3GPP TSG CN Plenary Meeting #20 4th - 6th June 2003. HÄMEENLINNA, Finland.

Source: TSG CN WG3

Title: CRs on pre-Rel-5 Work Item TEI.

Agenda item: 7.11

Document for: APPROVAL

Introduction:

This document contains **15** CRs on **pre-Rel-5 Work Item TEI**, including the corresponding mirror CRs (as required).

These CRs have been agreed by TSG CN WG3 and are forwarded to TSG CN Plenary for approval.

WG_tdoc	Title	Spec	CR	Rev	Cat	Rel	C_Ver
N3-030288	Determination of the RLP version by the signalled Bearer capability IE	24.022	009		F	R99	3.4.0
N3-030289	Determination of the RLP version by the signalled Bearer capability IE	24.022	010		А	Rel-4	4.0.0
N3-030290	Determination of the RLP version by the signalled Bearer capability IE	24.022	011		А	Rel-5	5.2.0
N3-030257	Negotiation of fixed network user rate (FNUR)	27.001	086		F	R99	3.b.0
N3-030258	Negotiation of fixed network user rate (FNUR)	27.001	087		Α	Rel-4	4.9.0
N3-030259	Negotiation of fixed network user rate (FNUR)	27.001	088		Α	Rel-5	5.5.0
N3-030260	Negotiation of fixed network user rate (FNUR)	29.007	068		F	R99	3.b.0
N3-030261	Negotiation of fixed network user rate (FNUR)	29.007	069		Α	Rel-4	4.7.0
N3-030262	Negotiation of fixed network user rate (FNUR)	29.007	070		Α	Rel-5	5.5.0
N3-030399	Use of single or multislot configuration	27.001	097		F	R99	3.b.0
N3-030433	Use of single or multislot configuration	27.001	098	1	Α	Rel-4	4.9.0
N3-030434	Use of single or multislot configuration	27.001	099	1	Α	Rel-5	5.5.0
N3-030383	Use of single or multislot configurations	29.007	076		F	R99	3.b.0
N3-030384	Use of single or multislot configurations	29.007	077		Α	Rel-4	4.7.0
N3-030385	Use of single or multislot configurations	29.007	071	1	Α	Rel-5	5.5.0

Sali Diego, OSA	19 – 23 Iviay 2003.	
	CHANGE REQUEST	rm-v7
*	27.001 CR 086	
For <u>HELP</u> on us	sing this form, see bottom of this page or look at the pop-up text over the 🕊 symbols	
Proposed change a	ME X Radio Access Network Core Network	Χ
,		
	AL CONTRACTOR (FAILED)	
Title: %	Negotiation of fixed network user rate (FNUR)	
Source: #	TSG_CN WG3 [Nokia]	
Work item code: 第	TEI Date: # 23/05/2003	
Category: 第	Release: # R99	
	Use <u>one</u> of the following categories: Use <u>one</u> of the following releases: F (correction) Use <u>one</u> of the following releases: 2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release) R96 (Release 1996)	
	B (addition of feature),R97 (Release 1997)C (functional modification of feature)R98 (Release 1998)	
	D (editorial modification) R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900. Rel-4 (Release 4) Rel-5 (Release 5)	
	Rel-6 (Release 6)	
Reason for change)-
	operation only". TS 23.034 (HSCSD stage 2 description) defines the HSCSD	
	being related to a multislot configuration, which leads to limiting the FNUR negotiation only to the multislot configuration, precluding the single channel 14	4.4
	kbit/s and EDGE cases.	
	29.007 allows the FNUR negotiation for "multislot, 14.4 kbit/s or EDGE	
	operations".	
	Both 27.001 and 29.007 fail to cover the UMTS / Iu Mode in their setup	
	negotiation description without any reasoning. (This is probably due to historic reasons: The negotiation procedure was defined for high speed CS data years	
	before UMTS / Iu Mode was introduced in the specifications).	5
Summary of chang	e: % A limiting sentence is removed from B.1.1.2.	
	•	
Consequences if not approved:	# A collision between 27.001 and 29.007. FNUR negotiation not possible with UMTS / Iu Mode.	
Clauses affected:	₩ B.1.1.2	
Clauses affected:	% B.1.1.2	
Other	Y N	
Other specs affected:	X Other core specificationsX Test specifications29.007	
	X O&M Specifications	
Other comments:	ep	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

B.1.1.2 Interpretation of the Diagrams

The purpose of the subsequent diagrams is to achieve unambiguous representation of the individual contents of the PLMN BC-IE for the various occurrences during the call set-up phase, covering all bearer services and teleservices according to 3GPP TS 22.002 and 3GPP TS 22.003.

The basic principle adopted is a graphic scheme, or mask, wherein the ordinate designates the individual parameters of the PLMN BC-IE and the abscissa gives the possible field values of these parameters. The abbreviations used in these sections are defined in table B.5. The allowed content of any PLMN BC-IE is represented by a number of graphs connecting parameter values (abscissa points) of all parameters (ordinate points). Each graphic scheme is subdivided into two independent parts:

- "Layer/Protocol related" part; and
- "Radio Channel related" part.

The generation of all PLMN BC-IEs in all call set-up messages shall be in accordance with these graphs. Subclauses B.1.2 through B.1.11 show individual sets of graphs for each service group (BS/TS) and for each type of applicable Information Transfer Capability.

In addition, the following rules apply:

- Those parameters which have only one possible field value for all recognized services are shown in table B.5, where they are marked accordingly in the column "common setting of field values". They are not represented in the graphic scheme.
- Not all parameters of the PLMN BC-IE are relevant for each service (BS/TS). This is represented by specific abscissa points with a value of "NA" (Not Applicable) allocated to these parameters. The graphs pass through these points for each such parameter. The actual field value to be used in the PLMN BC-IE is marked in the column "default setting of field values (NA)" of table B.5. An abscissa point with a value of "NAV" (Not AVailable) indicates that the entire octet carrying this parameter (ref. table B.2 "General Structure of the PLMN BC-Information Element") shall be omitted.
- Unless FTM is applied, there is a particular dependency of the parameters "User Information Layer 2 Protocol (UIL2P)" and "Connection Element (CE)":
 - If the MS sends a PLMN BC-IE with a CE value other than "Transparent (T)", the parameter UIL2P is essential. Its field value must be set as indicated in the applicable graph.
 - If the MSC sends a PLMN BC-IE in the SETUP message, the parameter UIL2P may also be absent in the case of the CE parameter value being other than "Transparent (T)".
- In case FTM is applied, the PLMN BC-IE shows a CE value "non-transparent", SA value "asynchronous", and RA value X.31 flag stuffing. The UIL2P is not available.
- Certain parameters of the PLMN BC-IE may be negotiated during the connection establishment phase. Table B.1 shows these parameters and the relations of their values in the SETUP message and in the CALL CONFIRMED/CALL PROCEEDING message, respectively, both for the mobile-originated and mobile-terminated case. A parameter may indicate a field value of one of the following types:
 - "requested value" indicating a request which cannot be changed by the responding entity;
 - "offered value" indicating a proposal which may be changed by the responding entity;
 - a particular choice value leaving it up to the responding entity which value ultimately applies;
 - "as requested" indicating that the requested value applies and is confirmed (by returning it);
 - "selected value" indicating that a particular value applies either out of the offered set or as a free choice out of the defined set of values;
 - "supported value" indicating a value supported by the responding entity.

Table B.1: BC-Parameters subject to negotiation procedure

Mobile Originated Call:

	Message	
BC-parameter	SETUP	CALL PROC
NDB	Requested value	as requested
NPB	Requested value	as requested
NSB	Requested value	as requested
CE	Requested value (T/NT)	as requested
	"both" with the preferred value indicated	selected value (T/NT)
	(e.g. both NT)	
UIL2P	Requested value 9 or NAV 1)	as requested or NAV 4)
User Rate	Requested value	as requested
DC	Requested value 2)	as requested or "NO" (1)
FNUR	Requested value	supported value
Other MT	Requested value	supported value
UIMI	Requested value	supported value

	Message		
BC-parameter	SETUP	CALL CONF	
NDB	Offered value	selected value (free choice)	
NPB	offered value	selected value (free choice)	
NSB	offered value	selected value (free choice)	
CE	requested value (T/NT)	as requested or selected value (T/NT) (free choice) 3)	
	"both" with the preferred value indicated (e.g. both NT)	selected value (T/NT)	
Sync/ Asynchronous	requested value	as requested or selected value 10)	
Rate adaptation/Other rate adaptation	requested value	as requested or selected value ¹¹⁾	
UIL2P	offered value 2) or NAV 4)	selected or NAV 1)	
User Rate	offered value	selected value 5)	
DC	requested value ²⁾	as requested or "NO" 7)	
FNUR	offered value	selected value 6)	
Other MT	offered value	selected value 6)	
UIMI	offered value	selected value 8)	

- 1) For CE:T only, out-band flow control, or RA:X.31 flag stuffing requested by the MS.
- 2) Not for CE:T.
- 3) When the SETUP message contains no BC-IE (single numbering scheme).
- 4) "NAV" shall not be interpreted as an out-band flow control request by the MS.
- 5) The modification of User Rate must be in conjunction with Modem Type and Intermediate Rate.
- The modification of the Fixed Network User Rate shall be in conjunction with the Modem Type and/or Other Modem Type.
- 7) In case of a Mobile Terminated Call, if the SETUP message does not contain a BC-IE, the MS shall behave as if the DC is set to "data compression not possible".
 - In case of a MO CALL or a MT CALL where no BC-IE is included in the CALL PROCEEDING or CALL CONFIRMED message, respectively, the MS or the network shall behave as if the DC was set to "data compression not possible" or "data compression not allowed", respectively.
- 8) Less or equal to the offered value.
- 9) Not for CT:T or FTM (i.e., CE:NT, SA:A, RA:X.31 flag stuffing).
- 10) For FTM and PIAFS, this parameter may be negotiated. See Table B.4e for details.
- 11) For FTM, PIAFS and Multimedia, this parameter may be negotiated. See Table B.4f for details.

Table B.2: General Structure of the BC-Information Element

OCTET	INFORMATION ELEMENT FIELD
3	Radio channel requirements
	Coding standard
	Transfer mode
	Information Transfer Capability
4	Structure 2)
	Duplex mode
	Configuration
	Establishment
	Negotiation of Intermediate Rate Requested
	Compression
5	Rate adaption 2)
	Signalling access protocol
5a	Other ITC 2) 7)
	Other rate adaption
5b	Rate adaption header / no header 2) 3)
	Multiple frame establishment support in data link
	Mode of operation
	Logical link identifier negotiation
	Assignor / assignee
	In-band / out-band negotiation
6	User information layer 1 protocol 2)
	Synchronous / asynchronous
6a	Number of stop bits 2)
	Negotiation
	Number of data bits
01	User rate Untermediate rate 2)
6b	intermediate rate
	NIC on transmission
	NIC on reception Parity information
60	Connection element 2)
6c	Modem type
6d	Fixed network user rate 4)
ou	Other modem type
60	Maximum number of traffic channels 4)
6e	Maximum number of traine charmole
6f	Acceptable channel codings Wanted air interface user rate 4)
OI	User initiated modification indication
60	Acceptable Channel codings 5)
6g	Asymmetry preference indication 6)
7	User information layer 2 protocol
<u>'</u>	Oser information layer 2 protocol
	ets optional. ets only available if the parameter "Information Transfer Capability" does not indicate
	ees only available if the parameter information transfer capability does not indicate eech".
	V.120 rate adaption only.
4) Opt	ional octets available only if the parameter "Information Transfer Capability" does not indicate
	eech".
	eech . ension of the 'Acceptable channel codings' field in octet 6e in case EDGE channel codings
	supported.
	y used if EDGE channels are among the 'Acceptable channel codings'. The value shall be set
	no preference' in case the connection element is T.
	ITC=RDI or UIL1P=V.120, PIAFS, and 'H.223 and H.245' only.
1) 101	110-1101 01 01E11 - V.120, 1 IAI 0, and 11.223 and 11.240 only.

for these modem types.

Table B.3a: Selection of flow control method (for CE:NT with SA:A only)

	flow control m	ethod	
information element	in-band	out-band (3)	none
number of data bits	7 or 8	7 or 8	7 or 8
user information layer 2 protocol	ISO 6429 (1)	NAV	COPnoFICt (2)
1) ISO6429 stands for "ISO 6			
If the V.42 functionality is a supported with a fallback temporary throughput prob to flow control the fixed ne Note that a phase 1 netwo	illuires V.42 in case of PS echanism is not support not supported by the moot the non-V.42 mode. In plems on the radio interfetwork modem an overflork may release the call,	STN or V.110 in case of IS ed, where required, the cadem in the IWF or in the finite this case the IWF will release or initiation of flow corow of the L2R buffers occur if the V.42 functionality is	DN. Ill pending shall be terminated axed network, the call will be ease the call if due to attempt the MS and the inability

Table B.3b: Selection of PLMN Profile (for CE:NT with SA:S only)

Mobile Terminated Call:

BC-parameter	Message SETUP	Message CALL CONF
UIL2P	X.25	X.25 or X.75

Table B.4a: Modem Type subject to negotiation procedure

Mobile Originated Call:

	BC-parameter MT and OMT ⁶)			
BC-parameter CE	Message SETUP	Message CALL PROC		
Т	V-series	V-series		
NT	V-series	V-series		
	autobauding type 1	autobauding type 1 or V-series 1)		
bothT or bothNT	V-series	V-series		
	autobauding type 1	autobauding type 1 or V-series 1)2)		

Mobile Terminated Call:

	BC-paramet	er MT and OMT ⁶⁾
BC-parameter CE	Message SETUP	Message CALL CONF
T	V-series	V-series
NT	V-series	V-series or autobauding type 13)
	autobauding type 1	autobauding type 1 or V-series ⁴⁾
bothT or bothNT	V-series	V-series
	autobauding type 1	autobauding type 1 or V-series ⁴⁾⁵⁾

- 1) No autobauding capability in the IWF:MSC.
- 2) CE:T selected by IWF/MSC.
- 3) Free choice if the SETUP contains no BC-IE (single numbering scheme). If the IWF/MSC has no autobauding capability, a V-series modem type is used.
- 4) When the MS does not allow the use of autobauding capability.
- 5) CE:T selected by the MS.
- When the MT indicates "autobauding", "modem for undefined interface" or "none", the OMT shall be set to "no other modem type". Any other values of the MT is overridden by the OMT value.

Table B.4b: Intermediate Rate negotiation procedure

If the user rate is 9.6 kbit/s the intermediate rate negotiation procedure is not applicable and NIRR shall be set to "No meaning".

Recipient of SETUP supports full rate, non transparent, 6 kbit/s radio interface rate and the user rate is up to/equal 4.8 kbit/s:

BC-parameter	Message SETUP	Message CALL CONF or CALL PROC
NIRR	6 kbit/s	6 kbit/s
IR	16 kbit/s	8 kbit/s
User Rate	up to/equal 4,8 kbit/s	as requested

NOTE 1: In case of a Mobile Terminated Call, if the SETUP message does not contain a BC-IE, the MS shall behave as if NIRR set to "No meaning".

In case of a MO CALL or a MT CALL where no BC-IE is included in the CALL PROCEEDING or CALL CONFIRMED message, respectively, the MS or the network shall behave as if the NIRR was set to "No meaning".

Recipient of SETUP does support full rate, non transparent, but not in connection with 6 kbit/s radio interface rate:

BC-parameter	Message SETUP	Message CALL CONF or CALL PROC
NIRR	6 kbit/s	No meaning
IR	16 kbit/s	16 kbit/s
User Rate	up to/equal 4,8 kbit/s	as requested

NOTE 2: If no other parameter needs negotiation, the CALL CONF/PROC message need not contain any BC-IE.

In case of a MO CALL or a MT CALL where no BC-IE is included in the CALL PROCEEDING or CALL CONFIRMED message, respectively, the MS or the network shall behave as if the NIRR was set to "No meaning".

NOTE 3: In case a GBS-operation is requested and acknowledged, the MS indicates the acceptable channel codings. The indicated acceptance of TCH/F4.8 is equivalent to the support of 6 kbit/s radio interface rate per TCH/F and therefore overrides the NIRR parameter.

Table B.4c Negotiation of fixed network user rate

BC-parameter	Message SETUP	Message CALL PROC/CONFIRMED
FNUR	requested value	equal or lower than the requested value

The network might accept the modified value or reject the call. The FNUR negotiation is applicable in case of a HSCSD-operation, only.

Table B.4d Negotiation of user initiated modification indication

BC-parameter	Message SETUP	Message CALL PROC/CONFIRMED
UIMI	offered value	equal to or a value indicating a request for modification to a lower number of traffic
		channels than offered

Table B.4e: Negotiation of Synchronous/Asynchronous

	BC-parameter Synchronous/Asynchronous				
Bearer type	Message SETUP	Message CALL CONF			
FTM ¹⁾	Synchronous	Asynchronous			
PIAFS ²⁾	Synchronous Asynchronous				

- This negotiation is possible, only if ITC=UDI or RDI, FNUR=64 or 56 kbit/sand CE=NT or "both" is signalled in the SETUP message. The MS shall signal FTM as specified in B.1.2.3.
- This negotiation is possible, only if ITC=UDI, FNUR=32 kbit/s and CE= "both" is signalled in the SETUP message. The UE shall signal PIAFS as specified in B.1.2.4

Table B.4f: Negotiation of Rate adaptation/Other rate adaptation

	BC-parameter Rate adaptation/Other rate adaptation				
Bearer type	Message SETUP	Message CALL CONF			
FTM ¹⁾	V.110, I.460 and X.30	X.31 flag stuffing			
PIAFS ²⁾	V.110, I.460 and X.30	PIAFS			
Multimedia	V.110, I.460 and X.30 ³⁾	H.223 and H.245			
	No rate adaptation ^{5) 6)}	H.223 and H.245			

- This negotiation is possible, only if ITC=UDI or RDI, FNUR=64 or 56 kbit/s and CE=NT or "both" is signalled in the SETUP message. The MS shall signal FTM as specified in B.1.2.3.
- This negotiation is possible, only if ITC=UDI, FNUR=32 kbit/s and CE= "both" is signalled in the SETUP message. The UE shall signal PIAFS as specified in B.1.2.4.
- This negotiation is possible, only if ITC=UDI or RDI, FNUR=32 or 56 kbit/s and CE=T or "both" is signalled in the SETUP message. The MS shall signal 3G-H.324/M as specified in B.1.3.1.3, B.1.3.1.4 and B.1.3.1.6.
- 4) Void.
- This negotiation is possible, if ITC=3,1 kHz, FNUR=28.8 kbit/s, MT=V.34 and CE=T or "both" is signalled in the SETUP message. The MS shall signal 3G-H.324/M as specified in B.1.3.2.3.
- This negotiation is possible, if ITC=UDI or RDI, FNUR=64 or 56 kbit/s and CE=T is signalled in the SETUP message. The MS shall signal 3G-H.324/M as specified in B.1.3.1.3, B.1.3.1.4, and B.1.3.1.5

Table B.5: BC parameter setting (part 1)

	common setting of field values		
Abbreviations for Parameters and Values			1
	default setting of field values (NA)		
ITCInformation Transfer Capability:	SpeechUDIUnrestricted DigitalFAX3Group 3 Facsimile3,1 kHz3,1 kHz Ex PLMNRDIRestricted Digital	V	V
TMTransfer Mode:	- ciCircuit	Х	Х
SStructure:	SDUService Data Unit IntegrityUnstructured	X	
CConfiguration:	- ppPoint to point	X	Х
EEstablishment:	- deDemand	X	Х
SASync/Async:	- SSynchronous - AAsynchronous		
NNegotiation	- ibnin band negotiation not possible	X	Х
URUser Rate:	- 0.30.3 kbit/s - 1.21.2 kbit/s - 2.42.4 kbit/s - 4.84.8 kbit/s - 9.69.6 kbit/s	X	
IRIntermediate Rate:	- 8 8 kbit/s - 16 16 kbit/s	X	
NICTNetwork Independent Clock on Tx:	not_required Not requiredrequired	X	Х
NICRNetwork Independent Clock on Rx:	not_acceptednot acceptedaccepted	X	Х
NSBNumber of Stop Bits:	- 11 bit - 22 bit	X	
NDBNumber of Data Bits Excluding Parity If Present:	- 7 7 bit - 8 8 bit	x	
NPBParity Information:	- Odd - Even - None - 0 Forced to 0 - 1 Forced to 1	x	
UIL1P.User Information Layer 1 Protocol	- defdefault layer 1 protocol	Х	Х

Table B.5: BC parameter setting (part 2)

	common setting of field values		
Abbreviations for Parameters and Values	default setting of field values (NA)		
DMDuplex Mode:	- - fd Full Duplex	v x	V X
MTModem Type:	 - V.21 - V.22 - V.22 bis - V.26 ter - V.32 - auto1 autobauding type 1 - none 	X	
RCRRadio Channel Requirement:	 FR Full Rate support only Mobile Station dual HR Dual Rate support Mobile Station/ Half Rate preferred dual FR Dual Rate support Mobile Station/ Full Rate preferred 		
CEConnection Element:	T TransparentNT Non TransparentbothT both transparent preferredbothNT both non Transparent preferred		
UIL2P.User Information Layer 2 Protocol:	 ISO6429ISO6429,codeset 0,DC1/DC3 X.25 X.75X.75 layer 2 modified (CAPI) COPnoFICtCharacter oriented protocol with no flow control mechanism 		
SAPSignalling Access Protocol:	- I.440 I.440/450 - X.32	Х	
RARate Adaptation:	 V.110 V.110/X.30 X.31Flag X.31 flagstuffing NO no rate adaptation V.120 PIAFS H.223 and H.245 	х	
CSCoding Standard:	- GSM	Х	Х
NIRRNegotiation of Intermediate Rate Requested:	NMNo Meaning associated with this value 6kbit/s6kbit/s radio interface rate requested	X	
DCData Compression	- DC compression possible/allowed - NO compression not possible/allowed	X	

Table B.5: BC parameter setting (part 3)

breviations for Parameters and Values		
providence for a diameters and values	default setting of field values (NA)	
		☐ Ÿ
IURFixed Network User Rate	- FNUR not applicable	
	- 9.6 9.6 kbit/s	
	- 14.4. 14.4 kbit/s	
	- 19.2. 19.2 kbit/s	
	- 28.8. 28.8 kbit/s	
	- 32.0. 32.0 kbit/s - 33.6. 33.6 kbit/s	
	- 38.4 38.4 kbit/s	
	- 48.0 48.0 kbit/s	
	- 56.0 56.0 kbit/s	
	- 64.0 64.0 kbit/s	
	- 04.0 04.0 KDIVS	
AIURWanted Air Interface User Rate	- WAIUR not applicable	Х
	- 9.6 9.6 kbit/s	
	- 14.4 14.4 kbit/s	
	- 19.2. 19.2 kbit/s	
	- 28.8. 28.8 kbit/s	
	- 38.4. 38.4 kbit/s	
	- 43.2. 43.2 kbit/s	
	- 57.6 57.6 kbit/s - int 38.4 interpreted by the network as 38.4 kbit/s	
	- IIII 36.4 IIIIeipieled by the network as 36.4 kbits	
CCAcceptable channel codings	- 4.8 TCH/F4.8 acceptable	
	- 9.6 TCH/F9.6 acceptable	
	- 14.4TCH/F14.4 acceptable	
	- 28.8TCH/F28.8 acceptable	
	- 32.0TCH/F32.0 acceptable	
	- 43.2TCH/F43.2 acceptable	
	 noneNo channel coding (defined by selecting none of the above 	
whim TCH Maximum Number of Troffic	Channela	
axNumTCHMaximum Number of Traffic	c Channels - 1 1 TCH	
axNumTCHMaximum Number of Traffic		
axNumTCHMaximum Number of Traffic	- 1 1 TCH	
axNumTCHMaximum Number of Traffic	- 1 1 TCH - 2 2 TCH	
axNumTCHMaximum Number of Traffic	- 1 1 TCH - 2 2 TCH - 3 3 TCH	
axNumTCHMaximum Number of Traffic	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH	
axNumTCHMaximum Number of Traffic	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH	
axNumTCHMaximum Number of Traffic	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH	
	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH	
axNumTCHMaximum Number of Traffic	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH	
	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34	X
/ITOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required	X
/ITOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto	X
MTOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested	X
MTOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto	X
MTOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto 2 TCH may be requested	X
MTOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto 2 TCH may be requested - upto 3 TCH user initiated modification upto	X
MTOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto	X
/ITOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto 2 TCH may be requested - upto 3 TCH user initiated modification upto	X
TOther modem type er initiated modification indication	 - 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto 2 TCH may be requested - upto 3 TCH user initiated modification upto 3 TCH may be requested - upto 4 TCH user initiated modification upto 4 TCH may be requested 	X
ITOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto 2 TCH may be requested - upto 3 TCH user initiated modification upto 3 TCH may be requested - upto 4 TCH user initiated modification upto	X

Table B.5a: Differences in parameter value validity in GSM and UMTS

Parameter / value	GSM	UMTS
Radio Channel Requirements / any	valid	ignored
User rate / any	valid	ignored
Intermediate Rate / any	valid	ignored
NIC on transmission / any	valid	ignored
NIC on reception / any	valid	ignored
Negotiation of IR requested / any	valid	ignored
Acceptable Channel Codings / any	valid	ignored (note 1)
Maximum number of traffic channels / any	valid	ignored (note 1)
User initiated modification indication / any	valid	ignored
Asymmetry preference indication/ any	valid	ignored
Modem type /		-
V.21, V.22, V.22bis, V.26ter	valid	invalid
V.32	valid	invalid for CE=T
Fixed Network User Rate /	•	•
32 kbit/s	Invalid for CE = NT	valid
33.6 kbit/s	invalid	valid
9.6, 14.4, 19.2, 38.4, 48.0	valid	invalid for CE=T
28.8	valid	invalid for CE=T in the case of ITC=UDI
Other Rate adaptation /		
PIAFS	invalid	valid

NOTE: Although a parameter value is marked as "valid", the validity may be restricted by rules given elsewhere in the present document.

NOTE 1: This parameter is relevant in UMTS for NT calls for deciding which RLP version to negotiate in order to avoid renegotiation of RLP version in case of handover, see 3GPP TS 24.022 [9]. It is otherwise irrelevant for specifying the UTRAN radio access bearer.

