCB: 03.41 Cause Values	Lucent
97p177	CR 03.49 A___ SMSCB: 03.49 Cause Values	Lucent
97p178	CR 03.41 A036 SMSCB: 03.41 Format of Cell List Structures	Lucent
97p179	CR 03.49 A___ SMSCB: 03.49 Format of Cell List Structures	Lucent
97p180	CR 03.41 A037 SMSCB: 03.41 Removing restriction on the use of SET-DRX	Lucent
97p181	CR 03.49 A018 SMSCB: 03.49 Removing restriction on the use of SET-DRX	Lucent
97p182	CR 03.41 A___ SMSCB: 03.41 Improved cell broadcast recovery with the use of cell lists for Restart-Indication and Failure-Indication PDUs	Lucent
97p183	CR 03.49 A___ SMSCB: 03.49 Improved cell broadcast recovery with the use of cell lists for Restart-Indication and Failure-Indication PDUs	Lucent
97p184	CR 03.41 A___ SMSCB: 03.41 Improved Cell Broadcast Recovery	Lucent
97p185	CR 03.49 A___ SMSCB: 03.49 Improved Cell Broadcast Recovery	Lucent
97p186	Information on Lucent Technologies Tdocs	Lucent
97p187	LS from SMG1 on SMS forwarding	SMG1
97p188	CR 03.54 A001r1 Definition of visited MSC	SMG3 SA
97p189	LS from ETSI MTA: Response concerning GSM-API	EP MTA
97p190	LS from SMG1 on Network's indication of alerting in the MS	SMG1
97p191	LS from SMG1 on SMS enhancements	SMG1
97p192	LS from SMG#22 on Interworking between IP and GSM networks	SMG#22
97p193	LS from SMG3 WPB on Forwarding of SMSs	SMG3 WPB
97p194	LS from SMG3 WPB on Identifying the impact of MSP on SMS	SMG3 WPB
97p195	LS from SMG3 WPB on USSD Enhancements	SMG3 WPB
97p196	Results of SMG#22 relevant to SMG4, roadmap, statuslist, WI list, meeting schedule	PT SMG
97p197	LS from DECT/GSM WP on DECT/GPRS interworking	DECT/GSM WP
97p198	CR 03.49 A___ Version control for the CBC-BSC interface. [03.49]	Motorola
97p199	CR 03.49 A021 User Data definition for non Fast Select. [03.49]	Motorola
97p200	CR 03.49 A___ Correction of Status Message Query. [03.49]	Motorola
97p201	CR 03.41 A___ Clarification of KILL. [03.41]	Motorola
97p202	CR 03.49 A___ Clarification of KILL. [03.49]	Motorola
97p203	CR 03.41 A___ Addition of RESET Response. [03.41]	Motorola
97p204	CR 03.49 A___ Addition of RESET Response. [03.49]	Motorola
97p205	CR 03.41 A___ Addition of RESTART-IND response and FAILURE-IND response.[03.41]	Motorola
97p206	CR 03.49 A___ Addition of RESTART-IND response and FAILURE-IND response.[03.49]	Motorola
97p207	UMTS work programme	PT SMG
97p208	SMS Transfer over GPRS	Ericsson
97p209	SMS Transfer over GPRS	SMS over GPRSdraft
97p210	CR 03.41 A___ Behaviour negotiation for the CBC-BSC interface. [03.41]	Motorola
97p211	CR 03.49 A___ Behaviour negotiation for the CBC-BSC interface. [03.49]	Motorola
97p212	Meeting report of USSD workshop	SMG1
97p213	Agenda for the TAIWF	Chair TAIWF
97p214	CR 07.01 A023r1 Initial synchronization for HSCSD	Ericsson
97p215	CR 09.07 A029r1 Initial synchronization for HSCSD	Ericsson
97p216	--------not used--------	Ericsson
97p217	--------not used--------	Ericsson
97p218	CR 07.07 ME ringer, loudspeaker and microphone control	Nokia
97p219	CR 07.07 A040 Advice of charge information from SIM	Nokia

97p220	CR 07.07 Preferred network list	Nokia
97p221	CR 07.07 Alternate service DTR and result code corrections	Nokia
97p222	CR 07.07 A037 14.4k channel coding in HSCSD commands	Nokia
97p223	CR 07.05 A036 Enhanced validity period format in text mode	Nokia
97p224	CR 04.22 A___ HSCSD	Ericsson
97p225	LS on Allocation of responsibility for Specifications between SMG2, SMG3 and SMG4	SMG2/3 WPA Chair
97p226	An update on 56 kbit/s modem technology and its implications for IWF	Hayes
97p227	Discussion of the requirements for a new, multiplexed TE-MS interface	Hayes
97p228	CR 03.40, editorial clarification	Motorola
97p229	CR 03.40 A060 Code points for SIM Toolkit	Motorola
97p230	RP-ACK	Motorola
97p231	CR 03.45 Clarification for HSCSD	Alcatel
97p232	CR 04.22 Corrections for 14.4	Alcatel
97p233	CR 07.01 Corrections for 14.4	Alcatel
97p234	CR 09.07 Corrections for HSCSD + 14.4	Alcatel
97p235	CR 09.07 A030 Corrections 14.4	Alcatel
97p236	CR 09.07 V.120 and RDI Interworking (replacing 97p160)	Hayes
97p237	EN 300 403-1 April 97 DSS1	TA/IWF G.Chair.
97p238	AT commands in GPRS	SMG4 GPRS
97p239	TS O7.60 v.1.1.0	SMG4 GPRS
97p240	TS O9.60 v.1.1.0	SMG4 GPRS
97p241	Service interworking (QoS) PDN Networks	Ericsson
97p242	Modification of 09.61 v.1.1.0 Interworking with PDN	Ericsson
97p243	Modification of 09.61 v.1.1.0 Interworking between GPRS networks	Ericsson
97p244	Modification of draft GSM 07.60 A___ v.1.10 MS Supporting PPP mode	Ericsson
97p245	Division of Responsibility for Data Services in UMTS	Chariman SMG4
97p246	Discussion Paper on SMS transmission between SGSN and MS	BT
97p247	Letter from Andy Keates of Mobile Data Initiative (MDI)	Chariman SMG4
97p248	CR 07.03 L2R PDU's	Nokia
97p248	CR 07.02 L2R PDU's	Nokia
97p248	A 14.4 related clarification on L2R PDU's	Nokia
97p249	CR 04.21 Editorial modifications	Nokia
97p250	CR 03.10 Editorial modifications	Nokia
97p251	CR 03.40 Unidentified Subscriber	One2one
97p252	New multiplexing protocol between TA and MS	Alcatel
97p253	Network impairments impacting G3 facsimile communication	Mannesmann Mobilfunk
97p254	GSM 09.07 mappings according to ETS 300-102-1, Especially coding of the information element ' modem type'	Mannesmann Mobilfunk
97p255	Agenda DGMH subgroup	Chairman DGMH
97p256	Alerting in the MS	FT
97p257	SMS Enhancements	FT
97p258	CR 09.07 Intermediate Rate mapping between GSM and ISDN BC	FT
97p259	CR 07.01 Intermediate Rate mapping between GSM and ISDN BC	FT
97p260	CR 03.54 A003 Number of MSCs that fcan access an SIWF	Telia
97p261	CR 03.54 A002 Clarifications of ISUP procedures	Telia
97p262	Multiplexing protocol proposal	Ericsson
97p263	CR 03.40 Corrections of numbers in 03.40	Ericsson
97p264	USSD Enhancements	PT MAE2
97p265	SMS Mobile Busy Meeting report, LS on MS Busy	ad hoc group
97p266	Report on SMS over GPRS ad hoc meeting	ad hoc group
97p267	SMS GPRS drafting session	Nokia et al.
97p268	ISO 13239 (HDLC specification) (only electronic version)	Hayes
97p269	CR 07.07 Amandment in the scope Reference to 07.07 GPRS	Ericsson
97p270	GPRS Capacity Impact in Network launch phase	BT
97p271	Proposed ETSI Multiplex Protocol	Ericsson
97p272	CR 04.22 A011 Corrections for 14.4	Alcatel
97p273	CR 07.01 A024 Corrections for 14.4	Alcatel
97p274	Use of BC parameters	Nortel
97p275	CR 09.07 A031 Corrections for HSCSD + 14.4	Alcatel
97p276	Answer to LS on SMS Busy	SMG2/3 WPA
97p277	CR 07.02 A010 Addressing in L2R PDU's	Nokia
97p278	CR 07.03 A008 Addressing in L2R PDU's	Nokia
97p279	SMS Mobile busy.: The VMSC solution	Ericsson
97p280	Ad-hoc meeting report on Multiplexing protocol at TE/MS interface	ad hoc group
97p281	DGMH report	DGMH
97p282	CR 03.40 A063 SMS transfer over GPRS (not copied, see Tdocs 209 and 283)	DGMH
97p283	Changes between Tdoc 209 and Tdoc 282	DGMH
97p284	CR 03.49 A022 Alignment with 03.41 (electronic only)	DGMH
97p285	CR 03.41 Editorial (electronic only)	DGMH
97p286	CR 03.41 A044 Write-Replace (electronic only)	DGMH
97p287	CR 03.41 A043 No-of-Broadcasts-Completed (electronic only)	DGMH

97p288	07.05 Summary	DGMH
97p289	CR 03.49 A025 No-of-Broadcasts-Completed (electronic only)	DGMH
97p290	CR 03.41 A041 Cause values (electronic only)	DGMH
97p291	CR 03.49 A023 Cause values (electronic only)	DGMH
97p292	---not used	DGMH
97p293	CR 03.49 A024 Format of Cell List Structures (electronic only)	DGMH
97p294	Background to 03.42 ChangeRequest in tdoc 163 (electronic only)	DGMH
97p295	LS to SMG1 SMS Forwarding (electronic only)	DGMH
97p296	LS to SMG1 SMS Alerting indications (electronic only)	DGMH
97p297	LS to SMG1, SMG3 WPC SMS Enhancement	DGMH
97p298	CR 03.40 A061 Correction of numbers <missing>	DGMH
97p299	CR 03.40 A062 User Data Header Indicator	DGMH
97p300	CR 03.60 for SMS	GPRS
97p301	LS to DECT/GSM interworking (electronic)	GPRS
97p302	LS to SMG1/3 GPRS channel planning (electronic)	GPRS
97p303	LS to SMG3 User throughput QoS (electronic only)	GPRS
97p304	LS to DECT/GSM interworking	GPRS
97p305	LS to SMG1/3 GPRS channel planning	GPRS
97p306	LS to SMG1,3 AT commands in GPRS	GPRS
97p307	Draft GSM 07.60 v. 1.2.0 (CR)	GPRS
97p308	LS to SMG3 transmission of SMS between MS - SGSN (electronic only)	GPRS
97p309	Draft report GPRS	Chair GPRS
97p310	CR 04.21 A008 Editorial modifications (electronic only)	Nokia
97p311	CR 07.07 A043 Preferred network list	Ericsson
97p312	CR 07.07 A038 ME ringer, loudspeaker and microphone control	Nokia
97p313	GSM 07.07 Summary of content for MDI	Rapporteur
97p314	Network's indication of alerting in the MS	FT
97p315	CR 03.02: Support of SIWF	Telia
97p316	CR 03.10 A006 Editorial modifications (electronic only)	Nokia
97p317	Presentation of Applications of CDPD (Mr. TOMS)	Sierra Wireless
97p318	Presentation of CDPD (Mr. WAUNG)	ComMuncicaTions.
97p319	CR 09.07 Data Compression	Drafting Group
97p320	CR 07.01 A023r2 Initial synchronization for HSCSD	Ericsson
97p321	CR 09.07 A029r2 Initial synchronization for HSCSD	Drafting Group
97p322	CR 09.07 A035 Editorial modification	T-Mobil
97p323	CR 04.22 A012 HSCSD	Ericsson
97p324	CR 09.07 A036 Intermediate Rate mapping between GSM and ISDN BC	FT
97p325	CR 09.07 A033 Data Compression	Drafting group
97p326	CR 07.07 A042 ATH and drop DTR for voice mode	Ericsson
97p327	CR 09.07 A032 V.120 and RDI Interworking (electronic only)	Hayes
97p328	CR 07.07 A041 Amandment in the scope Reference to 07.07 GPRS (electronic only)	Ericsson
97p329	CR 07.07 A039 V.120 Interworking (electronic only)	Hayes
97p330	Presentation PCCA on PCCA Integrated Service Modem	Mr. C. BURKE
97p331	White Paper: Framework for a standard DTE - DCE Interface using IP to deliver Integrated Multimedia Services	Input to PCCA
97p332	LS to SMG3 transmission of SMS between MS - SGSN	GPRS
97p333	LS to SMG6 GPRS charging	GPRS
97p334	LS to SMG1, SMG3WPA Service interworking (QoS) PDN Networks	GPRS
97p335	LS to SMG3 on Interworking between GPRS networks	GPRS
97p336	Modification of 09.61 v.1.1.0 Interworking between GPRS networks (electronic only)	Ericsson
97p337	Modification of 09.61 v.1.1.0 Interworking with PDN	Ericsson
97p338	CR 09.07 A034 Deletion of codepoint for V.32bis	T-Mobil, FT, Nortel
97p339	CR 07.01 A026 Deletion of codepoint for V.32bis (electronic only)	T-Mobil, FT, Nortel
97p340	CR 04.08 Deletion of codepoint for V.32bis	T-Mobil, FT, Nortel
97p341	TA/IWF	FT
97p342	SMG4 role in UMTS (LS to SMG4 steering group)	SMG 4 chairman
97p343	CR 07.01 A025 Clarifications on ACC parameter values	FT
97p344	LS to SMG2/3 WPA: Transfer of TS responsibility	TA/IWF chairman
97p345	Draft Report of the TA/IWF group	PT SMG
97p346	Draft GSM 09.61 v. 1.2.0 (CR)	GPRS group
97p347	LS to SMG2/3 WPA chairman: Transfer of TS responsibility	TA/IWF Chairman
97p348	CR 07.07 A036 Deletion of codepoint for V.32bis (electronic only)	Hayes
97p349	Report of SMG4 , Whistler, 01.- 05.09.97	PT SMG
97p350	LS to SMG3 on new references (electronic only)	GPRS

Annex B Output Documents

B.1 List of Change Requests

STC_DOC	Subject	STC_Status	Phase	Comments
97p316	CR 03.10 A006 Editorial modifications (electronic only)	agreed	R96	
97p229	CR 03.40 A060 Code points for SIM Toolkit	agreed	R97	
97p298	CR 03.40 A061 Correction of numbers <missing>	agreed	R96	
97p299	CR 03.40 A062 User Data Header Indicator	agreed	R97	
97p282	CR 03.40 A063 SMS transfer over GPRS (not copied, see Tdocs 209 and 283)	agreed	R97	
97p205	CR 03.41 A___ Addition of RESTART-IND response and FAILURE-IND response.[03.41]	withdrawn		
97p203	CR 03.41 A___ Addition of RESET Response. [03.41]	withdrawn		
97p210	CR 03.41 A___ Behaviour negotiation for the CBC-BSC interface. [03.41]	withdrawn		
97p201	CR 03.41 A___ Clarification of KILL. [03.41]	withdrawn		
97p173	CR 03.41 A___ SMSCB: 03.41 Clarification of the Kill message	withdrawn		
97p184	CR 03.41 A___ SMSCB: 03.41 Improved Cell Broadcast Recovery	withdrawn		
97p182	CR 03.41 A___ SMSCB: 03.41 Improved cell broadcast recovery with the use of cell lists for Restart-Indication and Failure-Indication PDUs	withdrawn		
97p178	CR 03.41 A036 SMSCB: 03.41 Format of Cell List Structures	agreed	R97	
97p180	CR 03.41 A037 SMSCB: 03.41 Removing restriction on the use of SET-DRX	agreed	R97	
97p169	CR 03.41 A038 SMSCB: 03.41 Repetition Rate	agreed	R97	
97p167	CR 03.41 A039 SMSCB: CBCH loading	agreed	R97	
97p165	CR 03.41 A040 SMSCB: Editorial changes	agreed		
97p290	CR 03.41 A041 Cause values (electronic only)	agreed	R97	
97p287	CR 03.41 A043 No-of-Broadcasts-Completed (electronic only)	agreed	R97	
97p286	CR 03.41 A044 Write-Replace (electronic only)	agreed	R97	
97p285	CR 03.41 A042 Editorial (electronic only)	agreed	R96	
97p163	CR 03.42 A002 Editorial	agreed	R96	
97p231	CR 03.45 Clarification for HSCSD	rejected		
97p206	CR 03.49 A___ Addition of RESTART-IND response and FAILURE-IND response.[03.49]	withdrawn		
97p204	CR 03.49 A___ Addition of RESET Response. [03.49]	withdrawn		
97p211	CR 03.49 A___ Behaviour negotiation for the CBC-BSC interface. [03.49]	withdrawn		
97p202	CR 03.49 A___ Clarification of KILL. [03.49]	withdrawn		
97p200	CR 03.49 A___ Correction of Status Message Query. [03.49]	withdrawn		
97p185	CR 03.49 A___ SMSCB: 03.49 Improved Cell Broadcast Recovery	withdrawn		
97p183	CR 03.49 A___ SMSCB: 03.49 Improved cell broadcast recovery with the use of cell lists for Restart-Indication and Failure-Indication PDUs	withdrawn		
97p198	CR 03.49 A___ Version control for the CBC-BSC interface. [03.49]	withdrawn		
97p181	CR 03.49 A018 SMSCB: 03.49 Removing restriction on the use of SET-DRX	agreed	R97	
97p170	CR 03.49 A019 SMSCB: 03.49 Repetition Rate	agreed	R97	
97p168	CR 03.49 A020 SMSCB: CBCH loading	agreed	R97	
97p199	CR 03.49 A021 User Data definition for non Fast Select. [03.49]	agreed	R97	
97p284	CR 03.49 A022 Alignment with 03.41 (electronic only)	agreed	R97	
97p291	CR 03.49 A023 Cause values (electronic only)	agreed	R97	
97p293	CR 03.49 A024 Format of Cell List Structures (electronic only)	agreed	R97	
97p289	CR 03.49 A025 No-of-Broadcasts-Completed (electronic only)	agreed	R97	
97p188	CR 03.54 A001r1 Definition of visited MSC	agreed	R97	
97p261	CR 03.54 A002 Clarifications of ISUP procedures	agreed	R97	send to SMG3 WPC
97p260	CR 03.54 A003 Number of MSCs that fcan access an SIWF	agreed	R97	
97p340	CR 04.08 Deletion of codepoint for V.32bis	agreed	R96	forward to SMG3 WPA
97p310	CR 04.21 A008 Editorial modifications (electronic only)	agreed	R96	
97p272	CR 04.22 A011 Corrections for 14.4	agreed	R96	
97p323	CR 04.22 A012 HSCSD	agreed	R96	
97p320	CR 07.01 A023r2 Initial synchronization for HSCSD	agreed	R96	
97p273	CR 07.01 A024 Corrections for 14.4	agreed	R96	
97p343	CR 07.01 A025 Clarifications on ACC parameter values	agreed	R96	
97p339	CR 07.01 A026 Deletion of codepoint for V.32bis (electronic only)		R96	approval by correspondance
97p277	CR 07.02 A010 Addressing in L2R PDU's	agreed	R96	
97p278	CR 07.03 A008 Addressing in L2R PDU's	agreed	R96	
97p223	CR 07.05 A036 Enhanced validity period format in text mode	agreed	R97	
97p348	CR 07.07 A036 Deletion of codepoint for V.32bis (electronic only)		R96	approval by correspondance
97p222	CR 07.07 A037 14.4k channel coding in HSCSD commands	agreed	R96	

97p312	CR 07.07 A038 ME ringer, loudspeaker and microphone control	agreed	R97	
97p329	CR 07.07 A039 V.120 Interworking (electronic only)	agreed	R96	
97p219	CR 07.07 A040 Advice of charge information from SIM	agreed	R97	
97p328	CR 07.07 A041 Amendment in the scope Reference to 07.07 GPRS (electronic only)	agreed	R97	
97p326	CR 07.07 A042 ATH and drop DTR for voice mode	agreed	R97	
97p311	CR 07.07 A043 Preferred network list	agreed	R97	
97p321	CR 09.07 A029r2 Initial synchronization for HSCSD	agreed	R96	
97p235	CR 09.07 A030 Corrections 14.4	agreed	R96	
97p275	CR 09.07 A031 Corrections for HSCSD + 14.4	agreed	R96	
97p327	CR 09.07 A032 V.120 and RDI Interworking (electronic only)	postponed		
97p325	CR 09.07 A033 Data Compression	agreed	R96	
97p338	CR 09.07 A034 Deletion of codepoint for V.32bis	agreed	R96	
97p322	CR 09.07 A035 Editorial modification	agreed	R96	
97p324	CR 09.07 A036 Intermediate Rate mapping between GSM and ISDN BC	agreed	R96	
97p346	Draft GSM 09.61 v. 1.2.0 (CR)	agreed	R97	
97p307	Draft GSM 07.60 v. 1.2.0 (CR)	agreed	R97	

B.2 List of outgoing Liaison Statements

STC_DOC	Subject	STC-Status	Comments
97p295	LS to SMG1 SMS Forwarding (electronic only)	agreed	
97p296	LS to SMG1 SMS Alerting indications (electronic only)	agreed	
97p297	LS to SMG1, SMG3 WPC SMS Enhancement	agreed	
97p304	LS to DECT/GSM interworking	agreed	
97p305	LS to SMG1/3 GPRS channel planning	agreed	Attach 270
97p306	LS to SMG1,3 AT commands in GPRS	agreed	Attach 307
97p332	LS to SMG3 transmission of SMS between MS - SGSN	agreed	Attach 267
97p333	LS to SMG6 GPRS charging	agreed	
97p334	LS to SMG1, SMG3WPA Service interworking (QoS) PDN Networks	agreed	Attach 241
97p335	LS to SMG3 on Interworking between GPRS networks	agreed	Attach 242
97p342	SMG4 role in UMTS (LS to SMG4 steering group)	agreed	forwarded by chairman SMG4
97p347	LS to SMG2/3 WPA chairman: Transfer of TS responsibility	agreed	
97p350	LS to SMG3 on new references (electronic only)	agreed	

Pending since last meeting:

STC_DOC	Subject	STC-Status	Comments
97p094	LS to SMG6 and SMG10 on SIWF	agreed	sent, answer pending
97p095	LS to SMG2:Change requests for 14.4 kbit/s data	agreed	sent, dealt with SMG
97p098	LS to SMG2,3 : Notification for the new channel coding introduced by WI 14.4 kbit/s	agreed	sent, dealt with
97p112	LS to MoU SERG on GPRS	agreed	sent,
97p116	LS to SMG1, SMG3 and USSD workshop on USSD	agreed	sent, dealt with
97p118	LS to SMG3 on UIMI inconsistencies	agreed	sent
97p125	LS to SMG3 on Mobile station busy	agreed	sent, answered.
97p133	LS to SMG1 and SMG on new WI TE - MS interface protocol	agreed	
97p139	LS to SMG7 on RLP testing issues	agreed	sent
97p143	LS to SMG1,3a,c : Network indication of alerting in the MS	agreed	sent, answered
97p146	LS to MTA on GSM 07.08 GSM API	agreed	sent, answered
97p152	LS to SMG3: Answer to SPS5 question concerning 09.07	agreed	sent

Annex C List of participants of the SMG4 Plenary Meeting

Note: This list contains the participants who made their details known to PT SMG. Some delegates are members of T1.P1.5 taking part in the concurrent T1P1 meeting

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Annex D Report of the TAIWF Subgroup

Mr. LOPEZ-TORRES opened the meeting. The agenda as contained in Tdoc SMG4 97P213 was reviewed and agreed.

D.1 14.4 kbit/s user rate

Tdoc SMG4 97P233: CR 07.01 Corrections for 14.4 (Alcatel)

Comments:

Annex A: User rate: The parameter is used differently for the new general bearer services signalling versus the old basic services. It is concluded that if the new signalling is not used, the values and the note are applicable.

- Alignment with GSM 09.07 was checked. The use of data compression was originally addressed by the note 6. The issue of data compression with HSCSD is to be discussed. Mr. CANDISH and Mr. BRAUN will reword the section accordingly.

Annex A: Wanted Air Interface User rate. The indents and blank lines on this page should be aligned to avoid confusion.

For transparent services the WAIUR octet is understood to be not included. However, if it is included in the signalling, it is unclear what happens. Check with 04.08.

Table B.3a, Note (3)) It is agreed to remove the buffer sizes here for alignment with 07.02 and 07.03.

B.1.3.2.2 The note in the table should be changed: HSCSD should become GBS signalling. However, up to this point of time it is understood that the GBS include the old bearer service signalling.

- One term should be invented that can be used to identify the use of 14.4 or multislot, it could be expressed by the use of the parameters (octet 6c-f).
- GSM 04.08 specifies when and under which circumstances the parameters will be sent. See GSM 04.08 - 10.5.4.5.1 (Static conditions for the bearer capability).
- It is understood that the new parameters can be present in any call, in case of of 14.4 Kbit/s or multislot.

A drafting session will cover the two bullet points above and also the issue of data compression (alignment of the notes in GSM 07.01 and 09.07).

Conclusion: @Go ToC>

B.1.3.2.2 A drafting session will be dealing with the items above.

