

3GPP
Technical Specification Group Core Networks
Meeting #3, Yokohama, 21-23 April 1999

Document **NP-99131**

Source: ETSI STC SMG1

Title: GSM data streamlining

Document for: Decision

Attention: Agenda item 5

CN is invited to endorse these CRs to be passed to SMG#29 for approval.

CHANGE REQUEST No : <input style="width: 50px;" type="text"/>		<i>Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.</i>
Technical Specification GSM / UMTS: <input style="width: 50px;" type="text" value="02.02"/>		Version <input style="width: 50px;" type="text" value="5.4.0"/>
Submitted to SMG <input style="width: 40px;" type="text"/>	for approval <input style="width: 40px;" type="text"/>	without presentation ("non-strategic") <input style="width: 40px;" type="text"/>
<i>list plenary meeting or STC here ↑</i>	for information <input style="width: 40px;" type="text"/>	with presentation ("strategic") <input style="width: 40px;" type="text"/>
<i>PT SMG CR cover form. Filename: crf26_3.doc</i>		

Proposed change affects: SIM ME Network
(at least one should be marked with an X)

Work item:

Source: **Date:**

Subject:

Category:	F Correction <input style="width: 30px;" type="checkbox"/>	Release:	Phase 2 <input style="width: 30px;" type="checkbox"/>
<i>(one category and one release only shall be marked with an X)</i>	A Corresponds to a correction in an earlier release <input type="checkbox"/>		Release 96 <input type="checkbox"/>
	B Addition of feature <input type="checkbox"/>		Release 97 <input type="checkbox"/>
	C Functional modification of feature <input checked="" type="checkbox"/>		Release 98 <input type="checkbox"/>
	D Editorial modification <input type="checkbox"/>		Release 99 <input checked="" type="checkbox"/>
			UMTS <input type="checkbox"/>

Reason for change:

Clauses affected:

Other specs affected:	Other releases of same spec <input type="checkbox"/>	→ List of CRs:	<input style="width: 100%;" type="text"/>
	Other core specifications <input checked="" type="checkbox"/>	→ List of CRs:	<input style="width: 100%;" type="text" value="02.01, 02,04"/>
	MS test specifications / TBRs <input type="checkbox"/>	→ List of CRs:	<input style="width: 100%;" type="text"/>
	BSS test specifications <input type="checkbox"/>	→ List of CRs:	<input style="width: 100%;" type="text"/>
	O&M specifications <input type="checkbox"/>	→ List of CRs:	<input style="width: 100%;" type="text"/>

Other comments:

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

2 Bearer Service categories

All Bearer Service categories provide information transfer between R/S reference points and allow the use of sub-rate information streams which are rate-adapted.

The Bearer Services can be grouped into the following categories:

- Unrestricted Digital Information (UDI);
Provides the transfer of unrestricted digital information.
- 3,1 kHz (External to the PLMN);
Used to select a "3,1 kHz audio" interworking function at the MSC. This service category is used when interworking with the ISDN or PSTN "3,1 kHz audio" service and includes the capability to select a modem at the interworking function. "External to the PLMN" indicates that the "3,1 kHz audio" service is only used outside of the PLMN, in the ISDN/PSTN. The connection within the PLMN, user access point to the interworking function, is an unrestricted digital connection.
- PAD;
Provides an asynchronous connection to a PAD. This enables PLMN subscribers to access a packet network (PSPDN/ISDN). See GSM 09.05 [13] for service and interworking specifications.

Note: From release 99 onwards only Basic PAD access is supported.

- Packet;
Provides a synchronous connection that enables PLMN subscribers to access a packet network (PSPDN/ISDN). See GSM 09.06 [14] for service and interworking specifications.

Note: From release 99 onwards only Basic Packet access is supported.