Table B.6: Channel combinations

Single Bearer and Teleservices

MS indication BC	Network selection CT CT	
FR	FR	
dual FR	FR or HR	
dual HR	HR or FR	

Alternate services

MS indication		Network selection				
BC(1)	BC(2)	CT(1)	CT(2)	Or	CT(1)	CT(2)
FR	FR	FR	FR			
FR	dual Rate	FR	FR			
dual Rate	dual Rate	FR	FR	Or	HR	HR
dual Rate	FR	FR	FR			

Followed-by services

MS indication		Network selection							
BC(1)	BC(2)	CT(1)	CT(2)	or	CT(1)	CT(2)	or	CT(1)	CT(2)
FR	FR	FR	FR						
FR	dual Rate	FR	FR						
dual Rate	dual Rate	FR	FR	or	HR	HR	or	FR	HR
dual Rate	FR	FR	FR						

BC Bearer Capability
CT Channel Type
dual Rate {dual FR | dual HR}

Table B.7: TS61/TS62 Negotiation rules

Mobile Originating Call

Subscription	SETUP	CALL PROCEED
TS61	TS61 s/f	TS61 s/f or TS62
	TS61 f/s	TS61 f/s or TS62
	TS62	TS62
TS62	TS61 s/f	TS62
	TS61 f/s	TS62
	TS62	TS62

Mobile Terminating Call

Subscription	SETUP	CALL CONFIRMED
TS61	TS61 s/f	TS61 s/f or TS61 f/s or TS62
	TS61 f/s	TS61 s/f or TS61 f/s or TS62
	TS62	TS62
	no BC	TS61 s/f or TS61 f/s or TS62
TS62	TS62	TS62
	no BC	TS62 (note)

s/f = speech then fax f/s = fax then speech

NOTE: TS61 is also accepted if the VMSC supports TS61 and does not perform subscription checking on a CALL CONFIRMED message (see 3GPP TS 22.001 and 3GPP TS 29.007).

			(CHAN	GE	REQ	UE	ST	•			CR-Form-v7
*	27	.001	CR	087		≋rev	-	Ж	Current ve	rsion:	4.9.0	¥
For <u>HELP</u> on	using	this for	m, see	bottom o	of this	page or	look	at th	e pop-up te:	xt over	the % syr	mbols.
Proposed chang				pps %	-		-		ccess Netw	ork	Core Ne	etwork X
Title:	Ж Ne	gotiatio	on of fi	<mark>xed netwo</mark>	ork us	er rate (FNUF	₹)				
Source:	₩ TS	G_CN	WG3	[Nokia]								
Work item code:	₩ TE								Date:	¥ 23,	/05/2003	
Category: Reason for chan	Deta be fo	F (con A (con B (add C (fun D (edi iled exp bund in	rection) respond dition of ctional i torial m blanatio 3GPP		on of fe	in an ea ature) categorie	s can	imits	2 e) R96 R97 R98 R99 Rel-4 Rel-5 Rel-6	of the for (GSI) (Rela (Rela (Rela (Rela (Rela (Rela (Rela	ollowing release 1996) ease 1997) ease 1998) ease 1999) ease 4) ease 5) ease 6)	SCSD-
		being nego kbit/s 29.00 oper Both nego rease	g related triation is and E control of the control	ed to a moonly to the DGE case ws the FN. 1 and 29. descripting negotians.	ultislot ne mul ses. NUR n 007 fa on with	configu tislot co egotiatio iil to cov nout any procedur	ratior nfigui on for er the re was	m, who ration "mu e UM sonin s def	description ich leads to h, precluding litislot, 14.4 litislot, 14.4 litislot, 14.6 litislot, 14	limiting the skbit/s colored	g the FNU ingle chan or EDGE eir setup y due to hi	R nel 14.4
Summary of cha	nge: Ж	A lim	niting s	entence i	s remo	oved fro	m B.1	1.1.2.				
Consequences in not approved:	£			oetween a otiation no					lu Mode.			
Clauses affected	: ¥	B.1.′	1.2									
Other specs affected:	ж	Y N X X	Test	core spesspecificat	ions	tions	¥	29.0	007			
Other comments	<i>:</i>											

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

B.1.1.2 Interpretation of the Diagrams

The purpose of the subsequent diagrams is to achieve unambiguous representation of the individual contents of the PLMN BC-IE for the various occurrences during the call set-up phase, covering all bearer services and teleservices according to 3GPP TS 22.002 and 3GPP TS 22.003.

The basic principle adopted is a graphic scheme, or mask, wherein the ordinate designates the individual parameters of the PLMN BC-IE and the abscissa gives the possible field values of these parameters. The abbreviations used in these sections are defined in table B.5. The allowed content of any PLMN BC-IE is represented by a number of graphs connecting parameter values (abscissa points) of all parameters (ordinate points). Each graphic scheme is subdivided into two independent parts:

- "Layer/Protocol related" part; and
- "Radio Channel related" part.

The generation of all PLMN BC-IEs in all call set-up messages shall be in accordance with these graphs. Subclauses B.1.2 through B.1.11 show individual sets of graphs for each service group (BS/TS) and for each type of applicable Information Transfer Capability.

In addition, the following rules apply:

- Those parameters which have only one possible field value for all recognized services are shown in table B.5, where they are marked accordingly in the column "common setting of field values". They are not represented in the graphic scheme.
- Not all parameters of the PLMN BC-IE are relevant for each service (BS/TS). This is represented by specific abscissa points with a value of "NA" (Not Applicable) allocated to these parameters. The graphs pass through these points for each such parameter. The actual field value to be used in the PLMN BC-IE is marked in the column "default setting of field values (NA)" of table B.5. An abscissa point with a value of "NAV" (Not AVailable) indicates that the entire octet carrying this parameter (see table B.2 "General Structure of the PLMN BC-Information Element") shall be omitted.
- Unless FTM is applied, there is a particular dependency of the parameters "User Information Layer 2 Protocol (UIL2P)" and "Connection Element (CE)":
 - If the MS sends a PLMN BC-IE with a CE value other than "Transparent (T)", the parameter UIL2P is essential. Its field value must be set as indicated in the applicable graph.
 - If the MSC sends a PLMN BC-IE in the SETUP message, the parameter UIL2P may also be absent in the case of the CE parameter value being other than "Transparent (T)".
- In case FTM is applied, the PLMN BC-IE shows a CE value "non-transparent", SA value "asynchronous", and RA value X.31 flag stuffing. The UIL2P is not available.
- Certain parameters of the PLMN BC-IE may be negotiated during the connection establishment phase. Table B.1 shows these parameters and the relations of their values in the SETUP message and in the CALL CONFIRMED/CALL PROCEEDING message, respectively, both for the mobile-originated and mobile-terminated case. A parameter may indicate a field value of one of the following types:
 - "requested value" indicating a request which cannot be changed by the responding entity;
 - "offered value" indicating a proposal which may be changed by the responding entity;
 - a particular choice value leaving it up to the responding entity which value ultimately applies;
 - "as requested" indicating that the requested value applies and is confirmed (by returning it);
 - "selected value" indicating that a particular value applies either out of the offered set or as a free choice out of the defined set of values;
 - "supported value" indicating a value supported by the responding entity.

Table B.1: BC-Parameters subject to negotiation procedure

Mobile Originated Call:

	Message		
BC-parameter	SETUP	CALL PROC	
NDB	Requested value	as requested	
NPB	Requested value	as requested	
NSB	Requested value	as requested	
CE	Requested value (T/NT)	as requested	
	"both" with the preferred value indicated	selected value (T/NT)	
	(e.g. both NT)		
UIL2P	Requested value 9 or NAV 1	as requested or NAV 4)	
User Rate	Requested value	as requested	
DC	Requested value 2)	as requested or "NO" 7)	
FNUR	Requested value	supported value	
Other MT	Requested value	supported value	
UIMI	Requested value	supported value	

	Message		
BC-parameter	SETUP	CALL CONF	
NDB	Offered value	selected value (free choice)	
NPB	offered value	selected value (free choice)	
NSB	offered value	selected value (free choice)	
CE	requested value (T/NT)	as requested or selected value (T/NT) (free choice) 3)	
	"both" with the preferred value indicated (e.g. both NT)	selected value (T/NT)	
Sync/ Asynchronous	requested value	as requested or selected value 10)	
Rate adaptation/Other rate adaptation	requested value	as requested or selected value ¹¹⁾	
UIL2P	offered value 2) or NAV 4)	selected or NAV 1)	
User Rate	offered value	selected value 5)	
DC	requested value 2)	as requested or "NO" 7)	
FNUR	offered value	selected value 6)	
Other MT	offered value	selected value 6)	
UIMI	offered value	selected value 8)	

- 1) For CE:T only, out-band flow control, or RA:X.31 flag stuffing requested by the MS.
- 2) Not for CE:T.
- 3) When the SETUP message contains no BC-IE (single numbering scheme).
- 4) "NAV" shall not be interpreted as an out-band flow control request by the MS.
- 5) The modification of User Rate shall be in conjunction with Modem Type and Intermediate Rate.
- The modification of the Fixed Network User Rate shall be in conjunction with the Modem Type and/or Other Modem Type.
- 7) In case of a Mobile Terminated Call, if the SETUP message does not contain a BC-IE, the MS shall behave as if the DC is set to "data compression not possible".
 - In case of a MO CALL or a MT CALL where no BC-IE is included in the CALL PROCEEDING or CALL CONFIRMED message, respectively, the MS or the network shall behave as if the DC was set to "data compression not possible" or "data compression not allowed", respectively.
- 8) Less or equal to the offered value.
- 9) Not for CT:T or FTM (i.e., CE:NT, SA:A, RA:X.31 flag stuffing).
- 10) For FTM and PIAFS, this parameter may be negotiated. See Table B.4e for details.
- 11) For FTM, PIAFS and Multimedia, this parameter may be negotiated. See Table B.4f for details.

Table B.2: General Structure of the BC-Information Element

OCTET	INFORMATION	ELEMENT FIELD	
3	Radio channel requirements		
	Coding standard		
	Transfer mode		
	Information Transfer Capability		
4	Structure	2)	
	Duplex mode		
	Configuration		
	Establishment		
	Negotiation of Intermediate Rate Requested		
	Compression	3\	
5	Rate adaption	2)	
	Signalling access protocol	3) 7)	
5a	Other ITC	2) 7)	
	Other rate adaption	2) 2)	
5b	Rate adaption header / no header	2) 3)	
	Multiple frame establishment support in data	link	
	Mode of operation		
	Logical link identifier negotiation		
	Assignor / assignee		
6	In-band / out-band negotiation User information layer 1 protocol	2)	
6		- /	
60	Synchronous / asynchronous	2)	
6a	Number of stop bits Negotiation	_,	
	Number of data bits		
	User rate		
6b	Intermediate rate	2)	
OB	NIC on transmission	·	
	NIC on reception		
	Parity information		
6c	Connection element	2)	
	Modem type		
6d	Fixed network user rate	4)	
	Other modem type		
6e	Maximum number of traffic channels	4)	
	Acceptable channel codings		
6f	Wanted air interface user rate	4)	
	User initiated modification indication		
6g	Acceptable Channel codings	5)	
	Asymmetry preference indication	6)	
7	User information layer 2 protocol	1) 2)	
	ctets optional.		
2) O	ctets only available if the parameter "Information	Transfer Capability" does not indicate	
	Speech".		
	For ITU-T V.120 rate adaption only.		
	ptional octets available only if the parameter "Inf	formation Transfer Capability" does not indicate	
	Speech".		
	xtension of the 'Acceptable channel codings' fiel	d in octet 6e in case EDGE channel codings	
	re supported.		
	Only used if EDGE channels are among the 'Acceptable channel codings'. The value shall be se		
	'no preference' in case the connection element is T.		
/) F	or ITC=RDI or UIL1P=V.120, PIAFS, and 'H.223	and m.245° only.	

Table B.3a: Selection of flow control method (for CE:NT with SA:A only)

flow control method			
information element	in-band	out-band (3)	none
number of data bits	7 or 8	7 or 8	7 or 8
user information layer 2 protocol	ISO 6429 (1)	NAV	COPnoFlCt (2)

- 1) ISO6429 stands for "ISO 6429, codeset 0, DC1/DC3" and is applicable for 7 and 8 bit codes.
- 2) COPnoFICt stands for a character oriented protocol with no flow control mechanism (no reserved characters for flow control).
- 3) "out-band" flow control requires ITU-T V.42 in case of PSTN or ITU-T V.110 in case of ISDN. If the ITU-T V.110 flow control mechanism is not supported, where required, the call pending shall be terminated.

If the ITU-T V.42 functionality is not supported by the modem in the IWF or in the fixed network, the call shall be supported with a fallback to the non- ITU-T V.42 mode. In this case the IWF shall release the call if due to temporary throughput problems on the radio interface or initiation of flow control by the MS and the inability to flow control the fixed network modem an overflow of the L2R buffers occurs. Note that a phase 1 network may release the call, if the ITU-T V.42 functionality is not provided by the IWF or the fixed network modem. As ITU-T V.42 does not apply to ITU-T V.21 modems, outband flow control can not be supported for these modem types.

Table B.4a: Modem Type subject to negotiation procedure

Mobile Originated Call:

	BC-parameter MT and OMT ⁶⁾		
BC-parameter CE	Message SETUP	Message CALL PROC	
Т	V-series	V-series	
NT	V-series	V-series	
	autobauding type 1	autobauding type 1 or V-series 1)	
bothT or bothNT	V-series	V-series	
	autobauding type 1	autobauding type 1 or V-series 1)2)	

	BC-parameter MT and OMT ⁶)		
BC-parameter CE	Message SETUP	Message CALL CONF	
T	V-series	V-series	
NT	V-series	V-series or autobauding type 13)	
	autobauding type 1	autobauding type 1 or V-series ⁴⁾	
bothT or bothNT	V-series	V-series	
	autobauding type 1	autobauding type 1 or V-series ⁴⁾⁵⁾	

- 1) No autobauding capability in the IWF:MSC.
- 2) CE:T selected by IWF/MSC.
- 3) Free choice if the SETUP contains no BC-IE (single numbering scheme). If the IWF/MSC has no autobauding capability, a V-series modem type is used.
- 4) When the MS does not allow the use of autobauding capability.
- 5) CE:T selected by the MS.
- When the MT indicates "autobauding", "modem for undefined interface" or "none", the OMT shall be set to "no other modem type". Any other values of the MT is overridden by the OMT value.

Table B.4b: Intermediate Rate negotiation procedure

If the user rate is 9.6 kbit/s the intermediate rate negotiation procedure is not applicable and NIRR shall be set to "No meaning".

Recipient of SETUP supports full rate, non transparent, 6 kbit/s radio interface rate and the user rate is up to/equal 4.8 kbit/s:

BC-parameter	Message SETUP	Message CALL CONF or CALL PROC
NIRR	6 kbit/s	6 kbit/s
IR	16 kbit/s	8 kbit/s
User Rate	up to/equal 4,8 kbit/s	as requested

NOTE 1: In case of a Mobile Terminated Call, if the SETUP message does not contain a BC-IE, the MS shall behave as if NIRR set to "No meaning".

In case of a MO CALL or a MT CALL where no BC-IE is included in the CALL PROCEEDING or CALL CONFIRMED message, respectively, the MS or the network shall behave as if the NIRR was set to "No meaning".

Recipient of SETUP does support full rate, non transparent, but not in connection with 6 kbit/s radio interface rate:

BC-parameter	Message SETUP	Message CALL CONF or CALL PROC
NIRR	6 kbit/s	No meaning
IR	16 kbit/s	16 kbit/s
User Rate	up to/equal 4,8 kbit/s	as requested

NOTE 2: If no other parameter needs negotiation, the CALL CONF/PROC message need not contain any BC-IE.

In case of a MO CALL or a MT CALL where no BC-IE is included in the CALL PROCEEDING or CALL CONFIRMED message, respectively, the MS or the network shall behave as if the NIRR was set to "No meaning".

NOTE 3: In case a GBS-operation is requested and acknowledged, the MS indicates the acceptable channel codings. The indicated acceptance of TCH/F4.8 is equivalent to the support of 6 kbit/s radio interface rate per TCH/F and therefore overrides the NIRR parameter.

Table B.4c Negotiation of fixed network user rate

BC-parameter	Message SETUP	Message CALL PROC/CONFIRMED
FNUR	requested value	equal or lower than the requested value

The network might accept the modified value or reject the call. The FNUR negotiation is applicable in case of a HSCSD-operation, only.

Table B.4d Negotiation of user initiated modification indication

BC-parameter	Message SETUP	Message CALL PROC/CONFIRMED
UIMI	offered value	equal to or a value indicating a request for
		modification to a lower number of traffic
		channels than offered

Table B.4e: Negotiation of Synchronous/Asynchronous

Mobile Terminated Call:

	BC-parameter Synchronous/Asynchronous		
Bearer type	Message SETUP	Message CALL CONF	
FTM ¹⁾	Synchronous	Asynchronous	
PIAFS ²⁾	Synchronous	Asynchronous	

- This negotiation is possible, only if ITC=UDI or RDI, FNUR=64 or 56 kbit/sand CE=NT or "both" is signalled in the SETUP message. The MS shall signal FTM as specified in B.1.2.3.
- 2) This negotiation is possible, only if ITC=UDI, FNUR=32 kbit/s and CE= "both" is signalled in the SETUP message. The UE shall signal PIAFS as specified in B.1.2.4

Table B.4f: Negotiation of Rate adaptation/Other rate adaptation

	BC-parameter Rate adaptation/Other rate adaptation						
Bearer type	Message SETUP	Message CALL CONF					
FTM ¹⁾	V.110, I.460 and X.30	X.31 flag stuffing					
PIAFS ²⁾	V.110, I.460 and X.30	PIAFS					
Multimedia	V.110, I.460 and X.30 ³⁾	H.223 and H.245					
	No rate adaptation ^{5) 6)}	H.223 and H.245					

- 1) This negotiation is possible, only if ITC=UDI or RDI, FNUR=64 or 56 kbit/s and CE=NT or "both" is signalled in the SETUP message. The MS shall signal FTM as specified in B.1.2.3.
- This negotiation is possible, only if ITC=UDI, FNUR=32 kbit/s and CE= "both" is signalled in the SETUP message. The UE shall signal PIAFS as specified in B.1.2.4.
- This negotiation is possible, only if ITC=UDI or RDI, FNUR=32 or 56 kbit/s and CE=T or "both" is signalled in the SETUP message. The MS shall signal 3G-H.324/M as specified in B.1.3.1.3, B.1.3.1.4 and B.1.3.1.6.
- 4) Void.
- This negotiation is possible, if ITC=3,1 kHz, FNUR=28.8 kbit/s, MT=V.34 and CE=T or "both" is signalled in the SETUP message. The MS shall signal 3G-H.324/M as specified in B.1.3.2.3.
- This negotiation is possible, if ITC=UDI or RDI, FNUR=64 or 56 kbit/s and CE=T is signalled in the SETUP message. The MS shall signal 3G-H.324/M as specified in B.1.3.1.3, B.1.3.1.4, and B.1.3.1.5

Table B.5: BC parameter setting (part 1)

	common setting of field values		
Abbreviations for Parameters and Valu	nes:		
ITCInformation Transfer Capability	r: - Speech - UDIUnrestricted Digital - FAX3Group 3 Facsimile - 3,1 kHz3,1 kHz Ex PLMN - RDIRestricted Digital	v	v
TMTransfer Mode:	- ciCircuit	Х	Х
SStructure:	- SDUService Data Unit Integrity - Unstructured	X	
CConfiguration:	- ppPoint to point	Х	Х
EEstablishment:	- deDemand	Х	Х
SASync/Async:	- SSynchronous - AAsynchronous		
NNegotiation	- ibnin band negotiation not possible	Х	Х
URUser Rate:	- 0.30.3 kbit/s - 1.21.2 kbit/s - 2.42.4 kbit/s - 4.84.8 kbit/s - 9.69.6 kbit/s	 x	
IRIntermediate Rate:	- 8 8 kbit/s - 16 16 kbit/s	Х	
NICTNetwork Independent Clock on Tx	c: - not_required Not required - required	X	х
NICRNetwork Independent Clock on Rx	: - not_acceptednot accepted - accepted	X	X
NSBNumber of Stop Bits:	- 11 bit - 22 bit	X	
NDBNumber of Data Bits Excluding Parity If Present:	- 7 7 bit - 8 8 bit	X	
NPBParity Information:	- Odd - Even - None - 0 Forced to 0 - 1 Forced to 1	 X 	
UIL1P.User Information Layer 1			

Table B.5: BC parameter setting (part 2)

Abbrevisting for December 112 W. 3	common setting of field values		
Abbreviations for Parameters and Valu	default setting of field values (NA)	 	1
DMDuplex Mode:			
DMDuplex mode.	- fd Full Duplex	Х	Х
MTModem Type:	- V.21		
arnodem Type	- V.22	i i	İ
	- V.22 bis		Ì
	- V.26 ter		
	- V.32	İ	
	- autol autobauding type 1	İ	Ï
	- none	Х	į
RCRRadio Channel Requirement:	- FR Full Rate support only Mobile Station		
	- dual HR Dual Rate support Mobile Station/ Half Rate preferred		
	- dual FR Dual Rate support Mobile Station/	 	l I
	Full Rate preferred		
CEConnection Element:	- T Transparent		
	- NT Non Transparent		
	 bothT both transparent preferred bothNT both non Transparent preferred 	ļ	ļ
UIL2P.User Information Layer 2		 	
Protocol:	- ISO6429ISO6429,codeset 0,DC1/DC3	 	
	- COPnoFlCtCharacter oriented protocol with no flow control mechanism	 	
SAPSignalling Access Protocol:	- I.440 I.440/450	X	
RARate Adaptation:	- V.110 V.110/X.30		
	- X.31Flag X.31 flagstuffing	j	İ
	- NO no rate adaptation	Х	ĺ
	- V.120	ĺ	ĺ
	- PIAFS	Ì	ĺ
	- H.223 and H.245		
CSCoding Standard:	- GSM	Х	Х
NIRRNegotiation of Intermediate			
Rate Requested:	NMNo Meaning associated with this value	X	
	6kbit/s6kbit/s radio interface rate requested		
DCData Compression	- DC compression possible/allowed		
	- NO compression not possible/allowed	X	

Table B.5: BC parameter setting (part 3)

bharaithinn fan Dramatan an 3	common setting of field values	
bbreviations for Parameters and Value	default setting of field values (NA)	
NURFixed Network User Rate	- FNUR not applicable	!!!
	- 9.6 9.6 kbit/s	
	- 14.4 14.4 kbit/s	!!!
	- 19.2. 19.2 kbit/s	
	- 28.8. 28.8 kbit/s	
	- 32.0 32.0 kbit/s	
	- 33.6 33.6 kbit/s	
	- 38.4 38.4 kbit/s - 48.0 48.0 kbit/s	
	- 56.0. 56.0 kbit/s	
	- 64.0 64.0 kbit/s	
AIURWanted Air Interface User Rate	- WAIUR not applicable	
	- 9.6 9.6 kbit/s	X
	- 14.4 14.4 kbit/s	
	- 19.2 19.2 kbit/s	
	- 28.8 28.8 kbit/s	
	- 38.4 38.4 kbit/s	
	- 43.2 43.2 kbit/s	i i
	- 57.6 57.6 kbit/s	i i
	- int 38.4 interpreted by the network as	İ
	38.4 kbit/s	
CCAcceptable channel codings	- 4 8 TCH/E4 8 acceptable	
.c	- 9.6 TCH/F9.6 acceptable	
	- 14.4TCH/F14.4 acceptable	
	- 28.8TCH/F28.8 acceptable	1 1
	- 32.0TCH/F32.0 acceptable	
	- 43.2TCH/F43.2 acceptable	1
	- noneNo channel coding (defined by selecting	
	none of the above	
axNumTCHMaximum Number of Traffic (
	- 1 1 TCH	! !
	- 2 2 TCH	
	- 2 2 TCH - 3 3 TCH	
	- 2 2 TCH - 3 3 TCH - 4 4 TCH	
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH	
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH	
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH	
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH	
VTOther modem type	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH	
MTOther modem type	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH	
MTOther modem type ser initiated modification indication	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34	x
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH	x
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required	x
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto	x
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested	x
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto	x
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto 2 TCH may be requested	X
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto 2 TCH may be requested - upto 3 TCH user initiated modification upto	X
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH. user initiated modification upto 2 TCH may be requested - upto 3 TCH user initiated modification upto 3 TCH may be requested	X
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto 2 TCH may be requested - upto 3 TCH user initiated modification upto	X
er initiated modification indication	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto 2 TCH may be requested - upto 3 TCH. user initiated modification upto 3 TCH may be requested - upto 4 TCH user initiated modification upto 4 TCH may be requested	X
	- 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto 2 TCH may be requested - upto 3 TCH user initiated modification upto 3 TCH may be requested - upto 4 TCH user initiated modification upto	X

Table B.5a: Differences in parameter value validity in GSM and UMTS

Parameter / value	GSM	UMTS
Radio Channel Requirements / any	valid	ignored
User rate / any	valid	ignored
Intermediate Rate / any	valid	ignored
NIC on transmission / any	valid	ignored
NIC on reception / any	valid	ignored
Negotiation of IR requested / any	valid	ignored
Acceptable Channel Codings / any	valid	ignored (Note 1)
Maximum number of traffic channels / any	valid	ignored (Note 1)
User initiated modification indication / any	valid	ignored
Asymmetry preference indication/ any	valid	ignored
Modem type /		
V.21, V.22, V.22bis, V.26ter	valid	invalid
V.32	valid	invalid for CE=T
Fixed Network User Rate /		
32 kbit/s	Invalid for CE = NT	valid
33.6 kbit/s	invalid	valid
9.6, 14.4, 19.2, 38.4, 48.0	valid	invalid for CE=T
28.8	valid	invalid for CE=T in the case of
		ITC=UDI
Other Rate adaptation /		
PIAFS	invalid	valid

NOTE: Although a parameter value is marked as "valid", the validity may be restricted by rules given elsewhere in the present document.

NOTE 1: This parameter is relevant in UMTS for NT calls for deciding which RLP version to negotiate in order to avoid renegotiation of RLP version in case of handover, see 3GPP TS 24.022. It is otherwise irrelevant for specifying the UTRAN radio access bearer.