The CR will be updated (R96 correction). However, the outcome of the drafting session should be a separate CR. See Tdoc SMG4 97P273

Tdoc SMG4 97P273 CR 07.01 A024 Corrections for 14.4 (Output from Drafting group)

In Annex A, the definition of the user rate parameter and note 6 are changed. The last note of Section B.1.3.2.2 is deleted. Further study was agreed to be done in order to possibly eliminate similar notes throughout Section B in the next SMG4 meeting.

Conclusion: @Go ToC>

This CR is agreed.

Tdoc SMG4 97P232: CR 04.22 Corrections for 14.4 (Alcatel)

This CR makes a few corrections and additions which were editorial or not controversial.

Comments:

4.1 The modification is agreed with a change of word order: " ..depends on radio channel type,..". The word 'type' was disputed.

Figure 3, REMAP U-FRAME format, was also updated.

Conclusion: @Go ToC>

The document was agreed with the change above. See Tdoc SMG4 97P272 (electronically only).

Tdoc SMG4 97P234: CR 09.07 Corrections for HSCSD + 14.4 (Alcatel)

This CR corrects inconsistencies of HSCSD and 14.4 kbit/s and aligns with other specifications.

Comments:
9.2.1.1 It is agreed to replace 'possibly' with 'if applicable', showing that the presence of this parameter depends on the connection type (required for non-transparent). It is proposed that clarification is given in GSM 09.07. The issue will be also discussed in the drafting group.
Table 6A, Inclusion of Wanted Air Interface User Rate to include 43, 2 and 57,6 Kbit/s.
Table 6B, Note 18: The first and the second sentence are contradictory, The drafting group will have to address the issue of data compression.
Implications for V.120/RDI need to be examined.
9.2.4.10 and 10.2.4.10.4, Clarification was added regarding “reception of V.110 or A-TRAU frames”.

Conclusion: @Go ToC>

All changes are accepted with the modification above. See Tdoc SMG4 97P275 (electronic only).
It is agreed that the note 18 in table 6B is erroneous and needs to be corrected. The drafting session will elaborate a proposal.

Tdoc SMG4 97P190: LS from SMG1 on Network's indication of alerting in the MS

See Plenary part. SMG4 TA/IWF reviewed the Network's indication of alerting in the MS LS, but decided that at this point of time, no further assistance can be offered from TA/IWF. However, after some progress is made from SMG3, SMG4 TA/IWF should revisit the issue.

Tdoc SMG4 97P235: CR 09.07 Corrections 14.4 (Alcatel)

10.2.3.2, Correction to the text stating that with 14.4 Kbit/s or multislot, UDI calls need further rate adaption in the MSC/IWF.

Conclusion: @Go ToC>

The CR is agreed without comments.

Tdoc SMG4 97P248: A 14.4 related clarification on L2R PDU's, CR 07.03 L2R PDU's, CR 07.02 L2R PDU's (Nokia)

This contribution addresses a case that is not yet covered, i.e. when TCH14.4 is used together with RLP version 2. As a solution, it is proposed that the value 127 in the address field of the second octet would indicate that the rest of the PDU following the two-octet status field is full of data.

Comments:
- Alternatively, two status octets could be used in the following way: The first is the status octet that includes a pointer to any octet, the second coded as 30, which would indicate that the remainder is full of data. It was said that this solution would be covered by the existing specification. However, this should be stated more explicitly.
- It seems that both solutions are equivalent but the alternative sticks closer to the existing specification and is a more generic solution.

On the CR 07.02:
Figure 2a title: multislot RLP has n=24 instead of n=23. This will be corrected in the CR.

Conclusion: @Go ToC>

The CR will be revised to describe the alternative method instead of the originally proposed one. The figure title will be corrected. See Tdoc SMG4 97P277 and 278 (electronic versions only)

Tdoc SMG4 97P249: CR 04.21 Editorial modifications (Nokia)

This CR is issued by the rapporteur makes corrections in various places of the specification, some of which are purely editorial.

Comments:
Table 1: The note 7 of table 1 was questioned. As a solution, the header in table 2 could be changed from RA1 to RA1/RA1' and leave the change to the note as proposed. This was agreed.
- A note on RAA' should be added that includes a reference to GSM 08.20.
- The header section 8.1.1 shall be bold.

8.1.1.1 Replace " The five N-bits in the basic M2 sequence" with "5 consecutive N bits carrying a NIC code in the M2 sequence".
- Filter mechanism in Network to MS direction: GSM 07.01 suggests an integration period which is more than 3 consecutive bits. It was clarified that both conditions are valid. No change is needed.

10.1.2: The figure shall be moved to the bullet 10.1.2 (a), as it applies to transparent operation. A figure title will be added as well. In order to avoid deviating meanings for n and p in the figure, "n" in will be changed to "k" and "p" to "m".

10.2.1 The change is modified as follows: "The number of the substream in which a multframe is sent is carried four times in a 31-bit period of the M2-sequence".

11 The proposed change is agreed. The paragraph will be slightly restructured.

Conclusion: @Go ToC>

The CR is agreed with the modification. See Tdoc SMG4 97P310 (electronic version only).

Tdoc SMG4 97P250: CR 03.10 Editorial modifications (Nokia)

This CR was presented by the rapporteur of the specification. It corrects a number of editorial mistakes and makes clarifications. There are other corrections to the Table 5 which are not purely editorial.

Comments:
Table 5: A note will be added saying that at least n is equal to 1 and therefore the lower limit is omitted in the table where appropriate.
- Restriction for asynchronous rates over the radio interface should be removed. However, this is only possible for non-transparent services. In those cases, the value of n shall be changed to equal or less four where applicable (due to the restriction on the A interface). It was also mentioned that for the transparent services RA0 is only defined up to a rate of 38.4 kbit/s and therefore no change is needed here.
- For Alternate speech/fax the connection element is cct mode speech alternating with SDU unrestricted instead of unstructured unrestricted.

Figure 7, model 14.4 kbit/s: For RAA' and RAA" in the single slot case, a similar function as RA2 would be needed that adapts 16 kbit/s intermediate rate to the 64 kbit/s A interface. An RA2 function should be added for the single slot case 14.4.

Conclusion: @Go ToC>

All changes are accepted with the modifications above. See Tdoc SMG4 97P316 (available in electronic format only).
It was noted that while the term TCH/F14.4 was already proposed to SMG3, the terms TCH/F4.8 and TCH/F9.6 had not yet been proposed. Therefore, document 97P316 should also be sent to SMG3 for information.

D.2 HSCSD

Tdoc SMG4 97P214: CR 07.01 A023r1 Initial synchronization for HSCSD (Ericsson)

A problem during initial syncronization between MS and IWF when more than 1 channel is used was already identified at the last SMG4 meeting. This CR aims at aligning the mechanism for all channel codings in a way that the two entities can align the received substreams before receiving data.

Comments:

- Insert the word 'also' to the second modified paragraph:
- It was said that the MT connecting through to the ISDN terminal is only true in the single slot case. An additional sentence for the case of multislot and 14.4 operation is added. "For multislot operation or TCH/F14.4 the MT shall adapt the data stream as defined in 04.21"

Conclusion: @Go ToC>

The CR is agreed with the minor changes above as a correction to R96. See Tdoc SMG4 97P320 (in electronic format only).

Tdoc SMG4 97P215: CR 09.07 A029r1 Initial synchronization for HSCSD (Ericsson)

This CR is the corresponding change to the CR 07.01 A023.

Comments:
- The same changes as for Tdoc SMG4 97P214 are introduced. The additional sentence for the case of multislot and 14.4 operation is added: "For multislot operation or TCH/F14.4 the IWF shall adapt the data stream as defined in GSM 04.21 and 08.20"

Conclusion: @Go ToC>

The CR is agreed with the modifications above as a correction to R96. See Tdoc SMG4 97P321. (in electronic format only).

Tdoc SMG4 97P259: CR 07.01 Intermediate Rate mapping between GSM and ISDN BC (FT)

Tdoc SMG4 97P159 section 9 is related to this document: Usage of the parameter ACC. The problem is an ambiguity when more channel codings are supported and could be used. The actual change is contained in the Tdoc SMG4 97P259.

Comments:
- It was questioned whether it is implied that an MS shall support the channel codings related to a specific ACC.
- It was understood that the network has the freedom of choice. The table only indicates the obvious choices for the MSC but does not impose anything on the request from the MS as in the BC signalling. This would have to be clarified in a note, saying that the table presents the service combinations which may be set up by the MSC.
- The WAIUR is needed in order to not exceed the user requirement. WAIUR would not be negotiated but used at the BSS.
- The table is found useful because it eliminates some options. A reference to GSM 02.34 could be added.
- GSM 02.34 contains the same table, however using AIUR instead of WAIUR and number of channel instead of maximum number of channels.

Conclusion: @Go ToC>

A modification to the original change was proposed. This will be reviewed in a new CR. See Tdoc SMG4 97P343

Tdoc SMG4 97P343: CR 07.01 Clarifications on ACC parameter values (FT)

This document resulted from discussions on Tdoc SMG4 97P159 and clarifies on the ACC parameter tables. The text of B.12.1 T was modified. The table B.1.12.2 was aligned with GSM 02.34.

Comments:
B.12.1 There is concern that the text restricts the behaviour of the MSC or the MS in a way that is not intended. It is therefor proposed that anything can be signalled from the MS, but the table showing the result of the granted connection characteristics. Change to FNUR, NumberTCH, ACC.
- It was said that a MS should be restricted from signalling a combination of parameters NumbTCH, ACC, that match the FNUR.

On the other hand, it seems that there is no definition for some arbitrary combination (padding). The table at the moment states the physical obvious. However, a set of rules what the MS can send is really needed. In any case, the text is an improvement.

Conclusion: @Go ToC>

The CR is agreed. ERICSSON accepted to check the correctness of the table B.1.12.1 for the next meeting.

Tdoc SMG4 97P322: CR 09.07 Editorial modification (T-Mobil)

This CR is motivated by section 2 of Tdoc SMG4 97P159. The note 15 of table 09.07 6A is confusing because it suggests that the modem type "autobauding type 1" is overridden by every possible Other Modem Type when GBS signalling is used. This is not the case when OMT is set to "no other modem type".

Conclusion: @Go ToC>

The CR is agreed in its content (since paper copy was not available during the discussion) and will be presented during the plenary session.

Tdoc SMG4 97P325: CR 09.07 Data Compression (Drafting Group)

This CR for GSM 09.07 was output of earlier discussions of Tdoc SMG4 97P159. The idea is that if the MSC supports data compression, the feature is allowed, and the FNUR is present, then for UDI calls the User Rate is set to the value of the FNUR. If the FNUR is not present, the User Rate signalled by the MS, or a higher value is used. The CR is agreed without comments as pertaining to R96.

Tdoc SMG4 97P224: CR 04.22 A___ HSCSD (Ericsson)

This CR clarifies that if the BC negotiation during call setup results in a possibility for multislot operation during the call, the IWF and MS shall accept RLP version 2.

Comments:
- Add at the end of first modification " … if requested", in order to stress that the XID negotiation would have to take place and request RLP version 2. Afterwards this wording was slightly changed again: If the BC negotiation during the call setup results in a possibility for multilink operation during the call, both ends shall accept and require RLP version 2 only.

Conclusion: @Go ToC>

The CR is agreed with the change above. See Tdoc SMG4 97P323.

Tdoc SMG4 97P231: CR 03.45 Clarification for HSCSD (Alcatel)

This CR is motivated by by section 10 of Tdoc SMG4 97P159: It is not specified that in case a CMM reduces the number of traffic channels to one, the singleslot configuration shall be used consequently in the call.

Comments:
- It was said that for any transparent data call the same question would arise. In the case of network initiated upgrade or downgrade it could be better to remain in multislot operation with one traffic channel, because the format of the data in the channel could remain as it was before. The disadvantage is however a higher overhead.
- It was said that for fax the rational is not the same, but a common principle was seen advantageous.

Conclusion: @Go ToC>

It is agreed that the multislot configuration is kept when a multislot call downgrades to use only one timeslot (via CMM or network initiated channel modification). If the max number of timeslots is one,

single slot configuration is possible. This principle shall be stated explicitly in GSM 04.21. For non-transparent calls, UIMI and the maximum number of TS will determine the use of multi or singleslot configuration.

The CR in Tdoc SMG4 97P231 is not agreed.

Tdoc SMG4 97P258: CR 09.07 Intermediate Rate mapping between GSM and ISDN BC (FT)

This CR is motivated by section 5 of Tdoc SMG4 97P159:

1. GSM 09.07 states wrongly that the Intermediate rate in ISDN-BC could be set to 64 kbit/s, because the codepoint in that case is "Not used".

2. Note 19 pertains to Table 6B. It is amended to qualify the cases were the "not used" is applicable.

Comments:

1.- Alhough the concept of 64 Kbit/s intermediate rate is used in V.110, the codepoint to be used in this case is "not used'. The text in Q.931 should therefore be interpreted either: “not used” or “64 Kbit/s”.

- The intermediate rate parameter "shall" (instead of "may") be set to "not used" in the case of audio calls. However, this information is presented differently in Q.931. The text in Q.931 is to be preferred. (Q.931, Note 3 to fig. 4-11). Originally the "may" was chose due to some implementations that deviate from Q.931. Therefore, for the time being the text stays as it is.

Conclusion: @Go ToC>

1. This change to Table 6A note 13 is agreed.
2. This change to Note 19 is agreed in principle, but it is not shown in this CR. Therefore a revised version will be produced. See Tdoc SMG4 97P324.

D.3 DSS1 Considerations for References in GSM Specifications and New Code Points for fixed Network Interworking V.32bis

Tdoc SMG4 97P159: HSCSD and 14.4: Inconsistencies in GSM 09.07 (T-Mobil, FT, Alcatel, Siemens)

Section 1 of Tdoc SMG4 97P159 analyses a problem of missing modem type code point for V.32bis and offers 4 possible solutions: 1) Originating side uses V.34 or V.32 depending on the user rate; 2) Call requests with missing modem type mapped to autobauding on the terminating side; 3) Delete the V.32bis codepoint from the GSM specifications; 4) Incoming call with 14.4 kbit/s and without modem type is interpreted as V.32bis.

The V.32bis modem type was introduced as a result of the 14.4 kbit/s workitem.

Comments:

- A fifth solution would be to ask ITU-T for inclusion of the V.32bis codepoint into Q.931 1997. However, since V.34 is a superset of V.32bis the need for V.32bis support is reduced.
- There is support for solution 3). Once ISDN has defined a codepoint, this could be re-integrated into GSM. However, it will still take time after standardization.
- It was debated that if GBS is used in the terminating side and V.34 is sent to the MS as the OMT, then V.22bis as quoted as the example could not occur.
- The solution 1) would only impose a problem if an IWF supports only V.32bis. That may not be the case and solution 1) which is equivalent to solution 3) can be chosen.

Conclusion: @Go ToC>

It is agreed that the codepoint for V.32bis should be deleted. V.32bis calls can be supported using V.34 signalling. It is assumed that current IWF implementations do not support only V.32bis modems.

A linked CR to GSM 04.08 shall be forwarded to SMG3. T-mobil will present the CR to SMG3 WPA. Also a change to GSM 07.01 is needed. The authors of Tdoc SMG4 97P159 will draft those CRs. Mr. APRATH or Mr. BERTIN will prepare the CR to GSM 04.08 In summary Tdocs SMG4 97P338, 339, 340, and 348 should take care of the deletion of pointcode V.32bis..

Tdoc SMG4 97P340: CR 04.08 Deletion of codepoint for V.32bis (T-Mobil, FT)

The CR matches the CRs to GSM 07.01 and 09.07.

Conclusion: @Go ToC>

The CR is agreed without comments and will be submitted to SMG3 WPA. Mr. BAUMANN will present the CR to SMG3 WPA.

Tdoc SMG4 97P339: CR 07.01 Deletion of codepoint for V.32bis (Nortel)

Comments:

- The same codepoint needs to be removed from GSM 07.07 CBST command. This was overlooked in the first place.

Conclusion: @Go ToC>

This CR 07.01 is not available but agreed in principle. SMG4 approval by correspondence shall be sought according to the normal procedure.

A CR against GSM 07.07 will be prepared by Mr. MOUGHTON, that deletes the codepoint. Also this CR should be approved by SMG4 by correspondence.

Tdoc SMG4 97P254: GSM 09.07 mappings according to ETS 300-102-1, Especially coding of the information element ' modem type' (Mannesmann Mobilfunk GmbH)

Related to this document is also section 3 of Tdoc SMG4 97P159. Some parameters in Table 6A and 6B of GSM 09.07 are take from ETS 300 403-1 but not ETS 300 102-1. However, there are other parameters that have been removed from EN 300 402-1 but had been defined before.

A particular conflict is identified in Tdoc SMG4 97P254: codepoint of the V.32 modem type was changed. However, this was due to a typographical error. Therefore, the problem is void.

Comments regarding all Tdocs in Section D.3.:

- Three specifications were considered the ETS 300 102-1, ETS 300 403-1, and EN 300 403-1. The latter one was provided as document Tdoc SMG4 97P237.
- It was also discussed whether references to ITU Q.931 are more appropriate, thus considering a more general approach; i.e. a superset of ETSI pointcode coverage - for instance V.120 pointcodes are not considered in ETSI spacifications. It is concluded that further discussions with SMG3 are needed.
- Apart from the problems identified in Tdoc SMG4 97P159 also the length of LLC-IE has been extendeded in the new ETS and EN specifications. The BC-IE's length is shortened.
- As an interim solution, references to the old DSS1 specifications could be kept, but for new codepoints (release 97) reference to EN 300 403-1 should be introduced. It is proposed to send a liaison to SMG3 asking for guidance.

Two alternative proposals are discussed:

1) It was questioned whether there is any impact on existing MS in terms of backwards compatibility. It was said that without the problem in Tdoc SMG4 97P254, this is not the case.
2) The issue of making reference to EN 300 403-1 can be decoupled from supporting all of the new parameters. As a result, more statements may be needed in order to identify what is supported and what is not supported in GSM. There are some updates needed in the specification. In a second step, new elements can be introduced. The disadvantage is that a solution for the missing octets would be needed.

Conclusion: @Go ToC>

A LS to SMG4 WPA will be drafted by Mr. BERTIN and the group's chairman, see Tdoc SMG4 97P341. Mr. KLEHN indicated that he is prepared to include local references to EN 300 403-1 where appropriate in GSM 09.07. Comments should be relayed to Mr. KLEHN.

D.4 V.120

Tdoc SMG4 97P236: CR 09.07 V.120 and RDI Interworking (Hayes)

This CR was presented in detail and introduces some clarifications on the specifications of V.120 in GSM 09.07 and also adds additional information to a number of sections. It replaces Tdoc SMG4 97P160, which was withdrawn.

Mr. MOUGHTON gave a short introduction to the motivation of RDI support. It was explained that predominantly in North America some networks cannot provide transparent 64 kbit/s channel, but the user datastream has to be modified in order to fulfill a requirement that no all zero octets are transmitted. There are two case of RDI interworking: Direct interworking, where a GSM MSC is connected to an RDI network and indirect interworking, i.e. where the originating MSC is connected to an ISDN UDI network while the terminating terminal is connected to an RDI network. In the latter case, the originating MS has to be aware of this and use adequate signalling when setting up the call.

Comments on V.120 changes:

Table 6A Octet 5a Other rate adaptation: The table describes mapping from GSM BC to ISDN BC. Whenever mapping from BC to LLC is performed, this will only be indicated by a note. Therefore the change as it stands in Tdoc SMG4 97P236 stays.

Table 6A, Note 17: Addition of mapping from User Information Layer 1 Protocol BC to the equivalent field in the LLC.

section 10.2.4.12.2 The information on V.120 data compression using V.42bis will be included as a note in this section (transferred from section 10.2.4.11).
It was also discussed whether the sentsitive asynchronous mode should be used for asynchronous and synchronous bearer services and the rate adaption header is necessary. Additional explanations are needed. Mr. MOUGHTON will discuss this issue with the workitem rapporteur, Mr. CANDISH.

section 10.2.4.12.3 It was noted that V.120 TA are being used more often now in Europe rather than in North America. Flexibility is needed in order to support as many TA implementations as possible. Any information on implementation experience could be collected in an annex in GSM 09.07 or in a stand-alone document. The proposed new section 10.2.4.12.3 would form part of this document and is therefore agreed not to be inserted into 09.07.

Comments on RDI changes:

Table 6A: Reference to note 19 is removed and "no comparable value" is inserted. Two rows are combined. Note 19 is integrated in brackets to note 18. An analogous change is performed in table 6B.

10.2.4.13: The paragraph explaining that *a priori* knowledge of the remote terminal interworking network is needed should be removed, because similar situations exist for other basic services and those are in general not explained.

Conclusion: @Go ToC>

The document will be revised by Mr. MOUGHTON, taking into account the comments made during the meeting and the outcome of a small drafting group on some of the issues.

Issues on TA implementations or region dependent problems that may be relevant for interworking with GSM should be kept in a permanent document. Mr. APRATH will identify an appropriate way of documentation.

It is agreed that the terms "direct RDI interworking", which is not applicable to ETSI ISDN, and "indirect RDI interworking" shall be defined in section 3 of GSM 09.07.

Tdoc SMG4 97P327 will superceed this document. Delegates are encouraged to review it. It will be revisited in the next SMG4 meeting.

D.5 New AT commands for ME (GSM 07.07)

Tdoc SMG4 97P161: CR 07.07 A___ V.120 Interworking (Hayes)

This contribution proposes to add a new command to GSM 07.07 to set V.120 protocol parameter values and to control the presence of the ISDN LLC-IE for MO calls. The MS should be able to control the

presence or absence of the LLC-IE parameter for compatibility with some ISDN terminals that do not comply to ETS 300 102-1 and reject a call with LLC-IE indicating V.120.

Comments:
- Only the second parameter <mfm> can reasonably be administered by the user. All other parameters have fixed values in GSM (1,x,1,0,0,0,0) and need currently not be administered. Therefore it is questioned why they are needed. However, it may be useful to keep the format with respect to future enhancements and to a similar commands applicable to ISDN terminals.
- The usual section about the mandatoryness of the feature should to be added as well.

<LLC-IE>
- It was found sensible that the user has control over the parameter; this is needed e.g. in the UK fixed network but also on other network implementations.
- However, for the MSC the normal case is interworking to other networks according to ETS 300 102-1. Deviations from this is a manufacturer or operator dependent matter.
- It was explained that the information could be relayed to the MSC using a spare bit7 in octet 6b, however, without explaining the use of the bit in the standard. However, this would cause an ambiguity when the MS is roaming to a network that interprets the parameter in a different way. In general the spare bit is not acceptable to be used but set to zero, because the behaviour of current MSC implementations can not be predicted.
- GSM 07.01 was said to request the sending of LLC by the MS in the case of an UDI and RDI call.
- An alternative proposal is that the LLC is optionally sent from the MS, depending on the AT command. However, this would require review of the whole concept of sending LLC, which is currently used in MS to MS calls.

Conclusion: @Go ToC>

It is agreed to keep the proposed parameters, although some can currently not be changed in GSM. An additional note will explain this.
The following way forward is proposed: The issue of LLC has to be revisited in the context of GSM 07.01, 09.07 and possible update of references to ETS 300 403-1 instead of 300 102-1.
The CR is finally agreed as a correction to Release 96, but without the <LLC-IE> parameter. Other comments as stated above will also be considered in the revised version. See Tdoc SMG4 97P329.

Tdoc SMG4 97P313: GSM 07.07 summary (Rapporteur)

This document represents the summary intended to be given to the MDI or SMG internet homepage. The text is agreed in TA/IWF group.

Tdoc SMG4 97P312: CR 07.07 A ME ringer, loudspeaker and microphone control (Nokia)

This CR introduces AT control commands to control the ME ringing tone, loudspeaker and microphone. The same commands are also forseen in the IrDA Telecom specification.

Conclusion: @Go ToC>

The CR is agreed without comments as part of the release 97.

Tdoc SMG4 97P219: CR 07.07 Advice of charge information from SIM (Nokia)

This CR introduces new commands that allow easy access of the AoC related field of the SIM, i.e. ACM, ACMmax and PUCT files.

Conclusion: @Go ToC>

The CR is agreed without comments as part of the release 97.

Tdoc SMG4 97P311: CR 07.07 Preferred network list (Ericsson)

This document replaces Tdoc SMG4 97P220. This CR provides commands for manipulation of SIM preferred network list.

Conclusion: @Go ToC>

The CR is agreed without comments as part of the release 97.

Tdoc SMG4 97P326: CR 07.07 ATH and drop DTR behaviour for voice mode (Nokia and Ericsson)

This document replaces Tdoc SMG4 97P221. ATH and drop DTR hangup from voice mode can be undesirable, hence a new optional AT command is troduced to be able to control the TA's behaviour in such cases.

Conclusion: @Go ToC>

The CR is agreed without comments as part of the release 96.

Tdoc SMG4 97P222: CR 07.07 14.4k channel coding in HSCSD commands (Nokia)

This CR takes care of the changes needed for the 14.4 kbit/s user rate.

Conclusion: @Go ToC>

The CR is agreed without comments as part of the release 96.

Tdoc SMG4 97P269: CR 07.07 Amendment in the scope Reference to 07.07 GPRS (Ericsson)

This CR introduces a reference to GSM 07.60, where the AT commands applicable to GPRS are specified.

Comments:
- Replace "GPRS" with "GPRS AT" commands .
- It was found that the AT commands would be more appropriately included to GSM 07.07, therefore having all the API relevant commands in one place.

Conclusion: @Go ToC>

TA/IWF was in favour of placing GPRS AT commands in GSM 07.07 and not referring to them. This issue will be raised in the plenary session. The content of the CR can be agreed from a technical point of view.

