

3GPP TSG CN Plenary Meeting #19
12th - 14th March 2003. Birmingham, U.K.

NP-030075

Source: TSG CN WG3
Title: CRs on Rel-4 Work Item TEI.
Agenda item: 7.1.1
Document for: APPROVAL

Introduction:

This document contains **2 CRs on Rel-4 WI TEI**, including the corresponding mirror CRs (as required).

These CRs have been agreed by TSG CN WG3 and are forwarded to TSG CN Plenary meeting #19 for approval.

WG_tdoc	Title	Spec	CR	Rev	Cat	Rel	C_Ver
N3-030145	Removal of S reference point within the MS	27.001	083	1	F	Rel-4	4.8.0
N3-030146	Removal of S reference point within the MS and introduction of GERAN lu mode	27.001	084	1	F	Rel-5	5.4.0

CR-Form-v7

CHANGE REQUEST

№ **27.001 CR 083** № rev **1** № Current version: **4.8.0** №

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Proposed change affects: UICC apps № ME Radio Access Network Core Network

Title:	№ Removal of S reference point within the MS		
Source:	№ TSG_CN WG3 [Siemens AG]		
Work item code:	№ TEI	Date:	№ 12.02.03
Category:	№ F	Release:	№ Rel-4
	Use <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)
	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:	№ The S reference point has been removed as MS internal interface.
Summary of change:	№ See attached pages
Consequences if not approved:	№ Inconsistent specifications and missing information

Clauses affected:	№ 2, 4, 5, 6.3.1, 8.2.2.3.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	№ 24.002
	Y	N									
	X										
		X									
	X										
	Test specifications										
	O&M Specifications										
Other comments:											

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/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.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] Void.
- [2] 3GPP TS 22.002: Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN)".
- [3] 3GPP TS 22.003: "Circuit Teleservices supported by a Public Land Mobile Network (PLMN).
- [4] 3GPP TS 23.002: "Network architecture".
- [5] 3GPP TS 43.010: "GSM - UMTS Public Land Mobile Network (PLMN) access reference configuration ".
- [6] 3GPP TS 24.002: "GSM - UMTS Public Land Mobile Network (PLMN) access reference configuration ".
- [7] 3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core Network Protocols -Stage 3".
- [8] 3GPP TS 44.021: "Rate adaption on the Mobile Station - Base Station System (MS - BSS) interface".
- [9] 3GPP TS 24.022: "Radio Link Protocol (RLP) for Circuit Switched Bearer and Teleservices".
- [10] 3GPP TS ~~05.05~~[45.005](#): " Radio transmission and reception".
- [11] 3GPP TS 27.002: "Terminal Adaptation Functions (TAF) for services using asynchronous bearer capabilities".
- [12] 3GPP TS 27.003: "Terminal Adaptation Functions (TAF) for services using synchronous bearer capabilities".
- [13] Void.
- [14] Void.
- [15] Void.
- [16] Void.
- [17] Void.
- [18] Void.
- [19] Void.
- [20] Void.