Table B.6: Channel combinations

Single Bearer and Teleservices

MS indication BC	Network selection CT CT
FR	FR
dual FR	FR or HR
dual HR	HR or FR

Alternate services

MS indication		ication Network selection				
BC(1)	BC(2)	CT(1)	CT(2)	Or	CT(1)	CT(2)
FR	FR	FR	FR			
FR	dual Rate	FR	FR			
dual Rate	dual Rate	FR	FR	Or	HR	HR
dual Rate	FR	FR	FR			

Followed-by services

MS indication		Network selection							
BC(1)	BC(2)	CT(1)	CT(2)	or	CT(1)	CT(2)	or	CT(1)	CT(2)
FR	FR	FR	FR						
FR	dual Rate	FR	FR						
dual Rate	dual Rate	FR	FR	or	HR	HR	or	FR	HR
dual Rate	FR	FR	FR						

BC Bearer Capability
CT Channel Type
dual Rate {dual FR | dual HR}

Table B.7: TS61/TS62 Negotiation rules

Mobile Originating Call

Subscription	SETUP	CALL PROCEED
TS61	TS61 s/f	TS61 s/f or TS62
	TS61 f/s	TS61 f/s or TS62
	TS62	TS62
TS62	TS61 s/f	TS62
	TS61 f/s	TS62
	TS62	TS62

Mobile Terminating Call

Subscription	SETUP	CALL CONFIRMED
TS61	TS61 s/f	TS61 s/f or TS61 f/s or TS62
	TS61 f/s	TS61 s/f or TS61 f/s or TS62
	TS62	TS62
	no BC	TS61 s/f or TS61 f/s or TS62
TS62	TS62	TS62
	no BC	TS62 (note)

s/f = speech then fax f/s = fax then speech

NOTE: TS61 is also accepted if the VMSC supports TS61 and does not perform subscription checking on a CALL CONFIRMED message (see 3GPP TS 22.001 and 3GPP TS 29.007).

Sali Diego, USA	, 19	— 23 IVI	ay 2003.							
		(CHANGE	REQ	UE	ST	•			CR-Form-v7
*	27.0	001 CR	880	≋rev	-	¥	Current ver	rsion:	5.5.0	*
For <u>HELP</u> on us	sing th	is form, se	e bottom of thi	s page or	look	at th	e pop-up tex	ct over	the % syl	mbols.
Proposed change a	affects	: UICC :	apps %	ME X	Rad	A oib	ccess Netwo	ork	Core Ne	etwork X
3					_					
T:4				, /5	-	- \				
Title: %	Nego	itiation of f	<mark>xed network u</mark>	iser rate (F	-NUF	₹)				
Source: #	TSG	_CN WG3	[Nokia]							
Work item code: 第	TEI						Date: 8	€ 23/	05/2003	
Category: 第	Α						Release: 8	€ Re	l-5	
		<u>ne</u> of the foll (correction	owing categorie	s:			Use <u>one</u> c 2		ollowing rele A Phase 2)	
	Α	(correspon	ds to a correction	on in an ear	lier re	elease	e) R96	(Rele	ease 1996)	
		(addition o	f feature), modification of	feature)			R97 R98		ease 1997) ease 1998)	
	D	(editorial n	nodification)	-			R99	(Rele	ease 1999)	
	Detaile be four	ed explanation nd in 3GPP	ons of the above	e categories	can		Rel-4 Rel-5		ease 4) ease 5)	
			<u></u> .				Rel-6		ease 6)	
Reason for change	e: #8 ·	The text in	conjunction w	ith table B	4c li	mits	the FNUR n	egotia	tion to "H	SCSD-
3		operation o	only". TS 23.03	34 (HSCSI	D sta	ge 2	description)	defin	es the HS	CSD
			ed to a multisle only to the m							
			EDGE cases.	uitisiot coi	iiigui	alloi	i, precidaling	i i i e 3i	rigie criari	11101 14.4
		29.007 allo operations	ws the FNUR	negotiatio	n for	"mu	ltislot, 14.4 k	kbit/s c	or EDGE	
		Both 27.00	1 and 29.007	fail to cove	er the	e UM	TS / Iu Mod	e in th	eir setup	
	1	negotiatior	description w	ithout any	reas	onin	g. (This is pi	robabl	y due to h	
			he negotiation TS / Iu Mode v						d CS data	years
Summon, of obono							•	,		
Summary of chang		_	entence is ren							
Consequences if not approved:			between 27.00 otiation not po				lu Mode			
пос аррготса.		ritorthog	otiation not po	OSIDIO WILL	1 Olvi	107	ia mode.			
Clauses affected:	*	B.1.1.2								
	Y	/ N								
Other specs			r core specific	ations	æ	29.0	007			
affected:			specifications Specifications	e						
		JA OKIV	- орсынсаног							
Other comments:	90									

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

B.1.1.2 Interpretation of the Diagrams

The purpose of the subsequent diagrams is to achieve unambiguous representation of the individual contents of the PLMN BC-IE for the various occurrences during the call set-up phase, covering all bearer services and teleservices according to 3GPP TS 22.002 and 3GPP TS 22.003.

The basic principle adopted is a graphic scheme, or mask, wherein the ordinate designates the individual parameters of the PLMN BC-IE and the abscissa gives the possible field values of these parameters. The abbreviations used in these sections are defined in table B.5. The allowed content of any PLMN BC-IE is represented by a number of graphs connecting parameter values (abscissa points) of all parameters (ordinate points). Each graphic scheme is subdivided into two independent parts:

- "Layer/Protocol related" part; and
- "Radio Channel related" part.

The generation of all PLMN BC-IEs in all call set-up messages shall be in accordance with these graphs. Subclauses B.1.2 through B.1.11 show individual sets of graphs for each service group (BS/TS) and for each type of applicable Information Transfer Capability.

In addition, the following rules apply:

- Those parameters which have only one possible field value for all recognized services are shown in table B.5, where they are marked accordingly in the column "common setting of field values". They are not represented in the graphic scheme.
- Not all parameters of the PLMN BC-IE are relevant for each service (BS/TS). This is represented by specific abscissa points with a value of "NA" (Not Applicable) allocated to these parameters. The graphs pass through these points for each such parameter. The actual field value to be used in the PLMN BC-IE is marked in the column "default setting of field values (NA)" of table B.5. An abscissa point with a value of "NAV" (Not AVailable) indicates that the entire octet carrying this parameter (see table B.2 "General Structure of the PLMN BC-Information Element") shall be omitted.
- Unless FTM is applied, there is a particular dependency of the parameters "User Information Layer 2 Protocol (UIL2P)" and "Connection Element (CE)":
 - If the MS sends a PLMN BC-IE with a CE value other than "Transparent (T)", the parameter UIL2P is essential. Its field value must be set as indicated in the applicable graph.
 - If the MSC sends a PLMN BC-IE in the SETUP message, the parameter UIL2P may also be absent in the case of the CE parameter value being other than "Transparent (T)".
- In case FTM is applied, the PLMN BC-IE shows a CE value "non-transparent", SA value "asynchronous", and RA value X.31 flag stuffing. The UIL2P is not available.
- Certain parameters of the PLMN BC-IE may be negotiated during the connection establishment phase. Table B.1 shows these parameters and the relations of their values in the SETUP message and in the CALL CONFIRMED/CALL PROCEEDING message, respectively, both for the mobile-originated and mobile-terminated case. A parameter may indicate a field value of one of the following types:
 - "requested value" indicating a request which cannot be changed by the responding entity;
 - "offered value" indicating a proposal which may be changed by the responding entity;
 - a particular choice value leaving it up to the responding entity which value ultimately applies;
 - "as requested" indicating that the requested value applies and is confirmed (by returning it);
 - "selected value" indicating that a particular value applies either out of the offered set or as a free choice out of the defined set of values;
 - "supported value" indicating a value supported by the responding entity.

Table B.1: BC-Parameters subject to negotiation procedure

Mobile Originated Call:

	Message					
BC-parameter	SETUP	CALL PROC				
NDB	Requested value	as requested				
NPB	Requested value	as requested				
NSB	Requested value	as requested				
CE	Requested value (T/NT)	as requested				
	"both" with the preferred value indicated (e.g. both NT)	selected value (T/NT)				
UIL2P	Requested value 9) or NAV 1)	as requested or NAV 4)				
User Rate	Requested value	as requested				
DC	Requested value 2)	as requested or "NO" 7)				
FNUR	Requested value	supported value				
Other MT	Requested value	supported value				
UIMI	Requested value	supported value				

	Message	
BC-parameter	SETUP	CALL CONF
NDB	Offered value	selected value (free choice)
NPB	offered value	selected value (free choice)
NSB	offered value	selected value (free choice)
CE	requested value (T/NT)	as requested or selected value (T/NT) (free choice) 3)
	"both" with the preferred value indicated (e.g. both NT)	selected value (T/NT)
Sync/ Asynchronous	requested value	as requested or selected value 10)
Rate adaptation/Other rate adaptation	requested value	as requested or selected value ¹¹⁾
UIL2P	offered value 2) or NAV 4)	selected or NAV 1)
User Rate	offered value	selected value 5)
DC	requested value 2)	as requested or "NO" 7)
FNUR	offered value	selected value 6)
Other MT	offered value	selected value 6)
UIMI	offered value	selected value 8)

- 1) For CE:T only, out-band flow control, or RA:X.31 flag stuffing requested by the MS.
- 2) Not for CE:T.
- 3) When the SETUP message contains no BC-IE (single numbering scheme).
- 4) "NAV" shall not be interpreted as an out-band flow control request by the MS.
- 5) The modification of User Rate shall be in conjunction with Modem Type and Intermediate Rate.
- 6) The modification of the Fixed Network User Rate shall be in conjunction with the Modem Type and/or Other Modem Type.
- 7) In case of a Mobile Terminated Call, if the SETUP message does not contain a BC-IE, the MS shall behave as if the DC is set to "data compression not possible".

 In case of a MO CALL or a MT CALL where no BC-IE is included in the CALL PROCEEDING or CALL CONFIRMED message, respectively, the MS or the network shall behave as if the DC was set to "data compression not possible" or "data compression not allowed", respectively.
- 8) Less or equal to the offered value.
- 9) Not for CT:T or FTM (i.e., CE:NT, SA:A, RA:X.31 flag stuffing).
- 10) For FTM and PIAFS, this parameter may be negotiated. See Table B.4e for details.
- 11) For FTM, PIAFS and Multimedia, this parameter may be negotiated. See Table B.4f for details.

Table B.2: General Structure of the BC-Information Element

OCTET	INFORMATION ELE	EMENT FIELD
3	Radio channel requirements	
	Coding standard	
	Transfer mode	
	Information Transfer Capability	
4	Structure	2)
	Duplex mode	
	Configuration	
	Establishment	
	Negotiation of Intermediate Rate Requested	
	Compression	
5	Rate adaption	2)
	Signalling access protocol	a) =
5a	Other ITC	2) /)
	Other rate adaption	-, -,
5b	Rate adaption header / no header	2) 3)
	Multiple frame establishment support in data link	
	Mode of operation	
	Logical link identifier negotiation	
	Assignor / assignee	
	In-band / out-band negotiation	

OCTE		
6	User information layer 1 protocol ²⁾	
	Synchronous / asynchronous	
6a	Number of stop bits 2)	
	Negotiation	
	Number of data bits	
	User rate	
6b	Intermediate rate ²⁾	
	NIC on transmission	
	NIC on reception	
	Parity information	
6c	Connection element 2)	
	Modem type	
6d	Fixed network user rate ⁴⁾	
	Other modem type	
6e	Maximum number of traffic channels ⁴⁾	
	Acceptable channel codings	
6f	Wanted air interface user rate ⁴⁾	
	User initiated modification indication	
6g	Acceptable Channel codings 5)	
	Asymmetry preference indication 6)	
7	User information layer 2 protocol	
1)	Octets optional.	
2)	Octets only available if the parameter "Information Transfer Capability" does not indicate	
a)	"Speech".	
3)	For ITU-T V.120 rate adaption only.	
4)	tional octets available only if the parameter "Information Transfer Capability" does not indicate beech".	
5)	ension of the 'Acceptable channel codings' field in octet 6e in case EDGE channel codings supported.	
6)	ly used if EDGE channels are among the 'Acceptable channel codings'. The value shall be set no preference' in case the connection element is T.	
7)	For ITC=RDI or UIL1P=V.120, PIAFS, and 'H.223 and H.245' only.	

Table B.3a: Selection of flow control method (for CE:NT with SA:A only)

	flow control method		
information element	in-band	out-band (3)	none
number of data bits	7 or 8	7 or 8	7 or 8
user information layer 2 protocol	ISO 6429 (1)	NAV	COPnoFICt (2)
1) ISO6429 stands for "ISO 6429	o, codeset 0, DC1/DC3" ar	nd is applicable for 7 and 8	B bit codes.
 COPnoFICt stands for a chara 	cter oriented protocol with	no flow control mechanis	m (no reserved
characters for flow control).			
"out-band" flow control require			
If the ITU-T V.110 flow control	If the ITU-T V.110 flow control mechanism is not supported, where required, the call pending shall be		
terminated.	terminated.		
If the ITU-T V.42 functionality is not supported by the modem in the IWF or in the fixed network, the call			fixed network, the call
shall be supported with a fallback to the non- ITU-T V.42 mode. In this case the IWF shall release the call			VF shall release the call
if due to temporary throughput	if due to temporary throughput problems on the radio interface or initiation of flow control by the MS and		
the inability to flow control the fixed network modem an overflow of the L2R buffers occurs.			
Note that a phase 1 network may release the call, if the ITU-T V.42 functionality is not provided by the IWF			
or the fixed network modem. As ITU-T V.42 does not apply to ITU-T V.21 modems, outband flow control			s, outband flow control
can not be supported for these	e modem types.		

Table B.4a: Modem Type subject to negotiation procedure

Mobile Originated Call:

	BC-parameter MT and OMT ⁶⁾		
BC-parameter CE	Message SETUP	Message CALL PROC	
Т	V-series	V-series	
NT	V-series	V-series	
	autobauding type 1	autobauding type 1 or V-series 1)	
bothT or bothNT	V-series	V-series	
	autobauding type 1	autobauding type 1 or V-series 1)2)	

Mobile Terminated Call:

	BC-parameter MT and OMT ⁶)	
BC-parameter CE	Message SETUP Message CALL CONF	
Т	V-series	V-series
NT	V-series	V-series or autobauding type 1 ³⁾
	autobauding type 1	autobauding type 1 or V-series ⁴⁾
bothT or bothNT	V-series	V-series
	autobauding type 1	autobauding type 1 or V-series ⁴⁾⁵⁾

- 1) No autobauding capability in the IWF:MSC.
- 2) CE:T selected by IWF/MSC.
- 3) Free choice if the SETUP contains no BC-IE (single numbering scheme). If the IWF/MSC has no autobauding capability, a V-series modem type is used.
- 4) When the MS does not allow the use of autobauding capability.
- 5) CE:T selected by the MS.
- When the MT indicates "autobauding", "modem for undefined interface" or "none", the OMT shall be set to "no other modem type". Any other values of the MT is overridden by the OMT value.

Table B.4b: Intermediate Rate negotiation procedure

If the user rate is 9.6 kbit/s the intermediate rate negotiation procedure is not applicable and NIRR shall be set to "No meaning".

Recipient of SETUP supports full rate, non transparent, 6 kbit/s radio interface rate and the user rate is up to/equal 4,8 kbit/s:

BC-parameter	Message SETUP	Message CALL CONF or CALL PROC
NIRR	6 kbit/s	6 kbit/s
IR	16 kbit/s	8 kbit/s
User Rate	up to/equal 4,8 kbit/s	as requested

NOTE 1: In case of a Mobile Terminated Call, if the SETUP message does not contain a BC-IE, the MS shall behave as if NIRR set to "No meaning".

In case of a MO CALL or a MT CALL where no BC-IE is included in the CALL PROCEEDING or CALL CONFIRMED message, respectively, the MS or the network shall behave as if the NIRR was set to "No meaning".

Recipient of SETUP does support full rate, non transparent, but not in connection with 6 kbit/s radio interface rate:

BC-parameter	Message SETUP	Message CALL CONF or CALL PROC
NIRR	6 kbit/s	No meaning
IR	16 kbit/s	16 kbit/s
User Rate	up to/equal 4,8 kbit/s	as requested

NOTE 2: If no other parameter needs negotiation, the CALL CONF/PROC message need not contain any BC-IE.

In case of a MO CALL or a MT CALL where no BC-IE is included in the CALL PROCEEDING or CALL CONFIRMED message, respectively, the MS or the network shall behave as if the NIRR was set to "No meaning".

NOTE 3: In case a GBS-operation is requested and acknowledged, the MS indicates the acceptable channel codings. The indicated acceptance of TCH/F4.8 is equivalent to the support of 6 kbit/s radio interface rate per TCH/F and therefore overrides the NIRR parameter.

Table B.4c Negotiation of fixed network user rate

BC-parameter	Message SETUP	Message CALL PROC/CONFIRMED
FNUR	requested value	equal or lower than the requested value

The network might accept the modified value or reject the call. The FNUR negotiation is applicable in case of a HSCSD-operation, only.

Table B.4d Negotiation of user initiated modification indication

BC-parameter	Message SETUP	Message CALL PROC/CONFIRMED
UIMI	offered value	equal to or a value indicating a request for modification to a lower number of traffic
		modification to a lower number of traffic channels than offered

Table B.4e: Negotiation of Synchronous/Asynchronous

Mobile Terminated Call:

	BC-parameter Synchronous/Asynchronous	
Bearer type	Message SETUP	Message CALL CONF
FTM ¹⁾	Synchronous	Asynchronous
PIAFS ²⁾	Synchronous	Asynchronous

- This negotiation is possible, only if ITC=UDI or RDI, FNUR=64 or 56 kbit/sand CE=NT or "both" is signalled in the SETUP message. The MS shall signal FTM as specified in B.1.2.3.
- This negotiation is possible, only if ITC=UDI, FNUR=32 kbit/s and CE= "both" is signalled in the SETUP message. The UE shall signal PIAFS as specified in B.1.2.4

Table B.4f: Negotiation of Rate adaptation/Other rate adaptation

	BC-parameter Rate adaptation/Other rate adaptation	
Bearer type	Message SETUP	Message CALL CONF
FTM ¹⁾	V.110, I.460 and X.30	X.31 flag stuffing
PIAFS ²⁾	V.110, I.460 and X.30	PIAFS
Multimedia	V.110, I.460 and X.30 ³⁾	H.223 and H.245
	No rate adaptation ^{5) 6)}	H.223 and H.245

- This negotiation is possible, only if ITC=UDI or RDI, FNUR=64 or 56 kbit/s and CE=NT or "both" is signalled in the SETUP message. The MS shall signal FTM as specified in B.1.2.3.
- This negotiation is possible, only if ITC=UDI, FNUR=32 kbit/s and CE= "both" is signalled in the SETUP message. The UE shall signal PIAFS as specified in B.1.2.4.

- This negotiation is possible, only if ITC=UDI or RDI, FNUR=32 or 56 kbit/s and CE=T or "both" is signalled in the SETUP message. The MS shall signal 3G-H.324/M as specified in B.1.3.1.3, B.1.3.1.4 and B.1.3.1.6.
- 4) Void.
- 5) This negotiation is possible, if ITC=3,1 kHz, FNUR=28.8 kbit/s, MT=V.34 and CE=T or "both" is signalled in the SETUP message. The MS shall signal 3G-H.324/M as specified in B.1.3.2.3.
- This negotiation is possible, if ITC=UDI or RDI, FNUR=64 or 56 kbit/s and CE=T is signalled in the SETUP message. The MS shall signal 3G-H.324/M as specified in B.1.3.1.3, B.1.3.1.4, and B.1.3.1.5

Table B.5: BC parameter setting (part 1)

	common setting of field values	i values			
Abbreviations for Parameters and Valu	nes:				
ITCInformation Transfer Capability	r: - Speech - UDIUnrestricted Digital - FAX3Group 3 Facsimile - 3,1 kHz3,1 kHz Ex PLMN - RDIRestricted Digital	v	v 		
TMTransfer Mode:	- ciCircuit	Х	Х		
SStructure:	- SDUService Data Unit Integrity - Unstructured	X			
CConfiguration:	- ppPoint to point	Х	Х		
EEstablishment:	- deDemand	Х	Х		
SASync/Async:	- SSynchronous - AAsynchronous		 		
NNegotiation	- ibnin band negotiation not possible	Х	Х		
URUser Rate:	- 0.30.3 kbit/s - 1.21.2 kbit/s - 2.42.4 kbit/s - 4.84.8 kbit/s - 9.69.6 kbit/s	 x			
IRIntermediate Rate:	- 8 8 kbit/s - 16 16 kbit/s	Х	 		
NICTNetwork Independent Clock on Tx	c: - not_required Not required - required	X	х		
NICRNetwork Independent Clock on Rx	: - not_acceptednot accepted - accepted	X	X		
NSBNumber of Stop Bits:	- 11 bit - 22 bit	X			
NDBNumber of Data Bits Excluding Parity If Present:	- 7 7 bit - 8 8 bit	X			
NPBParity Information:	- Odd - Even - None - 0 Forced to 0 - 1 Forced to 1	 X 			
UIL1P.User Information Layer 1					

Table B.5: BC parameter setting (part 2)

Abbrevisting for December 112 W. 3	common setting of field values						
Abbreviations for Parameters and Valu	default setting of field values (NA)	 	1 				
DMDuplex Mode:							
DMDuplex mode.	- fd Full Duplex	Х	Х				
MTModem Type:	- V.21						
arnodem Type	- V.22	i i	İ				
	- V.22 bis		Ì				
	- V.26 ter						
	- V.32	İ					
	- autol autobauding type 1	İ	Ï				
	- none	Х	į				
RCRRadio Channel Requirement:	- FR Full Rate support only Mobile Station						
	- dual HR Dual Rate support Mobile Station/ Half Rate preferred						
	- dual FR Dual Rate support Mobile Station/	 	l I				
	Full Rate preferred						
CEConnection Element:	- T Transparent						
	- NT Non Transparent						
	 bothT both transparent preferred bothNT both non Transparent preferred 	ļ	ļ				
UIL2P.User Information Layer 2		 	 				
Protocol:	- ISO6429ISO6429,codeset 0,DC1/DC3	 					
	- COPnoFlCtCharacter oriented protocol with no flow control mechanism	 	 				
SAPSignalling Access Protocol:	- I.440 I.440/450	Х	 				
RARate Adaptation:	- V.110 V.110/X.30						
	- X.31Flag X.31 flagstuffing	j	İ				
	- NO no rate adaptation	Х	ĺ				
	- V.120	ĺ	ĺ				
	- PIAFS	Ì	ĺ				
	- H.223 and H.245						
CSCoding Standard:	- GSM	Х	Х				
NIRRNegotiation of Intermediate							
Rate Requested:	NMNo Meaning associated with this value	X					
	6kbit/s6kbit/s radio interface rate requested						
DCData Compression	- DC compression possible/allowed						
	- NO compression not possible/allowed	X					

Table B.5: BC parameter setting (part 3)

bbwariations for Doubleton and T. 1	common setting of field values	common setting of field values				
bbreviations for Parameters and Value	default setting of field values (NA)					
NURFixed Network User Rate	- FNUR not applicable					
TORFIXED NELWOLK USEL RALE	- 9.6 9.6 kbit/s					
	- 14.4 14.4 kbit/s	1 1				
	- 19.2 19.2 kbit/s					
	- 28.8 28.8 kbit/s	1 1				
	- 32.0 32.0 kbit/s	1 1				
	- 33.6 33.6 kbit/s	1 1				
	- 38.4 38.4 kbit/s	1 1				
	- 48.0 48.0 kbit/s	i i				
	- 56.0 56.0 kbit/s					
	- 64.0 64.0 kbit/s					
TIID Manhad Bin Intenfere Hear Date	MATTIN wat amali mahla					
IURWanted Air Interface User Rate						
	- 9.6 9.6 kbit/s	X				
	- 14.4 14.4 kbit/s - 19.2 19.2 kbit/s					
	- 19.2. 19.2 kbit/s - 28.8. 28.8 kbit/s					
	- 38.4 38.4 kbit/s					
	- 43.2. 43.2 kbit/s					
	- 57.6. 57.6 kbit/s					
	- int 38.4 interpreted by the network as 38.4 kbit/s					
CCAcceptable channel codings						
	- 9.6 TCH/F9.6 acceptable					
	- 14.4TCH/F14.4 acceptable					
	- 28.8TCH/F28.8 acceptable					
	- 32.0TCH/F32.0 acceptable					
	- 43.2TCH/F43.2 acceptable					
	 noneNo channel coding (defined by selecting none of the above 					
axNumTCHMaximum Number of Traffic						
xNumTCHMaximum Number of Traffic	Channels - 1 1 TCH					
xNumTCHMaximum Number of Traffic						
xNumTCHMaximum Number of Traffic	- 1 1 TCH - 2 2 TCH - 3 3 TCH					
uxNumTCHMaximum Number of Traffic	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH					
axNumTCHMaximum Number of Traffic	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH					
axNumTCHMaximum Number of Traffic	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH					
xXNumTCHMaximum Number of Traffic	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH					
uxNumTCHMaximum Number of Traffic	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH					
	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH					
	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH					
axNumTCHMaximum Number of Traffic MTOther modem type ser initiated modification indication	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH	X				
MTOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34	x				
ATOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34					
ATOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto	X				
MTOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required	x				
TOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto	X				
TOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH. user initiated modification upto 2 TCH may be requested	x				
ATOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto 2 TCH may be requested - upto 3 TCH user initiated modification upto	x				
MTOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH. user initiated modification upto 2 TCH may be requested - upto 3 TCH. user initiated modification upto 3 TCH may be requested	x				
ATOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto 1 TCH may be requested - upto 2 TCH user initiated modification upto 2 TCH may be requested - upto 3 TCH user initiated modification upto	x				
TOther modem type er initiated modification indication	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH user initiated modification upto	x				
MTOther modem type	- 1 1 TCH - 2 2 TCH - 3 3 TCH - 4 4 TCH - 5 5 TCH - 6 6 TCH - 7 7 TCH - 8 8 TCH - no other MT no other modem type - V.34 V.34 - not req user initiated modification not required - upto 1 TCH. user initiated modification upto 1 TCH may be requested - upto 2 TCH. user initiated modification upto 2 TCH may be requested - upto 3 TCH. user initiated modification upto 3 TCH may be requested - upto 4 TCH. user initiated modification upto	x				

Table B.5a: Differences in parameter value validity in A/Gb mode and UTRAN lu mode

Parameter / value	A/Gb mode	GERAN lu mode	UTRAN lu mode		
Radio Channel Requirements /	valid	valid	ignored		
any					
User rate / any	valid	ignored	ignored		
Intermediate Rate / any	valid	valid	ignored		
NIC on transmission / any	valid	ignored	ignored		
NIC on reception / any	valid	ignored	ignored		
Negotiation of IR requested /	valid	ignored	ignored		
any					
Acceptable Channel Codings /	valid	valid	ignored (Note 1)		
any					
Maximum number of traffic	valid	valid	ignored (Note 1)		
channels / any					
User initiated modification	valid	valid	ignored		
indication / any					
Asymmetry preference	valid	valid	ignored		
indication/ any					
Modem type /					
V.21, V.22, V.22bis, V.26ter	valid	invalid	invalid		
V.32	valid	valid	invalid for CE=T		
Fixed Network User Rate /					
32 kbit/s	Invalid for CE = NT	Invalid for CE = NT	valid		
33.6 kbit/s	invalid	invalid	valid		
9.6, 14.4, 19.2, 38.4, 48.0	valid	invalid for CE=T	invalid for CE=T		
28.8	valid	invalid for CE=T in the	invalid for CE=T in the		
		case of ITC=UDI	case of ITC=UDI		
Other Rate adaptation /					
PIAFS	invalid	invalid	valid		

NOTE: Although a parameter value is marked as "valid", the validity may be restricted by rules given elsewhere in the present document.