D.6 SIWF

Tdoc SMG4 97P188: CR 03.54 A001r1 Definition of visited MSC (SMG3 SA)

This CR was proposed by SMG3 SA and introduces a definition of the term visited MSC.

Conclusion: @Go ToC>

The CR is agreed without comments as part of R97.

Tdoc SMG4 97P260: CR 03.54 Number of MSCs that can access an SIWF (Telia)

This CR takes into account a comment made by SMG3 SA. It states explicitly that the concept is not limited to a certain number of MSCs.

Conclusion: @Go ToC>

The CR is agreed without comments as part of R97.

Tdoc SMG4 97P261: CR 03.54 Clarifications of ISUP procedures

This CR clarifies the ISUP procedures, some of which were resulting from comments of SMG3 SA. 1) A note is included saying that the signalling between MSC and SIWF is independent from the signalling to

the MS after the AssignmentComplete message. 2) It should be possible to reset the link between SIWF server and MSC. 3) Release procedure is clarified.

Comments:
- There could potentially be a timer problem in the MS, if the delay is exceeding a certain threshold after the MS has sent the connect message, i.e. between the connect and the connect ack message.
- Consideration of timing aspect has to be made by SMG3 WPC.
- The timer between sending the IAM to the VMSC and receiving the ACM messages has to be respected. The number of retrials is therefore limited, but operator dependent.

Conclusion: @Go ToC>

SMG4 should check the existence of a timer in the MS that supervises the delay after sending connect to the network.
The CR is agreed as a correction to release 97. It shall be sent to SMG3 WPC for information.

Tdoc SMG3 97C315: Proposed change request 03.02: Support of SIWF (Telia)

This CR introduces the SIWF entity into the GSM architecture specification. Also the K interface is introduced.

Conclusion: @Go ToC>

This CR is agreed. After approval by SMG4 it shall be sent to SMG3 SA.

D.7 Other Items

Tdoc SMG4 97P226: An update on 56 kbit/s modem technology and its implications for IWF, etc (Hayes)

Mr. Pechey gave a short tutorial on the 56 kbit/s moding technology that are currently being standardized in the ITU-T. Further, the implications for GSM IWF are discussed. It is concluded that SMG should standardize access to the ITU compliant PCM modem. However, to make use of the higher rates, datacompression over the radio interface needs to be further encouraged. It was said that today proprietory PCM modems are sold in millions worldwide.

There was some discussion on whether GSM will be required to support the new modems to the same extent as the fixed networks.

Tdoc SMG4 97P225: LS on Allocation of responsibility for Specifications between SMG2, SMG3 and SMG4 (SMG2/3 WPA Chairman)

Mr. LOPEZ -TORRES presented this letter from the SMG2/3 chairman, which proposes a re-alignment of responsibilities between SMG2/3 and SMG4. In particular it is proposed that GSM 04.21 and 08.20 should be moved to SMG3 responsibility.

Comments:
- The argument that future work on UMTS transport and signalling would take place in SMG2 and SMG3 would not necessarily affect the development and maintenance work that GSM 04.21 and 08.20 continuously require.
  UMTS may need other specifications that look quite different from GSM 04.21 and 08.20. SMG4 has up to now put a large part of its resources into developing those specifications.
  The future work on UMTS has an important impact on the decision. The LS was seen as a chance for SMG4 to get its role in UMTS more clearly identified, thus making use of the experience of SMG4 experts.
- It would make sence to keep some specifications as 07.01, 07.02 and 07.03 together.
- The current mandate of SMG4 was questioned. Today, SMG4 deals with mapping of compatibility information to the fixed network, End to end parameters between MS and MSC.
  The current mandate of specifying the interworking between the TA - MS and MS to IWF would be change.

- It was questioned that if the re-organization of SMG2 and SMG3 has impact on SMG4, why had SMG4 not been involved in the work?
  It was stated by the SMG4 chairman that this request was not jointly discussed yet. With regard to possible work of SMG4 in UMTS, which suggests that the TA and the IWF parts of GSM 04.21 and 08.20 should remain under SMG4 responsibility.
- It is understood that SMG2/3 will focus on the mobile network. SMG4 work has to a large extent be motivated by interworking between PLMN and other networks.
  It was felt that without consideration of other SMG4 specifications, work on 04.21 and 08.20 is difficult to achieve.
- GSM 04.22 is also related to the MS to MSC interface and would consequently have to be moved to SMG3 as well. On the other hand, if SMG4 remains responsible for the traffic channel interworking, then also the GPRS link layer Protocol should be handled in SMG4 rather than SMG3 (analogous to RLP).
- The work of at least some companies is organized according to functional entities, e.g. Interworking function. The incomplete split would ask people to attend more than one STC meeting.

Conclusion: @Go ToC>

Mr. LOPEZ-TORRES will draft a LS summarizing the arguments above. See document 97P347.

Tdoc SMG4 97P344: Response to the Proposed Transfer of TSes from SMG4 to SMG2 and SMG3 (Chairman TA/IWF et al.)

Mr. LOPEZ-TORRES presented this LS.

Comments:
- The statement that it was unlikely that 04.21 would form the basis for UMTS should be softened.
- It was argued that the recipient of the LS should be SMG2/3 rather than the chairman only. However, in order not to escalate further than needed, it shall be left to the SMG2/3 chairman to discuss this LS with SMG2/3 WPA groups.

Conclusion: @Go ToC>

The document will be revised, taking the comments into account. See Tdoc SMG4 97P347.

Tdoc SMG4 97P253: Network impairments impacting G3 facsimile communication (Mannesmann Mobilfunk)

ITU-T SG8 proposes in a LS to ITU SG2 that the quality of facsimile transmission can be improved by changing relevant ITU standards. It is proposed that if SMG4 sees a conflict of T.30 timers with GSM implementations, advice should be sent to ITU in a co-ordinated manner.

Conclusion: @Go ToC>

SMG4 approval for a LS to SG8 is helpful, however, this will have to be supported there by individual companies. Mr. KLOETZEL will collect comments from SMG members and draft a contribution to ITU SG 8 if needed. This will be presented to the next SMG4 meeting.

D.8 AoB:

A number of editing errors were spotted in GSM 04.22, 07.01 and 07.02.

The rapporteurs are requested to check their specifications with respect to the changes that were introduced for HSCSD and 14.4 kbit/s. Any deviation from the SMG approved change requests shall be reported to the PT SMG secretary, Mr. APRATH, who will make sure that the changes are implemented correctly.

At the same time, reference to GBS signalling should be checked and alignments proposed along the lines of Tdoc SMG4 97P274.

ANNEX E Report of the GPRS Subgroup

Mr Heaton, the Chairman, opened the meeting and welcomed the delegates to this GPRS drafting session.

E.1 Approval of Agenda

The draft agenda Tdoc SMG4 97P271 was accepted. The chairman stressed the need to complete 07.60 and 09.61 during this meeting.

E.2 Work Items

The following documents were reviewed:

Tdoc SMG4 97P197: DECT/GPRS Interworking

This liaison was reviewed and it was agreed that this document should be presented to DECT/GSM WP, SMG3.

Conclusion: issue a LS to DECT/GSM WP, SMG3 (Tdoc SMG4 97P301 later revised to 304).

Tdoc SMG4 97P270: GPRS Capacity Impact in Network launch phase

This document was presented for consideration and it was agreed that this matter would be more appropriate for SMG2 WPB.

Conclusion: issue a LS to SMG2 WPB (Tdoc SMG4 97P302 later revised to 305).

Tdoc SMG4 97P238: AT Commands in GPRS

This paper is the result of discussions held in the last GPRS ad-hoc in Stockholm. It was reviewed in conjunction with Tdoc SMG4 97P239 and proposes a change to section 10 of GSM 07.60 version 1.1.0. On review of this paper it was agreed that the parameter <bandwidth> (section 10.1) should be re-named and that it's parameter tables should be replaced by new parameter definitions.

Conclusion: this document was accepted with updates which are to be reviewed again on Wednesday 3rd September (See also the conclusion for Tdoc SMG4 97P239).

Tdoc SMG4 GPRS 97P244: CR to GSM 07.60

This paper introduces a new AT command to instigate GPRS PDP context activation using the standard ATD format. Parameter network identifier was changed to GGSN address.

Conclusion: This was accepted and included in 07.60.

Tdoc SMG4 300: CR to GSM 03.60

This document was presented for information only.

Wednesday 3rd September

Wednesday opened with a review of and minor amendments to the LSs drafted on Tuesday 2nd September. Final LS document numbers are now as follows:-

Tdoc SMG4 97P301 is now Tdoc SMG4 97P304

Tdoc SMG4 97P302 is now Tdoc SMG4 97P305

Tdoc SMG4 97P239: TS 07.60 version 1.1.0 - GPRS MS Supporting GPRS

This document is the latest version of TS 07.60 as a result of discussions held in the last SMG4 GPRS ad-hoc in Stockholm.. The document was updated during the session V 1.2.0.

E.3 Review of section 10 of TS 07.60 version 1.2.0 following the proposed changes from Tuesday 2nd September

There was a continuation of the discussion that took place on Tuesday 2nd September on section 10.1 (see Tdoc SMG4 97P238). It was agreed that the parameter <bandwidth> should be re-named and that its parameter tables should be re-defined. However, there was a lengthy discussion as to what these should be! The new name for <bandwidth> is now <user throughput>. A liaison statement to SMG1 & SMG3 reflecting these changes was drafted (Tdoc SMG4 97P306)**.**

The <pkt size> description was also re-defined.

This concludes all work items on TS 07.60 for this meeting. The document TS 07.60 v 1.2.0 is now Tdoc SMG4 97P307 and is ready for presenting for approval to SMG#23.

Tdoc SMG4 97P243: Interworking Between GPRS Networks

This document was a proposed change to section 10 of GSM 09.61 version 1.1.0.

It was reviewed but needed modifying before further review (re-numbered to Tdoc SMG4 97P336).

Tdoc SMG4 97P336 was further reviewed which resulted in more updates, most noticeably of all - section 10.3 was deleted. Note: section 10.1 & 10.2 are to be included in GSM 09.61.

Conclusion: all changes made should be liaised to SMG3 SA asking them to review and comment on Tdoc SMG4 97P336 (the LS number is Tdoc SMG4 97P335).

Tdoc SMG4 97P242: Interworking with PDN (IP)

This was reviewed and and modified for further review (re-numbered to Tdoc SMG4 97P337).

A liaison statement was raised to SMG6 on charging information being available to ISP's from the GGSN.

IMPORTANT: After further discussion Tdoc SMG4 97P337 was withdrawn and will be re-submitted by Ericsson at a later meeting.

Tdoc SMG4 97P241: Service Interworking (QoS) with PDN (IP) Networks

This document was reviewed with interest, however, it was agreed that clarification on QoS from SMG3 was needed before proceeding any further.

Conclusion: issue a LS to SMG3 asking them to review and comment on this document (the LS number is Tdoc SMG4 97P334).

Tdoc SMG4 97P267: SMS Transmission between SGSN/MS

This document was first presented in an early evening meeting and then presented to GPRS group for information purposes. A liaison statement was raised to SMG3 WPA saying that the proposed solution using CP/RP on LLC was good. LS is 332.

E.4 Review of TS 09.61 V.1.2.0

Updated 09.61 was reviewed and agreed.This concludes all work items on TS 09.61 for this meeting. The document TS 09.61 v 1.2.0 is now Tdoc SMG4 97P346 and is ready for presenting for approval to SMG#23.

E.5 Output Documents

Tdoc SMG4 97P304 Liaison Statement on DECT/GPRS Interworking
Tdoc SMG4 97P305 Liaison Statement on GPRS Channel Planning
Tdoc SMG4 97P306 Liaison Statement on User Throughput
Tdoc SMG4 97P307 TS 07.60 V 1.2.0
Tdoc SMG4 97P309 Draft meeting minutes
Tdoc SMG4 97P332 Liaison Statement on Transmission of SMS between MS/SGSN
Tdoc SMG4 97P333 Liaison Statement on GPRS Charging and Interworking with ISP
Tdoc SMG4 97P334 Liaison Statement on GPRS QoS and Interworking with IP Networks
Tdoc SMG4 97P335 Liaison Statement on Interworking Between GPRS Networks
Tdoc SMG4 97P336 Interworking Between GPRS Networks
Tdoc SMG4 97P346 TS 09.61 V 1.2.0

E.6 Delegate List

Ambrose, Tim	Motorola
Birkeland, Dagfinn	TELENOR
Chen, Bonnie	MCI
Children, Philp	NEC
Dupont, Pierre	Motorola
Hatala, Ted	Motorola
Haumont, Serge	Nokia
Heaton, Graham	Vodafone
Kjode, Sissel	Esat Digifone
Loui, Sok-Yen	SFR/CEGETEL
Moore, Scott	One 2 One
Nalley, David	Nokia
Neumann, Peter	Siemens AG
Roesler, Olaf	Siemens AG
Scholefield, Chris	Motorola
Seacombe, Ian	Xircom
Sonahee, Sharmila	BT
Stevens, Peter	Orange
Toms, Norman	SierraWireless
Verbersal, Willy	Motorola
Waung, William	CDPD Forum Inc
Winroth, Mats Olof	Telia
Zelmer, Don	Bellsouth

Annex F Report of the DGMH Subgroup

F.1 03.40

F.1.1 SMS forwarding Tdocs 187, 193

Tdoc 187 is a LS received from SMG1. Definition of this work item is at an early stage, and input from SMG3 and SMG4 is encouraged.

Tdoc 193 is a copy of a response to the LS, from SMG3-WPB. One possibility may be to assign a new Teleservice Code for the enhanced SMS.

DGMH feel that the service requirements are unclear.

*An LS **Doc 295** has been drafted to SMG1.*

F.1.2 Alerting indication Tdocs 190, 256, 314

Tdoc 190 is a LS received from SMG1, responding to some points raised earlier by SMG4.

Tdoc 256, presented by Ms Perrot, discusses the service aspects, and suggests that conveying the alerting category within the TPDU may not be acceptable from a network operator perspective.

DGMH feel that the service requirements for SMS alerting indication are impractical and that SMS alerting should be postponed until 1998.

*An LS **Doc 296** has been drafted to SMG1.*

F.1.3 SMS enhancements Tdocs 191, 257

Tdoc 191 is a LS received from SMG1, asking SMG4 to study the inclusion of an originator address in the request to an HLR for routing information.

Tdoc 257 from France Telecom proposes to add an originating address at the RP level.

For operators having problems with unwanted SM's their HLR could return routing for SM to the SMS-GMSC as the SCP (CAMEL node) address rather than the MSC address so that the TP-OA could be checked in the CAMEL node. The error returned to the SC in the case of the CAMEL node wishing to prevent delivery of the SM could be an existing error 'call barred'.

It should be noted that the TP-OA could be a generic address common for very large numbers of individual originators. e.g the whole of a PSTN environment could be barred. Furthermore, where network operators provide a service allowing the value of TP-OA is determined by the originater, there could be extreme cases where all SM's from an SC could be prevented from being delivered. Mr Roth suggested that this problem could be reduced if some additional TP-OA status information could be transported with the short message to the CAMEL node. Mr Harris said that this would probably have a major impact on existing specifiations and implementations.

T doc 257 is withdrawn

T doc 191 requirements are noted and satisfied with this proposal

An LS TDoc 297 has been drafted to SMG1 and SMG3 to propose that CAMEL be used.

F.1.4 Multiple subscriber profile (MSP) Tdoc 194

Tdoc 194 is a LS from SMG3-WPB, containing a draft of the relevant section of the MSP stage 2 description. SMG4 are asked to consider the impact on the SMS specifications, and look at the transport of profile information over the various interfaces.

It was felt that from the information given in the above Tdoc there are no changes needed to 03.40 apart from the possibility of mentioning MSP

Until the stage 3 description is completed , no changes willl be made to 03.40.

F.1.5 TP-UDH Tdoc 228 T Doc 263

Tdoc 228 is a proposed CR to 03.40, to clarify the position of the UDH length (UDHL) octet in the TP-User-Data.

*New **CR T doc 298** incorporates changes and discussions from Tdoc 263*

T doc 263 CR 03.40 UDH count

Changes incorporated into CR Tdoc 298 above

F.1.6 Code points for SIM toolkit Tdoc 229

Tdoc 229 is a proposed CR to 03.40, to reserve 16 UDH IEI code points for SIM Toolkit Security Headers.

Agreed

F.1.7 RP-ACK Tdoc 230

Tdoc 230 contains some queries regarding RP-ACK, from the SIM Toolkit Security Group.

The following outcome of discussion on this document were conveyed to Mr Barnes.

T Doc 230 point 1 - MO and MT SMS both result in either an RP-ACK or an RP-ERROR

T Doc 230 point 2. The length of the RP-UD in 04.11 has to include all of the TP elements of 03.40 of which the TP-UD is just one part. The max length of the TP-UD in a deliver report is 159 and in a Submit report 152. It is advisable NOT to use these maximum values. 140 would be a reasonable sensible limit otherwise enhancements to the structure of the SUBMIT and DELIVER reports would probably not be possible.

T Doc 230 point 3. The IEI values for 04.11 functionality are not related to those IEI values used in the 03.40 User Data header.

F.1.8 SMS Mobile Busy Tdoc 265, 279, 276

T Doc 265 is the report of the Ad hoc held in London.

There were 2 proposals from the ad hoc.

-store addresses at VLR

-better control of alerting from HLR

T doc 276 was the response to a previous LS sent to SMG2/3 WPA indicating that any contention between a mobile terminated SM and a mobile originated speech call is an MS

design problem not an 04.08 oversight. SMG4 is therefore able to hold the radio rescource open solution to help to resolve the problem of MS Busy.

T Doc 279 is a proposal to resolve the MS busy problem. After much discussion it was preferred that the VMSC should schedule the alerting of SC's in the event of MS busy. Also the VMSC should set MWD directly in the HLR in the event that the MS becomes detached during MS busy. The same procedure would satisfy the Memory capacity exceeded situation.

Mr Harris was particularly concerned that there should be no dependency on changes to the SC to overcome the MS Busy problem. There was some discussion on whether it would be useful to differentiate between a normal MS busy and an MS busy which would be follwed by an Alert so that an SC could apply different retry rules. It was also suggested that there should be a different alert for an alert as a result of MS becoming not busy.

Mr Meuronen proposed a buffering mechanism in the VMSC for say up to 10 seconds before returning MS busy.

The operation in a GPRS environment should be primarily the same but it would seem that a closer examination is needed to ensure that the same solution should be applied.

Further work is obviously required and this will be pursued by correspondence and possibly ad hoc meetings.

F.1.9 Unidentified subscriber Tdoc 251

T Doc 251. Mr Gidlow presented this CR which proposes to add Unidentified Subscriber to the list of error indications sent to the SC to discriminate this condition from system failure (currently the means by which unidentified subscriber is conveyed to the SC) and to indicate that the treatment of unidentified subscriber is treated like absent subscriber in so far as the SC alerting functions are concerned.

It was agreed to carry the unidentified subscriber indication as a sub cause of absent subscriber.

The error MS purged cannot uniquely identify unidentified subscriber.

The changes will be incorporated into CR Tdoc 282 - the SMS over GPRS CR.

09.02 would include the necessary changes for this as part of the changes for SMS over GPRS. Mr Josse who has 09.02 expertise will pursue this in SMG3

F.1.10 UDHI definition T doc 299

T Doc 299. This CR was raised during DGMH to editorially correct a reference to the PDU's which use TP-UDHI.

This was ommitted from a previous change request.

F.2 Cell Broadcast Service

There were a large number of CRs (about 30) to 03.41 and 03.49. It became apparent that these CRs could not be easily agreed in DGMH after a first presentation, so the participants with a particular interest (Mr Fernhout, Mr Cataldo, Mr Parrack & Mr Corrigan) met as a sub-group.

Tdoc 186 introduces a group of 03.41 and 03.49 CRs (in Tdocs 165 to 185) which were prepared by Lucent Technologies.

Noted

Tdoc 165 is a CR to 03.41, to correct some section references.

Agreed

Tdoc 166 is a CR to 03.49, to align the terminology with 03.41, and add missing references.

Some errors were found . Also CR redefined as editorial as it is an alignment with 03.41.

*New **Tdoc 284** produced. Agreed*

Tdoc 167 is a CR to 03.41, to clearly show that Schedule messages are included in the CBCH loading information.

Agreed

Tdoc 168 is a CR to 03.49, to align the CBCH loading parameter with 03.41

Agreed

Tdocs 169 and 170 are CRs to 03.41 and 03.49 concerning the repetition rate.

Agreed. but changes proposed to be editorial

Tdoc 171 is an editorial CR to 03.41, on the unique identification of a message.

Some editorial corrections needed. Also technical comments.

*New **Tdoc 285** produced contains editorial changes only. Technical changes not included as there was no agreement.*

Tdoc 172 is a CR to 03.41, concerning the use of Write-Replace.

*New **Tdoc 286** produced. Agreed.*

Tdoc 173 is a CR to 03.41, on the behaviour of a BSC after receipt of the Kill message, or after the requested number of broadcasts have been completed.

Withdrawn

Tdocs 174 and 175 are CRs to 03.41 and 03.49, to allow the “no-of-broadcasts completed” to be reported as unknown.

*New **Tdoc 287** produced to replace 174. Agreed*

*New **Tdoc 289** produced to replace 175. Agreed but the front sheet has refernces to old Tdocs. These will be corrected on the electronic copy*

Tdoc 176 and 177 are CRs to 03.41 and 03.49, modifying the use of error cause values.

*New **Tdoc 290** produced to replace 176. Agreed*

*New **Tdoc 291** produced to replace 177. Agreed*

Tdoc 178 and 179 are CRs to 03.41 and 03.49, modifying the format of a Cell-List.

Tdoc 178 *Agreed*

*New **Tdoc 293** produced to replace 179.Agreed*

Tdoc 180 and 181 are CRs to 03.41 and 03.49, to allow Set-DRX to be used without disrupting the service in a cell.

Agreed

Tdoc 182 and 183 are CRs to 03.41 and 03.49, concerning status information following cell broadcast recovery

Withdrawn for the time being.

Tdoc 184 and 185 are alternatives to Tdocs 182 and 183.

Withdrawn for the time being

Tdoc 198 is a CR to 03.49, to allow the CBC and the BSC to indicate which interface version is supported.

Withdrawn for the time being

Tdoc 199 is a CR to 03.49, concerning user data for a BIND.

Approved

Tdocs 200 is a CR to 03.49, to align the possible Status-Message-Query errors with 03.41.

Withdrawn. Duplicate of another Tdoc

Tdocs 201 and 202 are CRs to 03.41 and 03.49, on the behaviour of an BSC after a KILL request, where the message reference is unknown.

Withdrawn. Duplicate of another Tdoc

Tdocs 203 and 204 are CRs to 03.41 and 03.49, to introduce a response to a RESET.

Withdrawn for the time being

Tdocs 205 and 206 are CRs to 03.41 and 03.49, to introduce responses to a RESTART-IND and to a FAILURE-IND.

Withdrawn for the time being

Tdocs 210 and 211 are CRs to 03.41 and 03.49, to allow a BSC or a CBC to indicate which features are supported.

Withdrawn for the time being

An ad-hoc meeting is planned to allow work on the withdrawn documents to continue. This will take place 1-2 October in Utrecht, hosted by CMG. The Tdocs are 182 to 185, 198, 203 to 206, 210 and 211.

F.3 03.42

F.3.1 Compression algorithm clarification to avoid risk of incompatable implementations. CR T Doc 163

Agreed.

F.3.2 Background information for T Doc 163. T.doc 294

Agreed. This may be of interest to implementors

F.4 SMS over GPRS

Meeting report of SMS over GPRS Ad Hoc meeting held in NICE. T Doc 266

The proposed output of the NICE meeting is given in Tdocs 164,209,208,267,246 and 300. Comments on these documents are given below. A small sub group of DGMH met on Monday 1st and discussed the above documents with the intention of reviewing the Ad Hoc meeting held in NICE. The sub group did not discuss 300 or 209 but agreed with the proposals given by the NICE meeting.

Key points arising from discussion were :-

The LLC provides an unreliable path between the MS and SGSN.

The RLC provides a reliable path only between the MS and the BSS.

The CP layer will be retained so that there is a protected path between the MS and SGSN.

T Doc 164 Considerations for support of SMS over GPRS

Agreed

T Doc 208 Background information for support of SMS over GPRS (e.g. MNRF, MCEF etc)

Agreed

T Doc 267 Background information for retention of CP layer

Agreed

T Doc 246 Background information for protocol stack.

Agreed

T Doc 209 SMS over GPRS Change request for 03.40

The previous draft of this document was reviewed at the SMS over GPRS ad hoc in Nice

The CR contains editorial corrections some of which are not directly but indirectly relevant to SMS over GPRS changes. e.g. MNRR was not previously in a diagram but the SMS over GPRS new text needs to refer to MNRR.

It is not easy to produce a separate CR for these but they are identified on the CR cover sheet.

A query was raised concerning whether the SC (other than the GMSC) should have the ability to select whether the GPRS or MSC is to be used for SM transfer. This requires further discussion.

The handling of unidentified subscriber was raised by Mr Meuronnen and Mr Gidlow.

Relevent supporting changes to 04.11 and 09.02 will be done via MR Josse

A few minor editorial inconsistencies were identified.

A new CR was produced - ***T Doc 282 is in electronic form only***

The changed pages were produced in Tdoc 283

T Doc 300 CR for 03.60

This CR which has been made available to DGMH for information only was reviewed.