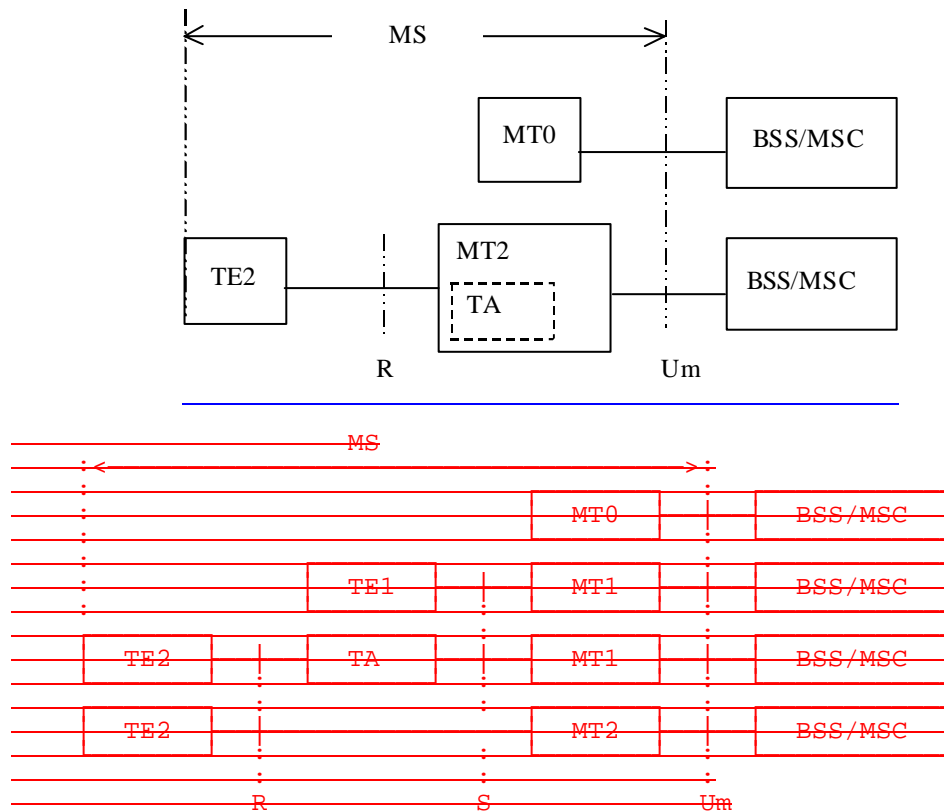
- [21] 3GPP TS 29.007: "General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".
- [22] Void.
- [23] Void.
- [24] Void.
- [25] Void.
- [26] ITU-T Series V Recommendations: "Data communication over the Telephone network".
- [27] Void.
- [28] ITU-T Series X Recommendations: "Data Communication networks".
- [29] Void
- [30] ITU-T Recommendation X.150: "Data Communication Networks: Transmission, Signalling and Switching, Network Aspects, Maintenance and Administrative Arrangements".
- [31] Void.
- [32] ITU-T Recommendation V.250: "Serial asynchronous automatic dialling and control".
- [33] ITU-T Recommendation V.54: "Loop Test Devices for Modems".
- [34] ITU-T Recommendation V.110: "Support of data terminal equipments (DTEs) with V-Series interfaces by an integrated services digital network".
- [35] ITU-T Recommendation I.460-I.463: "ISDN Overall Network Aspects and Functions, User Network Interfaces".
- [36] ITU-T Recommendation Q.931 (05/98): "DSS 1 - ISDN user network interface layer 3 specification for basic call control".
- [37] ETR 018: "Integrated Services Digital Network (ISDN), Application of the BC-, HLC-, LLC-Information elements by terminals supporting ISDN services".
- [38] ISO/IEC 6429: "Information technology - Control functions for coded character sets".
- [39] Void.
- [40] Void.
- [41] Void.
- [42] ITU-T Recommendation V.120: "Support by an ISDN of data terminal equipment with V-Series type interfaces with provision for statistical multiplexing".
- [43] 3GPP TS 23.034:"High Speed Circuit Switched Data (HSCSD) - Stage 2 "..
- [44] Void.
- [45] Void.
- [46] 3GPP TR 21.905: " Vocabulary for 3GPP Specifications".
- [47] 3GPP TS 25.990: "Vocabulary for UTRAN".
- [48] 3GPP TS 25.322: "Radio Link Control (RLC) Protocol Specification".
- [49] Void.
- [50] Mobile Internet Access Forum: "PIAFS Specification Ver. 1.1, 2.1".

- [51] ITU-T Recommendation V.80: "In-band DCE control and synchronous data modes for asynchronous DTE".
- [52] 3GPP TS ~~03.45~~[43.045](#) "Technical realization of facsimile group 3 transparent".
- [53] 3GPP TS ~~05.01~~[45.001](#) "Physical layer on the radio path; General description".
- [54] 3GPP TS 22.034 "High Speed Circuit Switched Data (HSCSD); Stage 1".
- [55] 3GPP TS 23.107 "QoS Concept and Architecture".
- [56] 3GPP TS 48.020 "Rate adaption on the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".
- [57] 3GPP TS 22.001 "Principles of circuit telecommunication services supported by a Public Land Mobile Network (PLMN)".
- [58] ITU-T Recommendation I.440 " (see ITU-T Rec. Q.920) ".
- [59] ITU-T Recommendation I.450 " (see ITU-T Rec. Q.930) ".
- [60] ITU-T Recommendation H.223 " Multiplexing protocol for low bit rate multimedia communication".
- [61] ITU-T Recommendation H.245 " Control protocol for multimedia communication ".
- [62] ITU-T Recommendation V.21 " 300 bits per second duplex modem standardized for use in the general switched telephone network ".
- [63] ITU-T Recommendation V.22 " 1200 bits per second duplex modem standardized for use in the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".
- [64] ITU-T Recommendation V.22bis" 2400 bits per second duplex modem using the frequency division technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits ".
- [65] ITU-T Recommendation V.26ter" 2400 bits per second duplex modem using the echo cancellation technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".
- [66] ITU-T Recommendation V.31" Electrical characteristics for single-current interchange circuits using optocouplers".
- [67] ITU-T Recommendation V.32" A family of 2-wire, duplex modems operating at data signalling rates of up to 9600 bit/s for use on the general switched telephone network and on leased telephone-type circuits ".
- [68] ITU-T Recommendation V.34" A modem operating at data signalling rates of up to 33 600 bit/s for use on the general switched telephone network and on leased point-to-point 2-wire telephone-type circuits ".
- [69] ITU-T Recommendation V.42" Error-correcting procedures for DCEs using asynchronous-to-synchronous conversion".
- [70] ITU-T Recommendation X.30" Support of X.21, X.21 bis and X.20 bis based Data Terminal Equipments (DTEs) by an Integrated Services Digital Network (ISDN)".
- [71] ITU-T Recommendation Q.920" ISDN user-network interface data link layer - General aspects ".
- [72] ITU-T Recommendation Q.930" ISDN user-network interface layer 3 - General aspects ".

Next amended section

4 Access reference configuration

Figure 1 presents the reference configuration for access to a GSM PLMN (see 3GPP TS 24.002).