NOTE 1: This parameter is relevant in UTRAN Iu mode for NT calls for deciding which RLP version to negotiate in order to avoid renegotiation of RLP version in case of handover, see 3GPP TS 24.022 [9]. It is otherwise irrelevant for specifying the UTRAN Iu mode radio access bearer.

Table B.6: Channel combinations

Single Bearer and Teleservices

MS indication BC	Network selection CT CT						
FR	FR						
dual FR	FR or HR						
dual HR	HR or FR						

Alternate services

MS i	ndication	Network selection							
BC(1)	BC(2)	CT(1)	CT(2)	Or	CT(1)	CT(2)			
FR	FR	FR	FR						
FR	dual Rate	FR	FR						
dual Rate	dual Rate	FR	FR	Or	HR	HR			
dual Rate	FR	FR	FR						

Followed-by services

MS i	ndication	Network select					ction				
BC(1)	BC(2)	CT(1)	CT(2)	or	CT(1)	CT(2)	or	CT(1)	CT(2)		
FR	FR	FR	FR								
FR	dual Rate	FR	FR								
dual Rate	dual Rate	FR	FR	or	HR	HR	or	FR	HR		
dual Rate	FR	FR	FR								

BC Bearer Capability
CT Channel Type
dual Rate {dual FR | dual HR}

Table B.7: TS61/TS62 Negotiation rules

Mobile Originating Call

Subscription	SETUP	CALL PROCEED
TS61	TS61 s/f	TS61 s/f or TS62
	TS61 f/s	TS61 f/s or TS62
	TS62	TS62
TS62	TS61 s/f	TS62
	TS61 f/s	TS62
	TS62	TS62

Mobile Terminating Call

Subscription	SETUP	CALL CONFIRMED
TS61	TS61 s/f	TS61 s/f or TS61 f/s or TS62
	TS61 f/s	TS61 s/f or TS61 f/s or TS62
	TS62	TS62
	no BC	TS61 s/f or TS61 f/s or TS62
TS62	TS62	TS62
	no BC	TS62 (note)

s/f = speech then fax f/s = fax then speech

NOTE: TS61 is also accepted if the VMSC supports TS61 and does not perform subscription checking on a CALL CONFIRMED message (see 3GPP TS 22.001 and 3GPP TS 29.007).

3GPP TSG-CN WG3 Meeting #28 San Diego, USA, 19th – 23rd May 2003.

				(CHAN	IGE	REQ	UE	ST	•				CR-Form-v7
*		29.	007	CR	068		жrev	-	¥	Current	versi	on: 3	3.11.	0 #
For <u>H</u>	ELP on u	sing t	his for	m, see	bottom	of this	page or	look	at th	е рор-ир	text	over t	he % s	ymbols.
Propose	d change a	affect	<i>ts:</i> (JICC a	pps %		ME X	Ra	dio A	.ccess Ne	etwor	k	Core I	Network X
Title:	*	Neg	gotiatio	on of fix	xed netw	ork use	er rate (FNU	₹)					
Source:	æ	TSC	G_CN	WG3 [[Nokia]									
Work ite	m code: ₩	TEI								Date	e: Ж	23/0	5/2003	}
Category	<i>y:</i> #	Detai	F (corn A (corn B (add C (fun D (edii led exp	rection) respond dition of ctional i torial mo planatio	ds to a confective, and a confective, and a confection of the a confective, and a co	rrection on of fe) above o	in an ea ature)			2	ne of t 6 7 3 9 -4 -5	(GSM (Relea (Relea (Relea	owing replaced to the control of the	6) 7) 8)
	for change		reaso before	ons: The UMT	descripti ne negoti rs / Iu Mo	on with ation p ode wa	nout any procedur as introd	reas e wa uced	sonin s def in th	TS / Iu M g. (This is ined for h e specific e setup ne	s prol nigh s cation	bably speed ns).	due to CS da	historical ta years
Consequence not appre		¥	FNU	R nego	otiation n	ot pos	sible wit	h UM	TS/	lu Mode.				
Clauses	affected:	ж	9.2.1	.1, 9.2	.2.1 and	10								
Other sp		æ	Y N X X	Test	core spespecificates Specificates	tions	tions	ж	27.0	001				
Other co	mments:	*												

How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

- downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First Modified Section

9.2.1.1 Selection of interworking function

The interworking function will need to negotiate with the user to establish the appropriate modem selection e.g. data rate, modulation scheme, etc. In addition, it will also be required to convert the signalling format, from a combination of out of band and in band, to that suitable for controlling the modem and the autocalling line procedure function where applicable. In the following modem selection procedures it is assumed that the interworking function and modems will be associated with each MSC.

For a data call originated by a circuit mode data terminal on the PLMN, the modem selection is done by using the element "modem type" in the call set-up message (bearer capability).

In addition, other elements of the call setup will indicate the user rate, etc. to be used via that modem. The use of this information however means that the network is only able to select a modem from the modem pool which conforms to the speed which the terminal is utilizing at the DTE/DCE interface at the MS (e.g. V.22 for 1 200 bps). The exception to this is where the user has selected the non transparent service in which case either an autobauding or multi self selecting speed modem (e.g. V.32) may be used.

In case the PLMN-BC(s) received with the set-up message indicated a multislot, 14.4kbit/s, and EDGE-operation (refer to 3GPP TS 27.001) and the network does not support any of the required such services, the PLMN-BC(s) sent with the call proceeding message shall not contain the "fixed network user rate", "other modem type" and "user initiated modification indicator" parameters - the MSC shall discard the multislot or 14.4kbit/s and/or EDGE-related parameters and use the fall-back bearer service indicated by the remaining parameters of the PLMN-BS(s) on a singleslot configuration (refer to 3GPP TS 08.20 and 3GPP TS 04.21) on the MSC/IWF-BSS link. The MSC/IWF shall modify the relevant parameters in a possibly present LLC accordingly.

If the MSC supports the multislot, 14.4kbit/s and/or EDGE-operation, the PLMN-BC(s) shall include the "fixed network user rate", "other modem type" and if applicable the "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 up to 1 TCH/F requested', otherwise a multislot configuration (refer to 3GPP TS 08.20 and 3GPP TS 04.21) shall be used on the MSC/IWF-BSS link. 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.

In case the PLMN-BC(s) received with the set-up message did not indicate a multislot, 14.4kbit/s or EDGE-operation, the MSC shall not include the "fixed network user rate", "other modem type" and "user initiated modification indicator" parameters in the PLMN-BC(s) of the call proceeding message - the MSC shall use a singleslot configuration on the MSC/IWF-BSS link.

The MSC may negotiate parameters with the MS according to the rules defined in 3GPP TS 27.001. For multislot, 14_74 kbit/s, and EDGE and Iu Mode operations the MSC/IWF shall modify the relevant parameters in a possibly present LLC accordingly.

Second Modified Section

9.2.2.1 Multi-numbering Scheme

In this scheme, the HPLMN will allocate a number of MSISDNs to a subscriber and associate with each of these numbers a Bearer Capability to identify a Bearer or a Teleservice. This Bearer Capability comprises a complete PLMN Bearer Capability (PLMN BC) information element with contents according to 3GPP TS 27.001 and coded as per 3GPP TS 24.008. In either case, when the HLR receives an interrogation relating to an incoming call (i.e. the MAP "Send Routing Information" procedure), it requests a roaming number (MSRN) from the VLR. This request will contain the PLMN BC reflecting the service associated with the called MSISDN, i.e. the PLMN BC is passed to the VLR within the MAP parameter "GSM Bearer Capability" of the message "Provide Roaming Number".

At the VMSC, when the incoming call arrives, the PLMN BC associated with the MSRN are retrieved from the VLR and sent to the MS at call set-up.

Where the PLMN specific parameters "connection element" and "radio channel" requirements contained in the retrieved PLMN BC-IE, indicate dual capabilities then the VMSC shall set them according to its capabilities/preferences.

Additionally the parameters correlated to those mentioned above shall be modified in accordance with 3GPP TS 27.001.

The same applies to the parameter modem type if "autobauding type 1" is indicated but the IWF does not support this feature. The parameter "data compression" may also be modified according to the capabilities of the IWF.

Where single capabilities are indicated then the VMSC shall use the requested values if it is able to support the service requested. If it is unable to support the requested service then it shall set them according to its capabilities/preferences.

Where the Compatibility Information is provided in a degree exhaustive to deduce a PLMN Basic Service (see application rules in subclause 10.2.2), then the VMSC in providing the PLMN BC IE in the setup message shall set the PLMN specific parameters to its capabilities/preferences.

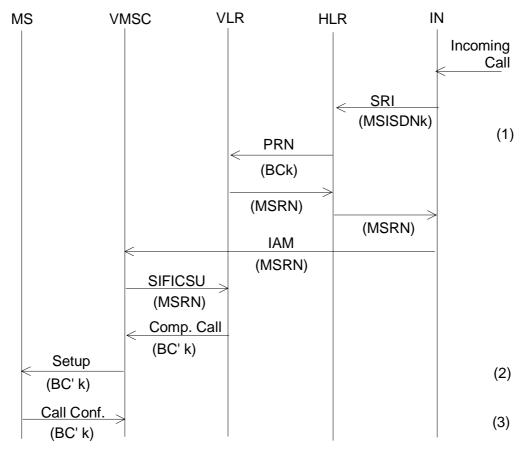
On receipt of a Set-up message containing the compatibility information, the MS will analyse the contents to decide whether the service can be supported (with or without modification, see 3GPP TS 27.001) and the call will be accepted or rejected as appropriate.

These negotiable parameters in the PLMN BC-IE are: Connection Element (Transparent\non-transparent), Data Compression, number of data bits, number of stop bits and parity as well as the correlated parameters Structure, Intermediate Rate, Modem Type and User Information Layer 2 Protocol. For Additionally, for multislot, 14,34 kbit/s and or EDGE_operations additionally the parameters Fixed Network User Rate, Other Modem Type and User Initiated Modification Indicator, and for Iu Mode operations the parameters Fixed Network User Rate and Other Modem Type, can be negotiated. For FTM, PIAFS and Multimedia, Rate adaption/Other rate adaption can be negotiated. For FTM and PIAFS, Synchronous/asynchronous can be negotiated, see 3GPP TS 27.001. This negotiation takes place by means of the MS reflecting back to the MSC a complete bearer capability information element in the call confirm message, with the relevant parameters changed. If this does not take place (i.e. if there is no PLMN BC present in the call confirmed message), than the MSC will assume that the values originally transmitted to the MS are accepted.

In case the PLMN-BC sent with the set-up message contained the "fixed network user rate", "other modem type" and "user initiated modification parameter" parameters and no multislot, 14,34 kbit/s, and/or EDGE_—related parameters (refer to 3GPP TS 27.001) are received in the PLMN-BC of the call confirmed message or no PLMN-BC is received, the MSC shall discard the "fixed network user rate", "other modem type" and "user initiated modification parameter" parameters - the MSC shall use the fall-back bearer service indicated by the remaining parameters of the PLMN-BC on a singleslot configuration (refer to 3GPP TS 08.20 and 3GPP TS 04.21) on the MSC/IWF-BSS link.

On the other hand, if the PLMN-BC received with the call confirmed message contain(s) multislot, 14.4kbit/s or EDGE-related 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', otherwise a multislot configuration (refer to 3GPP TS 08.20 and 3GPP TS 04.21) shall be used on the MSC/IWF-BSS link. 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.

In addition the MS may propose to the network to modify the User Rate as well as the correlated parameters Modem Type and Intermediate Rate in the CALL CONFIRMED message. The network may accept or release the call. For multislot, 14.4kbit/s₂-or EDGE and Iu Mode —operations, the MS may also propose to the network to modify the Fixed Network User Rate and Other Modem Type parameters (see 3GPP TS 27.001).



NOTES: (1) The HLR translates the received MSISDN_ called address (MSISDNk) into the relevant bearer capability information (BCk).

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

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

Abbr.:

SRI - Send Routing Information.
PRN - Provide Roaming Number.
MSRN - Mobile Station Roaming Number.

IAM - Initial Address Message.

SIFICSU - Send Information For Incoming Call Set Up.

Figure 2: Call Flow for a mobile terminated, PSTN originated call where the compatibility information provided are not exhaustive for deducing a PLMN Bearer Service; HLR uses multiple MSISDN numbers with corresponding BCs

Third Modified Section

10 Interworking to the ISDN

The interworking to the ISDN is specified on the principle of the network supporting standardized associated signalling protocol as outlined in clause 6, i.e. DSS1 and ISUP. An ISDN not complying with this definition differs - for the purpose of the present document - in that it does not support the compatibility information to that degree necessary for deducing a PLMN Basic Service. These networks will find their reflection in the following where those implications are to be set out.

The calling address sent in a mobile originated call to the ISDN is always the basic MSISDN even if the ISDN user shall use a different MSISDN (multi numbering scheme, see 9.2.2 case a) for a mobile terminated call (call back) as only the basic MSISDN is available at the VLR (see 3GPP TS 29.002).

The scope of this clause is to describe the handling of the content of the Information Elements where "content" is understood to be the value of the parameter fields of the Information Elements, namely BC-IE, HLC and LLC, after the length indicator. For the transport of these Information Elements within the PLMN refer to 3GPP TS 29.002.

The handling of multislot, 14.4kbit/s, or EDGE and Iu Mode related parameter of the call control signalling and the applicability of single- or multislot configurations (refer to 3GPP TS 08.20 and 3GPP TS 04.21) is the same as for the PSTN interworking cases. For multislot, 14.4kbit/s, or EDGE and Iu Mode operations, the MS may also propose to the network to modify the Fixed Network User Rate and Other Modem Type parameters (see 3GPP TS 27.001). In case a transparent service is used, the call shall be released. For a non-transparent service with flow control, the MSC/IWF shall use towards the fixed network the unmodified "fixed network user rate" and shall use the "wanted air interface user rate" towards the mobile station.

3GPP TSG-CN WG3 Meeting #28 San Diego, USA, 19th – 23rd May 2003.

	CHANGE	REQUEST	CR-Form-v7
ж	29.007 CR 069	≭rev - ≭ Current version:	4.7.0 [%]
For <u>HELP</u> on us	sing this form, see bottom of this	page or look at the pop-up text over	the % symbols.
Proposed change a	<i>iffects:</i> UICC apps Ж	ME X Radio Access Network	Core Network X
Title: 第	Negotiation of fixed network use	er rate (FNUR)	
Source: #	TSG_CN WG3 [Nokia]		
Work item code: ₩	TEI	Date: 第 <mark>23/</mark>	05/2003
	Use one of the following categories: F (correction) A (corresponds to a correction B (addition of feature), C (functional modification of fe D (editorial modification) Detailed explanations of the above of the found in 3GPP TR 21.900.	2 (GSM n in an earlier release) R96 (Rele R97 (Rele R98 (Rele R99 (Rele R99 (Rele R99 (Rele Release) Rel-4 (Rele Rel-5 (Rele	•
Reason for change.	negotiation description with reasons: The negotiation p	ail to cover the UMTS / Iu Mode in the hout any reasoning. (This is probably procedure was defined for high speed as introduced in the specifications).	due to historical
Summary of change	e: # Iu Mode added to the list o possible.	of cases where the setup negotiation	of FNUR is
Consequences if not approved:	# FNUR negotiation not poss	sible with UMTS / Iu Mode.	
Clauses affected:	₩ 9.2.1.1, 9.2.2.1 and 10		
Other specs affected:	Y N X Other core specificat X Test specifications O&M Specifications	tions % 27.001	
Other comments:	*		

How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

- downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First Modified Section

9.2.1.1 Selection of interworking function

The interworking function will need to negotiate with the user to establish the appropriate modem selection e.g. data rate, modulation scheme, etc. In addition, it will also be required to convert the signalling format, from a combination of out of band and in band, to that suitable for controlling the modem and the autocalling line procedure function where applicable. In the following modem selection procedures it is assumed that the interworking function and modems will be associated with each MSC.

For a data call originated by a circuit mode data terminal on the PLMN, the modem selection is done by using the element "modem type" in the call set-up message (bearer capability).

In addition, other elements of the call setup will indicate the user rate, etc. to be used via that modem. The use of this information however means that the network is only able to select a modem from the modem pool which conforms to the speed which the terminal is utilizing at the DTE/DCE interface at the MS (e.g. V.22 for 1 200 bps). The exception to this is where the user has selected the non transparent service in which case either an autobauding or multi self selecting speed modem (e.g. V.32) may be used.

In case the PLMN-BC(s) received with the set-up message indicated a multislot, 14.4kbit/s, and EDGE-operation (refer to 3GPP TS 27.001) and the network does not support any of the required such services, the PLMN-BC(s) sent with the call proceeding message shall not contain the "fixed network user rate", "other modem type" and "user initiated modification indicator" parameters - the MSC shall discard the multislot or 14.4kbit/s and/or EDGE-related parameters and use the fall-back bearer service indicated by the remaining parameters of the PLMN-BS(s) on a singleslot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) on the MSC/IWF-BSS link. The MSC/IWF shall modify the relevant parameters in a possibly present LLC accordingly.

If the MSC supports the multislot, 14.4kbit/s and/or EDGE-operation, the PLMN-BC(s) shall include the "fixed network user rate", "other modem type" and if applicable the "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 up to 1 TCH/F requested', otherwise a multislot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) shall be used on the MSC/IWF-BSS link. 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.

In case the PLMN-BC(s) received with the set-up message did not indicate a multislot, 14.4kbit/s or EDGE-operation, the MSC shall not include the "fixed network user rate", "other modem type" and "user initiated modification indicator" parameters in the PLMN-BC(s) of the call proceeding message - the MSC shall use a singleslot configuration on the MSC/IWF-BSS link.

The MSC may negotiate parameters with the MS according to the rules defined in 3GPP TS 27.001. For multislot, 14_74 kbit/s, and EDGE and Iu Mode operations the MSC/IWF shall modify the relevant parameters in a possibly present LLC accordingly.

Second Modified Section

9.2.2.1 Multi-numbering Scheme

In this scheme, the HPLMN will allocate a number of MSISDNs to a subscriber and associate with each of these numbers a Bearer Capability to identify a Bearer or a Teleservice. This Bearer Capability comprises a complete PLMN Bearer Capability (PLMN BC) information element with contents according to 3GPP TS 27.001 and coded as per 3GPP TS 24.008. In either case, when the HLR receives an interrogation relating to an incoming call (i.e. the MAP "Send Routing Information" procedure), it requests a roaming number (MSRN) from the VLR. This request will contain the PLMN BC reflecting the service associated with the called MSISDN, i.e. the PLMN BC is passed to the VLR within the MAP parameter "GSM Bearer Capability" of the message "Provide Roaming Number".

At the VMSC, when the incoming call arrives, the PLMN BC associated with the MSRN are retrieved from the VLR and sent to the MS at call set-up.

Where the PLMN specific parameter "connection element" contained in the retrieved PLMN BC-IE, indicates dual capabilities then the VMSC shall set it according to its capabilities/preferences. Additionally the parameters correlated to "connection element" shall be modified in accordance with 3GPP TS 27.001.

The same applies to the parameter modem type if "autobauding type 1" is indicated but the IWF does not support this feature. The parameter "data compression" may also be modified according to the capabilities of the IWF.

Where single capabilities are indicated then the VMSC shall use the requested values if it is able to support the service requested. If it is unable to support the requested service then it shall set them according to its capabilities/preferences.

Where the Compatibility Information is provided in a degree exhaustive to deduce a PLMN Basic Service (see application rules in subclause 10.2.2), then the VMSC in providing the PLMN BC IE in the setup message shall set the PLMN specific parameters to its capabilities/preferences.

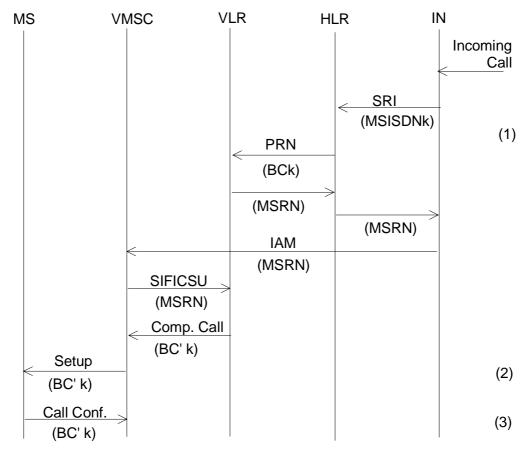
On receipt of a Set-up message containing the compatibility information, the MS will analyse the contents to decide whether the service can be supported (with or without modification, see 3GPP TS 27.001) and the call will be accepted or rejected as appropriate.

These negotiable parameters in the PLMN BC-IE are: Connection Element (Transparent\non-transparent), Data Compression, number of data bits, number of stop bits and parity as well as the correlated parameters Structure, Intermediate Rate, Modem Type and User Information Layer 2 Protocol. For Additionally, for multislot, 14,34 kbit/s and or EDGE—operations additionally the parameters Fixed Network User Rate, Other Modem Type and User Initiated Modification Indicator, and for Iu Mode operations the parameters Fixed Network User Rate and Other Modem Type, can be negotiated. For FTM, PIAFS and Multimedia, Rate adaption/Other rate adaption can be negotiated. For FTM and PIAFS, Synchronous/asynchronous can be negotiated, see 3GPP TS 27.001. This negotiation takes place by means of the MS reflecting back to the MSC a complete bearer capability information element in the call confirm message, with the relevant parameters changed. If this does not take place (i.e. if there is no PLMN BC present in the call confirmed message), than the MSC will assume that the values originally transmitted to the MS are accepted.

In case the PLMN-BC sent with the set-up message contained the "fixed network user rate", "other modem type" and "user initiated modification parameter" parameters and no multislot, 14,34 kbit/s, and/or EDGE_—related parameters (refer to 3GPP TS 27.001) are received in the PLMN-BC of the call confirmed message or no PLMN-BC is received, the MSC shall discard the "fixed network user rate", "other modem type" and "user initiated modification parameter" parameters - the MSC shall use the fall-back bearer service indicated by the remaining parameters of the PLMN-BC on a singleslot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) on the MSC/IWF-BSS link.

On the other hand, if the PLMN-BC received with the call confirmed message contain(s) multislot, 14.4kbit/s or EDGE-related 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', otherwise a multislot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) shall be used on the MSC/IWF-BSS link. 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.

In addition the MS may propose to the network to modify the User Rate as well as the correlated parameters Modem Type and Intermediate Rate in the CALL CONFIRMED message. The network may accept or release the call. For multislot, 14.4kbit/s₂-or EDGE___and Iu Mode operations, the MS may also propose to the network to modify the Fixed Network User Rate and Other Modem Type parameters (see 3GPP TS 27.001).



NOTES: (1) The HLR translates the received MSISDN_ called address (MSISDNk) into the relevant bearer capability information (BCk).

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

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

Abbr.:

SRI - Send Routing Information.
PRN - Provide Roaming Number.
MSRN - Mobile Station Roaming Number.

IAM - Initial Address Message.

SIFICSU - Send Information For Incoming Call Set Up.

Figure 2: Call Flow for a mobile terminated, PSTN originated call where the compatibility information provided are not exhaustive for deducing a PLMN Bearer Service; HLR uses multiple MSISDN numbers with corresponding BCs

Third Modified Section

10 Interworking to the ISDN

The interworking to the ISDN is specified on the principle of the network supporting standardized associated signalling protocol as outlined in clause 6, i.e. DSS1 and ISUP. An ISDN not complying with this definition differs - for the purpose of the present document - in that it does not support the compatibility information to that degree necessary for deducing a PLMN Basic Service. These networks will find their reflection in the following where those implications are to be set out.

The calling address sent in a mobile originated call to the ISDN is always the basic MSISDN even if the ISDN user shall use a different MSISDN (multi numbering scheme, see subclause 9.2.2 case a) for a mobile terminated call (call back) as only the basic MSISDN is available at the VLR (see 3GPP TS 29.002).

The scope of this clause is to describe the handling of the content of the Information Elements where "content" is understood to be the value of the parameter fields of the Information Elements, namely BC-IE, HLC and LLC, after the length indicator. For the transport of these Information Elements within the PLMN refer to 3GPP TS 29.002.

The handling of multislot, 14.4kbit/s, or EDGE and Iu Mode related parameter of the call control signalling and the applicability of single- or multislot configurations (see 3GPP TS 48.020 and 3GPP TS 44.021) is the same as for the PSTN interworking cases. For multislot, 14.4kbit/s, or EDGE and Iu Mode operations, the MS may also propose to the network to modify the Fixed Network User Rate and Other Modem Type parameters (see 3GPP TS 27.001). In case a transparent service is used, the call shall be released. For a non-transparent service with flow control, the MSC/IWF shall use towards the fixed network the unmodified "fixed network user rate" and shall use the "wanted air interface user rate" towards the mobile station.

3GPP TSG-CN WG3 Meeting #28 San Diego, USA, 19th – 23rd May 2003.