~~Alternate Speech/Data;~~

~~Provides the capability to swap between speech and data during a call.~~

~~If either the speech or data portion of the call requires a full rate channel, a full rate channel shall be used for the duration of the call.~~

~~If the data portion of the call requires multiple full rate channels, the speech portion uses a single full rate channel.~~

~~The access interface at the mobile station for the data portion is assumed to be a standard data interface. Some means must be provided to select the speech/data capability.~~

~~Speech followed by Data;~~

~~Provides a speech connection first and then at some time while the call is in progress, the user can switch to a data connection. The user cannot switch back to speech after the data portion.~~

~~If either the speech or data portion of the call requires a full rate channel, a full rate channel shall be used from the start of the call. The network may then change to a half rate channel for the data portion.~~

~~If the data portion of the call requires multiple full rate channels, a single full rate channel shall be used from the start of the call.~~

- General Packet Radio Service (GPRS);
GPRS provides Internet (IP) and X.25 interworking with external networks. See GSM 02.60.

3 Bearer Services

This clause provides a list of the existing GSM Bearer Services and indicates the values for each attribute in the minimal set.

The following attributes have the same value for all GSM Bearer Services. Their values are as follows:

- Information Transfer Mode: "Circuit" (note 1);
- Information Transfer Rate: Not applicable (note 2);
- Establishment of Communication: "Demand";
- Symmetry: "Bi-directional Symmetric" (note 3);
- Communication Configuration: "Point to point".

NOTE 1: GPRS (BS 70) requires "packet" information transfer mode.

NOTE 2: The Information Transfer Rate attribute is not applicable because it depends on the reference point assumed in the GSM PLMN, transit or terminating network.

NOTE 3: ~~Asynchronous services using 1 200/75 bps.~~ and GPRS (BS 70) require a value of "Bi-directional Asymmetric".

All GSM asynchronous NT Bearer Services may support data compression to enhance user data throughput.

GSM NT Bearer Services 20x and 30x may support V.120 interworking, enabling data terminals connected to an MS to interwork with V.120 [18] terminal adapters on the ISDN as shown in the figure 2 below.

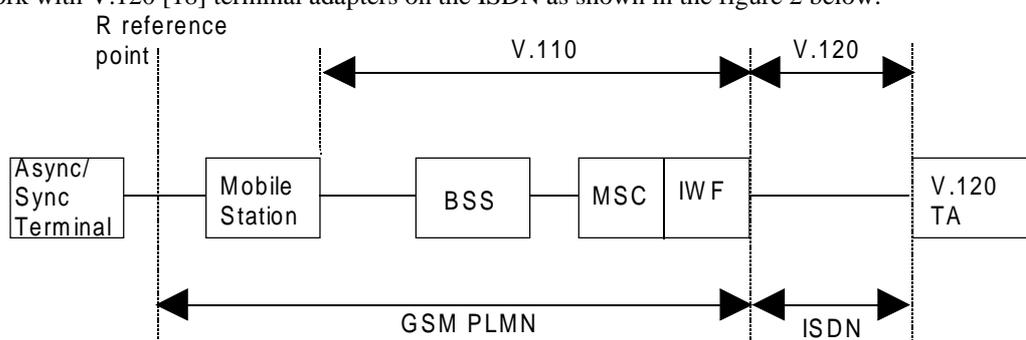


Figure 2: Model of GSM V.120 Interworking

Table 2 contains the list of the Bearer Services and the values for the remaining attributes in the minimal set.