DGMH made some editorial suggestions.

- remove word 'using' Page 11

-clarify which address indication in note 3 page 10

Mr Harris will convey this informally to Mr Naper - rapporteur of 03.60.

F.5 07.05

F.5.1 Enhanced VPF Tdoc 223

Tdoc 223 is a CR adds support for the Enhanced Validity Period Format to the Text Mode.

Agreed

F.5.2 07.05 Summary as required by PT12 T Doc 288

Agreed. For SMG4 plenary the following comments are made

Delete reference to CCITT and document number should be 97P288 not 96P288

F.6 USSD

T Doc 195 LS from SMG3 WPB

Stage 1 considerations have been made. SMG4's input is limited at this time until a stage 1 description is available. There is no question directed to SMG4 in this LS

T Doc 212 Report of workshop

The workshop have drafted a stage 0 requirement

F.7 Multiplexing protocol

T Doc 280 This is the report of the two ad hoc held during the Whistler meeting.
Agreed

Two further ad hocs are planned, to be chaired by Mr Harris: 29-30 September in Oxford, and 20-21 October in Lund. People intending to participate should give their names to Mr Aprath and/or Mr Harris. See report plenary.

F.8 DGMH Docs

Tdoc	Subject	Plenary
163	CR 03.42 Editorial	CR
165	CR 03.41 Editorial	CR
166	replaced by 284	
167	CR 03.41 CBCH loading	CR
168	CR 03.49 CBCH loading	CR
169	CR 03.41 Repetition rate	CR
170	CR 03.49 Repetition rate	CR
171	replaced by 285	
172	replaced by 286	
173	withdrawn	
174	replaced by 287	
175	replaced by 289	
176	replaced by 290	
177	replaced by 291	
178	CR 03.41 Format of Cell List Structures	CR
179	replaced by 293	
180	CR 03.41 Set-DRX	CR
181	CR 03.49 Set-DRX	CR
182 to 185	withdrawn	
198	withdrawn	
199	CR 03.49 User Data definition for non Fast Select	CR
200 to 206	withdrawn	
209	replaced by 282	
210	withdrawn	
211	withdrawn	
223	CR 07.05 Enhanced VPF	CR
228	replaced by 298	
229	CR 03.40 Code points for SIM Toolkit	CR
251	replaced by 282	
263	replaced by 298	
280	Report of ad-hoc meeting on Multiplexing	Plenary
281	DGMH report	Report
282	CR 03.40 SMS transfer over GPRS (not copied, see Tdocs 209 and 283)	CR
283	Changes between Tdoc 209 and Tdoc 282	
284	CR 03.49 Alignment with 03.41	CR
285	CR 03.41 Editorial	CR
286	CR 03.41 Write-Replace	CR
287	CR 03.41 No-of-Broadcasts-Completed	CR
288	07.05 Summary	Plenary
289	CR 03.49 No-of-Broadcasts-Completed	CR
290	CR 03.41 Cause values	CR
291	CR 03.49 Cause values	CR
292	(not used)	
293	CR 03.49 Format of Cell List Structures	CR
294	Background to 03.42 CR in tdoc 163	
295	LS to SMG1 SMS Forwarding	LS
296	LS to SMG1 SMS Alerting indications	LS
297	LS to SMG1, SMG3 WPC SMS Enhancement	LS
298	CR 03.40 Correction of numbers	CR
299	CR 03.40 User Data Header Indicator	CR

Participants

Arthur Gidlow	One 2 One	UK
Ralf Roth	Mannesmann Mobilfunk	Germany
Isabelle Perrot	France Telecom	France
Thierry Josse	Ericsson	Sweden
Timo Meuronen	Nokia	Finland
Louis Corrigan	Aldiscon	Ireland
Malcolm Parrack	Motorola	UK
Nigel Barnes	Motorola	UK
Mark Cataldo	Lucent Technologies	UK
Petri Heinonen	Nokia	Finland
Craig Bishop	Samsung Electronics	UK
Hans Fernhout	CMG	Netherlands
Prof. Lars Novak	Ericsson Mobile Communications AB	Sweden
Dr. Peter Edlund	Ericsson Radio Systems AB	Sweden

ETSI STC SMG4
Stratford-upon-Avon, UK
9-13 December 1996

Ian Harris	Vodafone	UK
Joseph Pizzimenti	MCI	USA
Bill Pechey	Hayes	UK

3GPP N3/SMG3 WPD Meeting #7
Sophia Antipolis, France, 29 Nov-03 Dec 1999

Document N3-99456
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

09.07	CR	A053	Current Version:	6.1.0

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

For submission to:	TSG_N#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: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]
(at least one should be marked with an X)

Source: TSG_N3 **Date:** 26-11-1999

Subject: Correction of intermediate rate values

Work item: HSCSD

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

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

Reason for change: Mobile terminated UDI V.110 calls where the User rate is either 14.4 or 19.2 kbit/s will rejected because the intermediate rate in the transit network is 32 kbit/s and this is not in Table 6B.

Clauses affected: 10.2.2, Table 6B

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:

10.2.2 Network interworking mobile terminated

This subclause describes the interworking of calls where the calling subscriber can communicate ISDN compatibility information with exhaustive contents for deducing a GSM Basic Service to a PLMN (gateway MSC/interrogating node) i.e. by means of ISDN signalling.

The GMSC has to perform a mapping of the received Basic Service Information for the transport to the HLR, for details of this transport refer to GSM 09.02.

Compatibility checking of the low layers of the ISDN originated call is carried out by the MSC/IWF to determine the appropriate bearer service selection in the PLMN. This will entail the MSC/IWF in mapping appropriately the ISDN BC/LLC-IE to the GSM BC-IE.

As well as compatibility checking, subscription checking should be performed. If either the subscription check or the compatibility check fails then the call will be rejected.

For ISDN originated calls it will not be possible to signal mobile specific requirements e.g. transparent/non transparent, full/half rate channel. Therefore the MSC/IWF shall select a default setting appropriate to the visited PLMN's network capabilities. In general it will be beneficial, where a network supports both full and half rate channels and transparent/non transparent capabilities, to indicate so in the appropriate GSM BC field of GSM 04.08. The mobile subscriber has the option to indicate in the call confirmation message a change to this default setting according to the rules specified in GSM 07.01. The appropriate MSC/IWF shall be selected on the basis of this requirement.

At call Set-up, the interrogating node passes in the "send routing information" to the HLR, the ISDN BC, LLC and HLC received in the initial address message. The coding of these parameters must comply with ETS 300 102-1 edition 1, with one exception: for the mapping of the parameter modem type to/from the ISDN BC-IE, refer to tables 6A and 6B.

According to the contents of the Compatibility Information, i.e. the ISDN BC, LLC and HLC received, the HLR applies one of the following alternatives:

1) No ISDN BC is received, or one from which a GSM Basic Service cannot be deduced with the information Transfer Capability field set to "3,1 kHz audio" but without any associated modem type[1] in the ISDN BC and LLC, or without HLC indication of group 3 facsimile. Two cases have to be considered:

   a) The called MSISDN has one or two corresponding GSM BC-IE(s) stored in the HLR (see option a) of 9.2.2); then the service attached to this number in the HLR tables is applicable and the corresponding GSM BC-IE(s) is passed to the VLR in "provide roaming number". See figure 6.

      If two GSM BC-IE have to be sent to the VLR they are preceded by a repeat indicator information element according to 04.08. These three information elements shall be included within the MAP parameter "GSM Bearer Capability" of the message "Provide Roaming Number".

      NOTE: For the case of two GSM BC-IEs see subclause 10.3.

   b) The called MSISDN has no corresponding GSM BC-IE(s) stored in the HLR (see option b in 9.2.2). In this case no GSM BC is passed to the VLR in the "provide roaming number" message.

2) Compatibility Information is received from which a GSM Basic Service can be deduced, i.e. the ITC field in the ISDN BC received is "unrestricted digital" and the fields for the applicable user layer 1 protocol and user rate are available (either in the ISDN BC or LLC), or the ITC field is "3,1 kHz audio", and a modem type, user rate, etc. is indicated but the HLC does not indicate "facsimile group 3". The received ISDN BC (and possibly LLC plus HLC) is then considered applicable regardless of the kind of MSISDN received (GSM BC associated or not) and either the equivalent GSM BC or the original ISDN BC/LLC is sent to the VLR. Additionally in both cases the originally received HLC may also be sent to the VLR, see figure 7.

   When the HLR interworks with a phase 1 VPLMN (VLR/VMSC), then the HLR shall convert the ISDN BC to the equivalent GSM BC, and forward to the VLR. In this case however no LLC can be forwarded.

---

[1] "Modem type" in connection with the ITC value "3.1 kHz audio" means hereafter that either an ISDN BC modem type value is present or the autobauding modem function is indicated (see note 16 of table 6B)

3) Compatibility Information is received from which the GSM Teleservice category Facsimile transmission can be deduced i.e. the ITC field in the ISDN BC received is "3,1kHz audio" and the HLC indicates "facsimile group 3" (see figure 7), the following two cases have to be considered:

   a) The called MSISDN has a corresponding GSM BC stored in the HLR (either stating TS 61 or TS 62). In this case the service attached to the MSISDN in the HLR tables is applicable and the corresponding GSM BC is passed to the VLR in the "provide roaming number" message, see also subclause 10.3.1.3.

   b) The called MSISDN has no corresponding GSM BC stored in the HLR. In this case the HLR shall forward the appropriate GSM BC to the VLR in line with the subscribers subscription to teleservice 61 or 62.

      For TS 61 the value of the GSM BC-IE parameter "Information Transfer Capability" shall be set to "alternate speech/facsimile group 3, starting with speech"

      In both cases the HLC IE should be passed to the VLR in the "provide roaming number" message.

      Alternatively the HLR may forward the originally received ISDN/LLC/HLC, when interworking with a phase 2 VLR.

4) In the case where Compatibility Information received does not allow for deducing a GSM Bearer Service but an ISDN BC is received with the ITC field indicating "unrestricted digital", but without the fields indicating applicable "user layer 1 protocol", user rate, etc., neither in the ISDN BC or the ISDN LLC then the following shall apply. The call is managed as for an udi call according to section 9.2.2, i.e either the "multi numbering" or "single numbering" scenario is applied depending on which capability is provided by home PLMN/HLR.

At the VMSC, when the incoming call arrives, the LLC/HLC and the GSM or ISDN BC associated with the MSRN is retrieved from the VLR. LLC and HLC are sent with the GSM BC in general to the MS at call set-up. In particular, however the following rules apply:

1) If the Initial Address Message (IAM) contains no ISDN BC and there is no GSM or ISDN BC/LLC/HLC retrieved from the VLR, the call is handled as subclause 9.2.2 case b.

2) If there is no ISDN BC in the IAM but a GSM or ISDN BC/LLC/HLC was signalled in the "provide roaming number" message, the retrieved GSM or ISDN BC/LLC/HLC applies.

3) If there is an ISDN BC in the IAM with the ITC field set to "3,1 kHz audio" but without any associated modem type or indication of facsimile group 3 in the HLC, the GSM or ISDN BC/LLC/HLC retrieved from the VLR is considered as applicable when it exists. If no GSM or ISDN BC is retrieved from the VLR, the call is handled as in subclause 9.2.2 case b.

4) If the ISDN BC received in the IAM has the ITC field set to the value "unrestricted digital information" and the fields for the applicable "user layer 1 protocol" and "user rate" are available (either in the ISDN BC or ISDN LLC), or if 3,1 kHz audio and a modem type is indicated, this ISDN BC is applicable regardless of what has been retrieved from the VLR. In this case the ISDN BC has to be mapped to an appropriate GSM BC (refer to table 6B).

5) If the ISDN BC received in the IAM has the ITC field set to the value "3,1kHz audio" and a HLC "facsimile group 3" is indicated, the GSM BC retrieved from the VLR is applicable when it exists. If a GSM BC-IE with the parameter "information transfer capability" set to "alternate speech/facsimile group 3, starting with speech" (stating TS61) is retrieved from the VLR, this shall be mapped to two GSM BC-IE preceded by a repeat indicator, one representing speech, the other representing facsimile group 3.

   When no GSM BC is retrieved from the VLR, either two GSM BCs preceded by a repeat indicator (stating teleservice 61), or a single GSM BC-IE (stating TS 62), are sent in the setup message, depending whether TS 61 or TS 62 is subscribed (see also subclause 10.3.1.3).

   In case of TS 61, the order in which the two GSM BC-IEs are sent towards the MS, in the setup message, is a network option.

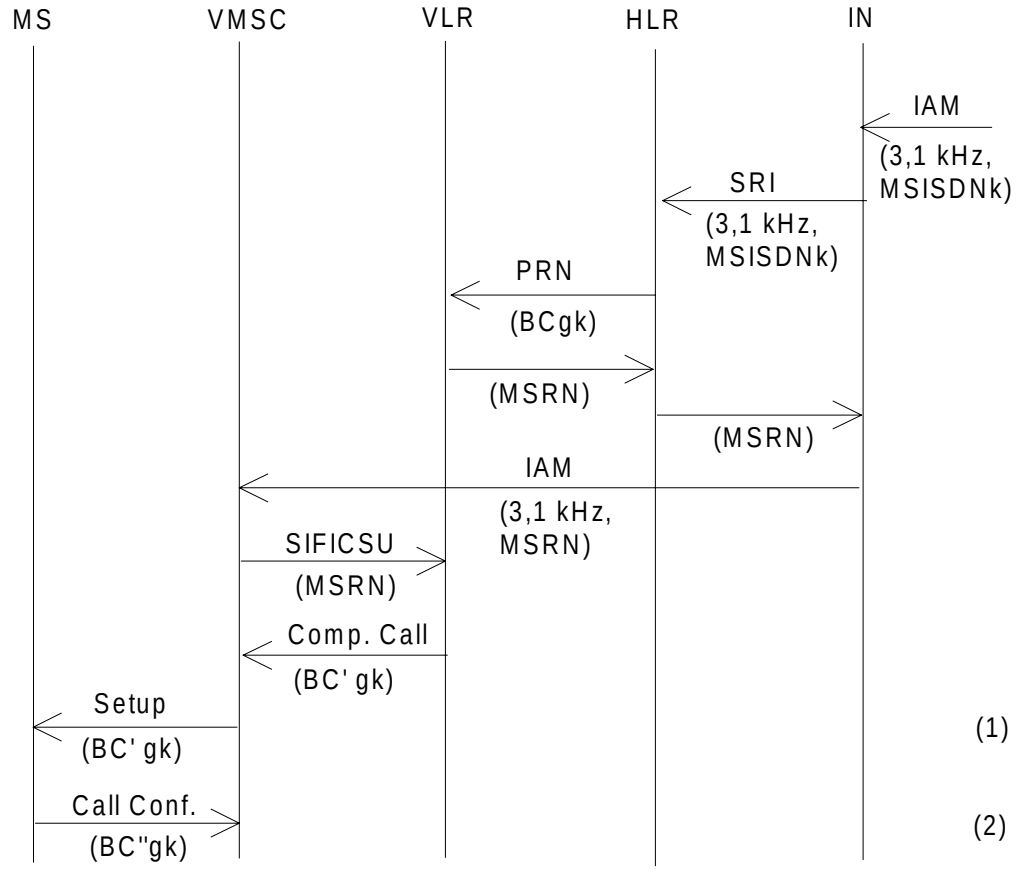
6) If the ISDN BC received in the IAM has a ITC value "unrestricted digital information" but without applicable "user layer 1 protocol" and "user rate", etc. fields, neither in the ISDN BC nor ISDN LLC, then the GSM or ISDN BC/LLC retrieved from the VLR is applicable, if available otherwise subclause 9.2.2 case b applies.

In case of an ISDN BC/LLC/HLC was attached to the MSRN this has to be mapped to an appropriate GSM BC (refer to table 6B). However in both cases (GSM or ISDN BC attached) the PLMN specific parameters of the GSM BC-IEs may be added/modified in line with procedures identified in subclause 9.2.2.

In all cases when no GSM or ISDN BC is retrieved from the VLR and no ISDN Compatibility information allowing deduction of a GSM Bearer Service is available, then no GSM BC is inserted by the VMSC and subclause 9.2.2 case b applies.

The mapping between GSM and ISDN BCs is shown in table 6.

Mobile terminated, ISDN originated call compatibility Information provided not exhaustive for deducing a GSM Bearer Service, but Information Transfer Capability = 3,1 kHz audio, no modem type and no HLC IE indicating facsimile group 3. HLR stores GSM BC against MSISDN number multi-numbering scheme.



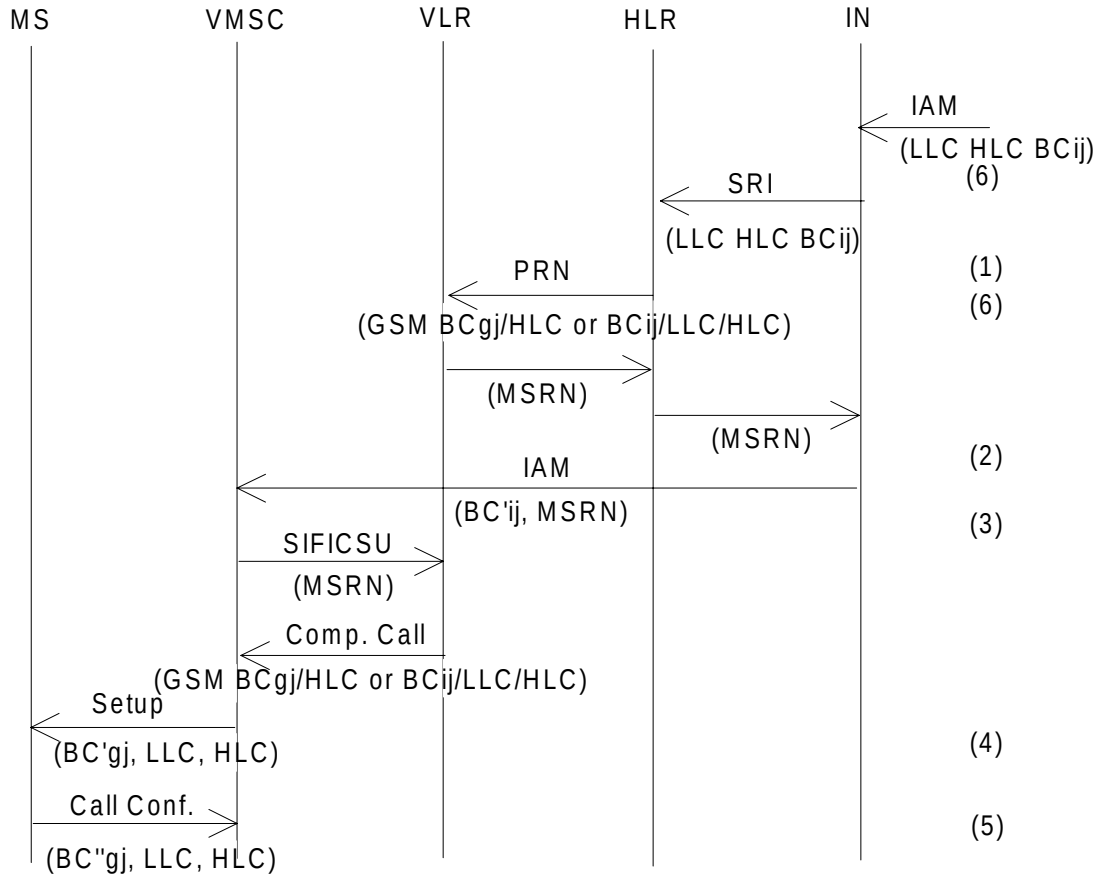
Abbreviations: see figure 2.

NOTE: (1) Some parameters of BCgk may be provided/modified according to the MSC's capabilities/preferences. See subclause 9.2.2
(2) In the "Call Confirm" message, the MS may modify some parameters of the GSM BC. See subclause 9.2.2.

Figure 6

Mobile terminated, ISDN originated call compatibility Information provides sufficient information to deduce:

- a GSM Bearer Service, or
- Information Transfer Capability = 3,1 kHz audio with HLC IE indicating facsimile group 3.



NOTES:
(1) BCij denotes ISDN ETS 300 102-1 BC*; BCgj is the corresponding GSM BC.
(2) Assumes signalling capabilities permit the transfer of BC between IN and VMSC. If this is not the case, the VLR uses the stored BC/LLC/HLC.
(3) BC'ij denotes BCij as maybe modified by intervening networks.
(4) Some parameters of BCgk may be provided/modified according to the MSC's capabilities/preferences. See subclause 9.2.2.
(5) In the "Call Confirm" message, the MS may modify some parameters of the BC. See subclause 9.2.2.
(6) For details on how the BC, HLC, and LLC are transported, refer to GSM 09.02.

* HLC and LLC refers to ISDN values.

Abbreviations: see figure 2.

Figure 7

The following tables (6A + 6B) show that only the ISDN BC is used for mapping (exceptions are indicated).

NOTE: The ISDN/GSM BC-IE mapping shall be performed as specified in tables 6A and 6B. This must be done to allow setup of a compatible end-to-end connection between two MSs or one MS and an ISDN terminal.

It has been acknowledged that octets 5a, 5b, 5c and 5d or a combination of them may also be sent and received in 3,1 kHz audio calls. Follow-up versions of ETS 300 102-1 (i.e. ETS 300 403-1), confirm this interpretation. This is especially important for MOC-ISDN terminating calls, where early Customer Premise Equipment (e.g. PABXs), may reject these calls.

In the following table the comparison is drawn between parameters in the GSM call set up request message and that of the ISDN call set up request message. In some cases no comparable values are available and these will be marked as such. In these cases reference will need to be made to the table of network interworking in GSM 09.07 to identify the appropriate choice. In some cases it is not necessary to support a particular option, and in this case those parameters will be annotated appropriately.

Table 6A: Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
1	**Bearer Capability IEI**	1	**Bearer Capability IEI**
2	**Length of BC contents**	2	**Length of BC contents**
3 #7..6	**Radio channel requirement** half rate channel full rate channel dual, full, rate preferred dual, half rate preferred		No comparable field
3 #4	**Coding Standard** GSM standard coding	3 #7..6	**Coding Standard** CCITT standardized coding
3 #4	**Transfer mode** circuit mode packet mode (note7)	4 #7..6	Transfer mode circuit mode packet mode
3 #3..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio ex PLMN facsimile group 3 (note 1) other ITC (see octet 5a)	3 #5..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio see table 4 in GSM 09.07 no comparable value
5a #7..6	**Other ITC** restricted digital		(note 18)
4 #7	**Compression** (note 14) data compression allowed data compression not allowed		No comparable field
4 #6..5	**Structure** SDU integrity unstructured	4a #7..5	**Structure** (note 4)
4 #4	**Duplex mode** half duplex full duplex	5d #7	**Duplex mode** half duplex full duplex
4 #3	**Configuration** point to point	4a #4..3	**Configuration** (note 4) point to point
4 #1	**Establishment** demand	4a #2..1	**Establishment** (note 4) demand
4	**NIRR** (note 12) meaning Data ≤ 4.8kbit/s, FR nt, 6kbit/s radio interface is requested		No comparable field
5 #5..4	**Rate adaptation** no rate adaptation (note 2) V.110/X.30 rate adaptation CCITT X.31 flag stuffing No comparable value (note 11) No comparable value (note 11) No comparable value (note 11) other rate adaptation (see octet 5a)	5 #5..1	**User information layer 1 protocol** no comparable value CCITT standardized rate adaption V.110/X.30 CCITT standardized rate adaption X.31 flag stuffing Recommendation G.711 μ law Recommendation G.711 A law (note 3) Recommendation G.721 32 kbit/s ADPCM and I.460 No comparable value
5a #5..4	**Other rate adaptation** V.120 (note 17)		No comparable value
5 #3..1	**Signalling access protocol** I.440/I.450 X.21 X.28, ded.PAD, indiv.NUI X.28, ded PAD, univ.NUI X.28, non-ded PAD X.32		No comparable field

(continued)

Table 6A (continued): Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
6 #1	**Synchronous/asynchronous** synchronous asynchronous	5a #7	**Synchronous/asynchronous** synchronous asynchronous
6 #5..2	**User info. layer 1 protocol** default layer 1 protocol	5 #5..1	**User info. layer 1 protocol** see section under rate adaptation for GSM 04.08 above
6a #7	**Number of stop bits** 1 bit 2 bits	5c #7..6	**Number of stop bits** 1 bit 2 bits
6a #6	**Negotiation** In band neg. not possible no comparable value	5a #6	**Negotiation** In band neg. not possible In band neg. possible (note 10)
6a #5	**Number of data bits** 7 bits 8 bits	5c #5..4	**Number of data bits excluding parity if present** 7 bits 8 bits
6a #4..1	**User rate** 0.3 kbit/s 1.2 kbit/s 2.4 kbit/s 4.8 kbit/s 9.6 kbit/s 12 kbit/s (note 7) 1.2 kbit/s / 75 bit/s any value no comparable value	5a #5..1	**User rate** 0.3 kbit/s 1.2 kbit/s 2.4 kbit/s 4.8 kbit/s 9.6 kbit/s 12 kbit/s 75 bit/s / 1.2 kbit/s 19.2 kbit/s (note 14) Ebits or inband negotiation (note 10)
6b #7..6	**Intermediate rate** 8 kbit/s 16 kbit/s any value	5b #7..6	**Intermediate rate** (note 13) 8 kbit/s or not used 16 kbit/s or not used 32 kbit/s or not used (note 14)
6b #5	**NIC on Tx** does not require requires (note7)	5b #5b	**NIC on Tx** does not require requires (note 8)
6b #4	**NIC on Rx** cannot accept can accept (note 7)	5b #4	**NIC on Rx** cannot accept can accept (note 8)
6b #3..1	**Parity information** odd even none forced to 0 forced to 1	5c #3..1	**Parity information** odd even none forced to 0 forced to 1
6c #7..6	**Connection element** transparent non-transparent (RLP) both, transp. preferred both, non-transp. preferred		No comparable field
6c #5..1	**Modem type** none V.21 V.22 V.22bis V.23 V.26ter V.32 modem for undef. interface autobauding type 1	5d #6..1	**Modem type** (note 9) no comparable value (note 5) V.21 V.22 V.22bis V.23 V.26ter V.32 No comparable value (note 5) No comparable value (note 5, note 10)

(continued)

Table 6A (concluded): Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
7 #5..1	**User info. layer 2 protocol** X.25 link level ISO 6429, codeset 0 COPnoFICt videotex profile 1 (note 7) X.75 layer 2 modified (CAPI)	6	**User info.layer 2 prot.** (note 6) X.25 link level no comparable value no comparable value no comparable value X.25 link level
6d #5..1	**Fixed network user rate** (note 15) FNUR not applicable (note 7) 9,6 kbit/s 12 kbit/s (note 7) 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48,0 kbit/s 56,0 kbit/s 64,0 kbit/s	5a #5..1	**User rate** no comparable value 9,6 kbit/s 12 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48,0 kbit/s 56,0 kbit/s no comparable value (note 16)
6e #3..1	**Maximum number of traffic channels** 1 TCH 2 TCH 3 TCH 4 TCH 5 TCH 6 TCH 7 TCH (note 7) 8 TCH (note 7)		No comparable field
6f #4..1	**Wanted air interface user rate** air interface user rate not applicable (note 7) 9,6 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 43,2 kbit/s 57,6 kbit/s interpreted by the network as 38.4 kbit/s (note 7)		No comparable field
6d #7..6	**Other modem type** (note 15) No other modem type V.34	5d #6..1	**Modem type** no comparable value V.34
6e #7..4	**Acceptable channel coding(s)** TCH/F4.8 acceptable (note 19) TCH/F9.6 acceptable TCH/F14.4 acceptable		No comparable field
6f #7..5	**User initiated modification indicator** User initiated modification not required User initiated modification upto 1 TCH/F may be requested User initiated modification upto 2 TCH/F may be requested User initiated modification upto 3 TCH/F may be requested User initiated modification upto 4 TCH/F may be requested		No comparable field

The application rules for coding the information elements ISDN-BC/LLC/HLC as set out in ETR 018 and ETS 300 102-1 shall apply.