			Cl	HANGI	E REQ	UE	ST				CR-Form-v7
*	29	.007	CR 0	70	жrev	-	æ	Current ver	sion:	5.5.0	*
For <u>HELP</u> o	n using	this for	m, see b	ottom of th	is page or	look	at the	e pop-up tex	t over	the % syr	mbols.
Proposed chang	ge affec	<i>ts:</i> l	JICC app	os 	ME X	Rad	dio A	ccess Netwo	ork	Core Ne	etwork X
Title:	₩ Ne	gotiatio	on of fixe	d network	user rate (FNUF	۲)				
Source:	₩ TS	G_CN	WG3 [N	okia]							
Work item code	: Ж <u>ТЕ</u>	l						Date: \$	8 23/	05/2003	
Category:	Deta	F (corr A (corr B (add C (fund D (edit iled exp	rection) responds lition of fe ctional mo torial mod	odification of lification) of the abov	ion in an ea ffeature)		elease	2	f the for (GSN (Rele (Rele (Rele (Rele (Rele (Rele	II-5 Illowing rele In Phase 2) Pase 1996) Pase 1998) Pase 1999) Pase 4) Pase 5)	
Reason for char	nge: Ж	nego reaso	tiation de ons: The	escription v negotiation	vithout any n procedur	reas e was	oning s defi	TS / Iu Mode g. (This is pr ined for high e specification	obably speed	y due to h	
Summary of cha	ange: #	lu Mo		ed to the lis	t of cases	where	e the	setup nego	tiation	of FNUR	is
Consequences not approved:	if ¥	FNU	R negotia	ation not po	ossible wit	h UM	TS/I	lu Mode.			
Clauses affected	d:	9.2.1	.1, 9.2.2	.1 and 10							
Other specs affected:	ж	Y N X X	Test sp	ore specific ecifications pecification	3	ж	27.0	01			
Other comments	s: #										

How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

- downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First Modified Section

9.2.1.1 Selection of interworking function

The interworking function will need to negotiate with the user to establish the appropriate modem selection e.g. data rate, modulation scheme, etc. In addition, it will also be required to convert the signalling format, from a combination of out of band and in band, to that suitable for controlling the modem and the autocalling line procedure function where applicable. In the following modem selection procedures it is assumed that the interworking function and modems will be associated with each MSC.

For a data call originated by a circuit mode data terminal on the PLMN, the modem selection is done by using the element "modem type" in the call set-up message (bearer capability).

In addition, other elements of the call setup will indicate the user rate, etc. to be used via that modem. The use of this information however means that the network is only able to select a modem from the modem pool which conforms to the speed which the terminal is utilizing at the DTE/DCE interface at the UE (e.g. V.22 for 1 200 bps). The exception to this is where the user has selected the non transparent service in which case either an autobauding or multi self selecting speed modem (e.g. V.32) may be used.

In case the PLMN-BC(s) received with the set-up message indicated a multislot, 14.4kbit/s, and EDGE-operation (refer to 3GPP TS 27.001) and the network does not support any of the required such services, the PLMN-BC(s) sent with the call proceeding message shall not contain the "fixed network user rate", "other modem type" and "user initiated modification indicator" parameters - the MSC shall discard the multislot or 14.4kbit/s and/or EDGE-related parameters and use the fall-back bearer service indicated by the remaining parameters of the PLMN-BS(s) on a singleslot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) on the MSC/IWF-RAN link. The MSC/IWF shall modify the relevant parameters in a possibly present LLC accordingly.

If the MSC supports the multislot, 14.4kbit/s and/or EDGE-operation, the PLMN-BC(s) shall include the "fixed network user rate", "other modem type" and if applicable the "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 up to 1 TCH/F requested', otherwise a multislot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) shall be used on the MSC/IWF-RAN link. In case the UE 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.

In case the PLMN-BC(s) received with the set-up message did not indicate a multislot, 14.4kbit/s or EDGE-operation, the MSC shall not include the "fixed network user rate", "other modem type" and "user initiated modification indicator" parameters in the PLMN-BC(s) of the call proceeding message - the MSC shall use a singleslot configuration on the MSC/IWF-RAN link.

The MSC may negotiate parameters with the UE according to the rules defined in 3GPP TS 27.001. For multislot, 14_74 kbit/s, and EDGE and Iu Mode operations the MSC/IWF shall modify the relevant parameters in a possibly present LLC accordingly.

Second Modified Section

9.2.2.1 Multi-numbering Scheme

In this scheme, the HPLMN will allocate a number of MSISDNs to a subscriber and associate with each of these numbers a Bearer Capability to identify a Bearer or a Teleservice. This Bearer Capability comprises a complete PLMN Bearer Capability (PLMN BC) information element with contents according to 3GPP TS 27.001 and coded as per 3GPP TS 24.008. In either case, when the HLR receives an interrogation relating to an incoming call (i.e. the MAP "Send Routing Information" procedure), it requests a roaming number (MSRN) from the VLR. This request will contain the PLMN BC reflecting the service associated with the called MSISDN, i.e. the PLMN BC is passed to the VLR within the MAP parameter "GSM Bearer Capability" of the message "Provide Roaming Number".

At the VMSC, when the incoming call arrives, the PLMN BC associated with the MSRN are retrieved from the VLR and sent to the UE at call set-up.

Where the PLMN specific parameter "connection element" contained in the retrieved PLMN BC-IE, indicates dual capabilities then the VMSC shall set it according to its capabilities/preferences. Additionally the parameters correlated to "connection element" shall be modified in accordance with 3GPP TS 27.001.

The same applies to the parameter modem type if "autobauding type 1" is indicated but the IWF does not support this feature. The parameter "data compression" may also be modified according to the capabilities of the IWF.

Where single capabilities are indicated then the VMSC shall use the requested values if it is able to support the service requested. If it is unable to support the requested service then it shall set them according to its capabilities/preferences.

Where the Compatibility Information is provided in a degree exhaustive to deduce a PLMN Basic Service (see application rules in subclause 10.2.2), then the VMSC in providing the PLMN BC IE in the setup message shall set the PLMN specific parameters to its capabilities/preferences.

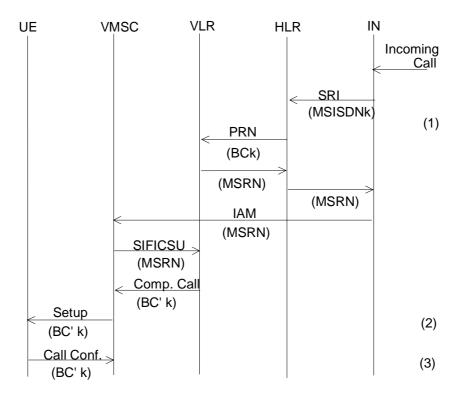
On receipt of a Set-up message containing the compatibility information, the UE will analyse the contents to decide whether the service can be supported (with or without modification, see 3GPP TS 27.001) and the call will be accepted or rejected as appropriate.

These negotiable parameters in the PLMN BC-IE are: Connection Element (Transparent\non-transparent), Data Compression, number of data bits, number of stop bits and parity as well as the correlated parameters Structure, Intermediate Rate, Modem Type and User Information Layer 2 Protocol. For Additionally, for multislot, 14,34 kbit/s and or EDGE—operations additionally the parameters Fixed Network User Rate, Other Modem Type and User Initiated Modification Indicator, and for Iu Mode operations the parameters Fixed Network User Rate and Other Modem Type, can be negotiated. For FTM, PIAFS and Multimedia, Rate adaption/Other rate adaption can be negotiated. For FTM and PIAFS, Synchronous/asynchronous can be negotiated, see 3GPP TS 27.001. This negotiation takes place by means of the UE reflecting back to the MSC a complete bearer capability information element in the call confirm message, with the relevant parameters changed. If this does not take place (i.e. if there is no PLMN BC present in the call confirmed message), than the MSC will assume that the values originally transmitted to the UE are accepted.

In case the PLMN-BC sent with the set-up message contained the "fixed network user rate", "other modem type" and "user initiated modification parameter" parameters and no multislot, 14,34 kbit/s, and/or EDGE_—related parameters (refer to 3GPP TS 27.001) are received in the PLMN-BC of the call confirmed message or no PLMN-BC is received, the MSC shall discard the "fixed network user rate", "other modem type" and "user initiated modification parameter" parameters - the MSC shall use the fall-back bearer service indicated by the remaining parameters of the PLMN-BC on a singleslot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) on the MSC/IWF-RAN link.

On the other hand, if the PLMN-BC received with the call confirmed message contain(s) multislot, 14.4kbit/s or EDGE-related 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', otherwise a multislot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) shall be used on the MSC/IWF-RAN link. In case the UE 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.

In addition the UE may propose to the network to modify the User Rate as well as the correlated parameters Modem Type and Intermediate Rate in the CALL CONFIRMED message. The network may accept or release the call. For multislot, 14.4kbit/s_or EDGE_and Iu Mode operations, the UE may also propose to the network to modify the Fixed Network User Rate and Other Modem Type parameters (see 3GPP TS 27.001).



NOTES: (1) The HLR translates the received MSISDN_ called address (MSISDNk) into the relevant bearer capability information (BCk).

- (2) Some parameters of BCk may be provided/modified according to the MSC's capabilities/preferences. See subclause 9.2.2.
- (3) In the "Call Confirm" message, the UE may modify some parameters of the BC. See subclause 9.2.2.

Abbr.:

SRI - Send Routing Information.
PRN - Provide Roaming Number.
MSRN - Mobile Station Roaming Number.

IAM - Initial Address Message.

SIFICSU - Send Information For Incoming Call Set Up.

Figure 2: Call Flow for a mobile terminated, PSTN originated call where the compatibility information provided are not exhaustive for deducing a PLMN Bearer Service; HLR uses multiple MSISDN numbers with corresponding BCs

Third Modified Section

10 Interworking to the ISDN

The interworking to the ISDN is specified on the principle of the network supporting standardized associated signalling protocol as outlined in clause 6, i.e. DSS1 and ISUP. An ISDN not complying with this definition differs - for the purpose of the present document - in that it does not support the compatibility information to that degree necessary for deducing a PLMN Basic Service. These networks will find their reflection in the following where those implications are to be set out.

The calling address sent in a mobile originated call to the ISDN is always the basic MSISDN even if the ISDN user shall use a different MSISDN (multi numbering scheme, see 9.2.2 case a) for a mobile terminated call (call back) as only the basic MSISDN is available at the VLR (see 3GPP TS 29.002).

The scope of this clause is to describe the handling of the content of the Information Elements where "content" is understood to be the value of the parameter fields of the Information Elements, namely BC-IE, HLC and LLC, after the length indicator. For the transport of these Information Elements within the PLMN refer to 3GPP TS 29.002.

The handling of multislot, 14.4kbit/s, or EDGE and Iu Mode -related parameters of the call control signalling and the applicability of single- or multislot configurations (refer to 3GPP TS 48.020 and 3GPP TS 44.021) is the same as for the PSTN interworking cases. For multislot, 14.4kbit/s, or EDGE and Iu Mode -operations, the UE may also propose to the network to modify the Fixed Network User Rate and Other Modem Type parameters (see 3GPP TS 27.001). In case a transparent service is used, the call shall be released. For a non-transparent service with flow control, the MSC/IWF shall use towards the fixed network the unmodified "fixed network user rate" and shall use the "wanted air interface user rate" towards the user equipment.

3GPP TSG-CN WG3 Meeting #28 San Diego, U.S.A. 19th – 23rd May 2003.

	(CHANGE	REQU	JEST			CR-Form-v7
ж <mark>24</mark>	1.022 CR	009	жrev	- % (Current versi	ion: 3.4.0	*
For <u>HELP</u> on using	this form, see	bottom of this	page or lo	ook at the	pop-up text	over the % sy	mbols.
Proposed change affec	cts: UICC a	pps#	ME X	Radio Ac	cess Networ	k Core N	etwork X
Title:	etermination o	f the RLP versi	on by the	signalled	Bearer Capa	ability IE	
Source: # TS	SG_CN WG3	Siemens AG]					
Work item code: 第 TE	≣I				Date: ₩	05/05/03	
Category:					Release: %		
Det	F (correction) A (correspond B (addition of C (functional of D (editorial of	modification of feodification) ns of the above	n in an earli eature)	·	2 R96 R97 R98 R99 Rel-4 Rel-5	the following rel (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5) (Release 6)	
Reason for change: #	The rules for	or the determin	ation of th	o DI Divo	rcion to ho u	sod dopondina	a on the
Reason for Change.	signalled in different rea - correction - allignmen	formation in the asons for this C of an erroneou t of terms with of the rule if th	e Bearer (CR identificus implem TS 24.008	Capability ed by diffeented CR	IE need imperent colors of 24.022-005	rovements. The factor of the revision	ere are 3
Summary of change: #	See attache	ed page					
Consequences if # not approved:	Inconsisten	cies with other	Specifica	tions			
Clauses affected: #	Clause 3						
Other specs # affected:	Y N X Othe	core specifica specifications Specifications	tions	¥			
Other comments:	g						

How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

- downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

3 Introduction

Three versions of RLP are defined:

- RLP version 0: single-link basic version;
- RLP version 1: single-link extended version (e.g. extended by data compression);
- RLP version 2: multi-link version.

RLP uses one physical link (single-link) or from 1 up to 4 (multi-link) substreams on one or more physical links. However, the RLP multi-link version is designed to be able to support up to 8 physical links. If, in the call set-up signalling, either end indicates that it cannot support multi-link operation, neither end shall require usage of RLP-versions higher than 1. If the BC negotiation during call set-up results in a possibility for multi-link operation during the call, both ends shall require and accept RLP version 2 only.

If the BC-IE sent by the MS in the SETUP or CALL CONFIRM message indicates negotiation during call set up results in-"maximum number of traffic channels" = "1 TCH" and WAIUR \leq 14.4 kbit/s and the BC-IE sent by the MS in the CALL CONFIRM message (MT case) or by the MSC in the CALL PROCEEDING message (MO case) indicates UIMI = "User initiated modification not allowed/required/applicable not required/not allowed" or "User initiated modification up to 1 TCH/F allowed/may be requested allowed", this is shall be interpreted as if at least one end does not support multi-link operation, and neither end shall require RLP version higher than 1. The same interpretation shall apply if the octets containing the parameters "maximum number of traffic channels" or UIMI are not included in the respective BC-IE.

RLP makes use of an underlying FEC (Forward Error Correction) mechanism. For RLP to perform adequately it is assumed that the basic radio channel together with FEC provides for a block error rate of less than 10 %, where a block consists of 240 or 576 bits (Further study on the BLER for 576-bit blocks is needed). Furthermore, it is assumed that in case of multi-link RLP the difference of the delay between all physical links is less than timer T4.

In GSM, RLP frames are sent in strict alignment with the radio transmission. (For details, see 3GPP TS 04.21). RLP frames are of a fixed size of 240 (TCH/F4.8 and TCH/F9.6 channel codings) or 576 bits (TCH/F14.4, TCH/F28.8 and TCH/F43.2 channel codings). Whenever a frame is to be sent, the RLP entity has to provide the necessary protocol information to be contained in it. In UMTS, the RLP frame size does not depend on the channel coding, only 576 bit frames are used.

RLP entities running only in an UMTS environment need only to support the 576 bit frame length. The REMAP function is not necessary. RLP entities running in both of the systems have to support the REMAP function. In a handover from UMTS to GSM the frame either stays 576 bits long or changes from 576 bits to 240 bits incurring a REMAP. In a handover from GSM to UMTS the frame either stays 576 bits long or changes from 240 bits to 576 bits incurring a REMAP.

Provision is made for discontinuous transmission (DTX).

RLP spans from the Mobile Station (MS) to the interworking function (IWF), located at the nearest Mobile Switching Centre (MSC), or beyond. Depending on the exact location of the IWF, handover of the MS may result in link-reset or even total loss of the connection.

The MS shall initiate the RLP link. In addition the MSC/IWF may initiate the RLP link.

In the terminology of HDLC, RLP is used in a balanced configuration, employing asynchronous operation, i.e. either station has the right to set-up, reset, or disconnect a link at any time. Procedural means are provided for to deal with contentious situations, should they ever occur.

RLP is full-duplex in the sense that it allows for information to be transferred in both directions simultaneously.

3GPP TSG-CN WG3 Meeting #28 San Diego, U.S.A. 19th – 23rd May 2003.

CHANGE REQUEST					CR-Form-v7		
¥ 24	4.022 CR	010	жrev	#	Current version	ion: 4.0.0	¥
For <u>HELP</u> on using	this form, see	e bottom of this	page or l	ook at the	e pop-up text	over the % syi	mbols.
Proposed change affec	cts: UICC a	apps %	ME X	Radio A	ccess Networ	k Core Ne	etwork X
Title:	etermination o	of the RLP versi	on by the	signalled	Bearer Capa	ability IE	
Source: # TS	SG_CN WG3	[Siemens AG]					
Work item code: % TE	ΞI				Date: ₩	05/05/03	
Category: # A					Release: #	Rel-4	
Det	F (correction, A (correspon B (addition o C (functional D (editorial m	ds to a correction f feature), modification of fe nodification) ons of the above	n in an earl eature)		2 R96 R97 R98 R99 Rel-4	the following rela (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5) (Release 6)	
Reason for change: #	P The rules f	or the determin	ation of th	o DI D v	arcion to be u	sed depending	on the
Reason for Change.	signalled in different re - correction - allignmen	of the determination in the asons for this Control of an erroneout of terms with of the rule if the	e Bearer (CR identifi us implem TS 24.008	Capability ed by diffented CF	/ IE need imp ferent colors of R 24.022-005	rovements. The first the revision is	ere are 3
Summary of change: #	See attach	ed page					
Consequences if # not approved:	Inconsister	ncies with other	Specifica	tions			
Clauses affected: #	Clause 3						
Other specs # affected:	Y N X Othe X O&M	r core specifica specifications I Specifications		¥			
Other comments:	g						

How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

- downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

3 Introduction

Three versions of RLP are defined:

- RLP version 0: single-link basic version;
- RLP version 1: single-link extended version (e.g. extended by data compression);
- RLP version 2: multi-link version.

RLP uses one physical link (single-link) or from 1 up to 4 (multi-link) substreams on one or more physical links. However, the RLP multi-link version is designed to be able to support up to 8 physical links. If, in the call set-up signalling, either end indicates that it cannot support multi-link operation, neither end shall require usage of RLP-versions higher than 1. If the BC negotiation during call set-up results in a possibility for multi-link operation during the call, both ends shall require and accept RLP version 2 only.

If the BC-IE sent by the MS in the SETUP or CALL CONFIRM message indicates negotiation during call set up results in-"maximum number of traffic channels" = "1 TCH" and WAIUR \leq 14.4 kbit/s and the BC-IE sent by the MS in the CALL CONFIRM message (MT case) or by the MSC in the CALL PROCEEDING message (MO case) indicates UIMI = "User initiated modification not allowed/required/applicable not required/not allowed" or "User initiated modification up to 1 TCH/F allowed/may be requested allowed", this is shall be interpreted as if at least one end does not support multi-link operation, and neither end shall require RLP version higher than 1. The same interpretation shall apply if the octets containing the parameters "maximum number of traffic channels" or UIMI are not included in the respective BC-IE.

RLP makes use of an underlying FEC (Forward Error Correction) mechanism. For RLP to perform adequately it is assumed that the basic radio channel together with FEC provides for a block error rate of less than 10 %, where a block consists of 240 or 576 bits (Further study on the BLER for 576-bit blocks is needed). Furthermore, it is assumed that in case of multi-link RLP the difference of the delay between all physical links is less than timer T4.

In GSM, RLP frames are sent in strict alignment with the radio transmission. (For details, see 3GPP TS 04.21). RLP frames are of a fixed size of 240 (TCH/F4.8 and TCH/F9.6 channel codings) or 576 bits (TCH/F14.4, TCH/F28.8 and TCH/F43.2 channel codings). Whenever a frame is to be sent, the RLP entity has to provide the necessary protocol information to be contained in it. In UMTS, the RLP frame size does not depend on the channel coding, only 576 bit frames are used.

RLP entities running only in an UMTS environment need only to support the 576 bit frame length. The REMAP function is not necessary. RLP entities running in both of the systems have to support the REMAP function. In a handover from UMTS to GSM the frame either stays 576 bits long or changes from 576 bits to 240 bits incurring a REMAP. In a handover from GSM to UMTS the frame either stays 576 bits long or changes from 240 bits to 576 bits incurring a REMAP.

Provision is made for discontinuous transmission (DTX).

RLP spans from the Mobile Station (MS) to the interworking function (IWF), located at the nearest Mobile Switching Centre (MSC), or beyond. Depending on the exact location of the IWF, handover of the MS may result in link-reset or even total loss of the connection.

The MS shall initiate the RLP link. In addition the MSC/IWF may initiate the RLP link.

In the terminology of HDLC, RLP is used in a balanced configuration, employing asynchronous operation, i.e. either station has the right to set-up, reset, or disconnect a link at any time. Procedural means are provided for to deal with contentious situations, should they ever occur.

RLP is full-duplex in the sense that it allows for information to be transferred in both directions simultaneously.

3GPP TSG-CN WG3 Meeting #28 San Diego, U.S.A. 19th – 23rd May 2003.

CHANGE REQUEST						CR-Form-v7	
*	24.022	CR 011	жrev	- %	Current vers	5.2.0	æ
For <u>HELP</u> on u	sing this for	m, see bottom of this	s page or i	look at th	e pop-up text	over the % sy	mbols.
Proposed change a	affects: \	JICC apps Ж <mark>─</mark>	ME X	Radio A	access Networ	rk Core N	etwork X
Title: %	Determina	ation of the RLP vers	sion by the	signalle	d Bearer Capa	ability IE	
Source: #	TSG_CN	WG3 [Siemens AG]					
Work item code: 第	TEI				Date: ₩	05/05/03	
Category: ж	A				Release: %		
	F (corr A (corr B (add C (fund D (edit Detailed exp	the following categories rection) responds to a correction lition of feature), ctional modification of feorial modification) blanations of the above 3GPP TR 21.900.	n in an ear feature)		2	the following rel (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5) (Release 6)	
Reason for change	: % The	rules for the determin	nation of th	ne RLP v	ersion to be u	sed depending	on the
, rouge, rer en ange	signa	alled information in th	ne Bearer	Capabilit	y IE need imp	rovements. Th	ere are 3
	- cori	different reasons for this CR identified by different colors of the revision marks: - correction of an erroneous implemented CR 24.022-005r1. - allignment of terms with TS 24.008					marks.
		anment of terms with ension of the rule if th			not present		
Summary of chang	e: % See	attached page					
Consequences if not approved:	# Incor	nsistencies with other	r Specifica	ations			
Clauses affected:	₩ Claus	se 3					
Other specs affected:	Y N 米 X X	Other core specifications O&M Specifications		æ			
Other comments:	*						

How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

- downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

3 Introduction

Three versions of RLP are defined:

- RLP version 0: single-link basic version;
- RLP version 1: single-link extended version (e.g. extended by data compression);
- RLP version 2: multi-link version.

RLP uses one physical link (single-link) or from 1 up to 4 (multi-link) substreams on one or more physical links. However, the RLP multi-link version is designed to be able to support up to 8 physical links. If, in the call set-up signalling, either end indicates that it cannot support multi-link operation, neither end shall require usage of RLP-versions higher than 1. If the BC negotiation during call set-up results in a possibility for multi-link operation during the call, both ends shall require and accept RLP version 2 only.

If the BC-IE sent by the UE in the SETUP or CALL CONFIRM message indicates negotiation during call set up results in-"maximum number of traffic channels" = "1 TCH" and WAIUR ≤ 14.4 kbit/s and the BC-IE sent by the UE in the CALL CONFIRM message (MT case) or by the MSC in the CALL PROCEEDING message (MO case) indicates UIMI = "User initiated modification not allowed/required/applicable not required/not allowed" or "User initiated modification up to 1 TCH/F allowed/may be requested allowed, this is shall be interpreted as if at least one end does not support multi-link operation, and neither end shall require RLP version higher than 1. The same interpretation shall apply if the octets containing the parameters "maximum number of traffic channels" or UIMI are not included in the respective BC-IE.

RLP makes use of an underlying FEC (Forward Error Correction) mechanism. For RLP to perform adequately it is assumed that the basic radio channel together with FEC provides for a block error rate of less than 10 %, where a block consists of 240 bits or 576 bits (Further study on the BLER for 576-bit blocks is needed). Furthermore, it is assumed that in case of multi-link RLP the difference of the delay between all physical links is less than timer T4.

In A/Gb mode and in GERAN Iu mode, RLP frames are of a fixed size of 240 (TCH/F4,8 and TCH/F9,6 channel codings) or 576 bits (TCH/F14,4, TCH/F28,8 and TCH/F43,2 channel codings). In UTRAN Iu mode, the RLP frame size does not depend on the channel coding, only 576 bit frames are used.

RLP entities running only in an UTRAN Iu mode environment need only to support the 576 bit frame length. The REMAP function is not necessary. RLP entities running in both of the systems have to support the REMAP function. In a handover from UTRAN Iu mode to A/Gb mode or GERAN Iu mode the frame either stays 576 bits long or changes from 576 bits to 240 bits incurring a REMAP. In a handover from A/Gb mode or GERAN Iu mode to UTRAN Iu mode the frame either stays 576 bits long or changes from 240 bits to 576 bits incurring a REMAP.

In A/Gb mode, RLP frames are sent in strict alignment with the radio transmission. (For details, see 3GPP TS 44.021 [2]). Whenever a frame is to be sent, the RLP entity has to provide the necessary protocol information to be contained in it.

Provision is made for Discontinuous Transmission (DTX).

RLP spans from the User Equipment (UE) to the interworking function (IWF), located at the nearest Mobile Switching Centre (MSC), or beyond. Depending on the exact location of the IWF, handover of the UE may result in link-reset or even total loss of the connection.

The UE shall initiate the RLP link. In addition the MSC/IWF may initiate the RLP link.

In the terminology of HDLC, RLP is used in a balanced configuration, employing asynchronous operation, i.e. either station has the right to set-up, reset, or disconnect a link at any time. Procedural means are provided for to deal with contentious situations, should they ever occur.

RLP is full-duplex in the sense that it allows for information to be transferred in both directions simultaneously.