Table 2

Bearer Service Number	Bearer Service Name	Access Structure	Access Rate	Information Transfer Capability	QOS Attribute	Notes
20	Asynchronous General Bearer Service	Asynch	note 17	note 17	note 17	See note 16
21	Asynchronous 300 bps	Asynch	300 bps	UDI or 3.1kHz	T or NT	
22	Asynchronous 1.2 kbps	Asynch	1.2 kbps	UDI or 3.1kHz	T or NT	
23	Asynchronous 1200/75 bps	Asynch	1200/75 bps	UDI or 3.1kHz	T or NT	See note 4
24	Asynchronous 2.4 kbps	Asynch	2.4 kbps	UDI or 3.1kHz	T or NT	
25	Asynchronous 4.8 kbps	Asynch	4.8 kbps	UDI or 3.1kHz	T or NT	
26	Asynchronous 9.6 kbps	Asynch	9.6 kbps	UDI or 3.1kHz	T or NT	
30	Synchronous General Bearer Service	Synch	note 27	note 27	note 27	See notes 1 and 6
31	Synchronous 1.2 kbps	Synch	1.2 kbps	UDI or 3.1kHz	T	
32	Synchronous 2.4 kbps	Synch	2.4 kbps	UDI or 3.1kHz	T or NT	See note 1
33	Synchronous 4.8 kbps	Synch	4.8 kbps	UDI or 3.1kHz	T or NT	See note 1
34	Synchronous 9.6 kbps	Synch	9.6 kbps	UDI or 3.1kHz	T or NT	See note 1
40	General PAD Access Bearer Service	Asynch	note 7	note 7	note 7	See notes 2, 4, 5 and 6
41	PAD Access 300 bps	Asynch	300 bps	UDI	T or NT	See note 2 See note 5
42	PAD Access 1.2 kbps	Asynch	1.2 kbps	UDI	T or NT	See note 2 See note 5
43	PAD Access 1200/75 bps	Asynch	1200/75 bps	UDI	T or NT	See note 2 See note 4 See note 5
44	PAD Access 2.4 kbps	Asynch	2.4 kbps	UDI	T or NT	See note 2 See note 5
45	PAD Access 4.8 kbps	Asynch	4.8 kbps	UDI	T or NT	See note 2 See note 5
46	PAD Access 9.6 kbps	Asynch	9.6 kbps	UDI	T or NT	See note 2 See note 5
50	General Packet Access Bearer Service	Synch	note 7	note 7	note 7	See notes 5 and 6
51	Packet Access 2.4 kbps	Synch	2.4 kbps	UDI	NT	See note 5
52	Packet Access 4.8 kbps	Synch	4.8 kbps	UDI	NT	See note 5
53	Packet Access 9.6 kbps	Synch	9.6 kbps	UDI	NT	See note 5
61	Alternate Speech/Data					See note 3
70	GPRS	Asynch	Variable	UDI	T or NT	
81	Speech Followed by Data					See note 3

- NOTE 1: ~~The non-transparent versions of Bearer Services 32, 33 and 34 are only specified for the Basic Packet service, defined in GSM 09.06 [14].~~
- NOTE 2: ~~Although the general information transfer capability is UDI, the information transfer capability on the network specific interface between the IWF and the PAD may be UDI or 3,1 kHz and is the choice of the network operator.~~
- NOTE 3: ~~The data phase of Bearer Services 61 and 81 will be the same as Bearer Services 20–34 with 3,1 kHz Information Transfer Capability.~~
- NOTE 4: ~~Bearer Service 23 and 43 are applicable to Mobile Originated (MO) calls only. The 75 bps is used in the uplink and the 1200 bps is used in the downlink.~~
- NOTE 5: ~~This Bearer Service is applicable to Mobile Originated (MO) calls only.~~
- NOTE 16: This General Bearer is independent of any nominal rate. It is elaborated in more detail in subclause 3.1
- NOTE 27: Please refer to subclause 3.1.

3.1 General bearer service user data characteristics

The tables below describe the characteristics of the General Bearer Services. The indicated fixed network user rates are possible, but support of General Bearer Service does not imply support of all rates.

3.1.1 3,1 kHz Audio

Fixed Network User Rate	Access Structure	Information Transfer Capability	QoS attributes	Note
0.3 kbit/s	Asynch	3,1 kHz	NT or T	note 2
1.2 kbit/s	Asynch, Synch	3,1 kHz	NT or T	notes 1 and 2
1.2/0.075 kbit/s	Asynch	3,1 kHz	NT or T	note 2
2.4 kbit/s	Asynch, Synch	3,1 kHz	NT or T	note 2
4.8 kbit/s	Asynch, Synch	3,1 kHz	NT or T	note 2
9.6 kbit/s	Asynch, Synch	3,1 kHz	NT or T	note 2
14.4 kbit/s	Asynch, Synch	3,1 kHz	NT or T	
19.2 kbit/s	Asynch, Synch	3,1 kHz	NT or T	
28.8 kbit/s	Asynch, Synch	3,1 kHz	NT or T	
=	<u>Asynch</u>	<u>3,1 kHz</u>	<u>NT</u>	<u>Note 3</u>

NOTE 1: Not applicable to synchronous NT service.