Other field values in the ISDN BC-IE of ETS 300 102-1 not supported in GSM 04.08 are:

Information transfer rate: In this case default 64 kbit/s is selected.

Symmetry: In this case default bi-directional symmetric is selected for all user data rates (note 5).

Flow control on transmission: This shall be selected if outband flow control applies.

Flow control on reception: This shall be selected if outband flow control applies.

NOTE: Outband flow control is indicated by the absence of the UIL2P parameter for non-transparent connections.

User information layer 3 protocol:

Octet 7 shall not be sent unless specific application rules are given for particular cases (to be defined by GSM). End-to-end significant User Information layer 3 protocol shall be sent by LLC.

NOTE 1: In the case where GSM BC "Information Transfer Capability" indicates "Facsimile group 3" and only a single GSM BC is contained in the call set-up request then this shall be mapped to an ISDN BC with:

Coding standard: CCITT

Information Transfer capability 3,1 kHz audio

Transfer mode circuit

Information transfer rate 64 kbit/s

User layer 1 protocol G711 A Law

and

- If an HLC is not present, the network will insert a "Facsimile group 2/3" HLC.
- If an HLC element is present, the network will pass it through unmodified.

In the case where GSM BC "Information Transfer Capability" indicates "Facsimile group 3" and two GSM BCs are contained in the call set-up request, then the same ISDN BC as mentioned above is created. If the first GSM BC indicates "facsimile group 3" an HLC "facsimile group 2/3" will be inserted by the network (if not received from the MS). However if the first GSM BC indicates "speech", the network will not send a HLC, irrespective where a HLC was received from the MS or not.

NOTE 2: This value is present in combination with information transfer capability parameter value "3,1 kHz audio Ex PLMN" or "facsimile group 3" and will therefore be mapped to the value "CCITT Recommendation G.711 A Law" of the ETS 300 102-1 parameter user layer 1 protocol (see note 3).

NOTE 3: The value "CCITT Recommendation G.711 A Law" applies only when the ETS 300 102-1 parameter information transfer capability indicates "3,1 kHz audio" or "speech".

NOTE 4: Octets 4a and 4b shall not be included because default values apply.

NOTE 5: In this case octet 5d shall not be included.

NOTE 6: Octet 6 shall not be sent unless specific application rules are given for a particular case (GSM specified). End-to-end significant user information layer 2 protocol shall be sent by LLC.

NOTE 7: Not used for currently defined Bearer Services and Teleservices.

NOTE 8: These values will only be set if the "Information Transfer Capability" indicates "3,1 kHz audio", synchronous data transmission is used and octet 5b of the ISDN BC is present.

NOTE 9: The mapping of the modem type shall be according to Draft ETS 300 102-1/prA1.

NOTE 10: The GSM BC-IE parameter value "autobauding modem type 1" will be mapped to the ISDN BC-IE parameter values "inband negotiation possible" and "user rate indicated by E-bits specified in CCITT Rec I.460 or may be negotiated inband" (octet 5a of ISDN BC-IE). In case of data compression high speed modems, like V.32bis and/or V.34 may be used in the IWF.

NOTE 11: The ITC value of the GSM BC-IE "speech", "3,1 kHz audio Ex PLMN" will indicate these requirements.

NOTE 12: For the use of NIRR see GSM 07.01.

NOTE 13: The value of the Intermediate Rate field of the ISDN Bearer Capability information element shall only depend on the values of the User Rate and the Information Transfer Capability in the same information element. The correspondence is:

Intermediate Rate = not used if User Rate > than 19.2 kbit/s

Intermediate Rate = 32 kbit/s if User Rate = 19,2 kbit/s or 14.4 kbit/s

Intermediate Rate = 16 kbit/s if User Rate = 9,6 kbit/s

Intermediate Rate = 8 kbit/s otherwise.

In case of Audio calls the value of the Intermediate Rate may be set to "not used".

NOTE 14: If compression is supported by the MSC and "data compression allowed" is indicated, then the ISDN user rate for UDI calls shall be set as follows. If the parameter “FNUR” is present the ISDN user rate shall be set to this value. Otherwise the GSM user rate shall be mapped to an equal or any higher ISDN user rate value (in case of V.110 the highest ISDN user rate shall be 19.2 kbit/s). The Intermediate Rate shall be set to an appropriate value.(see subclause 10.2.4.11).

In case of "3,1 kHz audio" the modem must try to negotiate data compression and flow control (see subclause 9.2.4.11). In case of "autobauding type 1" high speed modems may be used (see note 10).

NOTE 15: User rate of the GSM-BC is overriden by the fixed network user rate of the GSM BC-IE if available. When the MT indicates „autobauding“, „modem for undefined interface“ or „none“, the other modem type shall be set to „no other modem type“; any other value of the modem type is overridden by the other modem type value (see GSM 07.01).

NOTE 16: The ISDN-BC will consist of the octets 1 to 4 only, coded:

Coding standard:	CCITT
Information Transfer capability	UDI
Transfer mode	circuit
Information transfer rate	64 kbit/s

NOTE 17: V.120 interworking is selected.

If an LLC element is not present, the network will insert an LLC. If an LLC is present it may be modified. The GSM-BC parameters negotiated with the MS shall be mapped to the LLC parameters. The LLC parameter Rate Adaptation will be set to "V.120".

When interworking with unrestricted 64 kbit/s networks the ISDN BC shall be coded according to note 16.

NOTE 18: When the MSC is directly connected to a restricted 64 kbit/s network, the ISDN BC-IE is coded with an ITC = RDI (not applicable to ISDNs conforming to ETS 300 102-1).
When indirectly interworking with a restricted 64 kbit/s network the ISDN BC-IE shall be coded according to ETR 018, as shown below:

Coding standard:	CCITT
Information Transfer capability:	UDI
Transfer mode:	circuit
Information transfer rate:	64 kbit/s
User information layer 1 protocol:	V.110/X.30
Synchronous/Asynchronous:	synchronous
Negotiation:	In-band negotiation not possible
User rate:	56 kbit/s

If an LLC element is not present, the network will insert an LLC. If an LLC is present it may be modified. The GSM-BC parameters negotiated with the MS shall be mapped to the LLC parameters according to the rules in this table. The LLC parameter Information Transfer Capability will be set to „restricted digital“

NOTE 19: In case the MS signals an ACC containing TCH/F4.8 only and the network does not support TCH/F4.8 channel coding, then the MSC may act as if TCH/F9.6 were included in the ACC.

Table 6B: Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
1	**Bearer Capability IEI**	1	**Bearer Capability IEI**
2	**Length of BC contents**	2	**Length of BC contents**
	no comparable field	3 #7..6	**Radio channel requirement** (note 1) half rate channel full rate channel both, half rate preferred both, full rate preferred
3 #7..6	**Coding standard** CCITT standardized coding	3 #5	**Coding standard** GSM standardized coding
3 #5..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio no comparable value no comparable value 7 kHz audio video	3 #3..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio ex PLMN (note2) facsimile group 3 (note 3) other ITC (see octet 5a) not supported not supported
	(note 23)	5a #7..6	**Other ITC** restricted digital
4 #7..6	**Transfer mode** circuit mode packet mode	3 #4	**Transfer mode** circuit mode circuit mode
4 #5..1	**Information transfer rate** 64 kbit/s		no comparable field
	No comparable field	4 #7	**Compression** (note 18) data compression possible data compression not possible
4a #7..5	**Structure** default 8 kHz integrity SDU integrity unstructured	(4) 4 #6..5	**Structure** no comparable value no comparable value SDU integrity (note 9) unstructured (note 5)
4a #4..3	**Configuration** point-to-point	4 #3	**Configuration** point-to-point (*)
	No comparable field	4 #2	**NIRR** (note 17) No meaning Data ≤ 4.8 kbit/s, FR nt, 6 kbit/s radio interface requested
4a #2..1	**Establishment** demand	4 #1	**Establishment** demand (*)
4b #7..6	**Symmetry** bi-directional symmetric		no comparable field
4b #5..1	**Information transfer rate (dest->orig.)** 64 kbit/s		no comparable field
5 #5..1	**User information layer 1 protocol** no comparable value CCITT V.110 / X.30 CCITT G.711 A-law CCITT X.31 flag stuffing no comparable value	5 #5..4	**Rate adaption** no rate adaption (note 11) V.110/X.30 rate adaption no comparable value CCITT X.31 flag stuffing other rate adaption (see octet 5a)
	No comparable value	5a #5..4	**Other rate adaptation** V.120 (note 24)
	no comparable field	5 #3..1	**Signalling access protocol** I.440/I.450 X.21 X.28, ded.PAD, indiv.NUI X.28, ded.PAD, univ.NUI X.28, non-ded.PAD X.32
	see above	6 #5..2	**User information layer 1 protocol** default layer 1 protocol

(continued)

Table 6B (continued): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
5a #7	**Synchronous / asynchronous** synchronous asynchronous	6 #1	**Synchronous/asynchronous** synchronous asynchronous
5a #6	**Negotiation** not possible inband neg, possible (note 16)	6a #6	**Negotiation** not possible no comparable value
5a #5..1	**User rate** 0,3 kbit/s 1,2 kbit/s 2,4 kbit/s 4,8 kbit/s 9,6 kbit/s 12 kbit/s rate is indicated by Ebit as specified in CCITT rec. I.460 0,6 kbit/s 3,6 kbit/s 7,2 kbit/s 8 kbit/s 14,4 kbit/s 16 kbit/s 28.8 kbit/s 32 kbit/s 38.4 kbit/s 48 kbit/s 56 kbit/s 64 kbit/s 0,1345 kbit/s 0,1 kbit/s 75 bit/s / 1,2 kbit/s 1,2 kbit/s / 75 bit/s 0,110 kbit/s 0,115 kbit/s 0,2 kbit/s	6a #4..1	**User rate (note 18)** 0,3 kbit/s 1,2 kbit/s 2,4 kbit/s 4,8 kbit/s 9,6 kbit/s 12 kbit/s (note 13) **(**note 16) not supported not supported not supported not supported (note 20) not supported (note 20) not supported (note 20) (note 20) (note 20) not supported
5b #7..6	**Intermediate rate** not used (note 19) 8 kbit/s 16 kbit/s 32 kbit/s	6b #7..6	**Intermediate rate** (note 6) (note 18) 8 or 16 kbit/s 8 kbit/s 16 kbit/s
5b #5	**NIC on Tx** (note 14) does not require requires	6b #5	**NIC on Tx** does not require requires (note 13)
5b #4	**NIC on Rx** (note 14) cannot accept can accept	6b #4	**NIC on Rx** cannot accept can accept (note 13)
5b #3	**Flow control on Tx** (note 15) Not Required Required		no comparable field
5b #2	**Flow control on Rx** (note 15) Cannot Accept Accept		no comparable field
5c #7..6	**Number of stop bits** 1 bit 2 bits not used 1.5 bits	6a #7	**Number of stop bits** 1 bit 2 bits no comparable value not supported
5c #5..4	**Number of data bits** 7 bits 8 bits not used 5 bits	6a #5	**Number of data bits** 7 bits 8 bits no comparable value not supported

(continued)

Table 6B (concluded): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
5c #3..1	**Parity information** odd even none forced to 0 forced to 1	6b #3..1	**Parity information** odd even none forced to 0 forced to 1
	no comparable field	6c #7..6	**Connection element** (note 1) transparent non-transparent (RLP) both, transp. preferred both, non-transp preferred
5d #7	**Duplex mode** half duplex full duplex	4 #4	**Duplex mode** half duplex (note 13) full duplex (*)
5d #6..1	**Modem type** reserved V.21 V.22 V.22bis V.23 V.26ter V.32 V.26 V.26bis V.27 V.27bis V.29 V.35 no comparable value	6c #5..1	**Modem type** (note 12) none (note 7) V.21 V.22 V.22bis V.23 V.26ter V.32 not supported autobauding type 1 (note 16)
5a #5..1	**User rate** no comparable value 9,6 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48 kbit/s 56 kbit/s no comparable value	6d #5..1	**Fixed network user rate** (note 20) FNUR not applicable 9,6 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48,0 kbit/s 56,0 kbit/s 64,0 kbit/s (note 22)
	Modem type no comparable value (note 21) V.34	6d #7..6	**Other modem type** No other modem type V.34
	No comparable field	6f #7..5	**User initiated modification indicator** (note 1) User initiated modification not required User initiated modification upto 1 TCH/F may be requested User initiated modification upto 2 TCH/F may be requested User initiated modification upto 3 TCH/F may be requested User initiated modification upto 4 TCH/F may be requested
6 #5..1	**User information layer 2 protocol** (note 10) Q.921 (I.441) X.25, link level no comparable value	7	**User information layer 2 protocol** (note 8) no comparable value X.25, link level ISO 6429, codeset 0
7	**User information layer 3 protocol** (note 10) Q.931 (I.451) X.25, packet level		not supported

General notes:

1) Other ETS 300 102-1 parameter values than those listed in the table, if indicated in the BC-IE, will be rejected by clearing the call.

2) Only the GSM 04.08 parameter values listed in the table may be generated (comparable values) during a mobile-terminated call by mapping the ETS 300 102-1 parameter values, exception see (10).

3) According to ETS 300 102-1 and GSM 04.08, respectively, the octets are counted from 1 to n onwards; the bit position in a particular octet is indicated by #x..y, with {x,y} = 1..8 (bit 1 is the least and bit 8 the most significant bit).

4) If octets 5 to 5d of the ISDN BC are absent but present in the LLC, the LLC octets should apply for the mapping as indicated above. In the case of V.120 interworking (see note 24) these LLC octets shall apply.

5) If within the ISDN BC the parameters information transfer capability indicates "3,1 kHz audio" and user layer 1 protocol indicates "G711 A Law" but no modem type is available and the HLC does not indicate "facsimile group 3", octets 5 to 5d of the LLC, if available, apply for the above mapping procedure.

6) The number of octets which shall be encoded for the GSM BC-IE must comply to encoding rules in GSM 04.08 and the combination of the different parameter values shall be in accordance to GSM 07.01.

Notes regarding the mapping:

(*) This GSM 04.08 parameter value is inserted, if the comparable ETS 300 102-1 parameter value is missing.

1) This GSM 04.08 parameter value is inserted according to user rate requirements and network capabilities / preferences.

2) This GSM 04.08 parameter value is inserted, if the information transfer capability in ISDN BC is "3,1kHz audio" and a comparable modem type is specified.

3) This GSM 04.08 parameter value is inserted, if the information transfer capability is "3,1 kHz audio" and the content of the HLC-IE, if any, indicates "facsimile group 2/3", (for details refer to subclause 10.2.2 case 3 for HLR action and case 5 for VMSC action). Note that via MAP the value "alternate speech/facsimile group 3 - starting with speech" shall be used, when TS 61 applies.

4) If octet 4a is omitted the default condition according to ETS 300 102-1 applies.

5) The GSM 04.08 parameter value shall be set to "unstructured" where the network indicates connection element "transparent".

6) The value of the Intermediate Rate field of the GSM Bearer Capability information element shall only depend on the values of the user rate or the radio channel requirement in the same information element. If the connection element is "transparent“, the value is 16 kbit/s, if the user rate is 9.6 or 12 kbit/s, and 8 kbit/s otherwise. For any other connection element setting the value is 16 kbit/s, if the radio channel requirements are "full rate" or "dual, full rate preferred", or "dual, half rate preferred", and 8 kbit/s, if the radio channel requirements is "half rate".

7) This GSM 04.08 parameter value is inserted, if the GSM BC parameter "Information Transfer Capability" indicates "Unrestricted digital information", "facsimile group 3" or "alternate speech/facsimile group 3, starting with speech".

8) Where the network indicates "asynchronous" and connection elements "non-transparent", "both, transparent preferred" or "both, non-transparent preferred" , then the GSM BC should be forwarded without parameter user information layer 2 protocol, see also (10).

9) Where the network indicates connection elements "non transparent" "both, transparent preferred" or "both, non transparent preferred" the value of the parameter structure shall be set to "SDU Integrity".

10) Mapping of parameter values of this octet to GSM BC parameters and values are subject to specific application rules, i.e. unless otherwise explicitly stated in an appropriate TS mapping to GSM BC parameters shall not take place.

11) This value shall be used when the value of the GSM BC parameter "Information Transfer Capability" indicates the value "3,1 kHz audio ex PLMN", "facsimile group 3" or "alternate speech/facsimile group 3, starting with speech" which is reserved for MAP operations.

12) The modem encoding of both Draft ETS 300 102-1/prA1 and ETS 300 102-1 version 1 shall be accepted and mapped according to GSM 04.08.

13) Value not used for currently defined bearer services and Teleservices.

14) NIC is only supported for "3,1 kHz Ex PLMN audio" interworking with synchronous data transmission.

15) Because the required flow control mechanism can not be indicated to the MS (refer to GSM 07.01), the network shall check if the flow control mechanism selected by the MS and indicated in the CALL CONFIRMED message suits to the requirements requested by the ISDN terminal adaptor. In case of a mismatch the call shall be released in the IWF.

Because an asymmetric flow control mechanism (with respect to transmitting and receiving side) is not supported in GSM PLMNs, the different values of the ISDN BC-IE parameters "flow control on Tx" and "flow control on Rx" shall be interpreted in the following way:

- "Flow control on Rx" set to "accepted" matches with "outband flow control", irrespective of the value of the parameter "flow control on Tx"
- "Flow control on Rx" set to "not accepted" and "flow control on Tx" set to "not required" matches with "inband flow control" and "no flow control"
- where "Flow control on Rx" is set to "not accepted" and "flow control on Tx" to "required" the call shall be released by the IWF

16) If in case of 3,1 kHz audio interworking "inband negotiation possible" is indicated and the parameter user rate is set to "rate is indicated by E bits specified in Recommendation I.460 or may be negotiated inband" the user rate in the GSM BC-IE shall be set according to a network preferred value, whereas the preferred value of the Radio Channel Requirement shall be considered. If parameter ISDN-BC modem type is present, its value shall be ignored. The parameter GSM-BC modem shall be set according to the user rate in case of connection element "transparent" and to "autobauding type 1" in case of connection element "non transparent", "both, transparent preferred" or "both, non transparent preferred". In case of data compression high speed modems, like V.32bis and/or V.34 may be used in the IWF.

For unrestricted digital interworking the call shall be rejected if these values are indicated.

17) For the use of NIRR see GSM 07.01. The VMSC shall set this parameter dependent upon its capabilities and preferences.

18) If compression is supported by the MSC, the value "data compression possible" may be set. Depending on the capabilities of the MSC, the user rate value and the intermediate rate value is set to an appropriate value.

19) Only applicable if the parameter ISDN-BC ITC indicates "3.1 kHz audio" and for "UDI" calls if User Rate > "19.2 kbit/s".

20) The user rate of the GSM BC is set to the value for the fall-back bearer service. In case the mobile station does not support the fixed network user rate (i.e. the call confirmation message does not contain the fixed network user rate parameter), the network may release the call for a transparent connection element.

21) The modem type parameter of the GSM-BC is taken into account, only.

22) In case no LLC is received and the ISDN-BC received consists of octets 1 to 4 only, coded:

Coding standard: CCITT

Information Transfer capability UDI

Transfer mode circuit

Information transfer rate 64kbit/s,

the following GSM-BC parameters, indicating a 64 kbit/s bit transparent service, shall be set to:

fixed network user rate 64 kbit/s

connection element transparent

The other parameters of the GSM-BC shall be set to values indicating a fall-back service.

(23) When the MSC is directly connected to a restricted 64 kbit/s network, the ISDN BC-IE is coded with an ITC = RDI (not applicable to ISDNs conforming to ETS 300 102-1).
An ISDN BC-IE, as specified in ETR 018 and shown below, shall be taken to indicate that interworking with an indirectly connected restricted 64 kbit/s network is required

Coding standard:	CCITT
Information Transfer capability:	UDI
Transfer mode:	circuit
Information transfer rate:	64 kbit/s
User information layer 1 protocol:	V.110/X.30
Synchronous/Asynchronous:	synchronous
Negotiation:	In-band negotiation not possible
User rate:	56 kbit/s

In this case the GSM BC parameter Information Transfer Capability is set to „Other ITC“ and Other ITC parameter is set to „restricted digital“. All the corresponding fields in the GSM BC shall be derived from the ISDN LLC.

24) V.120 interworking is required if the ISDN LLC parameter User Information Layer 1 Protocol is set to „V.120“. In this case the GSM BC parameter Rate Adaptation is set to „Other rate adaptation“ and Other Rate Adaptation parameter is set to „V.120“. All the corresponding fields in the GSM BC shall be derived from the ISDN LLC.

3GPP N3/SMG3 WPD Meeting #7
Sophia Antipolis, France, 29 Nov-03 Dec 1999

***Document* N3-99457**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

09.07	CR	A054	Current Version:	7.1.1

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

For submission to:	TSG_N	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		UTRAN / Radio		Core Network	X

Source: TSG_N3 **Date:** 26-11-1999

Subject: Correction of intermediate rate values

Work item: HSCSD

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

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

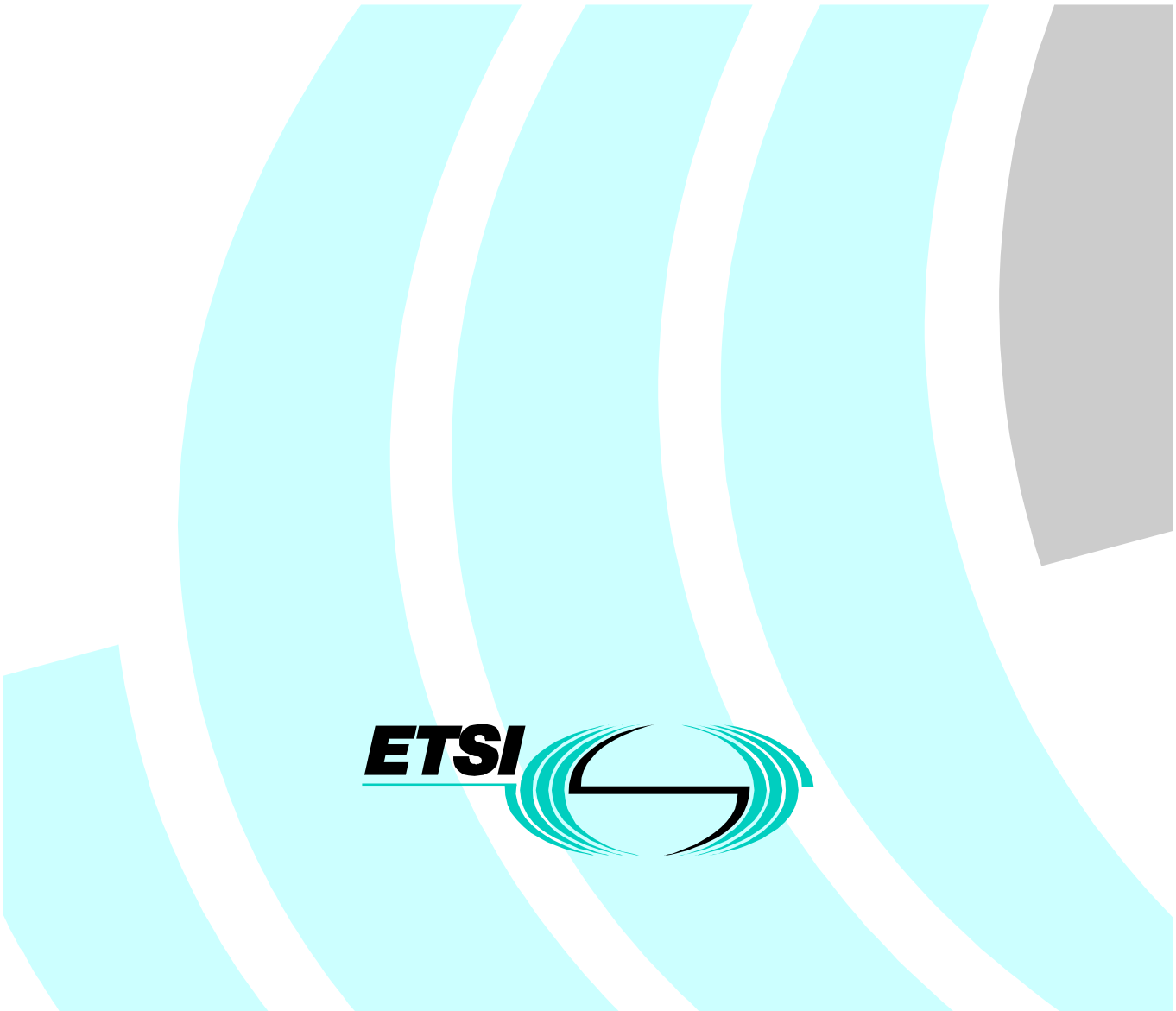
Reason for change: Mobile terminated UDI V.110 calls where the User rate is either 14.4 or 19.2 kbit/s will rejected because the intermediate rate in the transit network is 32 kbit/s and this is not in Table 6B.