San Diego, U.S.A. 19 – 23 May 2003.					
CHANGE REQUEST					
ж	9.007 CR 076				
For <u>HELP</u> on usi	g this form, see bottom of this page or look at the pop-up text over the % symbols.				
Proposed change at	ects: UICC apps% ME X Radio Access Network Core Network X				
Title:	Jse of single or multislot configurations				
Source: #	rsg_cn wg3 [siemens Ag]				
Work item code: ₩	TEI Date: 第 20/05/2003				
Category: 第	Release: % R99				
	se <u>one</u> of the following categories: Use <u>one</u> of the following releases: F (correction) 2 (GSM Phase 2)				
	A (corresponds to a correction in an earlier release) R96 (Release 1996)				
	B (addition of feature),R97 (Release 1997)C (functional modification of feature)R98 (Release 1998)				
	D (editorial modification) R99 (Release 1999)				
	etailed explanations of the above categories can Rel-4 (Release 4)				
į t	e found in 3GPP TR 21.900. Rel-5 (Release 5)				
	Rel-6 (Release 6)				
Reason for change: The rules defined in TS 27.001 and 29.007 in order to determine whether a singleslot or a multislot configuration applies on the MSC-BSS link or MS-BSS link are not correct and do not cover the EDGE cases, e.g., a call for 28.8 kbit/s will signal FNUR=28.8 kbit/s or WAIUR=28,8 kbit/s (NT only) and MaxNumTCH = "1 TCH" and UIMI = "not allowed" or "up to 1 TCH/F allowed" (NT only).					
	Such a call will use a singleslot TCH/F28.8 channel on the MS – BTS link, but two TCH/F14.4 channels on the BTS - MSC link. For NT services a multilink version of RLP is necessary. The rules for the determination of whether a singleslot or a multislot configuration has to be used is already defined in TS 44.021, 48.020 and 24.022 und should therefore not repeated in 27.001 and 29.007.				
Summary of change	器 See attached pages				
Consequences if	₩ Wrong rules in TS 29.007 and misalignment with other specs like 44.021, 48.020				
not approved:	and 24.022.				
Clauses affected:	第 Clauses 9.2.1.1 and 9.2.2.1				
	YN				
Other specs affected:	X Other core specifications X Test specifications O&M Specifications X O&M Specifications				

Other comments:

ж

How to create CRs using this form:

- 1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First section modified

9.2.1 Network interworking mobile originated

9.2.1.1 Selection of interworking function

The interworking function will need to negotiate with the user to establish the appropriate modem selection e.g. data rate, modulation scheme, etc. In addition, it will also be required to convert the signalling format, from a combination of out of band and in band, to that suitable for controlling the modem and the autocalling line procedure function where applicable. In the following modem selection procedures it is assumed that the interworking function and modems will be associated with each MSC.

For a data call originated by a circuit mode data terminal on the PLMN, the modem selection is done by using the element "modem type" in the call set-up message (bearer capability).

In addition, other elements of the call setup will indicate the user rate, etc. to be used via that modem. The use of this information however means that the network is only able to select a modem from the modem pool which conforms to the speed which the terminal is utilizing at the DTE/DCE interface at the MS (e.g. V.22 for 1 200 bps). The exception to this is where the user has selected the non transparent service in which case either an autobauding or multi self selecting speed modem (e.g. V.32) may be used.

In case the PLMN-BC(s) received with the set-up message indicated a multislot, 14.4kbit/s, and EDGE-operation (refer to 3GPP TS 27.001) and the network does not support any of the required such services, the PLMN-BC(s) sent with the call proceeding message shall not contain the "fixed network user rate", "other modem type" and "user initiated modification indicator" parameters - the MSC shall discard the multislot or 14.4kbit/s and/or EDGE-related parameters and use the fall-back bearer service indicated by the remaining parameters of the PLMN-BS(s) on a singleslot configuration (refer to 3GPP TS 08.20 and 3GPP TS 04.21) on the MSC/IWF-BSS link. The MSC/IWF shall modify the relevant parameters in a possibly present LLC accordingly.

If the MSC supports the multislot, 14.4kbit/s and/or EDGE-operation, the PLMN-BC(s) shall include the "fixed network user rate", "other modem type" and if applicable the "user initiated modification indicator" parameters. The MSC shall apply on the MSC/IWF-BSS link a singleslot or multislot configuration according to the rules defined in 3GPP TS 04.21, 3GPP TS 08.20 and 3GPP TS 24.022 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 up to 1 TCH/F requested', otherwise a multislot configuration (refer to 3GPP TS 08.20 and 3GPP TS 04.21) shall be used on the MSC/IWF-BSS link. 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.

In case the PLMN-BC(s) received with the set-up message did not indicate a multislot, 14.4kbit/s or EDGE-operation, the MSC shall not include the "fixed network user rate", "other modem type" and "user initiated modification indicator" parameters in the PLMN-BC(s) of the call proceeding message - the MSC shall use a singleslot configuration on the MSC/IWF-BSS link.

The MSC may negotiate parameters with the MS according to the rules defined in 3GPP TS 27.001. For multislot, 14,4 kbit/s, and EDGE-operations the MSC/IWF shall modify the relevant parameters in a possibly present LLC accordingly.

Next section modified

9.2.2 Network Interworking Mobile terminated PSTN Originated

This subclause describes the interworking of calls where the calling subscriber cannot generate or communicate Compatibility Information exhaustive for deducing a PLMN Basic Service to a PLMN (gateway MSC/interrogating node) because of lack of ISDN signalling capability. Thus the HLR is relieved from any compatibility checking for such calls.

Two methods of allocating MS International ISDN Numbers (MSISDNs) are allowed: Firstly, a separate MSISDN may be allocated for each service, or service option, which a subscriber uses for incoming calls; or, alternatively, a single number, applicable for all incoming calls is used.

It should be noted that it is possible for both schemes to co-exist within the PLMN and that they are not mutually exclusive.

- a) Multiple MSISDNs are used ("The Multi-numbering Scheme"). See figure 2.
- b) A single MSISDN is used ("The Single-numbering Scheme"). See figure 3.

9.2.2.1 Multi-numbering Scheme

In this scheme, the HPLMN will allocate a number of MSISDNs to a subscriber and associate with each of these numbers a Bearer Capability to identify a Bearer or a Teleservice. This Bearer Capability comprises a complete PLMN Bearer Capability (PLMN BC) information element with contents according to 3GPP TS 27.001 and coded as per 3GPP TS 24.008. In either case, when the HLR receives an interrogation relating to an incoming call (i.e. the MAP "Send Routing Information" procedure), it requests a roaming number (MSRN) from the VLR. This request will contain the PLMN BC reflecting the service associated with the called MSISDN, i.e. the PLMN BC is passed to the VLR within the MAP parameter "GSM Bearer Capability" of the message "Provide Roaming Number".

At the VMSC, when the incoming call arrives, the PLMN BC associated with the MSRN are retrieved from the VLR and sent to the MS at call set-up.

Where the PLMN specific parameters "connection element" and "radio channel" requirements contained in the retrieved PLMN BC-IE, indicate dual capabilities then the VMSC shall set them according to its capabilities/preferences.

Additionally the parameters correlated to those mentioned above shall be modified in accordance with 3GPP TS 27.001.

The same applies to the parameter modem type if "autobauding type 1" is indicated but the IWF does not support this feature. The parameter "data compression" may also be modified according to the capabilities of the IWF.

Where single capabilities are indicated then the VMSC shall use the requested values if it is able to support the service requested. If it is unable to support the requested service then it shall set them according to its capabilities/preferences.

Where the Compatibility Information is provided in a degree exhaustive to deduce a PLMN Basic Service (see application rules in subclause 10.2.2), then the VMSC in providing the PLMN BC IE in the setup message shall set the PLMN specific parameters to its capabilities/preferences.

On receipt of a Set-up message containing the compatibility information, the MS will analyse the contents to decide whether the service can be supported (with or without modification, see 3GPP TS 27.001) and the call will be accepted or rejected as appropriate.

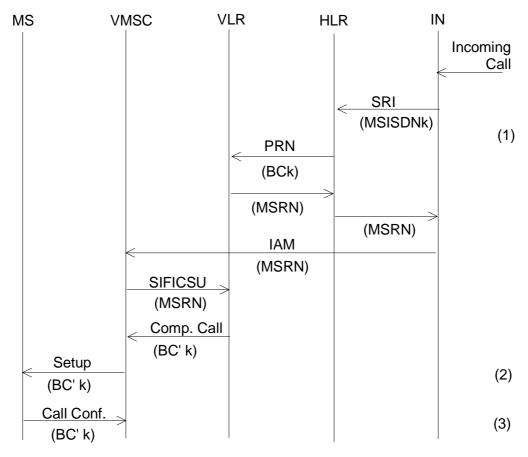
These negotiable parameters in the PLMN BC-IE are: Connection Element (Transparent\non-transparent), Data Compression, number of data bits, number of stop bits and parity as well as the correlated parameters Structure, Intermediate Rate, Modem Type and User Information Layer 2 Protocol. For multislot, 14,4 kbit/s or EDGE--operations additionally the parameters Fixed Network User Rate, Other Modem Type and User Initiated Modification Indicator can be negotiated. For FTM, PIAFS and Multimedia, Rate adaption/Other rate adaption can be negotiated. For FTM and PIAFS, Synchronous/asynchronous can be negotiated, see 3GPP TS 27.001. This negotiation takes place by means of the MS reflecting back to the MSC a complete bearer capability information element in the call confirm message, with the relevant parameters changed. If this does not take place (i.e. if there is no PLMN BC present in the call confirmed message), than the MSC will assume that the values originally transmitted to the MS are accepted.

In case the PLMN-BC sent with the set-up message contained the "fixed network user rate", "other modem type" and "user initiated modification parameter" parameters and no multislot, 14,4 kbit/s, and/or EDGE--related parameters (refer to 3GPP TS 27.001) are received in the PLMN-BC of the call confirmed message or no PLMN-BC is received, the MSC shall discard the "fixed network user rate", "other modem type" and "user initiated modification parameter" parameters - the MSC shall use the fall-back bearer service indicated by the remaining parameters of the PLMN-BC on a singleslot configuration (refer to 3GPP TS 08.20 and 3GPP TS 04.21) on the MSC/IWF-BSS link.

On the other hand, if the PLMN-BC received with the call confirmed message contain(s) multislot, 14.4kbit/s or EDGE-related parameters the MSC shall apply on the MSC/IWF-BSS link a singleslot or multislot configuration according to the rules defined in 3GPP TS 04.21, 3GPP TS 08.20 and 3GPP TS 24.022 when the "maximum number of traffic channels" indicates '1 TCH' and the "user initiated modification indicator" indicates either 'user initiated modification upto 1 TCH/F requested', otherwise a multislot configuration

(refer to 3GPP TS 08.20 and 3GPP TS 04.21) shall be used on the MSC/TWF-BSS link. 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.

In addition the MS may propose to the network to modify the User Rate as well as the correlated parameters Modem Type and Intermediate Rate in the CALL CONFIRMED message. The network may accept or release the call. For multislot, 14.4kbit/s or EDGE--operations, the MS may also propose to the network to modify the Fixed Network User Rate and Other Modem Type parameters (see 3GPP TS 27.001).



NOTES: (1) The HLR translates the received MSISDN_ called address (MSISDNk) into the relevant bearer capability information (BCk).

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

Abbr.:

SRI - Send Routing Information.
PRN - Provide Roaming Number.
MSRN - Mobile Station Roaming Number.

IAM - Initial Address Message.

SIFICSU - Send Information For Incoming Call Set Up.

Figure 2: Call Flow for a mobile terminated, PSTN originated call where the compatibility information provided are not exhaustive for deducing a PLMN Bearer Service; HLR uses multiple MSISDN numbers with corresponding BCs

CR-Form-v7														
CHANGE REQUEST														CK-I OIIII-VI
*	29	9.007	CR	076	*	rev	-	æ	Curr	ent ver	sion:	4.7.	0	*
For <u>HELP</u>	on using	this for	m, see	bottom of	f this pa	ige or i	look	at th	е рор	-up tex	t over	the #	syn	nbols.
													-	
Proposed cha	nge affe	cts:	JICC a	pps #	ľ	ME X	Rad	dio A	ccess	Netwo	ork	Core	Ne	twork X
Title:	₩ U:	se of sir	ngle or	multislot c	onfigur	ations								
Source:	ж <u>т</u> :	SG CN	WG3 I	Siemens A	ΔGI									
			VV 03 [Olemens 7	٦٥)									
Work item cod	de: 郑 <mark> Tl</mark>	ΞI							I	Date: 3	20/	05/200/	3	
Category:	≋ A									ease: #				
	Use		the follo rection)	wing categ	ories:					e <u>one</u> o 2		ollowing ∧ Phase		ases:
				ds to a corre	ection in	an ear	lier re	eleas		2 R96		ase 199		
		B (add	dition of	feature),						R97	•	ease 199	,	
				modification odification)	of featu	ure)				R98 R99	•	ease 199	•	
	Det			ns of the ab	ove cat	egories	can			Rel-4		ease 199 ease 4)	19)	
				R 21.900.	ovo oat	ogonoc	Journ			Rel-5		ease 5)		
										Rel-6		ease 6)		
Reason for change: The rules defined in TS 27.001 and 29.007 in order to determine whether a singleslot or a multislot configuration applies on the MSC-BSS link or MS-BS link are not correct and do not cover the EDGE cases, e.g., a call for 28.8 kb will signal FNUR=28.8 kbit/s or WAIUR=28,8 kbit/s (NT only) and MaxNumTCH = "1 TCH" and UIMI = "not allowed" or "up to 1 TCH/F allowed" (NT only). Such a call will use a singleslot TCH/F28.8 channel on the MS – BTS link, b two TCH/F14.4 channels on the BTS - MSC link. For NT services a multilink version of RLP is necessary. The rules for the determination of whether a singleslot or a multislot configuration has to be used is already defined in TS 44.021, 48.020 and 24.022 und show therefore not repeated in 27.001 and 29.007.										-BSS 3 kbit/s c, but ink guration				
Summary of c	hange: ჵ	See See	attache	ed pages										
Consequence not approved:			ng rule: 24.022	s in TS 29.	.007 an	d misa	alignr	ment	with	other sp	oecs I	ike 44.()21	, 48.020
Clauses affect	ted: 3	6 Clau	ses 9.2	2.1.1 and 9	9.2.2.1									
	•		7											
Othor seess	•	YN	المام المام		.ifi #! -		90	07.0	204					
Other specs affected:	7	X X X	Test s	core spec specification Specificat	ons	115	₩	27.0	JU I					

Other comments:

ж

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First section modified

9.2.1 Network interworking mobile originated

9.2.1.1 Selection of interworking function

The interworking function will need to negotiate with the user to establish the appropriate modem selection e.g. data rate, modulation scheme, etc. In addition, it will also be required to convert the signalling format, from a combination of out of band and in band, to that suitable for controlling the modem and the autocalling line procedure function where applicable. In the following modem selection procedures it is assumed that the interworking function and modems will be associated with each MSC.

For a data call originated by a circuit mode data terminal on the PLMN, the modem selection is done by using the element "modem type" in the call set-up message (bearer capability).

In addition, other elements of the call setup will indicate the user rate, etc. to be used via that modem. The use of this information however means that the network is only able to select a modem from the modem pool which conforms to the speed which the terminal is utilizing at the DTE/DCE interface at the MS (e.g. V.22 for 1 200 bps). The exception to this is where the user has selected the non transparent service in which case either an autobauding or multi self selecting speed modem (e.g. V.32) may be used.

In case the PLMN-BC(s) received with the set-up message indicated a multislot, 14.4kbit/s, and EDGE-operation (refer to 3GPP TS 27.001) and the network does not support any of the required such services, the PLMN-BC(s) sent with the call proceeding message shall not contain the "fixed network user rate", "other modem type" and "user initiated modification indicator" parameters - the MSC shall discard the multislot or 14.4kbit/s and/or EDGE-related parameters and use the fall-back bearer service indicated by the remaining parameters of the PLMN-BS(s) on a singleslot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) on the MSC/IWF-BSS link. The MSC/IWF shall modify the relevant parameters in a possibly present LLC accordingly.

If the MSC supports the multislot, 14.4kbit/s and/or EDGE-operation, the PLMN-BC(s) shall include the "fixed network user rate", "other modem type" and if applicable the "user initiated modification indicator" parameters. The MSC shall apply on the MSC/IWF-BSS link a singleslot or multislot configuration according to the rules defined in 3GPP TS 44.021, 3GPP TS 48.020 and 3GPP TS 24.022 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 up to 1 TCH/F requested', otherwise a multislot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) shall be used on the MSC/IWF-BSS link. 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.

In case the PLMN-BC(s) received with the set-up message did not indicate a multislot, 14.4kbit/s or EDGE-operation, the MSC shall not include the "fixed network user rate", "other modem type" and "user initiated modification indicator" parameters in the PLMN-BC(s) of the call proceeding message - the MSC shall use a singleslot configuration on the MSC/IWF-BSS link.

The MSC may negotiate parameters with the MS according to the rules defined in 3GPP TS 27.001. For multislot, 14,4 kbit/s, and EDGE-operations the MSC/IWF shall modify the relevant parameters in a possibly present LLC accordingly.

Next section modified

9.2.2 Network Interworking Mobile terminated PSTN Originated

This subclause describes the interworking of calls where the calling subscriber cannot generate or communicate Compatibility Information exhaustive for deducing a PLMN Basic Service to a PLMN (gateway MSC/interrogating node) because of lack of ISDN signalling capability. Thus the HLR is relieved from any compatibility checking for such calls.

Two methods of allocating MS International ISDN Numbers (MSISDNs) are allowed: Firstly, a separate MSISDN may be allocated for each service, or service option, which a subscriber uses for incoming calls; or, alternatively, a single number, applicable for all incoming calls is used.

It should be noted that it is possible for both schemes to co-exist within the PLMN and that they are not mutually exclusive.

- a) Multiple MSISDNs are used ("The Multi-numbering Scheme"). See figure 2.
- b) A single MSISDN is used ("The Single-numbering Scheme"). See figure 3.

9.2.2.1 Multi-numbering Scheme

In this scheme, the HPLMN will allocate a number of MSISDNs to a subscriber and associate with each of these numbers a Bearer Capability to identify a Bearer or a Teleservice. This Bearer Capability comprises a complete PLMN Bearer Capability (PLMN BC) information element with contents according to 3GPP TS 27.001 and coded as per 3GPP TS 24.008. In either case, when the HLR receives an interrogation relating to an incoming call (i.e. the MAP "Send Routing Information" procedure), it requests a roaming number (MSRN) from the VLR. This request will contain the PLMN BC reflecting the service associated with the called MSISDN, i.e. the PLMN BC is passed to the VLR within the MAP parameter "GSM Bearer Capability" of the message "Provide Roaming Number".

At the VMSC, when the incoming call arrives, the PLMN BC associated with the MSRN are retrieved from the VLR and sent to the MS at call set-up.

Where the PLMN specific parameter "connection element" contained in the retrieved PLMN BC-IE, indicates dual capabilities then the VMSC shall set it according to its capabilities/preferences. Additionally the parameters correlated to "connection element" shall be modified in accordance with 3GPP TS 27.001.

The same applies to the parameter modem type if "autobauding type 1" is indicated but the IWF does not support this feature. The parameter "data compression" may also be modified according to the capabilities of the IWF.

Where single capabilities are indicated then the VMSC shall use the requested values if it is able to support the service requested. If it is unable to support the requested service then it shall set them according to its capabilities/preferences.

Where the Compatibility Information is provided in a degree exhaustive to deduce a PLMN Basic Service (see application rules in subclause 10.2.2), then the VMSC in providing the PLMN BC IE in the setup message shall set the PLMN specific parameters to its capabilities/preferences.

On receipt of a Set-up message containing the compatibility information, the MS will analyse the contents to decide whether the service can be supported (with or without modification, see 3GPP TS 27.001) and the call will be accepted or rejected as appropriate.

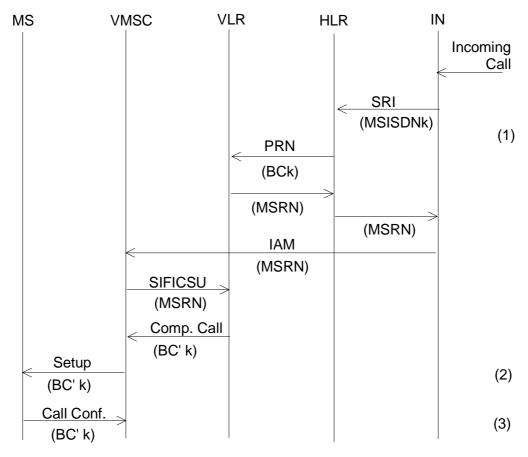
These negotiable parameters in the PLMN BC-IE are: Connection Element (Transparent\non-transparent), Data Compression, number of data bits, number of stop bits and parity as well as the correlated parameters Structure, Intermediate Rate, Modem Type and User Information Layer 2 Protocol. For multislot, 14,4 kbit/s or EDGE--operations additionally the parameters Fixed Network User Rate, Other Modem Type and User Initiated Modification Indicator can be negotiated. For FTM, PIAFS and Multimedia, Rate adaption/Other rate adaption can be negotiated. For FTM and PIAFS, Synchronous/asynchronous can be negotiated, see 3GPP TS 27.001. This negotiation takes place by means of the MS reflecting back to the MSC a complete bearer capability information element in the call confirm message, with the relevant parameters changed. If this does not take place (i.e. if there is no PLMN BC present in the call confirmed message), than the MSC will assume that the values originally transmitted to the MS are accepted.

In case the PLMN-BC sent with the set-up message contained the "fixed network user rate", "other modem type" and "user initiated modification parameter" parameters and no multislot, 14,4 kbit/s, and/or EDGE--related parameters (refer to 3GPP TS 27.001) are received in the PLMN-BC of the call confirmed message or no PLMN-BC is received, the MSC shall discard the "fixed network user rate", "other modem type" and "user initiated modification parameter" parameters - the MSC shall use the fall-back bearer service indicated by the remaining parameters of the PLMN-BC on a singleslot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) on the MSC/IWF-BSS link.

On the other hand, if the PLMN-BC received with the call confirmed message contain(s) multislot, 14.4kbit/s or EDGE-related parameters the MSC shall apply on the MSC/IWF-BSS link a singleslot or multislot configuration according to the rules defined in 3GPP TS 44.021, 3GPP TS 48.020 and 3GPP TS 24.022 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', otherwise a multislot configuration

(refer to 3GPP TS 48.020 and 3GPP TS 44.021) shall be used on the MSC/IWF-BSS link. 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.

In addition the MS may propose to the network to modify the User Rate as well as the correlated parameters Modem Type and Intermediate Rate in the CALL CONFIRMED message. The network may accept or release the call. For multislot, 14.4kbit/s or EDGE--operations, the MS may also propose to the network to modify the Fixed Network User Rate and Other Modem Type parameters (see 3GPP TS 27.001).



NOTES: (1) The HLR translates the received MSISDN_ called address (MSISDNk) into the relevant bearer capability information (BCk).

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

Abbr.:

SRI - Send Routing Information.
PRN - Provide Roaming Number.

IAM - Initial Address Message.

MSRN -

SIFICSU - Send Information For Incoming Call Set Up.

Mobile Station Roaming Number.

Figure 2: Call Flow for a mobile terminated, PSTN originated call where the compatibility information provided are not exhaustive for deducing a PLMN Bearer Service; HLR uses multiple MSISDN numbers with corresponding BCs

CR-Form-v7													
CHANGE REQUEST													
æ	29.007 CR 071												
For <u>HELP</u> on t	sing this form, see bottom of this page or look at the pop-up text over the % symbols.												
Proposed change													
Title: 9	Use of single or multislot configurations												
Source:	TSG_CN WG3 [Siemens AG]												
Work item code: # TEI Date: # 20/05/2003													
Reason for change	Release: \$\mathbb{R}\$ Rel-5 Use one of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) P (Release 1996) B (addition of feature), C (functional modification of feature) P (Release 1998) P (ditorial modification) P (Release 1998) P (Release 1998) P (Release 1999) P (Release 1999) P (Release 1999) P (Release 1999) P (Release 4) P (Release 4) P (Release 4) P (Release 4) P (Release 5) R (Release 5) R (Release 6) ** The rules defined in TS 29.007 in order to determine whether a singleslot or a multislot configuration applies on the MSC-RNC link are not correct and do not cover the EDGE cases, e.g., a call for 28.8 kbit/s will signal F NUR=28.8 kbit/s or WAIUR=28,8 kbit/s (NT only) and MaxNumTCH = "1 TCH" and UIMI = "not allowed" or "up to 1 TCH/F allowed" (NT only). Such a call will use a singleslot TCH/F28.8 channel on the MS – BTS link, but two TCH/F14.4 channels on the BTS - MSC link. The rules for the determination of whether a singleslot or a multislot configuration has to be used is already defined in TS 44.021, 48.020 and 24.022 und should therefore not repeated in 29.007.												
Summary of chan	e: 第 See attached pages												
Consequences if not approved:	Wrong rules in TS 29.007 and misalignment with other specs like 44.021, 48.02 and 24.022.												
Clauses affected:	₩ Clauses 9.2.1.1 and 9.2.2.1												
Other specs affected:	X Other core specifications X Test specifications O&M Specifications												

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First section modified

9.2.1 Network interworking mobile originated

9.2.1.1 Selection of interworking function

The interworking function will need to negotiate with the user to establish the appropriate modem selection e.g. data rate, modulation scheme, etc. In addition, it will also be required to convert the signalling format, from a combination of out of band and in band, to that suitable for controlling the modem and the autocalling line procedure function where applicable. In the following modem selection procedures it is assumed that the interworking function and modems will be associated with each MSC.

For a data call originated by a circuit mode data terminal on the PLMN, the modem selection is done by using the element "modem type" in the call set-up message (bearer capability).

In addition, other elements of the call setup will indicate the user rate, etc. to be used via that modem. The use of this information however means that the network is only able to select a modem from the modem pool which conforms to the speed which the terminal is utilizing at the DTE/DCE interface at the UE (e.g. V.22 for 1 200 bps). The exception to this is where the user has selected the non transparent service in which case either an autobauding or multi self selecting speed modem (e.g. V.32) may be used.

In case the PLMN-BC(s) received with the set-up message indicated a multislot, 14.4kbit/s, and EDGE-operation (refer to 3GPP TS 27.001) and the network does not support any of the required such services, the PLMN-BC(s) sent with the call proceeding message shall not contain the "fixed network user rate", "other modem type" and "user initiated modification indicator" parameters - the MSC shall discard the multislot or 14.4kbit/s and/or EDGE-related parameters and use the fall-back bearer service indicated by the remaining parameters of the PLMN-BS(s) on a singleslot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) on the MSC/IWF-RAN link. The MSC/IWF shall modify the relevant parameters in a possibly present LLC accordingly.

If the MSC supports the multislot, 14.4kbit/s and/or EDGE-operation, the PLMN-BC(s) shall include the "fixed network user rate", "other modem type" and if applicable the "user initiated modification indicator" parameters. The MSC shall apply on the MSC/IWF-RAN link a singleslot or multislot configuration according to the rules defined in 3GPP TS 44.021, 3GPP TS 48.020 and 3GPP TS 24.022 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 up to 1 TCH/F requested', otherwise a multislot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) shall be used on the MSC/IWF-RAN link. In case the UE 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.

In case the PLMN-BC(s) received with the set-up message did not indicate a multislot, 14.4kbit/s or EDGE-operation, the MSC shall not include the "fixed network user rate", "other modem type" and "user initiated modification indicator" parameters in the PLMN-BC(s) of the call proceeding message - the MSC shall use a singleslot configuration on the MSC/IWF-RAN link.