- ⊕ : reference point.
- ~~TE1: ISDN terminal.~~
- TE2: V- ~~or X~~-type terminal.
- TA: Terminal Adaptor.
- BSS: Base Station System.
- MSC: Mobile Switching Centre.

Figure 1: GSM PLMN Access Reference Configuration

Within the scope of the present document the Mobile Termination MT0 means a fully integrated MS including data terminal and its adaptation functions. ~~MT1 includes ISDN terminal adaptation functions and~~ MT2 includes ITU-T V- ~~or X~~-series terminal adaptation functions among other MT functions.

Figure 2 presents the access reference configuration for UMTS. There is no reference point identified for the TAF. The TAF is considered as a part of the Mobile Termination.

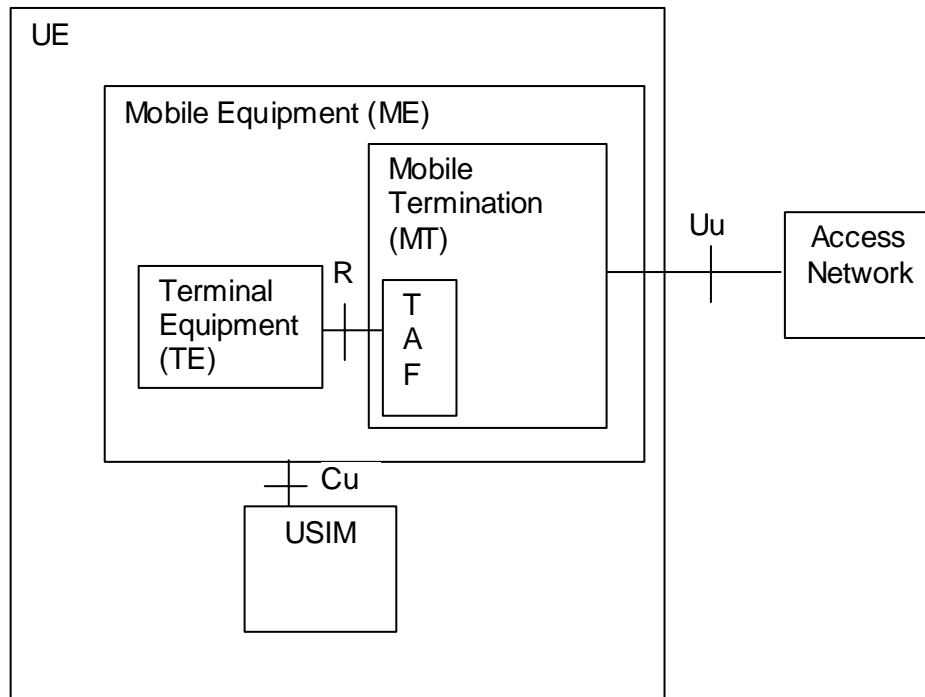


Figure 2: UMTS PLMN Access Reference Configuration

5 Functions to support data services

The main functions of the MT to support data services are:

- functions to ensure conformity of terminal service requests to network capability;
- physical connection of the [R](#) reference points ~~R and S~~;
- flow control of signalling and mapping of user signalling to/from GSM PLMN access signalling;
- rate adaptation of user data (see 3GPP TS 44.021) and data formatting for the transmission SAP (3GPP TS 25.322);
- flow control of non-transparent user data and mapping of flow control for asynchronous data services;
- support of data integrity between the MS and the interworking function in the GSM PLMN;
- end-to-end synchronization between terminals;
- filtering of status information;
- functions to support non-transparent bearer services e.g. termination of the Radio Link Protocol (RLP) and the Layer 2 Relay function (L2R) including optional data compression function (where applicable);
- terminal compatibility checking;
- optional support of local test loops.

In addition, functions to support autocalling and autoanswering are optionally specified in accordance with ITU-T Recommendation V.250 (although the use of other autocalling/auto-answering procedures are not prohibited provided that mapping in a functionally equivalent way to 3GPP TS 24.008 call control is also provided).

Other functional entities may be envisaged apart from the TAF. One of the physical interface to all these functions is the DTE/DCE interface to the MT. Normally, this DTE/DCE interface is associated with the TAF, if available. Therefore the access to any of these other functional entities, if implemented, via the DCE/DTE interface, are triggered by appropriate command sequences which are described in the applicable specifications (although the use of other procedures is not prohibited provided that mapping in a functionally equivalent way is also provided). These command sequences shall be issued by the DTE only when the MT is in the appropriate command status and there is no data connection pending. They are interpreted by an MT internal control function and result in an association of the DTE/DCE interface with the addressed function, if available.

Next amended section

6.3.1 End to End Flow Control

A DTE may wish to send a flow control active condition to another DTE.

Provisions exist in the L2R entity to transfer a flow control active condition (sent by its associated DTE) to the other L2R entity as soon as possible. This mechanism in the L2R entities allows such a flow control condition to be put ahead of any queuing which exists in the L2R entities.

Such a mechanism avoids undesirable build up of data buffers.

The L2R entity, receiving a flow control active condition from its associated DTE, stops sending data to that associated DTE immediately.