Clauses affected: 10.2.2 Table 7B

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:


ETSI

10.2.2 Network interworking mobile terminated

This subclause describes the interworking of calls where the calling subscriber can communicate ISDN compatibility information with exhaustive contents for deducing a GSM Basic Service to a PLMN (gateway MSC/interrogating node) i.e. by means of ISDN signalling.

The GMSC has to perform a mapping of the received Basic Service Information for the transport to the HLR, for details of this transport refer to GSM 09.02.

Compatibility checking of the low layers of the ISDN originated call is carried out by the MSC/IWF to determine the appropriate bearer service selection in the PLMN. This will entail the MSC/IWF in mapping appropriately the ISDN BC/LLC-IE to the GSM BC-IE.

As well as compatibility checking, subscription checking should be performed. If either the subscription check or the compatibility check fails then the call will be rejected.

For ISDN originated calls it will not be possible to signal mobile specific requirements e.g. transparent/non transparent, full/half rate channel. Therefore the MSC/IWF shall select a default setting appropriate to the visited PLMN's network capabilities. In general it will be beneficial, where a network supports both full and half rate channels and transparent/non transparent capabilities, to indicate so in the appropriate GSM BC field of GSM 04.08. The mobile subscriber has the option to indicate in the call confirmation message a change to this default setting according to the rules specified in GSM 07.01. The appropriate MSC/IWF shall be selected on the basis of this requirement.

At call Set-up, the interrogating node passes in the "send routing information" to the HLR, the ISDN BC, LLC and HLC received in the initial address message. The coding of these parameters must comply with ETS 300 102-1 edition 1, with one exception: for the mapping of the parameter modem type to/from the ISDN BC-IE, refer to tables 7A and 7B.

According to the contents of the Compatibility Information, i.e. the ISDN BC, LLC and HLC received, the HLR applies one of the following alternatives:

1) No ISDN BC is received, or one from which a GSM Basic Service cannot be deduced with the information Transfer Capability field set to "3,1 kHz audio" but without any associated modem type[1] in the ISDN BC and LLC, or without HLC indication of group 3 facsimile. Two cases have to be considered:

   a) The called MSISDN has one or two corresponding GSM BC-IE(s) stored in the HLR (see option a) of 9.2.2); then the service attached to this number in the HLR tables is applicable and the corresponding GSM BC-IE(s) is passed to the VLR in "provide roaming number". See figure 6.

      If two GSM BC-IE have to be sent to the VLR they are preceded by a repeat indicator information element according to 04.08. These three information elements shall be included within the MAP parameter "GSM Bearer Capability" of the message "Provide Roaming Number".

NOTE: For the case of two GSM BC-IEs see subclause 10.3.

   b) The called MSISDN has no corresponding GSM BC-IE(s) stored in the HLR (see option b in 9.2.2). In this case no GSM BC is passed to the VLR in the "provide roaming number" message.

2) Compatibility Information is received from which a GSM Basic Service can be deduced, i.e. the ITC field in the ISDN BC received is "unrestricted digital" and the fields for the applicable user layer 1 protocol and user rate are available (either in the ISDN BC or LLC), or the ITC field is "3,1 kHz audio", and a modem type, user rate, etc. is indicated but the HLC does not indicate "facsimile group 3". The received ISDN BC (and possibly LLC plus HLC) is then considered applicable regardless of the kind of MSISDN received (GSM BC associated or not) and either the equivalent GSM BC or the original ISDN BC/LLC is sent to the VLR. Additionally in both cases the originally received HLC may also be sent to the VLR, see figure 7.

   When the HLR interworks with a phase 1 VPLMN (VLR/VMSC), then the HLR shall convert the ISDN BC to the equivalent GSM BC, and forward to the VLR. In this case however no LLC can be forwarded.

---

[1] "Modem type" in connection with the ITC value "3.1 kHz audio" means hereafter that either an ISDN BC modem type value is present or the autobauding modem function is indicated (see note 16 of table 6B)

3) Compatibility Information is received from which the GSM Teleservice category Facsimile transmission can be deduced i.e. the ITC field in the ISDN BC received is "3,1kHz audio" and the HLC indicates "facsimile group 3" (see figure 7), the following two cases have to be considered:

   a) The called MSISDN has a corresponding GSM BC stored in the HLR (either stating TS 61 or TS 62). In this case the service attached to the MSISDN in the HLR tables is applicable and the corresponding GSM BC is passed to the VLR in the "provide roaming number" message, see also subclause 10.3.1.3.

   b) The called MSISDN has no corresponding GSM BC stored in the HLR. In this case the HLR shall forward the appropriate GSM BC to the VLR in line with the subscribers subscription to teleservice 61 or 62.

      For TS 61 the value of the GSM BC-IE parameter "Information Transfer Capability" shall be set to "alternate speech/facsimile group 3, starting with speech"

      In both cases the HLC IE should be passed to the VLR in the "provide roaming number" message.

      Alternatively the HLR may forward the originally received ISDN/LLC/HLC, when interworking with a phase 2 VLR.

4) In the case where Compatibility Information received does not allow for deducing a GSM Bearer Service but an ISDN BC is received with the ITC field indicating "unrestricted digital", but without the fields indicating applicable "user layer 1 protocol", user rate, etc., neither in the ISDN BC or the ISDN LLC then the following shall apply. The call is managed as for an udi call according to subclause 9.2.2, i.e. either the "multi numbering" or "single numbering" scenario is applied depending on which capability is provided by home PLMN/HLR.

At the VMSC, when the incoming call arrives, the LLC/HLC and the GSM or ISDN BC associated with the MSRN is retrieved from the VLR. LLC and HLC are sent with the GSM BC in general to the MS at call set-up. In particular, however the following rules apply:

1) If the Initial Address Message (IAM) contains no ISDN BC and there is no GSM or ISDN BC/LLC/HLC retrieved from the VLR, the call is handled as subclause 9.2.2 case b.

2) If there is no ISDN BC in the IAM but a GSM or ISDN BC/LLC/HLC was signalled in the "provide roaming number" message, the retrieved GSM or ISDN BC/LLC/HLC applies.

3) If there is an ISDN BC in the IAM with the ITC field set to "3,1 kHz audio" but without any associated modem type or indication of facsimile group 3 in the HLC, the GSM or ISDN BC/LLC/HLC retrieved from the VLR is considered as applicable when it exists. If no GSM or ISDN BC is retrieved from the VLR, the call is handled as in subclause 9.2.2 case b.

4) If the ISDN BC received in the IAM has the ITC field set to the value "unrestricted digital information" and the fields for the applicable "user layer 1 protocol" and "user rate" are available (either in the ISDN BC or ISDN LLC), or if 3,1 kHz audio and a modem type is indicated, this ISDN BC is applicable regardless of what has been retrieved from the VLR. In this case the ISDN BC has to be mapped to an appropriate GSM BC (refer to table 7B).

5) If the ISDN BC received in the IAM has the ITC field set to the value "3,1kHz audio" and a HLC "facsimile group 3" is indicated, the GSM BC retrieved from the VLR is applicable when it exists. If a GSM BC-IE with the parameter "information transfer capability" set to "alternate speech/facsimile group 3, starting with speech" (stating TS61) is retrieved from the VLR, this shall be mapped to two GSM BC-IE preceded by a repeat indicator, one representing speech, the other representing facsimile group 3.

   When no GSM BC is retrieved from the VLR, either two GSM BCs preceded by a repeat indicator (stating teleservice 61), or a single GSM BC-IE (stating TS 62), are sent in the setup message, depending whether TS 61 or TS 62 is subscribed (see also subclause 10.3.1.3).

   In case of TS 61, the order in which the two GSM BC-IEs are sent towards the MS, in the setup message, is a network option.

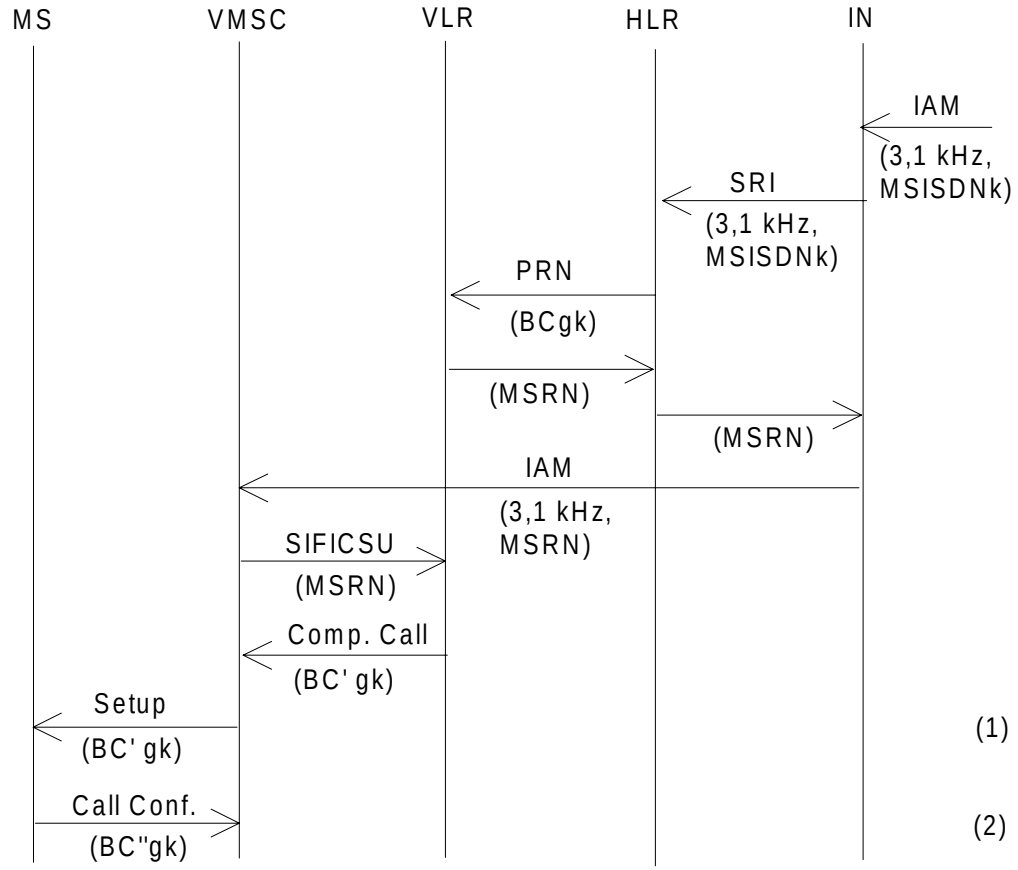
6) If the ISDN BC received in the IAM has a ITC value "unrestricted digital information" but without applicable "user layer 1 protocol" and "user rate", etc. fields, neither in the ISDN BC nor ISDN LLC, then the GSM or ISDN BC/LLC retrieved from the VLR is applicable, if available otherwise subclause 9.2.2 case b applies.

In case of an ISDN BC/LLC/HLC was attached to the MSRN this has to be mapped to an appropriate GSM BC (refer to table 7B). However in both cases (GSM or ISDN BC attached) the PLMN specific parameters of the GSM BC-IEs may be added/modified in line with procedures identified in subclause 9.2.2.

In all cases when no GSM or ISDN BC is retrieved from the VLR and no ISDN Compatibility information allowing deduction of a GSM Bearer Service is available, then no GSM BC is inserted by the VMSC and subclause 9.2.2 case b applies.

The mapping between GSM and ISDN BCs is shown in table 7.

Mobile terminated, ISDN originated call compatibility Information provided not exhaustive for deducing a GSM Bearer Service, but Information Transfer Capability = 3,1 kHz audio, no modem type and no HLC IE indicating facsimile group 3. HLR stores GSM BC against MSISDN number multi-numbering scheme.



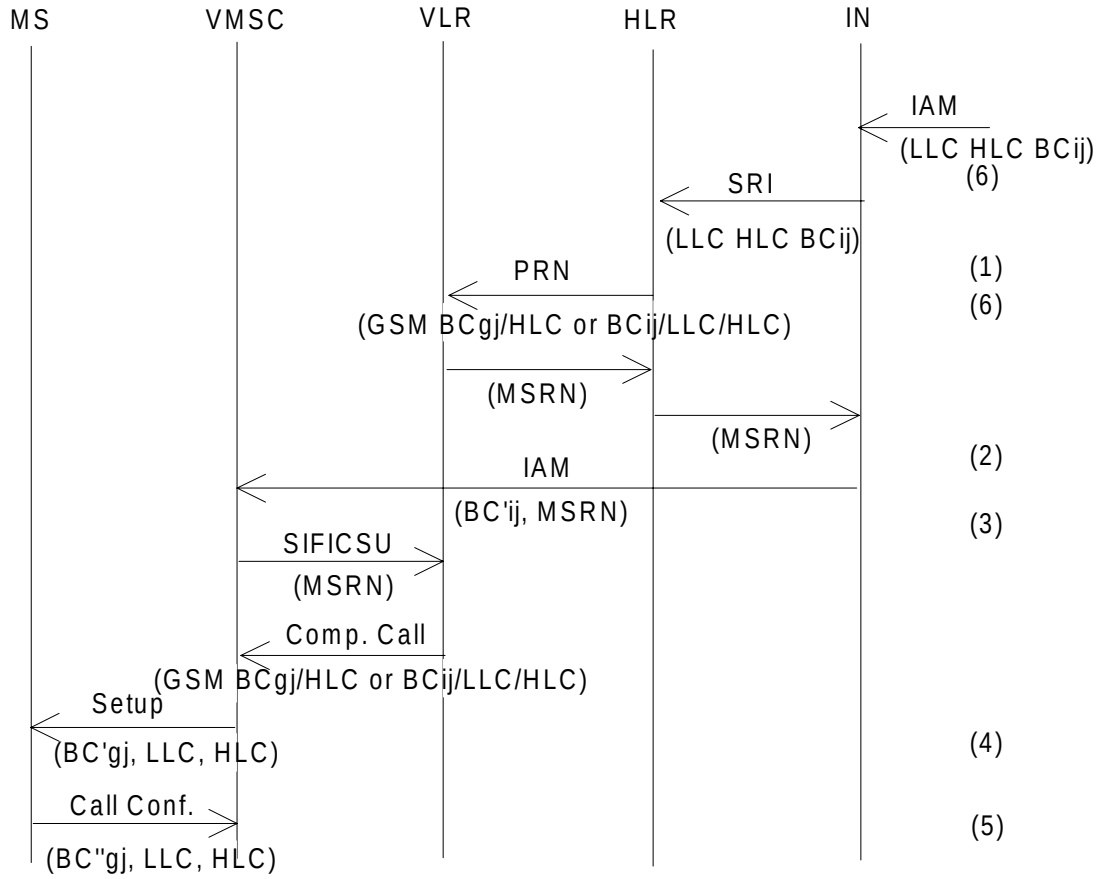
Abbreviations: see figure 2.

NOTE: (1) Some parameters of BCgk may be provided/modified according to the MSC's capabilities/preferences. See subclause 9.2.2
(2) In the "Call Confirm" message, the MS may modify some parameters of the GSM BC. See subclause 9.2.2.

Figure 6

Mobile terminated, ISDN originated call compatibility Information provides sufficient information to deduce:

- a GSM Bearer Service, or
- Information Transfer Capability = 3,1 kHz audio with HLC IE indicating facsimile group 3.



NOTES: (1) BCij denotes ISDN ETS 300 102-1 BC*; BCgj is the corresponding GSM BC.
(2) Assumes signalling capabilities permit the transfer of BC between IN and VMSC. If this is not the case, the VLR uses the stored BC/LLC/HLC.
(3) BC'ij denotes BCij as maybe modified by intervening networks.
(4) Some parameters of BCgk may be provided/modified according to the MSC's capabilities/preferences. See subclause 9.2.2.
(5) In the "Call Confirm" message, the MS may modify some parameters of the BC. See subclause 9.2.2.
(6) For details on how the BC, HLC, and LLC are transported, refer to GSM 09.02.

* HLC and LLC refers to ISDN values.

Abbreviations: see figure 2.

Figure 7

The following tables (7A + 7B) show that only the ISDN BC is used for mapping (exceptions are indicated).

NOTE: The ISDN/GSM BC-IE mapping shall be performed as specified in tables 7A and 7B. This must be done to allow setup of a compatible end-to-end connection between two MSs or one MS and an ISDN terminal.

It has been acknowledged that octets 5a, 5b, 5c and 5d or a combination of them may also be sent and received in 3,1 kHz audio calls. Follow-up versions of ETS 300 102-1 (i.e. ETS 300 403-1), confirm this interpretation. This is especially important for MOC-ISDN terminating calls, where early Customer Premise Equipment (e.g. PABXs), may reject these calls.

In the following table the comparison is drawn between parameters in the GSM call set up request message and that of the ISDN call set up request message. In some cases no comparable values are available and these will be marked as such. In these cases reference will need to be made to the table of network interworking in GSM 09.07 to identify the appropriate choice. In some cases it is not necessary to support a particular option, and in this case those parameters will be annotated appropriately.

Table 7A: Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
1	**Bearer Capability IEI**	1	**Bearer Capability IEI**
2	**Length of BC contents**	2	**Length of BC contents**
3 #7..6	**Radio channel requirement** half rate channel full rate channel dual, full, rate preferred dual, half rate preferred		No comparable field
3 #4	**Coding Standard** GSM standard coding	3 #7..6	**Coding Standard** CCITT standardized coding
3 #4	**Transfer mode** circuit mode packet mode (note7)	4 #7..6	Transfer mode circuit mode packet mode
3 #3..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio ex PLMN facsimile group 3 (note 1) other ITC (see octet 5a)	3 #5..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio see table 4 in GSM 09.07 no comparable value
5a #7..6	**Other ITC** restricted digital		(note 18)
4 #7	**Compression** (note 14) data compression allowed data compression not allowed		No comparable field
4 #6..5	**Structure** SDU integrity unstructured	4a #7..5	**Structure** (note 4)
4 #4	**Duplex mode** half duplex full duplex	5d #7	**Duplex mode** half duplex full duplex
4 #3	**Configuration** point to point	4a #4..3	**Configuration** (note 4) point to point
4 #1	**Establishment** demand	4a #2..1	**Establishment** (note 4) demand
4	**NIRR** (note 12) meaning Data ≤ 4.8kbit/s, FR nt, 6kbit/s radio interface is requested		No comparable field

(continued)

Table 7A (continued): Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
5 #5..4	**Rate adaptation** no rate adaptation (note 2) V.110/X.30 rate adaptation CCITT X.31 flag stuffing No comparable value (note 11) No comparable value (note 11) No comparable value (note 11) other rate adaptation (see octet 5a)	5 #5..1	**User information layer 1 protocol** no comparable value CCITT standardized rate adaption V.110/X.30 CCITT standardized rate adaption X.31 flag stuffing Recommendation G.711 µ-law Recommendation G.711 A-law (note 3) Recommendation G.721 32 kbit/s ADPCM and I.460 No comparable value
5a #5..4	**Other rate adaptation** V.120 (note 17)		No comparable value
5 #3..1	**Signalling access protocol** I.440/I.450 X.21 X.28, ded.PAD, indiv.NUI X.28, ded PAD, univ.NUI X.28, non-ded PAD X.32		No comparable field
6 #1	**Synchronous/asynchronous** synchronous asynchronous	5a #7	**Synchronous/asynchronous** synchronous asynchronous
6 #5..2	**User info. layer 1 protocol** default layer 1 protocol	5 #5..1	**User info. layer 1 protocol** see section under rate adaptation for GSM 04.08 above
6a #7	**Number of stop bits** 1 bit 2 bits	5c #7..6	**Number of stop bits** 1 bit 2 bits
6a #6	**Negotiation** In band neg. not possible no comparable value	5a #6	**Negotiation** In band neg. not possible In band neg. possible (note 10)
6a #5	**Number of data bits** 7 bits 8 bits	5c #5..4	**Number of data bits excluding parity if present** 7 bits 8 bits
6a #4..1	**User rate** 0.3 kbit/s 1.2 kbit/s 2.4 kbit/s 4.8 kbit/s 9.6 kbit/s 12 kbit/s (note 7) 1.2 kbit/s / 75 bit/s any value no comparable value	5a #5..1	**User rate** 0.3 kbit/s 1.2 kbit/s 2.4 kbit/s 4.8 kbit/s 9.6 kbit/s 12 kbit/s 75 bit/s / 1.2 kbit/s 19.2 kbit/s(note 14) Ebits or inband negotiation (note 10)

(continued)

Table 7A (continued): Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
6b #7..6	**Intermediate rate** 8 kbit/s 16 kbit/s any value	5b #7..6	**Intermediate rate** (note 13) 8 kbit/s or not used 16 kbit/s or not used 32 kbit/s or not used (note 14)
6b #5	**NIC on Tx** does not require requires (note7)	5b #5b	**NIC on Tx** does not require requires (note 8)
6b #4	**NIC on Rx** cannot accept can accept (note 7)	5b #4	**NIC on Rx** cannot accept can accept (note 8)
6b #3..1	**Parity information** odd even none forced to 0 forced to 1	5c #3..1	**Parity information** odd even none forced to 0 forced to 1
6c #7..6	**Connection element** transparent non-transparent (RLP) both, transp. preferred both, non-transp. preferred		No comparable field
6c #5..1	**Modem type** none V.21 V.22 V.22bis V.23 V.26ter V.32 modem for undef. interface autobauding type 1	5d #6..1	**Modem type** (note 9) no comparable value (note 5) V.21 V.22 V.22bis V.23 V.26ter V.32 No comparable value (note 5) No comparable value (note 5, note 10)
7 #5..1	**User info. layer 2 protocol** X.25 link level ISO 6429, codeset 0 COPnoFlCt videotex profile 1 (note 7) X.75 layer 2 modified (CAPI)	6	**User info.layer 2 prot.** (note 6) X.25 link level no comparable value no comparable value no comparable value X.25 link level

(continued)

Table 7A (concluded): Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
6d #5..1	**Fixed network user rate** (note 15) FNUR not applicable (note 7) 9,6 kbit/s 12 kbit/s (note 7) 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48,0 kbit/s 56,0 kbit/s 64,0 kbit/s	5a #5..1	**User rate** no comparable value 9,6 kbit/s 12 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48,0 kbit/s 56,0 kbit/s no comparable value (note 16)
6e #3..1	**Maximum number of traffic channels** 1 TCH 2 TCH 3 TCH 4 TCH 5 TCH 6 TCH 7 TCH (note 7) 8 TCH (note 7)		No comparable field
6f #4..1	**Wanted air interface user rate** air interface user rate not applicable (note 7) 9,6 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 43,2 kbit/s 57,6 kbit/s interpreted by the network as 38.4 kbit/s (note 7)		No comparable field
6d #7..6	**Other modem type** (note 15) No other modem type V.34	5d #6..1	**Modem type** no comparable value V.34
6e #7..4	**Acceptable channel coding(s)** TCH/F4.8 acceptable (note 19) TCH/F9.6 acceptable TCH/F14.4 acceptable		No comparable field
6f #7..5	**User initiated modification indicator** User initiated modification not required User initiated modification upto 1 TCH/F may be requested User initiated modification upto 2 TCH/F may be requested User initiated modification upto 3 TCH/F may be requested User initiated modification upto 4 TCH/F may be requested		No comparable field

The application rules for coding the information elements ISDN-BC/LLC/HLC as set out in ETR 018 and ETS 300 102-1 shall apply.