NOTE 2: These services are also supported by the GSM Phase 2 Specifications.

NOTE 3: This is used with high speed modems such as V.90 (56kbit/s). Modem type = 'Autobauding Type 1' is selected. FNUR has no meaning in this case.

3.1.2 V.110 UDI

Fixed Network User Rate	Access Structure	User Information Layer 1 protocol	QoS Attribute	Notes
0.3 kbit/s	Asynch	V.110	NT or T	note 2
1.2 kbit/s	Asynch, Synch	V.110	NT or T	note 1 note 2
2.4 kbit/s	Asynch, Synch	V.110	NT or T	note 2
4.8 kbit/s	Asynch, Synch	V.110	NT or T	note 2
9.6 kbit/s	Asynch, Synch	V.110	NT or T	note 2
14.4 kbit/s	Asynch, Synch	V.110	NT or T	
19.2 kbit/s	Asynch, Synch	V.110	NT or T	
28.8 kbit/s	Asynch, Synch	V.110	NT or T	
38.4 kbit/s	Asynch, Synch	V.110	NT or T	
48 kbit/s	Synch	V.110	T	
56 kbit/s	Synch	V.110	T (in a 64 kbit/s environment)	

NOTE 1: Not applicable to synchronous NT service.

NOTE 2: These services are also supported by the GSM Phase 2 Specifications.

3.1.3 X.31 Flag Stuffing UDI Not used

Fixed Network User Rate	Access Structure	User Information Layer 1 protocol	QoS Attribute	Notes
2.4 kbit/s	Synch	X.31 Flag Stuffing	NT	note 1
4.8 kbit/s	Synch	X.31 Flag Stuffing	NT	note 1
9.6 kbit/s	Synch	X.31 Flag Stuffing	NT	note 1
14.4 kbit/s	Synch	X.31 Flag Stuffing	NT	
19.2 kbit/s	Synch	X.31 Flag Stuffing	NT	
28.8 kbit/s	Synch	X.31 Flag Stuffing	NT	
38.4 kbit/s	Synch	X.31 Flag Stuffing	NT	
48 kbit/s	Synch	X.31 Flag Stuffing	NT	
56 kbit/s	Synch	X.31 Flag Stuffing	NT	

NOTE 1: — These services are also supported by the GSM Phase 2 Specifications.

3.1.4 V.120

Fixed Network User Rate	Access Structure	User Information Layer 1 protocol	QoS Attribute	Notes
1.2 kbit/s	Asynch	V.120	NT	
2.4 kbit/s	Asynch, Synch	V.120	NT	
4.8 kbit/s	Asynch, Synch	V.120	NT	
9.6 kbit/s	Asynch, Synch	V.120	NT	
14.4 kbit/s	Asynch, Synch	V.120	NT	
19.2 kbit/s	Asynch, Synch	V.120	NT	
28.8 kbit/s	Asynch, Synch	V.120	NT	note 1
38.4 kbit/s	Asynch, Synch	V.120	NT	
48 kbit/s	Asynch, Synch	V.120	NT	
56 kbit/s	Asynch, Synch	V.120	NT	note 2

NOTE 1: Requires a new code point in V.120 specification to be defined.

NOTE 2: Not applicable in a 56 kbit/s environment.

3.1.5 Bit Transparent Mode

Fixed Network User Rate	Access Structure	User Information Layer 1 protocol	QoS Attribute	Notes
56 kbit/s	Synch	Bit transparent	T (RDI) (in a 56 kbit/s environment)	
64 kbit/s	Synch	Bit transparent	T (UDI) (in a 64 kbit/s environment)	