Next amended section

8.2.2.3 Filtering mechanism

8.2.2.3.1 Traffic channel types TCH/F4.8 and TCH/F9.6

A filtering mechanism shall be provided by an integration process on those SB and X bits carrying status information in the V.110 frame or in the multiframe structure. The integration periods applied are:

V-series	Transition	Integration period	Status stream
CT 106	Off-On	1 s	X
CT 106	On-Off	1 s	X
CT 109	Off-On	200 ms	SB
CT 109	On-Off	5 s	SB
X-series	Transition	Integration period	Status stream
I-circuit	Off-On	40 ms	SB
I-circuit	On-Off	5 s	SB

The integration process shall ensure that the interchange circuits do not change state in response to spurious transitions of the status bits during the integration period.

The integration process shall operate reliably with error characteristics as specified in 3GPP TS ~~05-05~~[45.005](#).

Next amended section

8.5 Alternate speech/facsimile group 3

8.5.1 In case of GSM

This alternate service may be initiated by a manual procedure where CT106, CT107, CT108.2 and CT109 are set in the OFF condition.

Selection of the data phase (from the speech phase) may be by manual intervention via the MS causing ICM by means of CT108.2 going to ON condition, refer to 3GPP TS ~~03.45~~[43.045](#). The ensuing data phase shall follow all the operational procedures as described in 3GPP 27-series.

Selection of the speech phase (from the data phase) may be by manual intervention via the MS causing ICM (phone off-hook condition at the MT and data call end condition at the TE).

During the ensuing speech phases, CT107, CT106 and CT109 shall be maintained in the OFF condition.

Subsequent re-selection of the data phase may be by manual intervention via the MS causing CT108.2 going to ON condition initiating ICM. At this point, re-synchronization shall take place as described in subclause 8.1 above.

Next amended section

Annex A (informative): List of Bearer Capability Elements

This annex lists the PLMN Bearer Capability Elements which need to be provided to support Terminal adaptation function to Interworking control procedures. Some parameters are ignored in UMTS although present in the BC-IE. The validity of parameter values may also differ from GSM to UMTS. The ignored parameters and the difference of parameter value validity in GSM and UMTS are listed in table B.5a in annex B.

Elements and their Values:

Information Transfer Capability:

This element is relevant between the IWF and the fixed network.

Values:

- Speech
- Unrestricted Digital
- Group 3 Facsimile (note 1)
- 3,1 kHz Ex PLMN (note 2)
- Restricted Digital (note 3)

NOTE 1: Used for facsimile transmission, unrestricted digital between MT and IWF and 3,1 kHz audio from IWF towards the fixed network.

NOTE 2: Unrestricted digital between MT and IWF and 3,1 kHz audio from IWF towards the fixed network.

NOTE 3: Unrestricted digital between MT and IWF and restricted digital information from IWF towards the fixed network; this value is signalled in the "Other ITC" element, due to a lack of further code points in the "ITC" element.

Transfer Mode:

This element is relevant between MT and IWF

Values: - Circuit

Structure:

This element is relevant between MT and IWF.

Values: - Service Data Unit Integrity (note 4)
- Unstructured (note 5)

NOTE 4: Applicable for connection element "non transparent".

NOTE 5: Applicable for connection element "transparent".

Configuration:

This element is relevant for a PLMN connection.

Values: - Point to point

Establishment:

This element is relevant for a PLMN connection.

Values: - Demand

Sync/Async:

This element is relevant between TE/TA and MT and between IWF and the fixed network.

Values: - Synchronous
- Asynchronous

Negotiation:

This element is relevant between MT and IWF.

Values: - In band negotiation not possible

User Rate:

This element is relevant between TE/TA and MT and between IWF and the fixed network, except in case the parameter FNUR is present.

Values: - 0.3 kbit/s
- 1.2 kbit/s
- 2.4 kbit/s
- 4.8 kbit/s
- 9.6 kbit/s
- 19.2 kbit/s (see note 6)

NOTE 6: This value cannot be signalled between MT and IWF, but it can be used according to the rules in 3GPP TS 29.007 (table 7A, 7B) for such connections.

Intermediate Rate:

This element is relevant between MT and BSS and BSS and IWF

Values: - 8 kbit/s
- 16 kbit/s

Network Independent Clock on Tx:

This element is relevant between TE/TA and MT in the transmit direction.

Values: - Not required
- Required

Network Independent Clock on Rx:

This element is relevant between TE/TA and MT in the receive direction.

Values: - Not accepted
 - accepted

Number of Stop Bits:

This element is relevant between the TE/TA and MT and between IWF and fixed network in case of asynchronous transmission.

Values: - 1 bit
 - 2 bit

Number of Data Bits Excluding Parity If Present:

This element is relevant between TE/TA and MT and between IWF and the fixed network in case of a character oriented mode of transmission.

Values: - 7 bit
 - 8 bit

Parity Information:

This element is relevant between TE/TA and MT and between IWF and the fixed network for a character oriented mode of transmission.

Values: - Odd
 - Even
 - None
 - Forced to 0
 - Forced to 1

Duplex Mode:

This element is relevant between MT and IWF.

Values: - Full Duplex

Modem Type:

This element is relevant between the IWF and the fixed network in case of 3,1 kHz audio ex-PLMN information transfer capability.