Other field values in the ISDN BC-IE of ETS 300 102-1 not supported in GSM 04.08 are:

Information transfer rate: In this case default 64 kbit/s is selected.

Symmetry: In this case default bi-directional symmetric is selected for all user data rates (note 5).

Flow control on transmission: This shall be selected if outband flow control applies.

Flow control on reception: This shall be selected if outband flow control applies.

NOTE: Outband flow control is indicated by the absence of the UIL2P parameter for non-transparent connections.

User information layer 3 protocol:
Octet 7 shall not be sent unless specific application rules are given for particular cases (to be defined by GSM).
End-to-end significant User Information layer 3 protocol shall be sent by LLC.

NOTE 1: In the case where GSM BC "Information Transfer Capability" indicates "Facsimile group 3" and only a single GSM BC is contained in the call set-up request then this shall be mapped to an ISDN BC with:

Coding standard: CCITT

Information Transfer capability 3,1 kHz audio

Transfer mode circuit

Information transfer rate 64 kbit/s

User layer 1 protocol G711 A-law or µ-law (PCS-1900)

and

- If an HLC is not present, the network will insert a "Facsimile group 2/3" HLC.
- If an HLC element is present, the network will pass it through unmodified.

In the case where GSM BC "Information Transfer Capability" indicates "Facsimile group 3" and two GSM BCs are contained in the call set-up request, then the same ISDN BC as mentioned above is created. If the first GSM BC indicates "facsimile group 3" an HLC "facsimile group 2/3" will be inserted by the network (if not received from the MS). However if the first GSM BC indicates "speech", the network will not send a HLC, irrespective where a HLC was received from the MS or not.

NOTE 2: This value is present in combination with information transfer capability parameter value "3,1 kHz audio Ex PLMN" or "facsimile group 3" and will therefore be mapped to the value "CCITT Recommendation G.711 A-law or µ-law (PCS-1900)" of the ETS 300 102-1 parameter user layer 1 protocol (see note 3).

NOTE 3: The value "CCITT Recommendation G.711 A-law or µ-law (PCS-1900)" applies only when the ETS 300 102-1 parameter information transfer capability indicates "3,1 kHz audio" or "speech".

NOTE 4: Octets 4a and 4b shall not be included because default values apply.

NOTE 5: In this case octet 5d shall not be included.

NOTE 6: Octet 6 shall not be sent unless specific application rules are given for a particular case (GSM specified). End-to-end significant user information layer 2 protocol shall be sent by LLC.

NOTE 7: Not used for currently defined Bearer Services and Teleservices.

NOTE 8: These values will only be set if the "Information Transfer Capability" indicates "3,1 kHz audio", synchronous data transmission is used and octet 5b of the ISDN BC is present.

NOTE 9: The mapping of the modem type shall be according to Draft ETS 300 102-1/prA1.

NOTE 10: The GSM BC-IE parameter value "autobauding modem type 1" will be mapped to the ISDN BC-IE parameter values "inband negotiation possible" and "user rate indicated by E-bits specified in CCITT Rec I.460 or may be negotiated inband" (octet 5a of ISDN BC-IE). In case of data compression high speed modems, like V.32bis and/or V.34 may be used in the IWF.

NOTE 11: The ITC value of the GSM BC-IE "speech", "3,1 kHz audio Ex PLMN" will indicate these requirements.

NOTE 12: For the use of NIRR see GSM 07.01.

NOTE 13: The value of the Intermediate Rate field of the ISDN Bearer Capability information element shall only depend on the values of the User Rate and the Information Transfer Capability in the same information element. The correspondence is:

Intermediate Rate = not used if User Rate > than 19.2 kbit/s

Intermediate Rate = 32 kbit/s if User Rate = 19,2 kbit/s or 14.4 kbit/s

Intermediate Rate = 16 kbit/s if User Rate = 9,6 kbit/s

Intermediate Rate = 8 kbit/s otherwise.

In case of Audio calls the value of the Intermediate Rate may be set to "not used".

NOTE 14: If compression is supported by the MSC and "data compression allowed" is indicated, then the ISDN user rate for UDI calls shall be set as follows. If the parameter “FNUR” is present the ISDN user rate shall be set to this value. Otherwise the GSM user rate shall be mapped to an equal or any higher ISDN user rate value (in case of V.110 the highest ISDN user rate shall be 19.2 kbit/s). The Intermediate Rate shall be set to an appropriate value.(see subclause 10.2.4.11).

In case of "3,1 kHz audio" the modem must try to negotiate data compression and flow control (see subclause 9.2.4.11). In case of "autobauding type 1" high speed modems may be used (see note 10).

NOTE 15: User rate of the GSM-BC is overriden by the fixed network user rate of the GSM BC-IE if available. When the MT indicates „autobauding“, „modem for undefined interface“ or „none“, the other modem type shall be set to „no other modem type“; any other value of the modem type is overridden by the other modem type value (see GSM 07.01).

NOTE 16: The ISDN-BC will consist of the octets 1 to 4 only, coded:

Coding standard:	CCITT
Information Transfer capability	UDI
Transfer mode	circuit
Information transfer rate	64 kbit/s

NOTE 17: V.120 interworking is selected.

If an LLC element is not present, the network will insert an LLC. If an LLC is present it may be modified. The GSM-BC parameters negotiated with the MS shall be mapped to the LLC parameters. The LLC parameter Rate Adaptation will be set to "V.120".

When interworking with unrestricted 64 kbit/s networks the ISDN BC shall be coded according to note 16.

NOTE 18: When the MSC is directly connected to a restricted 64 kbit/s network, the ISDN BC-IE is coded with an ITC = RDI (not applicable to ISDNs conforming to ETS 300 102-1).
When indirectly interworking with a restricted 64 kbit/s network the ISDN BC-IE shall be coded according to ETR 018, as shown below:

Coding standard:	CCITT
Information Transfer capability:	UDI
Transfer mode:	circuit
Information transfer rate:	64 kbit/s
User information layer 1 protocol:	V.110/X.30
Synchronous/Asynchronous:	synchronous
Negotiation:	In-band negotiation not possible
User rate:	56 kbit/s

If an LLC element is not present, the network will insert an LLC. If an LLC is present it may be modified. The GSM-BC parameters negotiated with the MS shall be mapped to the LLC parameters according to the rules in this table. The LLC parameter Information Transfer Capability will be set to „restricted digital“

NOTE 19: In case the MS signals an ACC containing TCH/F4.8 only and the network does not support TCH/F4.8 channel coding, then the MSC may act as if TCH/F9.6 were included in the ACC.

Table 7B: Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
1	**Bearer Capability IEI**	1	**Bearer Capability IEI**
2	**Length of BC contents**	2	**Length of BC contents**
	no comparable field	3 #7..6	**Radio channel requirement** (note 1) half rate channel full rate channel both, half rate preferred both, full rate preferred
3 #7..6	**Coding standard** CCITT standardized coding	3 #5	**Coding standard** GSM standardized coding
3 #5..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio no comparable value no comparable value 7 kHz audio video	3 #3..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio ex PLMN (note2) facsimile group 3 (note 3) other ITC (see octet 5a) not supported not supported
	(note 23)	5a #7..6	**Other ITC** restricted digital
4 #7..6	**Transfer mode** circuit mode packet mode	3 #4	**Transfer mode** circuit mode circuit mode
4 #5..1	**Information transfer rate** 64 kbit/s		no comparable field
	No comparable field	4 #7	**Compression** (note 18) data compression possible data compression not possible
4a #7..5	**Structure** default 8 kHz integrity SDU integrity unstructured	(4) 4 #6..5	**Structure** no comparable value no comparable value SDU integrity (note 9) unstructured (note 5)
4a #4..3	**Configuration** point-to-point	4 #3	**Configuration** point-to-point (*)
	No comparable field	4 #2	**NIRR** (note 17) No meaning Data ≤ 4.8 kbit/s, FR nt, 6 kbit/s radio interface requested
4a #2..1	**Establishment** demand	4 #1	**Establishment** demand (*)
4b #7..6	**Symmetry** bi-directional symmetric		no comparable field
4b #5..1	**Information transfer rate (dest->orig.)** 64 kbit/s		no comparable field

(continued)

Table 7B (continued): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
5 #5..1	**User information layer 1 protocol** no comparable value CCITT V.110 / X.30 CCITT G.711 A-law CCITT X.31 flag stuffing no comparable value	5 #5..4	**Rate adaption** no rate adaption (note 11) V.110/X.30 rate adaption no comparable value CCITT X.31 flag stuffing other rate adaption (see octet 5a)
	No comparable value	5a #5..4	**Other rate adaptation** V.120 (note 24)
	no comparable field	5 #3..1	**Signalling access protocol** I.440/I.450 X.21 X.28, ded.PAD, indiv.NUI X.28, ded.PAD, univ.NUI X.28, non-ded.PAD X.32
	see above	6 #5..2	**User information layer 1 protocol** default layer 1 protocol
5a #7	**Synchronous / asynchronous** synchronous asynchronous	6 #1	**Synchronous/asynchronous** synchronous asynchronous
5a #6	**Negotiation** not possible inband neg, possible (note 16)	6a #6	**Negotiation** not possible no comparable value

(continued)

Table 7B (continued): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
5a #5..1	**User rate** 0,3 kbit/s 1,2 kbit/s 2,4 kbit/s 4,8 kbit/s 9,6 kbit/s 12 kbit/s rate is indicated by Ebit as specified in CCITT rec. I.460 0,6 kbit/s 3,6 kbit/s 7,2 kbit/s 8 kbit/s 14,4 kbit/s 16 kbit/s 28.8 kbit/s 32 kbit/s 38.4 kbit/s 48 kbit/s 56 kbit/s 64 kbit/s 0,1345 kbit/s 0,1 kbit/s 75 bit/s / 1,2 kbit/s 1,2 kbit/s / 75 bit/s 0,110 kbit/s 0,115 kbit/s 0,2 kbit/s	6a #4..1	**User rate (note 18)** 0,3 kbit/s 1,2 kbit/s 2,4 kbit/s 4,8 kbit/s 9,6 kbit/s 12 kbit/s (note 13) **(**note 16) not supported not supported not supported not supported (note 20) not supported (note 20) not supported (note 20) (note 20) (note 20) not supported
5b #7..6	**Intermediate rate** not used (note 19) 8 kbit/s 16 kbit/s 32 kbit/s	6b #7..6	**Intermediate rate** (note 6) (note 18) 8 or 16 kbit/s 8 kbit/s 16 kbit/s
5b #5	**NIC on Tx** (note 14) does not require requires	6b #5	**NIC on Tx** does not require requires (note 13)
5b #4	**NIC on Rx** (note 14) cannot accept can accept	6b #4	**NIC on Rx** cannot accept can accept(note 13)
5b #3	**Flow control on Tx** (note 15) Not Required Required		no comparable field
5b #2	**Flow control on Rx** (note 15) Cannot Accept Accept		no comparable field
5c #7..6	**Number of stop bits** 1 bit 2 bits not used 1.5 bits	6a #7	**Number of stop bits** 1 bit 2 bits no comparable value not supported

(continued)

Table 7B (continued): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
5c #5..4	**Number of data bits** 7 bits 8 bits not used 5 bits	6a #5	**Number of data bits** 7 bits 8 bits no comparable value not supported
5c #3..1	**Parity information** odd even none forced to 0 forced to 1	6b #3..1	**Parity information** odd even none forced to 0 forced to 1
	no comparable field	6c #7..6	**Connection element**(note 1) transparent non-transparent (RLP) both, transp. preferred both, non-transp preferred
5d #7	**Duplex mode** half duplex full duplex	4 #4	**Duplex mode** half duplex (note 13) full duplex (*)
5d #6..1	**Modem type** reserved V.21 V.22 V.22bis V.23 V.26ter V.32 V.26 V.26bis V.27 V.27bis V.29 V.35 no comparable value	6c #5..1	**Modem type** (note 12) none (note 7) V.21 V.22 V.22bis V.23 V.26ter V.32 not supported autobauding type 1 (note 16)
5a #5..1	**User rate** no comparable value 9,6 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48 kbit/s 56 kbit/s no comparable value	6d #5..1	**Fixed network user rate** (note 20) FNUR not applicable 9,6 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48,0 kbit/s 56,0 kbit/s 64,0 kbit/s (note 22)
	Modem type no comparable value (note 21) V.34	6d #7..6	**Other modem type** No other modem type V.34

(continued)

Table 7B (concluded): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
	No comparable field	6f #7..5	**User initiated modification indicator** (note 1) User initiated modification not required User initiated modification upto 1 TCH/F may be requested User initiated modification upto 2 TCH/F may be requested User initiated modification upto 3 TCH/F may be requested User initiated modification upto 4 TCH/F may be requested
6 #5..1	**User information layer 2 protocol** (note 10) Q.921 (I.441) X.25, link level no comparable value	7	**User information layer 2 protocol** (note 8) no comparable value X.25, link level ISO 6429, codeset 0
7	**User information layer 3 protocol** (note 10) Q.931 (I.451) X.25, packet level		not supported

General notes:

1) Other ETS 300 102-1 parameter values than those listed in the table, if indicated in the BC-IE, will be rejected by clearing the call.

2) Only the GSM 04.08 parameter values listed in the table may be generated (comparable values) during a mobile-terminated call by mapping the ETS 300 102-1 parameter values, exception see (10).

3) According to ETS 300 102-1 and GSM 04.08, respectively, the octets are counted from 1 to n onwards; the bit position in a particular octet is indicated by #x..y, with {x,y} = 1..8 (bit 1 is the least and bit 8 the most significant bit).

4) If octets 5 to 5d of the ISDN BC are absent but present in the LLC, the LLC octets should apply for the mapping as indicated above. In the case of V.120 interworking (see note 24) these LLC octets shall apply.

5) If within the ISDN BC the parameters information transfer capability indicates "3,1 kHz audio" and user layer 1 protocol indicates "G711 A-law or µ-law (PCS-1900)" but no modem type is available and the HLC does not indicate "facsimile group 3", octets 5 to 5d of the LLC, if available, apply for the above mapping procedure.

6) The number of octets which shall be encoded for the GSM BC-IE must comply to encoding rules in GSM 04.08 and the combination of the different parameter values shall be in accordance to GSM 07.01.

NOTES regarding the mapping:

(*) This GSM 04.08 parameter value is inserted, if the comparable ETS 300 102-1 parameter value is missing.

1) This GSM 04.08 parameter value is inserted according to user rate requirements and network capabilities / preferences.

2) This GSM 04.08 parameter value is inserted, if the information transfer capability in ISDN BC is "3,1kHz audio" and a comparable modem type is specified.

3) This GSM 04.08 parameter value is inserted, if the information transfer capability is "3,1 kHz audio" and the content of the HLC-IE, if any, indicates "facsimile group 2/3", (for details refer to subclause 10.2.2 case 3 for HLR action and case 5 for VMSC action). Note that via MAP the value "alternate speech/facsimile group 3 - starting with speech" shall be used, when TS 61 applies.

4) If octet 4a is omitted the default condition according to ETS 300 102-1 applies.

5) The GSM 04.08 parameter value shall be set to "unstructured" where the network indicates connection element "transparent".

6) The value of the Intermediate Rate field of the GSM Bearer Capability information element shall only depend on the values of the user rate or the radio channel requirement in the same information element. If the connection element is "transparent“, the value is 16 kbit/s, if the user rate is 9.6 or 12 kbit/s, and 8 kbit/s otherwise. For any other connection element setting the value is 16 kbit/s, if the radio channel requirements are "full rate" or "dual, full rate preferred", or "dual, half rate preferred", and 8 kbit/s, if the radio channel requirements is "half rate".

7) This GSM 04.08 parameter value is inserted, if the GSM BC parameter "Information Transfer Capability" indicates "Unrestricted digital information", "facsimile group 3" or "alternate speech/facsimile group 3, starting with speech".

8) Where the network indicates "asynchronous" and connection elements "non-transparent", "both, transparent preferred" or "both, non-transparent preferred" , then the GSM BC should be forwarded without parameter user information layer 2 protocol, see also (10).

9) Where the network indicates connection elements "non transparent" "both, transparent preferred" or "both, non transparent preferred" the value of the parameter structure shall be set to "SDU Integrity".

10) Mapping of parameter values of this octet to GSM BC parameters and values are subject to specific application rules, i.e. unless otherwise explicitly stated in an appropriate TS mapping to GSM BC parameters shall not take place.

11) This value shall be used when the value of the GSM BC parameter "Information Transfer Capability" indicates the value "3,1 kHz audio ex PLMN", "facsimile group 3" or "alternate speech/facsimile group 3, starting with speech" which is reserved for MAP operations.

12) The modem encoding of both Draft ETS 300 102-1/prA1 and ETS 300 102-1 version 1 shall be accepted and mapped according to GSM 04.08.

13) Value not used for currently defined bearer services and Teleservices.

14) NIC is only supported for "3,1 kHz Ex PLMN audio" interworking with synchronous data transmission.

15) Because the required flow control mechanism can not be indicated to the MS (refer to GSM 07.01), the network shall check if the flow control mechanism selected by the MS and indicated in the CALL CONFIRMED message suits to the requirements requested by the ISDN terminal adaptor. In case of a mismatch the call shall be released in the IWF.

    Because an asymmetric flow control mechanism (with respect to transmitting and receiving side) is not supported in GSM PLMNs, the different values of the ISDN BC-IE parameters "flow control on Tx" and "flow control on Rx" shall be interpreted in the following way:

    - "Flow control on Rx" set to "accepted" matches with "outband flow control", irrespective of the value of the parameter "flow control on Tx"

    - "Flow control on Rx" set to "not accepted" and "flow control on Tx" set to "not required" matches with "inband flow control" and "no flow control"

    - where "Flow control on Rx" is set to "not accepted" and "flow control on Tx" to "required" the call shall be released by the IWF

16) If in case of 3,1 kHz audio interworking "inband negotiation possible" is indicated and the parameter user rate is set to "rate is indicated by E bits specified in Recommendation I.460 or may be negotiated inband" the user rate in the GSM BC-IE shall be set according to a network preferred value, whereas the preferred value of the Radio Channel Requirement shall be considered. If parameter ISDN-BC modem type is present, its value shall be ignored. The parameter GSM-BC modem shall be set according to the user rate in case of connection element "transparent" and to "autobauding type 1" in case of connection element "non transparent", "both, transparent preferred" or "both, non transparent preferred". In case of data compression high speed modems, like V.32bis and/or V.34 may be used in the IWF.

For unrestricted digital interworking the call shall be rejected if these values are indicated.
If the GSM-BC parameter modem type indicates "autobauding type 1" or "none", then the GSM-BC parameter other modem type shall be set to "no other modem type".

17) For the use of NIRR see GSM 07.01. The VMSC shall set this parameter dependent upon its capabilities and preferences.

18) If compression is supported by the MSC, the value "data compression possible" may be set. Depending on the capabilities of the MSC, the user rate value and the intermediate rate value is set to an appropriate value.

19) Only applicable if the parameter ISDN-BC ITC indicates "3.1 kHz audio" and for "UDI" calls if User Rate > "19.2 kbit/s".

20) The user rate of the GSM BC is set to the value for the fall-back bearer service. In case the mobile station does not support the fixed network user rate (i.e. the call confirmation message does not contain the fixed network user rate parameter), the network may release the call for a transparent connection element.

21) The modem type parameter of the GSM-BC is taken into account, only.

22) In case no LLC is received and the ISDN-BC received consists of octets 1 to 4 only, coded:

Coding standard: CCITT

Information Transfer capability UDI

Transfer mode circuit

Information transfer rate 64kbit/s,

the following GSM-BC parameters, indicating a 64 kbit/s bit transparent service, shall be set to:

fixed network user rate 64 kbit/s

connection element transparent

The other parameters of the GSM-BC shall be set to values indicating a fall-back service.

(23) When the MSC is directly connected to a restricted 64 kbit/s network, the ISDN BC-IE is coded with an ITC = RDI (not applicable to ISDNs conforming to ETS 300 102-1).
An ISDN BC-IE, as specified in ETR 018 and shown below, shall be taken to indicate that interworking with an indirectly connected restricted 64 kbit/s network is required

Coding standard:	CCITT
Information Transfer capability:	UDI
Transfer mode:	circuit
Information transfer rate:	64 kbit/s
User information layer 1 protocol:	V.110/X.30
Synchronous/Asynchronous:	synchronous
Negotiation:	In-band negotiation not possible
User rate:	56 kbit/s

In this case the GSM BC parameter Information Transfer Capability is set to „Other ITC“ and Other ITC parameter is set to „restricted digital“. All the corresponding fields in the GSM BC shall be derived from the ISDN LLC.

24) V.120 interworking is required if the ISDN LLC parameter User Information Layer 1 Protocol is set to „V.120“. In this case the GSM BC parameter Rate Adaptation is set to „Other rate adaptation“ and Other Rate Adaptation parameter is set to „V.120“. All the corresponding fields in the GSM BC shall be derived from the ISDN LLC.

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

10.2.2.6 Mapping Functions

The following tables (7A + 7B) show that only the ISDN BC is used for mapping (exceptions are indicated).

NOTE: The ISDN/GSM BC-IE mapping shall be performed as specified in tables 7A and 7B. This must be done to allow setup of a compatible end-to-end connection between two MSs or one MS and an ISDN terminal.

It has been acknowledged that octets 5a, 5b, 5c and 5d or a combination of them may also be sent and received in 3,1 kHz audio calls. Follow-up versions of ETS 300 102-1 (i.e. ETS 300 403-1), confirm this interpretation. This is especially important for MOC-ISDN terminating calls, where early Customer Premise Equipment (e.g. PABXs), may reject these calls.

In the following table the comparison is drawn between parameters in the GSM call set up request message and that of the ISDN call set up request message. In some cases no comparable values are available and these will be marked as such. In these cases reference will need to be made to the table of network interworking in GSM 09.07 to identify the appropriate choice. In some cases it is not necessary to support a particular option, and in this case those parameters will be annotated appropriately.

Table 7A: Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
1	**Bearer Capability IEI**	1	**Bearer Capability IEI**
2	**Length of BC contents**	2	**Length of BC contents**
3 #7..6	**Radio channel requirement** half rate channel full rate channel dual, full, rate preferred dual, half rate preferred		No comparable field
3 #4	**Coding Standard** GSM standard coding	3 #7..6	**Coding Standard** CCITT standardized coding
3 #4	**Transfer mode** circuit mode packet mode (note7)	4 #7..6	Transfer mode circuit mode packet mode
3 #3..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio ex PLMN facsimile group 3 (note 1) other ITC (see octet 5a)	3 #5..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio see table 4 in GSM 09.07 no comparable value
5a #7..6	**Other ITC** restricted digital		(note 18)
4 #7	**Compression** (note 14) data compression allowed data compression not allowed		No comparable field
4 #6..5	**Structure** SDU integrity unstructured	4a #7..5	**Structure** (note 4)
4 #4	**Duplex mode** half duplex full duplex	5d #7	**Duplex mode** half duplex full duplex
4 #3	**Configuration** point to point	4a #4..3	**Configuration** (note 4) point to point
4 #1	**Establishment** demand	4a #2..1	**Establishment** (note 4) demand
4	**NIRR** (note 12) meaning Data ≤ 4.8kbit/s, FR nt, 6kbit/s radio interface is requested		No comparable field

(continued)

Table 7A (continued): Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
5 #5..4	**Rate adaptation** no rate adaptation (note 2) V.110/X.30 rate adaptation CCITT X.31 flag stuffing No comparable value (note 11) No comparable value (note 11) No comparable value (note 11) other rate adaptation (see octet 5a)	5 #5..1	**User information layer 1 protocol** no comparable value CCITT standardized rate adaption V.110/X.30 CCITT standardized rate adaption X.31 flag stuffing Recommendation G.711 µ-law Recommendation G.711 A-law (note 3) Recommendation G.721 32 kbit/s ADPCM and I.460 No comparable value No comparable value
5a #5..4	**Other rate adaptation** V.120 (note 17)		
5 #3..1	**Signalling access protocol** I.440/I.450 X.21 X.28, ded.PAD, indiv.NUI (note 24) X.28, ded PAD, univ.NUI (note 24) X.28, non-ded PAD (note 24) X.32		No comparable field
6 #1	**Synchronous/asynchronous** synchronous asynchronous	5a #7	**Synchronous/asynchronous** synchronous asynchronous
6 #5..2	**User info. layer 1 protocol** default layer 1 protocol	5 #5..1	**User info. layer 1 protocol** see section under rate adaptation for GSM 04.08 above
6a #7	**Number of stop bits** 1 bit 2 bits	5c #7..6	**Number of stop bits** 1 bit 2 bits
6a #6	**Negotiation** In band neg. not possible no comparable value	5a #6	**Negotiation** In band neg. not possible In band neg. possible (note 10)
6a #5	**Number of data bits** 7 bits 8 bits	5c #5..4	**Number of data bits excluding parity if present** 7 bits 8 bits
6a #4..1	**User rate** 0.3 kbit/s 1.2 kbit/s 2.4 kbit/s 4.8 kbit/s 9.6 kbit/s 12 kbit/s (note 7) 1.2 kbit/s / 75 bit/s (note 24) any value no comparable value	5a #5..1	**User rate** 0.3 kbit/s 1.2 kbit/s 2.4 kbit/s 4.8 kbit/s 9.6 kbit/s 12 kbit/s 75 bit/s / 1.2 kbit/s 19.2 kbit/s (note 14) Ebits or inband negotiation (note 10)

(continued)

Table 7A (continued): Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
6b #7..6	**Intermediate rate** 8 kbit/s 16 kbit/s any value	5b #7..6	**Intermediate rate** (note 13) 8 kbit/s or not used 16 kbit/s or not used 32 kbit/s or not used (note 14)
6b #5	**NIC on Tx** does not require requires (note7)	5b #5b	**NIC on Tx** does not require requires (note 8)
6b #4	**NIC on Rx** cannot accept can accept (note 7)	5b #4	**NIC on Rx** cannot accept can accept (note 8)
6b #3..1	**Parity information** odd even none forced to 0 forced to 1	5c #3..1	**Parity information** odd even none forced to 0 forced to 1
6c #7..6	**Connection element** transparent non-transparent (RLP) both, transp. preferred both, non-transp. preferred		No comparable field
6c #5..1	**Modem type** none V.21 V.22 V.22bis V.23 (note 24) V.26ter V.32 modem for undef. interface autobauding type 1	5d #6..1	**Modem type** (note 9) no comparable value (note 5) V.21 V.22 V.22bis V.23 V.26ter V.32 No comparable value (note 5) No comparable value (note 5, note 10)
7 #5..1	**User info. layer 2 protocol** X.25 link level ISO 6429, codeset 0 COPnoFlCt videotex profile 1 (note 7) X.75 layer 2 modified (CAPI)	6	**User info.layer 2 prot.** (note 6) X.25 link level no comparable value no comparable value no comparable value X.25 link level
6d #5..1	**Fixed network user rate** (note 15) FNUR not applicable (note 7) 9,6 kbit/s 12 kbit/s (note 7) 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48,0 kbit/s 56,0 kbit/s 64,0 kbit/s	5a #5..1	**User rate** no comparable value 9,6 kbit/s 12 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48,0 kbit/s 56,0 kbit/s no comparable value (note 16)
	(continued)		

Table 7A (concluded): Comparable setting of parameters in GSM 04.08 and ETS 300 102-1 (ETSI ISDN user to network signalling) Mobile Originated

Octet	GSM 04.08 parameter value as in GSM 07.01	Octet	ETS 300 102-1 parameter value
6e #3..1	**Maximum number of traffic channels** 1 TCH 2 TCH 3 TCH 4 TCH 5 TCH 6 TCH 7 TCH (note 7) 8 TCH (note 7)		No comparable field
6f #4..1	**Wanted air interface user rate (note 23)** air interface user rate not applicable (note 7) 9,6 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 43,2 kbit/s 57,6 kbit/s interpreted by the network as 38.4 kbit/s (note 7)		No comparable field
6d #7..6	**Other modem type** (note 15) No other modem type V.34	5d #6..1	**Modem type** no comparable value V.34
6e #7..4	**Acceptable channel coding(s)** TCH/F4.8 acceptable (note 19) TCH/F9.6 acceptable TCH/F14.4 acceptable		No comparable field
6f #7..5	**User initiated modification indicator (note 23)** User initiated modification not required User initiated modification upto 1 TCH/F may be requested User initiated modification upto 2 TCH/F may be requested User initiated modification upto 3 TCH/F may be requested User initiated modification upto 4 TCH/F may be requested		No comparable field
6g #7..5	**Acceptable channel coding(s) (note 20)** TCH/F28.8 acceptable TCH/F32.0 acceptable (note 21) TCH/F43.2 acceptable (note 22)		No comparable field
6g #4..3	**Asymmetry preference indication (Note 23)** no preference up link biased asymmetry preference down link biased asymmetry preference		No comparable field

The application rules for coding the information elements ISDN-BC/LLC/HLC as set out in ETR 018 and ETS 300 102-1 shall apply.