The MSC may negotiate parameters with the UE according to the rules defined in 3GPP TS 27.001. For multislot, 14,4 kbit/s, and EDGE-operations the MSC/IWF shall modify the relevant parameters in a possibly present LLC accordingly.

Next section modified

9.2.2 Network Interworking Mobile terminated PSTN Originated

This subclause describes the interworking of calls where the calling subscriber cannot generate or communicate Compatibility Information exhaustive for deducing a PLMN Basic Service to a PLMN (gateway MSC/interrogating node) because of lack of ISDN signalling capability. Thus the HLR is relieved from any compatibility checking for such calls.

Two methods of allocating UE International ISDN Numbers (MSISDNs) are allowed: Firstly, a separate MSISDN may be allocated for each service, or service option, which a subscriber uses for incoming calls; or, alternatively, a single number, applicable for all incoming calls is used.

It should be noted that it is possible for both schemes to co-exist within the PLMN and that they are not mutually exclusive.

- a) Multiple MSISDNs are used ("The Multi-numbering Scheme"). See figure 2.
- b) A single MSISDN is used ("The Single-numbering Scheme"). See figure 3.

9.2.2.1 Multi-numbering Scheme

In this scheme, the HPLMN will allocate a number of MSISDNs to a subscriber and associate with each of these numbers a Bearer Capability to identify a Bearer or a Teleservice. This Bearer Capability comprises a complete PLMN Bearer Capability (PLMN BC) information element with contents according to 3GPP TS 27.001 and coded as per 3GPP TS 24.008. In either case, when the HLR receives an interrogation relating to an incoming call (i.e. the MAP "Send Routing Information" procedure), it requests a roaming number (MSRN) from the VLR. This request will contain the PLMN BC reflecting the service associated with the called MSISDN, i.e. the PLMN BC is passed to the VLR within the MAP parameter "GSM Bearer Capability" of the message "Provide Roaming Number".

At the VMSC, when the incoming call arrives, the PLMN BC associated with the MSRN are retrieved from the VLR and sent to the UE at call set-up.

Where the PLMN specific parameter "connection element" contained in the retrieved PLMN BC-IE, indicates dual capabilities then the VMSC shall set it according to its capabilities/preferences. Additionally the parameters correlated to "connection element" shall be modified in accordance with 3GPP TS 27.001.

The same applies to the parameter modem type if "autobauding type 1" is indicated but the IWF does not support this feature. The parameter "data compression" may also be modified according to the capabilities of the IWF.

Where single capabilities are indicated then the VMSC shall use the requested values if it is able to support the service requested. If it is unable to support the requested service then it shall set them according to its capabilities/preferences.

Where the Compatibility Information is provided in a degree exhaustive to deduce a PLMN Basic Service (see application rules in subclause 10.2.2), then the VMSC in providing the PLMN BC IE in the setup message shall set the PLMN specific parameters to its capabilities/preferences.

On receipt of a Set-up message containing the compatibility information, the UE will analyse the contents to decide whether the service can be supported (with or without modification, see 3GPP TS 27.001) and the call will be accepted or rejected as appropriate.

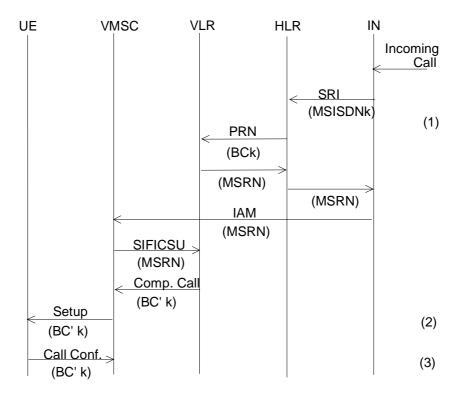
These negotiable parameters in the PLMN BC-IE are: Connection Element (Transparent\non-transparent), Data Compression, number of data bits, number of stop bits and parity as well as the correlated parameters Structure, Intermediate Rate, Modem Type and User Information Layer 2 Protocol. For multislot, 14,4 kbit/s or EDGE--operations additionally the parameters Fixed Network User Rate, Other Modem Type and User Initiated Modification Indicator can be negotiated. For FTM, PIAFS and Multimedia, Rate adaption/Other rate adaption can be negotiated. For FTM and PIAFS, Synchronous/asynchronous can be negotiated, see 3GPP TS 27.001. This negotiation takes place by means of the UE reflecting back to the MSC a complete bearer capability information element in the call confirm message, with the relevant parameters changed. If this does not take place (i.e. if there is no PLMN BC present in the call confirmed message), than the MSC will assume that the values originally transmitted to the UE are accepted.

In case the PLMN-BC sent with the set-up message contained the "fixed network user rate", "other modem type" and "user initiated modification parameter" parameters and no multislot, 14,4 kbit/s, and/or EDGE--related parameters (refer to 3GPP TS 27.001) are received in the PLMN-BC of the call confirmed message or no PLMN-BC is received, the MSC shall discard the "fixed network user rate", "other modem type" and "user initiated modification parameter" parameters - the MSC shall use the fall-back bearer service indicated by the remaining parameters of the PLMN-BC on a singleslot configuration (refer to 3GPP TS 48.020 and 3GPP TS 44.021) on the MSC/IWF-RAN link.

On the other hand, if the PLMN-BC received with the call confirmed message contain(s) multislot, 14.4kbit/s or EDGE-related parameters the MSC shall apply on the MSC/IWF-RAN link a singleslot or multislot configuration according to the rules defined in 3GPP TS 44.021, 3GPP TS 48.020 and 3GPP TS 24.022 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', otherwise a multislot configuration

(refer to 3GPP TS 48.020 and 3GPP TS 44.021) shall be used on the MSC/IWF-RAN link. In case the UE 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.

In addition the UE may propose to the network to modify the User Rate as well as the correlated parameters Modem Type and Intermediate Rate in the CALL CONFIRMED message. The network may accept or release the call. For multislot, 14.4kbit/s or EDGE--operations, the UE may also propose to the network to modify the Fixed Network User Rate and Other Modem Type parameters (see 3GPP TS 27.001).



NOTES: (1) The HLR translates the received MSISDN_ called address (MSISDNk) into the relevant bearer capability information (BCk).

- (2) Some parameters of BCk may be provided/modified according to the MSC's capabilities/preferences. See subclause 9.2.2.
- (3) In the "Call Confirm" message, the UE may modify some parameters of the BC. See subclause 9.2.2.

Abbr.:

SRI - Send Routing Information.
PRN - Provide Roaming Number.
MSRN - Mobile Station Roaming Number.

IAM - Initial Address Message.

SIFICSU - Send Information For Incoming Call Set Up.

Figure 2: Call Flow for a mobile terminated, PSTN originated call where the compatibility information provided are not exhaustive for deducing a PLMN Bearer Service; HLR uses multiple MSISDN numbers with corresponding BCs

CR-Form-v7															
	CHANGE REQUEST														
æ		27.	001	CR	097	9	⊭rev	-	Ж	Cur	rent ver	sion:	3.11	. <mark>0</mark> #	
For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the % symbols.															
Proposed cl	hange a	affect	s: l	JICC a	apps #		ME X	Ra	dio A	Acces	s Netwo	ork	Core	Network	
Title:	ж	Use	of sir	ngle or	multislot o	config	urations	3							
Source:	3 8	TSC	CN	WG3	[Siemens	AG1									
											D-1- 0	0.00/	05/00		
Work item c	oae: ж	TEI									Date: ३	8 20/	05/03		
Category:	₩	F									lease: ३				
					owing cated	gories:				U.				releases:	
				rection) respon	ds to a corr	rection	in an ea	rlier r	eleas	e)	2 R96		1 Phase ase 199		
					feature),	ootion	iii aii oa	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	oioao	.0)	R97		ase 199		
		((fun	ctional	modificatio		ature)				R98		ase 199		
					odification)						R99		ase 199	9)	
					ns of the a		categorie	s can			Rel-4		ase 4)		
		be lo	ina in	SGPP_	TR 21.900.						Rel-5 Rel-6		ase 5) ase 6)		
Reason for change: The rules defined in TS 27.001 and 29.007 in order to determine whether a singleslot or a multislot configuration applies on the MSC-BSS link or MS-BS link are not correct and do not cover the EDGE cases, e.g., a call for 28.8 kb will signal FNUR=28.8 kbit/s or WAIUR=28,8 kbit/s (NT only) and MaxNumTCH = "1 TCH" and UIMI = "not allowed" or "up to 1 TCH/F allowed" (NT only). Such a call will use a singleslot TCH/F28.8 channel on the MS – BTS link, but two TCH/F14.4 channels on the BTS - MSC link. For NT services a multilink version of RLP is necessary. The rules for the determination of whether a singleslot or a multislot configuration has to be used is already defined in TS 44.021, 48.020 and 24.022 und shout therefore not repeated in 27.001 and 29.007.										MS-BSS 28.8 kbit/s link, but ultilink	ion				
Summary of	chang	e: %	See	attach	ed page										
0		00	101		- 1. TO 6-	7.001					- 11			04 40 5	00
Consequent not approve		Ж		ng rule 24.022	s in TS 27	7.001 a	and mis	align	ment	t with	other s	pecs li	ke 44.0	21, 48.0	20
Clauses affe	cted:	ж	Clau	ses 8.3	3.3.1 and	8.3.3.	2								
		_													
			Y N												
Other specs affected:		₩	X	Test	r core spe specificati Specifica	ons	ions	æ	29.0	007					

Other comments:

ж

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.3 Indication of Compatibility Requirements to the PLMN

8.3.3.1 Indication in case of Mobile terminating calls

In support of:

- PSTN originated calls; and
- ISDN originated calls using 3,1 kHz audio Bearer Capability (BC); as well as
- ISDN originated calls using unrestricted digital Bearer Capability but not specifying all parameters for deducing a Bearer Service.

Mobile specific requirements to be dealt with in the Bearer Capability information element the call confirmed message has been introduced in the call control protocol (3GPP TS 24.008). This also allows for renegotiation of specific parameters at the beginning of the connection set-up process. The specific parameters are:

- a) mobile specific requirements:
 - Connection element (transparent/non transparent);
 - Structure (note 1);
 - Synchronous/Asynchronous (note 8);
 - Rate adaptation/other rate adaptation (note 9);
 - User information layer 2 protocol (note 1);
 - Intermediate rate (note 2), (note 3);
 - Modem Type (note 1), (note 3);
 - User Rate (note 3);
 - Compression,
 - Fixed network user rate, (note 3) (note 4);
 - Other modem type, (note 3) (note 4);
 - User initiated modification indication (note 4).

The following parameters are indicated by the MS to the network, only:

- Acceptable channel codings (note 5);
- Maximum number of traffic channels, (note 5);
- Wanted air interface user rate (note 6) (note 7);
- Asymmetry preference indication (note 7).
- NOTE 1: This parameter is correlated with the value of the parameter connection element.
- NOTE 2: For non-transparent services this parameter is correlated with the value of the parameter negotiation of intermediate rate requested.
- NOTE 3: Modification of these parameters may be proposed by the MS. The Network may accept it or not.
- NOTE 4: This parameter shall be included by the MS only in case it was received from the network.
- NOTE 5: This parameter shall be included only in case the parameter 'fixed network user rate' is included.
- NOTE 6: This parameter shall be included only for non-transparent services and in case the parameter 'fixed network user rate' is included.

- NOTE 7: This parameter has to be included if EDGE channel coding(s) are included in Acceptable channel codings. 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 8: For FTM and PIAFS, this parameter may be negotiated as in table B.4e. How the subscription for BS20 is assured, is an operator matter.
- NOTE 9: For FTM, PIAFS or Multimedia, this parameter may be negotiated as in table B.4f.
- b) requirements with effects at the partner terminal:
 - Number of data bits;
 - Number of stop bits;
 - Parity.

The MS indicates the radio channel requirement in the call confirmed message. If the MS indicates the support of "dual" (HR and FR channels) the final decision, which radio channel is chosen, is done by the network in an RR message. The radio channel requirement is ignored in UMTS, see Table B.5a in Annex B.

If the network proposes optional support of both transparent and non transparent connection elements but does not indicate a user information layer 2 protocol, the MS shall set the appropriate value, if choosing non transparent in the call confirmed message and out-band flow control is not requested, see B.1.1.2.

Additionally the values of the parameters structure, modem type and intermediate rate have to be set in conformance with the values of the parameters radio channel requirements, negotiation of intermediate rate requested and connection element.

Subclause B.1.1.2 and table B.1 in the annex B describe the negotiation procedure. Annex B table B.4 describes the selection of the modem type and the dependence on the value of the parameter connection element. Annex B table B.4 describes the selection of the intermediate rate and user rate and their dependence upon the value of the NIRR parameter and the equipment capabilities.

The following MT cases can be deduced from the individual call set-up request conditions:

- a) If the set-up does not contain a BC information element, the MS in the call confirmed message shall include any BC information (single or multiple BC-IE). In case of multiple BC-IEs one BC-IE must indicate the information transfer capability "speech". A speech BC-IE together with a 3,1kHz multimedia BC-IE indicates the support of a fallback to speech (ref. to 3GPP TS 29.007 and 3GPP TS 24.008).
- b) If the set-up message contains a single BC-IE, the MS in the call confirm message shall use either a single BC-IE, if it wants to negotiate mobile specific parameter values, or, unless otherwise specified in annex B, no BC-IE, if it agrees with the requested ones.
- c) If the set-up contains a multiple BC-IE, the MS in the call confirmed message shall use either a multiple BC-IE, if it wants to negotiate mobile specific parameter values, or, unless otherwise specified in annex B, no BC-IE, if it agrees with the requested ones. In case of a 3,1kHz multimedia setup the MS can either accept the possibility of a fallback to speech by responding with two BC-IEs or with no BC-IEs or turn the call to a speech call by sending only a speech BC-IE in the call confirm message or turn the call to a multimedia only call (i.e. no fallback to speech allowed) by sending only a multimedia BC-IE in the call confirm message. Alternatively a single BC-IE containing fax group 3 only shall be used if a multiple BC-IE requesting speech alternate fax group 3 is received and the MS is not able to support the speech capability. Annex B, table B.7, describes the negotiation rules.

If the BC-IE contains 3,1 kHz ex PLMN, the MS is allowed to negotiate all mobile specific parameter values listed above. If the BC-IE contains facsimile group 3, the MS is allowed to negotiate the connection element (transparent/non transparent) only. In any case, if the set-up message requests a "single service", the MS must not answer in the call confirmed message requesting a "dual service" and vice versa.

However, for dual services with repeat indicator set to circular (alternate) the MS may change the sequence of dual BC-IEs within the call confirmed message (preceded by the same value of the repeat indicator), if it wants to start with a different Bearer Capability than proposed by the network as the initial one.

In addition, the MS may propose to the network to modify User Rate, Modem Type and Intermediate Rate in the CALL CONFIRMED message. The network may accept or release the call.

If the BC-IE received from the network contains the parameters 'fixed network user rate', 'other modem type' and possibly the 'user initiated modification', the MS can either:

- a) if in GSM, discard these parameters; or
- b) include the possibly modified values for the 'fixed network user rate' and 'other modem type' in the BC-IE of the call confirmed message. The network might accept or reject the modified values. In this case the MS shall also include the parameters 'maximum number of traffic channels' and 'acceptable channel codings'. Additionally for non-transparent services, the MS shall also include the parameters 'wanted air interface user rate' and the 'user initiated modification indication'.

In case a), The the MS shall use the fall-back bearer service indicated by the remaining parameters of the BC-IE on a single slot configuration (reference 3GPP TS 04.21).

In GSM case b), a single slot configuration shall be used by the MS, in case the 'maximum number of traffic channels' is set to "1 TCH" and the 'user initiated modification indication' is set either to "user initiated modification not required" or to "user initiated modification up to 1TCH may be requested"; other wise the MS shall use a singleslot or multislot configuration according to the rules defined in 3GPP TS 04.21, 3GPP TS 08.20 and 3GPP TS 24.022(reference 3GPP TS 04.21).

In case the 'acceptable channel codings' is indicated by the MS, the decision which channel coding is used is done by the network and indicated to the mobile station with an RR message. This RR message may also assign an asymmetric channel coding. The 'acceptable channel codings' parameter takes precedence over the 'negotiation of intermediate rate requested' parameter for non-transparent services. Also the intermediate rate and user rate per traffic channel in a multislot configuration are not indicated by the 'intermediate rate' and 'user rate' parameters of the BC-IE, but depend on the chosen channel coding only.

If the MS receives a BC-IE in the SETUP message containing the parameters 'fixed network user rate', 'other modem type', the MS may include these parameters in the BC-IE of the CALL CONFIRMED message (i.e. octets 6d, 6e, 6f, and 6g ref. to 3GPP TS 24.008), with parameter values negotiated according to Annex B. If no BC-IE is received in the SETUP message, the MS may include these parameters in the CALL CONFIRMED message. However, in this case, the network may release the call if it does not support these parameters.

If FNUR = 33.6 kbit/s is agreed on in the setup of a 3,1 kHz multimedia call, the modems may handshake to 31.2 or 28.8 kbit/s. In this case the MS receives a MODIFY message from the MSC to indicate the new data rate, and shall respond with a MODIFY COMPLETE message (ref. to 3GPP TS 24.008), if it supports the requested modification. If the MS does not support the requested modification, it shall respond with a MODIFY REJECT message. The MT shall indicate the new data rate to the TE (e.g. using the ITU-T V.80 inband signaling) in order to cause the TE to use stuffing to adapt the 31.2 or 28.8 kbit/s data rate to the 33.6 kbit/s traffic channel between the TE and IWF.

8.3.3.2 Indication in case of Mobile originating calls

In support of mobile originating calls the values of BC-IE parameters are requested in the set-up message from the MS. If the MS indicates the support of both transparent and non transparent connection elements the network shall return its choice in the call proceeding message. The MS is not allowed to indicate support of both transparent and non transparent, if the MS also requests out-band flow control, i.e. it does not indicate a layer 2 protocol.

Additionally the value of the parameter modem type has to be set depending on the value of the parameter connection element as described in annex B, table B.4a.

The set-up message contains a single or multiple BC-IE. In case of multiple BC-IEs one BC-IE must indicate the information transfer capability "speech".

In case of a multimedia call the setup message contains either a multimedia BC-IE indicating a multimedia only call request (i.e. no fallback to speech allowed) or both a speech BC-IE and a 3,1kHz multimedia BC-IE to indicate the support/request of a fallback to speech (ref. to 3GPP TS 29.007 and 3GPP TS 24.008).

If the set-up message requests a "single service", the network must not answer in the call proceeding message requesting a "dual service" and vice versa. Alternatively the network shall answer with a single BC-IE containing fax group 3 if a multiple BC-IE requesting speech alternate fax group 3 is received but the network does not allow the use

of this alternate service. Annex B, table B.7, describes the negotiation rules. If the MS requests a "dual service" the network is not allowed to change the sequence of the service.

If the set-up message is indicates that negotiation of intermediate rate is requested then the network shall behave as described in annex B, table B.4b.

Unless otherwise specified in annex B, if no BC-IE parameter needs negotiation it is up to the network if it sends a CALL PROC message (with or without a BC-IE) towards the MS or not.

For multislot, TCH/F14.4, and EDGE operations and in UMTS 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. If EDGE channel coding(s) are included in ACC in case of transparent calls, the 'Wanted air interface user rate'-parameter shall be set to 'Air interface user rate not applicable' and the 'User initiated modification indication'-parameter to 'User initiated modification not requested'. 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 or EDGE operation or in UMTS the MS shall also include the parameter 'wanted air interface user rate'. In non-transparent EDGE operation the MS shall also include the parameter 'asymmetry preference indication'. It shall also set the other parameters of the BC-IE (i.e. 'user rate') to values identifying fall-back values. Depending on the network two situations can be distinguished:

- a) The network supports the requested operation:
 - in this case the network must include the parameter 'fixed network user rate', 'other modem type' and possibly 'user initiated modification' in the BC-IE(s) of the CALL PROCEEDING message, irrespective whether or not they contain modified values or just a copy of the received ones;
 - the 'acceptable channel codings' indicated by the MS in the SETUP message takes precedence over the 'negotiation of intermediate rate requested' parameter for non-transparent services. The intermediate rate per traffic channel and the user rate per traffic channel is dependent on the chosen channel coding only. The chosen channel coding is indicated to the mobile station by the network with an RR message.
- b) The network does not support the requested operation:
 - in this case, in GSM, the BC-IE of the CALL PROCEEDING message will not contain the parameters fixed network user rate' and 'other modem type' or no BC-IE will be included in the CALL PROCEEDING message at all. The mobile station shall then discard the parameters 'fixed network user rate', 'other modem type', 'maximum number of TCH', 'acceptable channel codings' 'wanted air interface user rate' and 'user initiated modification indication' sent with the SETUP message and apply the fall-back bearer service.

In case a), the MS shall use a single-slot or multislot configuration according to the rules defined in 3GPP TS 04.21, 3GPP TS 08.20 and 3GPP TS 24.022shall be used by the MS, in case the 'maximum number of traffic channels' is set to "1 TCH" and the 'user initiated modification indication' is set either to "user initiated modification up to 1TCH may be requested".

In case b), The the MS shall use the fall-back bearer service indicated by the remaining parameters of the BC-IE on a single slot configuration (reference 3GPP TS 04.21).

If FNUR = 33.6 kbit/s is agreed on in the setup of a 3,1 kHz multimedia call, the modems may handshake to 31.2 or 28.8 kbit/s. In this case the MS receives a MODIFY message from the MSC to indicate the new data rate, and shall respond with a MODIFY COMPLETE message (ref. to 3GPP TS 24.008), if it supports the requested modification. If the MS does not support the requested modification, it shall respond with a MODIFY REJECT message. The MT shall indicate the new data rate to the TE (e.g. using the ITU-T V.80 inband signaling) in order to cause the TE to use stuffing to adapt the 31.2 or 28.8 kbit/s data rate to the 33.6 kbit/s traffic channel between the TE and IWF.

														00.5
CHANGE REQUEST														CR-Form-v7
*		27	.001	CR	098		жrev	1	Ж	Currer	nt vers	sion:	4.9.0	æ
For <u>H</u>	<mark>IELP</mark> on ι	using	this foi	rm, see	bottom o	of this	page or	look	at th	e pop-u	ıp text	t over	the % sy	mbols.
Propose	ed change	affec	ts:	UICC a	ıpps Ж]	ME X	Rad	dio A	ccess l	Vetwo	rk	Core N	etwork
Title:	H	Use	e of si	ngle or	multislot	config	gurations	;						
Source:	H	TS	G_CN	WG3	Siemens	AG]								
Work ite	em code:₩	TE	l							Da	ate: ೫	22/	05/03	
Reason	y: #	Deta be fo	F (cor A (cor B (add C (fun D (edi iled ex bund in The singl link a will s - I - I Such two vers The has	rection) respondition of dictional microial micr	ds to a core feature), modification odification of the a FR 21.900 efined in r a multis correct a e28.8 kbit mTCH = "not allow will use a 14.4 char RLP is ne	TS 27 slot cound do /s or V "1 TC ved" of cessa erminels of cessa	categorie 7.001 and infiguration on too WAIUR=: H" and or "up to leslot TC on the B' ary. ation of a	d 29.00 apper the 28,8 TS - I	007 i pplies ED kbit/s H/F a 28.8 0	e) R R R R R R R R In order s on the GE cas s (NT or channel link. For singles	one of ega one of ega o	the for (GSM) (Release (Releas	ollowing red Phase 2, ease 1996, ease 1997, ease 1998, ease 6) The whether the link or M call for 28 The BTS link can be a multiple and the link or M call for 28	er a S-BSS .8 kbit/s
Summar	y of chan	ge: Ж	See	attach	ed page									
Consequence not appr	uences if roved:	ж		ng rule 24.022		7.001	and mis	aligni	ment	with ot	her sp	ecs l	ike 44.02	1, 48.020
Clausas	affected:	مه	Class	000 0 1	2 1 004	0 2 2	2							
Ciauses	anected:	Ж		1565 D.	3.3.1 and	0.3.3	.∠							
Other sp		ж	Y N X X	Test	r core spe specificat Specifica	ions		æ	29.0	007				

Other comments:

ж

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.3 Indication of Compatibility Requirements to the PLMN

8.3.3.1 Indication in case of Mobile terminating calls

In support of:

- PSTN originated calls; and
- ISDN originated calls using 3,1 kHz audio Bearer Capability (BC); as well as
- ISDN originated calls using unrestricted digital Bearer Capability but not specifying all parameters for deducing a Bearer Service.

Mobile specific requirements to be dealt with in the Bearer Capability information element the call confirmed message has been introduced in the call control protocol (3GPP TS 24.008). This also allows for renegotiation of specific parameters at the beginning of the connection set-up process. The specific parameters are:

- a) mobile specific requirements:
 - Connection element (transparent/non transparent);
 - Structure (note 1);
 - Synchronous/Asynchronous (note 8);
 - Rate adaptation/other rate adaptation (note 9);
 - User information layer 2 protocol (note 1);
 - Intermediate rate (note 2), (note 3);
 - Modem Type (note 1), (note 3);
 - User Rate (note 3);
 - Compression,
 - Fixed network user rate, (note 3) (note 4);
 - Other modem type, (note 3) (note 4);
 - User initiated modification indication (note 4).

The following parameters are indicated by the MS to the network, only:

- Radio Channel Requirement;
- Acceptable channel codings (note 5);
- Maximum number of traffic channels, (note 5);
- Wanted air interface user rate (note 6) (note 7);
- Asymmetry preference indication (note 7).
- NOTE 1: This parameter is correlated with the value of the parameter connection element.
- NOTE 2: For non-transparent services this parameter is correlated with the value of the parameter negotiation of intermediate rate requested.
- NOTE 3: Modification of these parameters may be proposed by the MS. The Network may accept it or not.
- NOTE 4: This parameter shall be included by the MS only in case it was received from the network.
- NOTE 5: This parameter shall be included only in case the parameter 'fixed network user rate' is included.

- NOTE 6: This parameter shall be included only for non-transparent services and in case the parameter 'fixed network user rate' is included.
- NOTE 7: This parameter has to be included if EDGE channel coding(s) are included in Acceptable channel codings. 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 8: For FTM and PIAFS, this parameter may be negotiated as in table B.4e. How the subscription for BS20 is assured, is an operator matter.
- NOTE 9: For FTM, PIAFS or Multimedia, this parameter may be negotiated as in table B.4f.
- b) requirements with effects at the partner terminal:
 - Number of data bits;
 - Number of stop bits;
 - Parity.

The MS indicates the radio channel requirement in the call confirmed message. If the MS indicates the support of "dual" (HR and FR channels) the final decision, which radio channel is chosen, is done by the network in an RR message. The radio channel requirement is ignored in UMTS, see table B.5a in Annex B.