Values: - V.21
 - V.22
 - V.22 bis
 - V.26 ter
 - V.32
 - autobauding type 1
 - none

Radio Channel Requirement:

This element is relevant between MT and BSS

Values: - Full Rate support only Mobile Station
 - Dual Rate support Mobile Station/Half Rate preferred
 - Dual Rate support Mobile Station/Full Rate preferred

Connection Element:

This element is relevant between MT and IWF

Values: - Transparent
 - Non Transparent
 - both, Transparent preferred
 - both, Non transparent preferred

User Information Layer 2 Protocol:

This element is relevant between TE/TA and MT and between IWF and the fixed network.

Values: - ISO 6429
 - Character oriented Protocol with no Flow Control mechanism

Signalling Access Protocol:

This element is relevant between TE/TA and MT.

Values: - I.440/450

Rate Adaptation:

This element is relevant between IWF and the fixed network.

Values: - V.110/X.30
 - X.31 flagstuffing
 - no rate adaptation
 - V.120 (note 7)
 - PIAFS (note 7)
 - H.223 and H.245 (note 7)

NOTE 7: This value is signalled in the "Other Rate Adaption" element, due to a lack of further code points in the "Rate Adaption" element.

Coding Standard:

This element refers to the structure of the BC-IE defined in 3GPP TS 24.008.

Values: - GSM

User Information Layer 1 Protocol:

This element characterize the layer 1 protocol to be used between MT and BSS (Um interface) according to 3GPP TS ~~05.01~~[45.001](#), or between the MT and the RNC (Uu interface).

Values: - default

Negotiation of Intermediate Rate requested:

This element is relevant between MT and BSS and BSS and IWF.

Values: - no meaning associated
 - 6 kbit/s radio interface is requested for a full rate channel with a user rate up to and including 4,8 kbit/s, non transparent service

Compression:

This element is relevant between MT and IWF.

Values: - compression possible/allowed
 - compression not possible/allowed

Rate adaption header / no header:

This element is relevant between IWF and the fixed network. It is only applicable for ITU-T V.120 rate adaptation.

Values: - Rate adaption header not included
 - Rate adaption header included

Multiple frame establishment support in data link:

This element is relevant between IWF and the fixed network. It is only applicable for ITU-T V.120 rate adaptation.

Values: - Multiple frame establishment not supported. Only UI frames allowed.
 - Multiple frame establishment supported.

Mode of operation:

This element is relevant between IWF and the fixed network. It is only applicable for ITU-T V.120 rate adaptation.

Values: - Bit transparent mode of operation
 - Protocol sensitive mode of operation

Logical link identifier negotiation:

This element is relevant between IWF and the fixed network. It is only applicable for ITU-T V.120 rate adaptation.

Values: - Default, LLI=256 only
 - Full protocol negotiation (note 8)

NOTE 8: A connection over which protocol negotiation is executed as indicated in the "In-band / out-band negotiation" parameter.

Assignor / assignee:

This element is relevant between IWF and the fixed network. It is only applicable for ITU-T V.120 rate adaptation.

Values: - Message originator is „default assignee"
 - Message originator is „assignor only"

In-band / out-band negotiation:

This element is relevant between IWF and the fixed network. It is only applicable for ITU-T V.120 rate adaptation.

Values: - Negotiation is done with USER INFORMATION messages on a temporary signalling connection
 - Negotiation is done in-band using logical link zero.

Fixed network user rate, FNUR (Note 12)

This element is relevant between the IWF and the fixed network.

Values - Fixed network user rate not applicable (note 9)
 - 9,6 kbit/s
 - 14,4 kbit/s
 - 19,2 kbit/s
 - 28,8 kbit/s
 - 32,0 kbit/s
 - 38,4 kbit/s
 - 48,0 kbit/s
 - 56,0 kbit/s
 - 64,0 kbit/s

NOTE 9: Not used by currently specified services.

Wanted air interface user rate, WAIUR (note 12)

This element is relevant between the MT and the IWF

- Values
- Air interface user rate not applicable
 - 9,6 kbit/s
 - 14,4 kbit/s
 - 19,2 kbit/s
 - 28,8 kbit/s
 - 38,4 kbit/s
 - 43,2 kbit/s
 - 57,6 kbit/s
 - interpreted by the network as 38,4 kbit/s (note 10)

NOTE 10: Certain code points, if used, are interpreted by the network as 38.4 kbit/s in this version of the protocol, ref 3GPP TS 24.008.

Acceptable channel codings, ACC (note 12)

This element is relevant between the MT and the IWF.

- Value:
- TCH/F4.8 acceptable
 - TCH/F9.6 acceptable
 - TCH/F14.4 acceptable
 - TCH/F28.8 acceptable
 - TCH/F32.0 acceptable (Applicable to multimedia 32, 56 and 64 kbit/s and synchronous transparent 56 and 64 kbit/s services only)
 - TCH/F43.2 acceptable (Applicable to non-transparent services only.)

Maximum number of traffic channels, MaxNumTCH (Note 12)

This element is relevant between the MT and the IWF.

- Value:
- 1 TCH
 - 2 TCH
 - 3 TCH
 - 4 TCH
 - 5 TCH
 - 6 TCH
 - 7 TCH (note 11)
 - 8 TCH (note 11)

NOTE11: Not used by currently specified services.