Other field values in the ISDN BC-IE of ETS 300 102-1 not supported in GSM 04.08 are:

Information transfer rate: In this case default 64 kbit/s is selected.

Symmetry: In this case default bi-directional symmetric is selected for all user data rates (note 5).

Flow control on transmission: This shall be selected if outband flow control applies.

Flow control on reception: This shall be selected if outband flow control applies.

NOTE: Outband flow control is indicated by the absence of the UIL2P parameter for non-transparent connections.

User information layer 3 protocol:
Octet 7 shall not be sent unless specific application rules are given for particular cases (to be defined by GSM).
End-to-end significant User Information layer 3 protocol shall be sent by LLC.

NOTE 1: In the case where GSM BC "Information Transfer Capability" indicates "Facsimile group 3" and only a single GSM BC is contained in the call set-up request then this shall be mapped to an ISDN BC with:

Coding standard:	CCITT
Information Transfer capability:	3,1 kHz audio
Transfer mode:	circuit
Information transfer rate:	64 kbit/s
User layer 1 protocol:	G711 A-law or µ-law (PCS-1900)

and

- If an HLC is not present, the network will insert a "Facsimile group 2/3" HLC.
- If an HLC element is present, the network will pass it through unmodified.

In the case where GSM BC "Information Transfer Capability" indicates "Facsimile group 3" and two GSM BCs are contained in the call set-up request, then the same ISDN BC as mentioned above is created. If the first GSM BC indicates "facsimile group 3" an HLC "facsimile group 2/3" will be inserted by the network (if not received from the MS). However if the first GSM BC indicates "speech", the network will not send a HLC, irrespective where a HLC was received from the MS or not.

NOTE 2: This value is present in combination with information transfer capability parameter value "3,1 kHz audio Ex PLMN" or "facsimile group 3" and will therefore be mapped to the value "CCITT Recommendation G.711 A-law or µ-law (PCS-1900)" of the ETS 300 102-1 parameter user layer 1 protocol (see note 3).

NOTE 3: The value "CCITT Recommendation G.711 A-law or µ-law (PCS-1900)" applies only when the ETS 300 102-1 parameter information transfer capability indicates "3,1 kHz audio" or "speech".

NOTE 4: Octets 4a and 4b shall not be included because default values apply.

NOTE 5: In this case octet 5d shall not be included.

NOTE 6: Octet 6 shall not be sent unless specific application rules are given for a particular case (GSM specified). End-to-end significant user information layer 2 protocol shall be sent by LLC.

NOTE 7: Not used for currently defined Bearer Services and Teleservices.

NOTE 8: These values will only be set if the "Information Transfer Capability" indicates "3,1 kHz audio", synchronous data transmission is used and octet 5b of the ISDN BC is present.

NOTE 9: The mapping of the modem type shall be according to Draft ETS 300 102-1/prA1.

NOTE 10: The GSM BC-IE parameter value "autobauding modem type 1" will be mapped to the ISDN BC-IE parameter values "inband negotiation possible" and "user rate indicated by E-bits specified in CCITT Rec I.460 or may be negotiated inband" (octet 5a of ISDN BC-IE). In case of data compression high speed modems, like V.32bis and/or V.34 may be used in the IWF.

NOTE 11: The ITC value of the GSM BC-IE "speech", "3,1 kHz audio Ex PLMN" will indicate these requirements.

NOTE 12: For the use of NIRR see GSM 07.01.

NOTE 13: The value of the Intermediate Rate field of the ISDN Bearer Capability information element shall only depend on the values of the User Rate and the Information Transfer Capability in the same information element. The correspondence is:

Intermediate Rate = not used if User Rate > than 19.2 kbit/s

Intermediate Rate = 32 kbit/s if User Rate = 19,2 kbit/s or 14.4 kbit/s

Intermediate Rate = 16 kbit/s if User Rate = 9,6 kbit/s

Intermediate Rate = 8 kbit/s otherwise.

In case of Audio calls the value of the Intermediate Rate may be set to "not used".

NOTE 14: If compression is supported by the MSC and "data compression allowed" is indicated, then the ISDN user rate for UDI calls shall be set as follows. If the parameter “FNUR” is present the ISDN user rate shall be set to this value. Otherwise the GSM user rate shall be mapped to an equal or any higher ISDN user rate value (in case of V.110 the highest ISDN user rate shall be 19.2 kbit/s). The Intermediate Rate shall be set to an appropriate value.(see subclause 10.2.4.11).

In case of "3,1 kHz audio" the modem must try to negotiate data compression and flow control (see subclause 9.2.4.11). In case of "autobauding type 1" high speed modems may be used (see note 10).

NOTE 15: User rate of the GSM-BC is overridden by the fixed network user rate of the GSM BC-IE if available. When the MT indicates „autobauding“, „modem for undefined interface“ or „none“, the other modem type shall be set to „no other modem type“; any other value of the modem type is overridden by the other modem type value (see GSM 07.01).

NOTE 16: The ISDN-BC will consist of the octets 1 to 4 only, coded:

Coding standard:	CCITT
Information Transfer capability:	UDI
Transfer mode:	circuit
Information transfer rate:	64 kbit/s

NOTE 17: V.120 interworking is selected.

If an LLC element is not present, the network will insert an LLC. If an LLC is present it may be modified. The GSM-BC parameters negotiated with the MS shall be mapped to the LLC parameters. The LLC parameter Rate Adaptation will be set to "V.120".

When interworking with unrestricted 64 kbit/s networks the ISDN BC shall be coded according to note 16.

NOTE 18: When the MSC is directly connected to a restricted 64 kbit/s network, the ISDN BC-IE is coded with an ITC = RDI (not applicable to ISDNs conforming to ETS 300 102-1).
When indirectly interworking with a restricted 64 kbit/s network the ISDN BC-IE shall be coded according to ETR 018, as shown below:

Coding standard:	CCITT
Information Transfer capability:	UDI
Transfer mode:	circuit
Information transfer rate:	64 kbit/s
User information layer 1 protocol:	V.110/X.30
Synchronous/Asynchronous:	synchronous
Negotiation:	In-band negotiation not possible
User rate:	56 kbit/s

If an LLC element is not present, the network will insert an LLC. If an LLC is present it may be modified. The GSM-BC parameters negotiated with the MS shall be mapped to the LLC parameters according to the rules in this table. The LLC parameter Information Transfer Capability will be set to „restricted digital“

NOTE 19: In case the MS signals an ACC containing TCH/F4.8 only and the network does not support TCH/F4.8 channel coding, then the MSC may act as if TCH/F9.6 were included in the ACC.

NOTE 20: Extension of the 'Acceptable channel codings' field in octet 6e in case EDGE channel codings are supported.

NOTE 21: Only applicable for bit transparent 56 and 64 kbit/s services.

NOTE 22: Only applicable for non-transparent services.

NOTE 23: This parameter has to be included if EDGE channel codings are indicated in ACC. In cases where this parameter would not otherwise be included, the value is set to 'Air interface user rate not applicable' or 'User initiated modification not requested' or 'No preference'.

NOTE 24: This value was used by services defined for former GSM releases and does not need to be supported.

Table 7B: Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
1	**Bearer Capability IEI**	1	**Bearer Capability IEI**
2	**Length of BC contents**	2	**Length of BC contents**
	no comparable field	3 #7..6	**Radio channel requirement** (note 1) half rate channel full rate channel both, half rate preferred both, full rate preferred
3 #7..6	**Coding standard** CCITT standardized coding	3 #5	**Coding standard** GSM standardized coding
3 #5..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio no comparable value no comparable value 7 kHz audio video (note 23)	3 #3..1	**Information transfer capability** speech unrestricted digital 3,1 kHz audio ex PLMN (note2) facsimile group 3 (note 3) other ITC (see octet 5a) not supported not supported
		5a #7..6	**Other ITC** restricted digital
4 #7..6	**Transfer mode** circuit mode packet mode	3 #4	**Transfer mode** circuit mode circuit mode
4 #5..1	**Information transfer rate** 64 kbit/s		 no comparable field
	No comparable field	4 #7	**Compression** (note 18) data compression possible data compression not possible
4a #7..5	**Structure** default 8 kHz integrity SDU integrity unstructured	(4) 4 #6..5	**Structure** no comparable value no comparable value SDU integrity (note 9) unstructured (note 5)
4a #4..3	**Configuration** point-to-point	4 #3	**Configuration** point-to-point (*)
	No comparable field	4 #2	**NIRR** (note 17) No meaning Data ≤ 4.8 kbit/s, FR nt, 6 kbit/s radio interface requested
4a #2..1	**Establishment** demand	4 #1	**Establishment** demand (*)
4b #7..6	**Symmetry** bi-directional symmetric		no comparable field
4b #5..1	**Information transfer rate (dest->orig.)** 64 kbit/s		 no comparable field

(continued)

Table 7B (continued): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
5 #5..1	**User information layer 1 protocol** no comparable value CCITT V.110 / X.30 CCITT G.711 A-law CCITT X.31 flag stuffing no comparable value	5 #5..4	**Rate adaption** no rate adaption (note 11) V.110/X.30 rate adaption no comparable value CCITT X.31 flag stuffing other rate adaption (see octet 5a)
	No comparable value	5a #5..4	**Other rate adaptation** V.120 (note 24)
	no comparable field	5 #3..1	**Signalling access protocol** I.440/I.450 X.21 X.28, ded.PAD, indiv.NUI (note 26) X.28, ded.PAD, univ.NUI (note 26) X.28, non-ded.PAD (note 26) X.32
	see above	6 #5..2	**User information layer 1 protocol** default layer 1 protocol
5a #7	**Synchronous / asynchronous** synchronous asynchronous	6 #1	**Synchronous/asynchronous** synchronous asynchronous
5a #6	**Negotiation** not possible inband neg, possible (note 16)	6a #6	**Negotiation** not possible no comparable value

(continued)

Table 7B (continued): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
5a #5..1	**User rate** 0,3 kbit/s 1,2 kbit/s 2,4 kbit/s 4,8 kbit/s 9,6 kbit/s 12 kbit/s rate is indicated by Ebit as specified in CCITT rec. I.460 0,6 kbit/s 3,6 kbit/s 7,2 kbit/s 8 kbit/s 14,4 kbit/s 16 kbit/s 28.8 kbit/s 32 kbit/s 38.4 kbit/s 48 kbit/s 56 kbit/s 64 kbit/s 0,1345 kbit/s 0,1 kbit/s 75 bit/s / 1,2 kbit/s 1,2 kbit/s / 75 bit/s 0,110 kbit/s 0,115 kbit/s 0,2 kbit/s	6a #4..1	**User rate (note 18)** 0,3 kbit/s 1,2 kbit/s 2,4 kbit/s 4,8 kbit/s 9,6 kbit/s 12 kbit/s (note 13) **(**note 16) not supported not supported not supported not supported (note 20) not supported (note 20) not supported (note 20) (note 20) (note 20) not supported
5b #7..6	**Intermediate rate** not used (note 19) 8 kbit/s 16 kbit/s 32 kbit/s	6b #7..6	**Intermediate rate** (note 6) (note 18) 8 or 16 kbit/s 8 kbit/s 16 kbit/s
5b #5	**NIC on Tx** (note 14) does not require requires	6b #5	**NIC on Tx** does not require requires (note 13)
5b #4	**NIC on Rx** (note 14) cannot accept can accept	6b #4	**NIC on Rx** cannot accept can accept (note 13)
5b #3	**Flow control on Tx** (note 15) Not Required Required		no comparable field
5b #2	**Flow control on Rx** (note 15) Cannot Accept Accept		no comparable field
5c #7..6	**Number of stop bits** 1 bit 2 bits not used 1.5 bits	6a #7	**Number of stop bits** 1 bit 2 bits no comparable value not supported

(continued)

Table 7B (continued): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
5c #5..4	**Number of data bits** 7 bits 8 bits not used 5 bits	6a #5	**Number of data bits** 7 bits 8 bits no comparable value not supported
5c #3..1	**Parity information** odd even none forced to 0 forced to 1	6b #3..1	**Parity information** odd even none forced to 0 forced to 1
	no comparable field	6c #7..6	**Connection element** (note 1) transparent non-transparent (RLP) both, transp. preferred both, non-transp preferred
5d #7	**Duplex mode** half duplex full duplex	4 #4	**Duplex mode** half duplex (note 13) full duplex (*)
5d #6..1	**Modem type** reserved V.21 V.22 V.22bis V.23 V.26ter V.32 V.26 V.26bis V.27 V.27bis V.29 V.35 no comparable value	6c #5..1	**Modem type** (note 12) none (note 7) V.21 V.22 V.22bis not supported V.26ter V.32 not supported autobauding type 1 (note 16)
5a #5..1	**User rate** no comparable value 9,6 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48 kbit/s 56 kbit/s no comparable value	6d #5..1	**Fixed network user rate** (note 20) FNUR not applicable 9,6 kbit/s 14,4 kbit/s 19,2 kbit/s 28,8 kbit/s 38,4 kbit/s 48,0 kbit/s 56,0 kbit/s 64,0 kbit/s (note 22)
	Modem type no comparable value (note 21) V.34	6d #7..6	**Other modem type** No other modem type V.34

(continued)

Table 7B (concluded): Comparability and Mapping of bearer capability parameter values according to ETS 300 102-1 and GSM 04.08 within the HLR for a mobile terminated Call

Octet	ETS 300 102-1 parameter value	Octet	GSM 04.08 parameter value
	No comparable field	6f #7..5	**User initiated modification indicator (note 1) (note 25)** User initiated modification not required User initiated modification upto 1 TCH/F may be requested User initiated modification upto 2 TCH/F may be requested User initiated modification upto 3 TCH/F may be requested User initiated modification upto 4 TCH/F may be requested
6 #5..1	**User information layer 2 protocol (note 10)** Q.921 (I.441) X.25, link level no comparable value	7	**User information layer 2 protocol (note 8)** no comparable value X.25, link level ISO 6429, codeset 0
7	**User information layer 3 protocol (note 10)** Q.931 (I.451) X.25, packet level		not supported

General notes:

1) Other ETS 300 102-1 parameter values than those listed in the table, if indicated in the BC-IE, will be rejected by clearing the call.

2) Only the GSM 04.08 parameter values listed in the table may be generated (comparable values) during a mobile-terminated call by mapping the ETS 300 102-1 parameter values, exception see (10).

3) According to ETS 300 102-1 and GSM 04.08, respectively, the octets are counted from 1 to n onwards; the bit position in a particular octet is indicated by #x..y, with {x,y} = 1..8 (bit 1 is the least and bit 8 the most significant bit).

4) If octets 5 to 5d of the ISDN BC are absent but present in the LLC, the LLC octets should apply for the mapping as indicated above. In the case of V.120 interworking (see note 24) these LLC octets shall apply.

5) If within the ISDN BC the parameters information transfer capability indicates "3,1 kHz audio" and user layer 1 protocol indicates "G711 A-law or µ-law (PCS-1900)" but no modem type is available and the HLC does not indicate "facsimile group 3", octets 5 to 5d of the LLC, if available, apply for the above mapping procedure.

6) The number of octets which shall be encoded for the GSM BC-IE must comply to encoding rules in GSM 04.08 and the combination of the different parameter values shall be in accordance to GSM 07.01.

NOTES regarding the mapping:

(*) This GSM 04.08 parameter value is inserted, if the comparable ETS 300 102-1 parameter value is missing.

1) This GSM 04.08 parameter value is inserted according to user rate requirements and network capabilities / preferences.

2) This GSM 04.08 parameter value is inserted, if the information transfer capability in ISDN BC is "3,1kHz audio" and a comparable modem type is specified.

3) This GSM 04.08 parameter value is inserted, if the information transfer capability is "3,1 kHz audio" and the content of the HLC-IE, if any, indicates "facsimile group 2/3", (for details refer to subclause 10.2.2 case 3 for HLR action and case 5 for VMSC action). Note that via MAP the value "alternate speech/facsimile group 3 - starting with speech" shall be used, when TS 61 applies.

4) If octet 4a is omitted the default condition according to ETS 300 102-1 applies.

5) The GSM 04.08 parameter value shall be set to "unstructured" where the network indicates connection element "transparent".

6) The value of the Intermediate Rate field of the GSM Bearer Capability information element shall only depend on the values of the user rate or the radio channel requirement in the same information element. If the connection element is "transparent“, the value is 16 kbit/s, if the user rate is 9.6 or 12 kbit/s, and 8 kbit/s otherwise. For any other connection element setting the value is 16 kbit/s, if the radio channel requirements are "full rate" or "dual, full rate preferred", or "dual, half rate preferred", and 8 kbit/s, if the radio channel requirements is "half rate".

7) This GSM 04.08 parameter value is inserted, if the GSM BC parameter "Information Transfer Capability" indicates "Unrestricted digital information", "facsimile group 3" or "alternate speech/facsimile group 3, starting with speech".

8) Where the network indicates "asynchronous" and connection elements "non-transparent", "both, transparent preferred" or "both, non-transparent preferred" , then the GSM BC should be forwarded without parameter user information layer 2 protocol, see also (10).

9) Where the network indicates connection elements "non transparent" "both, transparent preferred" or "both, non transparent preferred" the value of the parameter structure shall be set to "SDU Integrity".

10) Mapping of parameter values of this octet to GSM BC parameters and values are subject to specific application rules, i.e. unless otherwise explicitly stated in an appropriate TS mapping to GSM BC parameters shall not take place.

11) This value shall be used when the value of the GSM BC parameter "Information Transfer Capability" indicates the value "3,1 kHz audio ex PLMN", "facsimile group 3" or "alternate speech/facsimile group 3, starting with speech" which is reserved for MAP operations.

12) The modem encoding of both Draft ETS 300 102-1/prA1 and ETS 300 102-1 version 1 shall be accepted and mapped according to GSM 04.08.

13) Value not used for currently defined bearer services and Teleservices.

14) NIC is only supported for "3,1 kHz Ex PLMN audio" interworking with synchronous data transmission.

15) Because the required flow control mechanism can not be indicated to the MS (refer to GSM 07.01), the network shall check if the flow control mechanism selected by the MS and indicated in the CALL CONFIRMED message suits to the requirements requested by the ISDN terminal adaptor. In case of a mismatch the call shall be released in the IWF.

    Because an asymmetric flow control mechanism (with respect to transmitting and receiving side) is not supported in GSM PLMNs, the different values of the ISDN BC-IE parameters "flow control on Tx" and "flow control on Rx" shall be interpreted in the following way:

    - "Flow control on Rx" set to "accepted" matches with "outband flow control", irrespective of the value of the parameter "flow control on Tx"

    - "Flow control on Rx" set to "not accepted" and "flow control on Tx" set to "not required" matches with "inband flow control" and "no flow control"

    - where "Flow control on Rx" is set to "not accepted" and "flow control on Tx" to "required" the call shall be released by the IWF

16) If in case of 3,1 kHz audio interworking "inband negotiation possible" is indicated and the parameter user rate is set to "rate is indicated by E bits specified in Recommendation I.460 or may be negotiated inband" the user rate in the GSM BC-IE shall be set according to a network preferred value, whereas the preferred value of the Radio Channel Requirement shall be considered. If parameter ISDN-BC modem type is present, its value shall be ignored. The parameter GSM-BC modem shall be set according to the user rate in case of connection element "transparent" and to "autobauding type 1" in case of connection element "non transparent", "both, transparent preferred" or "both, non transparent preferred". In case of data compression high speed modems, like V.32bis and/or V.34 may be used in the IWF.

For unrestricted digital interworking the call shall be rejected if these values are indicated.
If the GSM-BC parameter modem type indicates "autobauding type 1" or "none", then the GSM-BC parameter other modem type shall be set to "no other modem type".

17) For the use of NIRR see GSM 07.01. The VMSC shall set this parameter dependent upon its capabilities and preferences.

18) If compression is supported by the MSC, the value "data compression possible" may be set. Depending on the capabilities of the MSC, the user rate value and the intermediate rate value is set to an appropriate value.

19) Only applicable if the parameter ISDN-BC ITC indicates "3.1 kHz audio" and for "UDI" calls if User Rate > "19.2 kbit/s".

20) The user rate of the GSM BC is set to the value for the fall-back bearer service. In case the mobile station does not support the fixed network user rate (i.e. the call confirmation message does not contain the fixed network user rate parameter), the network may release the call for a transparent connection element.

21) The modem type parameter of the GSM-BC is taken into account, only.

22) In case no LLC is received and the ISDN-BC received consists of octets 1 to 4 only, coded:

Coding standard:	CCITT
Information Transfer capability:	UDI
Transfer mode:	circuit
Information transfer rate:	64kbit/s,

the following GSM-BC parameters, indicating a 64 kbit/s bit transparent service, shall be set to:

fixed network user rate:	64 kbit/s
connection element:	transparent

The other parameters of the GSM-BC shall be set to values indicating a fall-back service.

23) When the MSC is directly connected to a restricted 64 kbit/s network, the ISDN BC-IE is coded with an ITC = RDI (not applicable to ISDNs conforming to ETS 300 102-1).
An ISDN BC-IE, as specified in ETR 018 and shown below, shall be taken to indicate that interworking with an indirectly connected restricted 64 kbit/s network is required

Coding standard:	CCITT
Information Transfer capability:	UDI
Transfer mode:	circuit
Information transfer rate:	64 kbit/s
User information layer 1 protocol:	V.110/X.30
Synchronous/Asynchronous:	synchronous
Negotiation:	In-band negotiation not possible
User rate:	56 kbit/s

In this case the GSM BC parameter Information Transfer Capability is set to „Other ITC“ and Other ITC parameter is set to „restricted digital“. All the corresponding fields in the GSM BC shall be derived from the ISDN LLC.

24) V.120 interworking is required if the ISDN LLC parameter User Information Layer 1 Protocol is set to „V.120“. In this case the GSM BC parameter Rate Adaptation is set to „Other rate adaptation“ and Other Rate Adaptation parameter is set to „V.120“. All the corresponding fields in the GSM BC shall be derived from the ISDN LLC.

25) This parameter is only included in case of non-transparent multislot connections.

26) This value was used by services defined for former GSM releases and does not need to be supported.