If the network proposes optional support of both transparent and non transparent connection elements, but does not indicate a user information layer 2 protocol, the MS shall set the appropriate value, if choosing non transparent in the call confirmed message and out-band flow control is not requested, see B.1.1.2.

Additionally the values of the parameters structure, modem type and intermediate rate have to be set in conformance with the values of the parameters radio channel requirements, negotiation of intermediate rate requested and connection element.

Subclause B.1.1.2 and table B.1 in the annex B describe the negotiation procedure. Annex B table B.4 describes the selection of the modem type and the dependence on the value of the parameter connection element. Annex B table B.4 describes the selection of the intermediate rate and user rate and their dependence upon the value of the NIRR parameter and the equipment capabilities.

The following MT cases can be deduced from the individual call set-up request conditions:

- a) If the set-up does not contain a BC information element, the MS in the call confirmed message shall include any BC information (single or multiple BC-IE). In case of multiple BC-IEs one BC-IE shall indicate the information transfer capability "speech". A speech BC-IE together with a 3,1kHz multimedia BC-IE indicates the support of a fallback to speech (see 3GPP TS 29.007 and 3GPP TS 24.008).
- b) If the set-up message contains a single BC-IE, the MS in the call confirm message shall use either a single BC-IE, if it wants to negotiate mobile specific parameter values or, unless otherwise specified in annex B, no BC-IE, if it agrees with the requested ones.
- c) If the set-up contains a multiple BC-IE, the MS in the call confirmed message shall use either a multiple BC-IE, if it wants to negotiate mobile specific parameter values or, unless otherwise specified in annex B, no BC-IE, if it agrees with the requested ones. In case of a 3,1kHz multimedia setup the MS may either accept the possibility of a fallback to speech by responding with two BC-IEs, or with no BC-IEs, or turn the call to a speech call by sending only a speech BC-IE in the call confirm message or turn the call to a multimedia only call (i.e. no fallback to speech allowed) by sending only a multimedia BC-IE, in the call confirm message. In case of facsimile, a single BC-IE, containing fax group 3 only, shall be used if a multiple BC-IE requesting speech alternate fax group 3 is received and the MS is not able to support the speech capability. Annex B, table B.7, describes the negotiation rules.

If the BC-IE contains 3,1 kHz ex PLMN, the MS is allowed to negotiate all mobile specific parameter values listed above. If the BC-IE contains facsimile group 3, the MS is not allowed to negotiate any mobile specific parameter. In any case, if the set-up message requests a "single service", the MS shall not answer in the call confirmed message requesting a "dual service".

However, for dual services with repeat indicator set to circular (alternate) the MS may change the sequence of dual BC-IEs within the call confirmed message (preceded by the same value of the repeat indicator), if it wants to start with a different Bearer Capability than proposed by the network as the initial one.

In addition, the MS may propose to the network to modify User Rate, Modem Type and Intermediate Rate in the CALL CONFIRMED message. The network may accept or release the call.

If the BC-IE received from the network contains the parameters 'fixed network user rate', 'other modem type' and possibly the 'user initiated modification', the MS may either:

- a) if in GSM, discard these parameters; or
- b) include the possibly modified values for the 'fixed network user rate' and 'other modem type' in the BC-IE of the call confirmed message. The network might accept or reject the modified values. In this case the MS shall also include the parameters 'maximum number of traffic channels' and 'acceptable channel codings'. Additionally for non-transparent services, the MS shall also include the parameters 'wanted air interface user rate' and the 'user initiated modification indication'.

In case a), the MS shall use the fall-back bearer service indicated by the remaining parameters of the BC-IE on a single slot configuration (reference 3GPP TS 44.021).

In GSM case b), a single slot configuration shall be used by the MS, in case the 'maximum number of traffic channels' is set to "1 TCH" and the 'user initiated modification indication' is set either to "user initiated modification not required" or to "user initiated modification up to 1TCH may be requested"; other wise the MS shall use a singleslot or multislot configuration according to the rules defined in 3GPP TS 44.021, 3GPP TS 48.020 and 3GPP TS 24.022(reference 3GPP TS 44.021).

In case the 'acceptable channel codings' is indicated by the MS, the decision which channel coding is used is done by the network and indicated to the mobile station with a RR message. This RR message may also assign an asymmetric channel coding. The 'acceptable channel codings' parameter takes precedence over the 'negotiation of intermediate rate requested' parameter for non-transparent services. Also the intermediate rate and user rate per traffic channel in a multislot configuration are not indicated by the 'intermediate rate' and 'user rate' parameters of the BC-IE, but depend on the chosen channel coding only.

If the MS receives a BC-IE in the SETUP message containing the parameters 'fixed network user rate', 'other modem type', the MS may include these parameters in the BC-IE of the CALL CONFIRMED message (i.e. octets 6d, 6e, 6f, and 6g see 3GPP TS 24.008), with parameter values negotiated according to Annex B. If no BC-IE is received in the SETUP message, the MS may include these parameters in the CALL CONFIRMED message. However, in this case, the network may release the call if it does not support these parameters.

If FNUR = 33.6 kbit/s is agreed on in the setup of a 3.1 kHz multimedia call, the modems may handshake to 31.2 kbit/s or 28.8 kbit/s. In this case the MS receives a MODIFY message from the MSC to indicate the new data rate, and shall respond with a MODIFY COMPLETE message (see 3GPP TS 24.008), if it supports the requested modification. If the MS does not support the requested modification, it shall respond with a MODIFY REJECT message. The MT shall indicate the new data rate to the TE (e.g. using the ITU-T Recommendation V.80 inband signaling) in order to cause the TE to use stuffing to adapt the 31.2 kbit/s or 28.8 kbit/s data rate to the 33.6 kbit/s traffic channel between the TE and IWF.

8.3.3.2 Indication in case of Mobile originating calls

In support of mobile originating calls the values of BC-IE parameters are requested in the set-up message from the MS. If the MS indicates the support of both transparent and non transparent connection elements the network shall return its choice in the call proceeding message. The MS is not allowed to indicate support of both transparent and non transparent, if the MS also requests out-band flow control, i.e. it does not indicate a layer 2 protocol.

Additionally the value of the parameter modern type has to be set depending on the value of the parameter connection element as described in annex B, table B.4a.

The set-up message contains a single or multiple BC-IE. In case of multiple BC-IEs one BC-IE shall indicate the information transfer capability "speech".

In case of a multimedia call the setup message contains either a multimedia BC-IE indicating a multimedia only call request (i.e. no fallback to speech allowed) or both a speech BC-IE and a 3,1kHz multimedia BC-IE to indicate the support/request of a fallback to speech (see 3GPP TS 29.007 and 3GPP TS 24.008).

If the set-up message requests a "single service", the network shall not answer in the call proceeding message requesting a "dual service". Alternatively the network shall answer with a single BC-IE containing fax group 3 if a multiple BC-IE requesting speech alternate fax group 3 is received but the network does not allow the use of this alternate service. Annex B, table B.7, describes the negotiation rules. If the MS requests a "dual service" the network is not allowed to change the sequence of the service.

If the set-up message indicates that negotiation of intermediate rate is requested then the network shall behave as described in annex B, table B.4b.

Unless otherwise specified in annex B, if no BC-IE parameter needs negotiation it is up to the network if it sends a CALL PROC message (with or without a BC-IE) towards the MS or not.

For multislot, TCH/F14.4, and EDGE operations and in UMTS 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. If EDGE channel coding(s) are included in ACC in case of transparent calls, the 'Wanted air interface user rate'-parameter shall be set to 'Air interface user rate not applicable' and the 'User initiated modification indication'-parameter to 'User initiated modification not requested'. 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 or EDGE operation or in UMTS the MS shall also include the parameter 'wanted air interface user rate'. In non-transparent EDGE operation the MS shall also include the parameter 'asymmetry preference indication'. It shall also set the other parameters of the BC-IE (i.e. 'user rate') to values identifying fall-back values. Depending on the network two situations can be distinguished:

- a) The network supports the requested operation:
 - in this case the network shall include the parameter 'fixed network user rate', 'other modem type' and possibly 'user initiated modification' in the BC-IE(s) of the CALL PROCEEDING message, irrespective whether or not they contain modified values or just a copy of the received ones;
 - the 'acceptable channel codings' indicated by the MS in the SETUP message takes precedence over the 'negotiation of intermediate rate requested' parameter for non-transparent services. The intermediate rate per traffic channel and the user rate per traffic channel is dependent on the chosen channel coding only. The chosen channel coding is indicated to the mobile station by the network with an RR message.
- b) The network does not support the requested operation:
 - in this case, in GSM, the BC-IE of the CALL PROCEEDING message does not contain the parameters fixed network user rate' and 'other modem type' or no BC-IE is included in the CALL PROCEEDING message at all. The mobile station shall then discard the parameters 'fixed network user rate', 'other modem type', 'maximum number of TCH', 'acceptable channel codings' 'wanted air interface user rate' and 'user initiated modification indication' sent with the SETUP message and apply the fall-back bearer service.

In case a), the MS shall use a single-slot or multislot configuration according to the rules defined in 3GPP TS 44.021, 3GPP TS 48.020 and 3GPP TS 24.022 shall be used by the MS, in case the 'maximum number of traffic channels' is set to "1 TCH" and the 'user initiated modification indication' is set either to "user initiated modification up to 1TCH may be requested".

In case b), The the MS shall use the fall-back bearer service indicated by the remaining parameters of the BC-IE on a single slot configuration (reference 3GPP TS 44.021).

If FNUR = 33.6 kbit/s is agreed on in the setup of a 3.1 kHz multimedia call, the modems may handshake to 31.2 kbit/s or 28.8 kbit/s. In this case the MS receives a MODIFY message from the MSC to indicate the new data rate, and shall respond with a MODIFY COMPLETE message (see 3GPP TS 24.008), if it supports the requested modification. If the MS does not support the requested modification, it shall respond with a MODIFY REJECT message. The MT shall indicate the new data rate to the TE (e.g. using the ITU-T Recommendation V.80 inband signaling) in order to cause the TE to use stuffing to adapt the 31.2 kbit/s or 28.8 kbit/s data rate to the 33.6 kbit/s traffic channel between the TE and IWF.

														CD Form 1/7
CHANGE REQUEST														CR-Form-v7
*		27	.001	CR	099		жrev	1	¥	Currer	nt vers	sion:	5.5.0	æ
For <u>H</u>	IELP on t	using	this foi	rm, see	bottom o	of this	page or	look	at th	e pop-u	ıp text	over	the % sy	mbols.
Propose	ed change	affec	ts:	UICC a	ıpps #]	MEX	Rad	dio A	ccess l	Netwo	rk	Core N	etwork
Title:	ж	Use Use	e of sir	ngle or	multislot	confi	gurations	}						
Source:	ж	TS	G_CN	WG3	Siemens	AG]								
Work ite	em code: #	TE								Da	ate: ೫	22/	05/03	
Reason	y: #	Deta be fo	F (cor A (cor B (add C (fun D (edi iled ex bund in The singl link will s - I - I Such two vers The has	rection) respondition of dictional microial micr	ds to a cor feature), modification odification ons of the a FR 21.900 efined in r a multis correct a =28.8 kbit mTCH = "not allow will use a 14.4 char RLP is ne	TS 27 slot cound do "1 TC ved" of cessa ermineady	categorie 7.001 and onfiguration of the Brand of the Bra	d 29.00 apper the 28,8 at TCI CH/F2 TS - I	007 i pplies ED kbit/s 8.8.8 (8.8.8 (44.0	Use 2 e) R R R R R R R R In order s on the GE cas s (NT or allowed) channel clink. For singles 221, 48.	ege del-4 del-5 del-6 de	the for (GSA) (Relection (Relecti	ollowing real Phase 2, asse 1996, asse 1997, asse 1998, asse 5) asse 6) The Whether Ink or Micall for 28	er a S-BSS .8 kbit/s
Summar	y of chan	ge: #	See	attach	ed page									
Consequence not appr	uences if roved:	ж		ng rule 24.022		7.001	and mis	aligni	ment	with ot	her sp	ecs li	ike 44.02	1, 48.020
Clauses	affected:	*	Clau	SAS 2 '	3.3.1 and	833	2							
Ciauses	anceleu.	თ		1	J.J. I aliu	0.3.3	.2							
Other sp		ж	Y N X X	Test	r core spe specificat Specifica	ions		æ	29.0	007				

Other comments:

ж

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked \$\mathbb{X}\$ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.3 Indication of Compatibility Requirements to the PLMN

8.3.3.1 Indication in case of Mobile terminating calls

In support of:

- PSTN originated calls; and
- ISDN originated calls using 3,1 kHz audio Bearer Capability (BC); as well as
- ISDN originated calls using unrestricted digital Bearer Capability but not specifying all parameters for deducing a Bearer Service.

Mobile specific requirements to be dealt with in the Bearer Capability information element the call confirmed message has been introduced in the call control protocol (3GPP TS 24.008). This also allows for renegotiation of specific parameters at the beginning of the connection set-up process. The specific parameters are:

- a) mobile specific requirements:
 - Connection element (transparent/non transparent);
 - Structure (note 1);
 - Synchronous/Asynchronous (note 8);
 - Rate adaptation/other rate adaptation (note 9);
 - User information layer 2 protocol (note 1);
 - Intermediate rate (note 2), (note 3);
 - Modem Type (note 1), (note 3);
 - User Rate (note 3);
 - Compression,
 - Fixed network user rate, (note 3) (note 4);
 - Other modem type, (note 3) (note 4);
 - User initiated modification indication (note 4).

The following parameters are indicated by the MS to the network, only:

- Radio Channel Requirement;
- Acceptable channel codings (note 5);
- Maximum number of traffic channels, (note 5);
- Wanted air interface user rate (note 6) (note 7);
- Asymmetry preference indication (note 7).
- NOTE 1: This parameter is correlated with the value of the parameter connection element.
- NOTE 2: For non-transparent services this parameter is correlated with the value of the parameter negotiation of intermediate rate requested.
- NOTE 3: Modification of these parameters may be proposed by the MS. The Network may accept it or not.
- NOTE 4: This parameter shall be included by the MS only in case it was received from the network.
- NOTE 5: This parameter shall be included only in case the parameter 'fixed network user rate' is included.

- NOTE 6: This parameter shall be included only for non-transparent services and in case the parameter 'fixed network user rate' is included.
- NOTE 7: This parameter has to be included if EDGE channel coding(s) are included in Acceptable channel codings. 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 8: For FTM and PIAFS, this parameter may be negotiated as in table B.4e. How the subscription for BS20 is assured, is an operator matter.
- NOTE 9: For FTM, PIAFS or Multimedia, this parameter may be negotiated as in table B.4f.
- b) requirements with effects at the partner terminal:
 - Number of data bits;
 - Number of stop bits;
 - Parity.

The MS indicates the radio channel requirement in the call confirmed message. If the MS indicates the support of "dual" (HR and FR channels) the final decision, which radio channel is chosen, is done by the network in an RR message. The radio channel requirement is ignored in UTRAN Iu mode, see table B.5a in Annex B.

If the network proposes optional support of both transparent and non transparent connection elements, but does not indicate a user information layer 2 protocol, the MS shall set the appropriate value, if choosing non transparent in the call confirmed message and out-band flow control is not requested, see B.1.1.2.

Additionally the values of the parameters structure, modem type and intermediate rate have to be set in conformance with the values of the parameters radio channel requirements, negotiation of intermediate rate requested and connection element.

Subclause B.1.1.2 and table B.1 in the annex B describe the negotiation procedure. Annex B table B.4 describes the selection of the modem type and the dependence on the value of the parameter connection element. Annex B table B.4 describes the selection of the intermediate rate and user rate and their dependence upon the value of the NIRR parameter and the equipment capabilities.

The following MT cases can be deduced from the individual call set-up request conditions:

- a) If the set-up does not contain a BC information element, the MS in the call confirmed message shall include any BC information (single or multiple BC-IE). The MS may use the information provided in the BACKUP BC information element (see 3GPP TS 29.007 and 3GPP TS 24.008) to deduce the requested service. Note, that the presence of the BACKUP BC-IE does not change the condition of "no BC-IE received", that means in particular that the MS shall include any BC-IE (as mentioned before) and shall not negotiate parameter values where the MSC has to offer a value in the BC-IE first, as e.g., for the parameter "compression". In case of multiple BC-IEs one BC-IE shall indicate the information transfer capability "speech". A 3,1 kHz multimedia BC-IE together with a speech BC-IE indicates the support of a fallback to speech. A UDI/RDI multimedia BC-IE together with a speech BC-IE indicates the support of service change and fallback (see 3GPP TS 29.007 and 3GPP TS 24.008).
- b) If the set-up message contains a single BC-IE, the MS in the call confirm message shall use either a single BC-IE, if it wants to negotiate mobile specific parameter values or, unless otherwise specified in annex B, no BC-IE, if it agrees with the requested ones.
- c) If the set-up contains a multiple BC-IE, the MS in the call confirmed message shall use either a multiple BC-IE, if it wants to negotiate mobile specific parameter values or, unless otherwise specified in annex B, no BC-IE, if it agrees with the requested ones.
 - In case of a 3,1kHz multimedia setup the MS may either accept the possibility of a fallback to speech by responding with two BC-IEs, or with no BC-IEs, or turn the call to a speech call by sending only a speech BC-IE in the call confirm message or turn the call to a multimedia only call (i.e. no fallback to speech allowed) by sending only a multimedia BC-IE, in the call confirm message.
 - In case of a UDI/RDI multimedia setup, the MS may either accept the possibility of service change by responding with two BC-IEs or with no BC-IEs, or turn the call to a speech call by sending only a speech

BC-IE in the call confirm message, or turn the call to a multimedia call by sending only a multimedia BC-IE in the call confirm message.

• In case of facsimile, a single BC-IE, containing fax group 3 only, shall be used if a multiple BC-IE requesting speech alternate fax group 3 is received and the MS is not able to support the speech capability. Annex B, table B.7, describes the negotiation rules.

If the BC-IE contains 3,1 kHz ex PLMN, the MS is allowed to negotiate all mobile specific parameter values listed above. If the BC-IE contains facsimile group 3, the MS is not allowed to negotiate any mobile specific parameter value. In any case, if the set-up message requests a "single service", the MS shall not answer in the call confirmed message requesting a "dual service".

However, for dual services with repeat indicator set to "circular (alternate)" or to "service change and fallback" the MS may change the sequence of dual BC-IEs within the call confirmed message (preceded by the same value of the repeat indicator), if it wants to start with a different Bearer Capability than proposed by the network as the initial one.

In addition, the MS may propose to the network to modify User Rate, Modem Type and Intermediate Rate in the CALL CONFIRMED message. The network may accept or release the call.

If the BC-IE received from the network contains the parameters 'fixed network user rate', 'other modem type' and possibly the 'user initiated modification', the MS may either:

- a) if in A/Gb mode, discard these parameters; or
- b) include the possibly modified values for the 'fixed network user rate' and 'other modem type' in the BC-IE of the call confirmed message. The network might accept or reject the modified values. In this case the MS shall also include the parameters 'maximum number of traffic channels' and 'acceptable channel codings'. Additionally for non-transparent services, the MS shall also include the parameters 'wanted air interface user rate' and the 'user initiated modification indication'.

In case a), the MS shall use the fall-back bearer service indicated by the remaining parameters of the BC-IE on a single slot configuration (reference 3GPP TS 44.021).

In A/Gb or GERAN Iu mode case b), a single slot configuration shall be used by the MS, in case the 'maximum number of traffic channels' is set to "1 TCH" and the 'user initiated modification indication' is set either to "user initiated modification not required" or to "user initiated modification up to 1TCH may be requested"; other wise the MS shall use a singleslot or multislot configuration according to the rules defined in 3GPP TS 44.021, 3GPP TS 48.020 and 3GPP TS 24.022 (reference 3GPP TS 44.021).

In case the 'acceptable channel codings' is indicated by the MS, the decision which channel coding is used is done by the network and indicated to the mobile station with a RR message. This RR message may also assign an asymmetric channel coding. The 'acceptable channel codings' parameter takes precedence over the 'negotiation of intermediate rate requested' parameter for non-transparent services. Also the intermediate rate and user rate per traffic channel in a multislot configuration are not indicated by the 'intermediate rate' and 'user rate' parameters of the BC-IE, but depend on the chosen channel coding only.

If the MS receives a BC-IE in the SETUP message containing the parameters 'fixed network user rate', 'other modem type', the MS may include these parameters in the BC-IE of the CALL CONFIRMED message (i.e. octets 6d, 6e, 6f, and 6g see 3GPP TS 24.008), with parameter values negotiated according to Annex B. If no BC-IE is received in the SETUP message, the MS may include these parameters in the CALL CONFIRMED message. However, in this case, the network may release the call if it does not support these parameters.

If FNUR = 33.6 kbit/s is agreed on in the setup of a 3.1 kHz multimedia call, the modems may handshake to 31.2 kbit/s or 28.8 kbit/s. In this case the MS receives a MODIFY message from the MSC to indicate the new data rate, and shall respond with a MODIFY COMPLETE message (see 3GPP TS 24.008), if it supports the requested modification. If the MS does not support the requested modification, it shall respond with a MODIFY REJECT message. The MT shall indicate the new data rate to the TE (e.g. using the ITU-T Recommendation V.80 inband signaling) in order to cause the TE to use stuffing to adapt the 31.2 or 28.8 kbit/s data rate to the 33.6 kbit/s traffic channel between the TE and IWF.

8.3.3.2 Indication in case of Mobile originating calls

In support of mobile originating calls the values of BC-IE parameters are requested in the set-up message from the MS. If the MS indicates the support of both transparent and non transparent connection elements the network shall return its choice in the call proceeding message. The MS is not allowed to indicate support of both transparent and non transparent, if the MS also requests out-band flow control, i.e. it does not indicate a layer 2 protocol.

Additionally the value of the parameter modem type has to be set depending on the value of the parameter connection element as described in annex B, table B.4a.

The set-up message contains a single or multiple BC-IE. In case of multiple BC-IEs one BC-IE shall indicate the information transfer capability "speech".

In case of a 3,1 kHz multimedia call the setup message contains either a multimedia BC-IE indicating a multimedia only call request (i.e. no fallback to speech allowed) or both a 3,1 kHz multimedia BC-IE and a speech BC-IE to indicate the support of a fallback to speech (see 3GPP TS 29.007 and 3GPP TS 24.008).

In case of a UDI/RDI multimedia call, the setup message contains either a multimedia BC-IE indicating a multimedia only call request, or both a multimedia BC-IE and a speech BC-IE (in any order) to indicate the support of service change and fallback (see 3GPP TS 29.007 and 3GPP TS 24.008). The latter is not applicable to multimedia calls with FNUR=32.0 kbit/s.

If the set-up message requests a "single service", the network shall not answer in the call proceeding message requesting a "dual service". Alternatively the network shall answer with a single BC-IE containing fax group 3 if a multiple BC-IE requesting speech alternate fax group 3 is received but the network does not allow the use of this alternate service. Annex B, table B.7, describes the negotiation rules.

If the MS requests a "dual service" the network is not allowed to change the sequence of the service, a change may however occur due to the called user and this may then be relayed back to the originating MS by the network.

If the setup message requests a multimedia service with fallback, the network may return both BC-IEs in the same order or no BC-IE to accept the request, both BC-IEs in the reverse order (relayed from terminating User), or a single BC-IE if fallback, service change or one of the requested services are not allowed.

If the set-up message indicates that negotiation of intermediate rate is requested then the network shall behave as described in annex B, table B.4b.

Unless otherwise specified in annex B, if no BC-IE parameter needs negotiation it is up to the network if it sends a CALL PROC message (with or without a BC-IE) towards the MS or not.

For multislot, TCH/F14.4, and EDGE operations and in UTRAN Iu mode 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. If EDGE channel coding(s) are included in ACC in case of transparent calls, the 'Wanted air interface user rate'-parameter shall be set to 'Air interface user rate not applicable' and the 'User initiated modification indication'-parameter to 'User initiated modification not requested'. 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 or EDGE operation or in UTRAN Iu mode the MS shall also include the parameter 'wanted air interface user rate'. In non-transparent EDGE operation the MS shall also include the parameter 'asymmetry preference indication'. It shall also set the other parameters of the BC-IE (i.e. 'user rate') to values identifying fall-back values. Depending on the network two situations can be distinguished:

- a) The network supports the requested operation:
 - in this case the network shall include the parameter 'fixed network user rate', 'other modem type' and possibly 'user initiated modification' in the BC-IE(s) of the CALL PROCEEDING message, irrespective whether or not they contain modified values or just a copy of the received ones;
 - the 'acceptable channel codings' indicated by the MS in the SETUP message takes precedence over the 'negotiation of intermediate rate requested' parameter for non-transparent services. The intermediate rate per traffic channel and the user rate per traffic channel is dependent on the chosen channel coding only. The chosen channel coding is indicated to the mobile station by the network with an RR message.
- b) The network does not support the requested operation:

- in this case, in A/Gb mode, the BC-IE of the CALL PROCEEDING message does not contain the parameters fixed network user rate' and 'other modem type' or no BC-IE is included in the CALL PROCEEDING message at all. The mobile station shall then discard the parameters 'fixed network user rate', 'other modem type', 'maximum number of TCH', 'acceptable channel codings' 'wanted air interface user rate' and 'user initiated modification indication' sent with the SETUP message and apply the fall-back bearer service.

In case a), the MS shall use a single-slot or multislot configuration according to the rules defined in 3GPP TS 44.021, 3GPP TS 48.020 and 3GPP TS 24.022 shall be used by the MS, in case the 'maximum number of traffic channels' is set to "1 TCH" and the 'user initiated modification indication' is set either to "user initiated modification up to 1TCH may be requested".

In case b), The the MS shall use the fall-back bearer service indicated by the remaining parameters of the BC-IE on a single slot configuration (reference 3GPP TS 44.021).

If FNUR = 33.6 kbit/s is agreed on in the setup of a 3.1 kHz multimedia call, the modems may handshake to 31.2 kbit/s or 28.8 kbit/s. In this case the MS receives a MODIFY message from the MSC to indicate the new data rate, and shall respond with a MODIFY COMPLETE message (see 3GPP TS 24.008), if it supports the requested modification. If the MS does not support the requested modification, it shall respond with a MODIFY REJECT message. The MT shall indicate the new data rate to the TE (e.g. using the ITU-T Recommendation V.80 inband signaling) in order to cause the TE to use stuffing to adapt the 31.2 kbit/s or 28.8 kbit/s data rate to the 33.6 kbit/s traffic channel between the TE and IWF.