Other modem type, OMT (Note 12)

This element is relevant between the IWF and the fixed network in case of 3,1 kHz audio ex-PLMN

- Values:
- no other modem type specified in this field
 - V.34

User initiated modification indication, UIMI (Note 12)

This element is relevant between the MT and the IWF.

- Values:
- user initiated modification not requested
 - user initiated modification upto 1 TCH requested
 - user initiated modification upto 2 TCH requested
 - user initiated modification upto 3 TCH requested
 - user initiated modification upto 4 TCH requested

Asymmetry preference indication (Note 12)

This element is relevant between the MT and the BSS.

Value: - no preference
 - up link biased asymmetry preference
 - down link biased asymmetry preference

NOTE 12: These GBS-related parameters are optional.

For a multislot configuration, the following applies to the parameters contained in the BC-IE:

- Half rate channels are not supported. The MS shall code the radio channel requirement as "Full rate support only MS" or "Dual rate support MS, full rate preferred". In the second case, the network shall assign full rate channel(s) only.
- The 'fixed network user rate' and 'other modem type' (ref. table B.4a) takes precedence over the 'user rate' and 'modem type'.
- The ACC indicates which channel coding is acceptable and supported by the MS. In case of CE:NT the TCH/F4.8 and TCH/F9.6 acceptable is equivalent to the support of NIRR. If TCH/F4.8 acceptable only or TCH/F9.6 acceptable only or TCH/F14.4 acceptable only is indicated, the assigned channel type which can be chosen by the network is TCH/F4.8 or TCH/F9.6 or TCH/F14.4, respectively.
- The 'intermediate rate' parameter is overridden. The intermediate rate used per each TCH/F is derived from the chosen channel type:

channel type	IR per TCH/F
TCH/F4.8	8 kbit/s
TCH/F9.6	16 kbit/s
TCH/F14.4	intermediate rate is to be defined

- The user rate per TCH is derived from the chosen channel type:

channel type	user rate per TCH
TCH/F4.8	4.8 kbit/s
TCH/F9.6	9.6 kbit/s

For CE:T, the padding procedure described in 3GPP TS 44.021 can be applied.

CR-Form-v7

CHANGE REQUEST

№ **27.001 CR 084** № rev **1** № Current version: **5.4.0** №

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the № symbols.

Proposed change affects: UICC apps № ME Radio Access Network Core Network

Title:	№ Removal of S reference point within the MS and introduction of GERAN lu mode		
Source:	№ TSG_CN WG3 [Siemens AG]		
Work item code:	№ TEI	Date:	№ 12.02.03
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	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	№ The S reference point has been removed as MS internal interface. The configuration of an MS in GERAN lu mode was added.		
Summary of change:	№ See attached pages		
Consequences if not approved:	№ Inconsistent specifications and missing information		

Clauses affected:	№ 2, 4, 5, 6.3.1, 8.2.2.3.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications Test specifications O&M Specifications	Y	N	X			X		X	№	24.002
Y	N										
X											
	X										
	X										
Other comments:	№										

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/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.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] Void.
- [2] 3GPP TS 22.002: Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)".
- [3] 3GPP TS 22.003: "Circuit Teleservices supported by a Public Land Mobile Network (PLMN).
- [4] 3GPP TS 23.002: "Network architecture".
- [5] 3GPP TS 43.010: "GSM Public Land Mobile Network (PLMN)connection types".
- [6] 3GPP TS 24.002: "GSM - UMTS Public Land Mobile Network (PLMN) access reference configuration ".
- [7] 3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core Network Protocols -Stage 3".
- [8] 3GPP TS 44.021: " Rate adaption on the Mobile Station - Base Station System (MS - BSS) interface".
- [9] 3GPP TS 24.022: "Radio Link Protocol (RLP) for Circuit Switched Bearer and Teleservices".
- [10] 3GPP TS ~~05.05~~[45.005](#): " Radio transmission and reception".
- [11] 3GPP TS 27.002: "Terminal Adaptation Functions (TAF) for services using asynchronous bearer capabilities".
- [12] 3GPP TS 27.003: "Terminal Adaptation Functions (TAF) for services using synchronous bearer capabilities".
- [13] Void.
- [14] Void.
- [15] Void.
- [16] Void.
- [17] Void.
- [18] Void.
- [19] Void.
- [20] Void.
- [21] 3GPP TS 29.007: "General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".

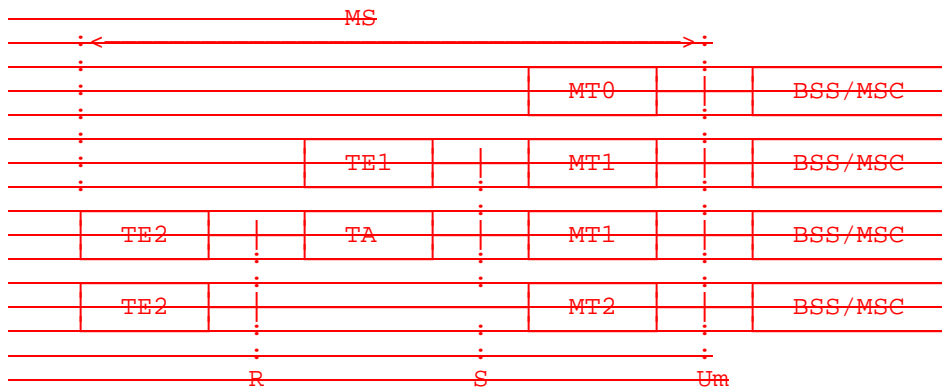
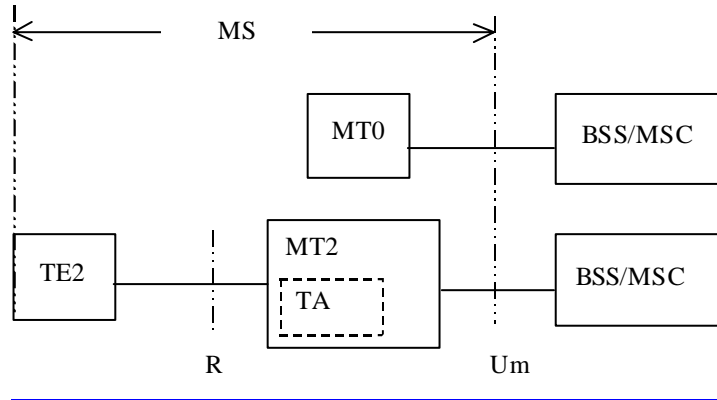
- [22] Void.
- [23] Void.
- [24] Void.
- [25] Void.
- [26] ITU-T Series V Recommendations: "Data communication over the Telephone network".
- [27] Void.
- [28] ITU-T Series X Recommendations: "Data Communication networks".
- [29] Void
- [30] ITU-T Recommendation X.150: "Data Communication Networks: Transmission, Signalling and Switching, Network Aspects, Maintenance and Administrative Arrangements".
- [31] Void.
- [32] ITU-T Recommendation V.250: "Serial asynchronous automatic dialling and control".
- [33] ITU-T Recommendation V.54: "Loop Test Devices for Modems".
- [34] ITU-T Recommendation V.110: "Support of data terminal equipments (DTEs) with V-Series interfaces by an integrated services digital network".
- [35] ITU-T Recommendation I.460-I.463: "ISDN Overall Network Aspects and Functions, User Network Interfaces".
- [36] ITU-T Recommendation Q.931 (05/98): "DSS 1 - ISDN user network interface layer 3 specification for basic call control".
- [37] ETSI ETR 018: "Integrated Services Digital Network (ISDN), Application of the BC-, HLC-, LLC-Information elements by terminals supporting ISDN services".
- [38] ISO/IEC 6429: "Information technology - Control functions for coded character sets".
- [39] Void.
- [40] Void.
- [41] Void.
- [42] ITU-T Recommendation V.120: "Support by an ISDN of data terminal equipment with V-Series type interfaces with provision for statistical multiplexing".
- [43] 3GPP TS 23.034:" High Speed Circuit Switched Data (HSCSD) - Stage 2 "..
- [44] Void.
- [45] Void.
- [46] 3GPP TR 21.905: " Vocabulary for 3GPP Specifications "
- [47] 3GPP TS 25.990: "Vocabulary for UTRAN".
- [48] 3GPP TS 25.322: "Radio Link Control (RLC) Protocol Specification".
- [49] Void.
- [50] Mobile Internet Access Forum: "PIAFS Specification Ver. 1.1, 2.1".
- [51] ITU-T Recommendation V.80: "In-band DCE control and synchronous data modes for asynchronous DTE".
- [52] 3GPP TS 43.045 "Technical realization of facsimile group 3 transparent".

- [53] 3GPP TS 45.001 "Physical layer on the radio path; General description".
- [54] 3GPP TS 22.034 "High Speed Circuit Switched Data (HSCSD); Stage 1".
- [55] 3GPP TS 23.107 "QoS Concept and Architecture".
- [56] 3GPP TS 48.020 "Rate adaption on the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface".
- [57] 3GPP TS 22.001 "Principles of circuit telecommunication services supported by a Public Land Mobile Network (PLMN)".
- [58] ITU-T Recommendation I.440 " (see ITU-T Rec. Q.920) ".
- [59] ITU-T Recommendation I.450 " (see ITU-T Rec. Q.930) ".
- [60] ITU-T Recommendation H.223 " Multiplexing protocol for low bit rate multimedia communication".
- [61] ITU-T Recommendation H.245 " Control protocol for multimedia communication ".
- [62] ITU-T Recommendation V.21 " 300 bits per second duplex modem standardized for use in the general switched telephone network ".
- [63] ITU-T Recommendation V.22 " 1200 bits per second duplex modem standardized for use in the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".
- [64] ITU-T Recommendation V.22bis" 2400 bits per second duplex modem using the frequency division technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits ".
- [65] ITU-T Recommendation V.26ter" 2400 bits per second duplex modem using the echo cancellation technique standardized for use on the general switched telephone network and on point-to-point 2-wire leased telephone-type circuits".
- [66] ITU-T Recommendation V.31" Electrical characteristics for single-current interchange circuits using optocouplers".
- [67] ITU-T Recommendation V.32" A family of 2-wire, duplex modems operating at data signalling rates of up to 9600 bit/s for use on the general switched telephone network and on leased telephone-type circuits ".
- [68] ITU-T Recommendation V.34" A modem operating at data signalling rates of up to 33 600 bit/s for use on the general switched telephone network and on leased point-to-point 2-wire telephone-type circuits ".
- [69] ITU-T Recommendation V.42" Error-correcting procedures for DCEs using asynchronous-to-synchronous conversion".
- [70] ITU-T Recommendation X.30" Support of X.21, X.21 bis and X.20 bis based Data Terminal Equipments (DTEs) by an Integrated Services Digital Network (ISDN)".
- [71] ITU-T Recommendation Q.920" ISDN user-network interface data link layer - General aspects ".
- [72] ITU-T Recommendation Q.930" ISDN user-network interface layer 3 - General aspects ".

Next amended section

4 Access reference configuration

Figure 1 presents the reference configuration for access to an A/Gb mode and GERAN Iu mode PLMN (see 3GPP TS 24.002).



⊕ : reference point.

~~TE1: ISDN terminal.~~

TE2: V- or X-type terminal.

TA: Terminal Adaptor.

GERAN: GSM/EDGE Radio Access Network.

CN: Core Network.

~~BSS: Base Station System.~~

~~MSC: Mobile Switching Centre.~~

Figure 1: ~~A/Gb mode~~ PLMN Access Reference Configuration (in A/Gb mode and GERAN Iu mode)

Within the scope of the present document the Mobile Termination MT0 means a fully integrated MS including data terminal and its adaptation functions. ~~MT1 includes ISDN terminal adaptation functions and~~ MT2 includes ITU-T V- or X-series terminal adaptation functions among other MT functions.

Figure 2 presents the access reference configuration for UTRAN Iu mode. There is no reference point identified for the TAF. The TAF is considered as a part of the Mobile Termination.

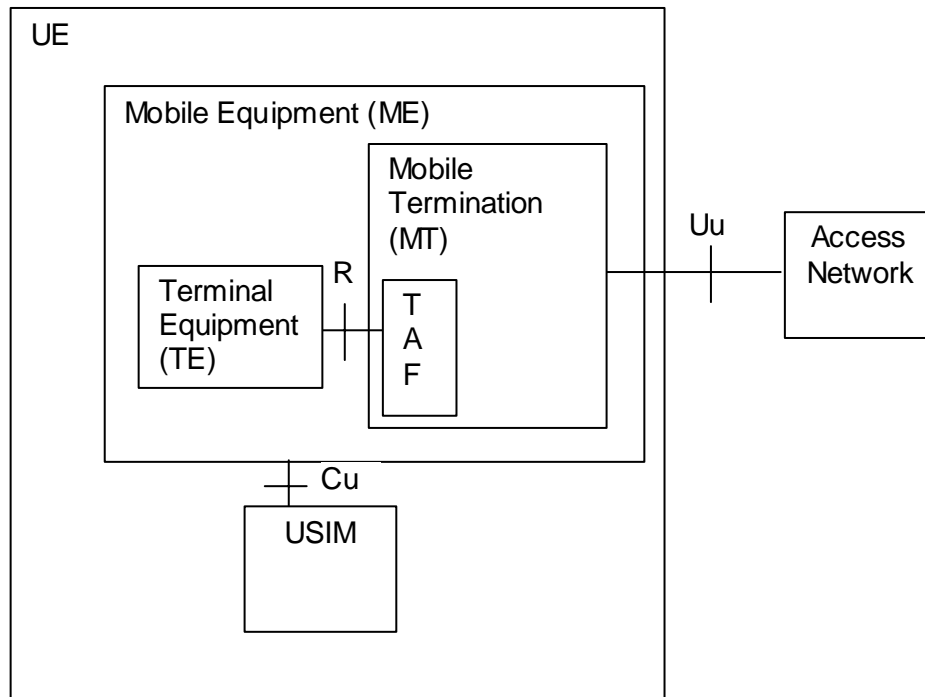


Figure 2: UTRAN Iu mode PLMN Access Reference Configuration

5 Functions to support data services

The main functions of the MT to support data services are:

- functions to ensure conformity of terminal service requests to network capability;
- physical connection of the [R](#) reference points ~~R~~ and ~~S~~;
- flow control of signalling and mapping of user signalling to/from the PLMN access signalling;
- rate adaptation of user data (see 3GPP TS 44.021) and data formatting for the transmission SAP (3GPP TS 25.322);
- flow control of non-transparent user data and mapping of flow control for asynchronous data services;
- support of data integrity between the MS and the interworking function in the PLMN;
- end-to-end synchronization between terminals;
- filtering of status information;
- functions to support non-transparent bearer services e.g. termination of the Radio Link Protocol (RLP) and the Layer 2 Relay function (L2R) including optional data compression function (where applicable);
- terminal compatibility checking;
- optional support of local test loops.

In addition, functions to support autocalling and autoanswering are optionally specified in accordance with ITU-T Recommendation V.250 (although the use of other autocalling/auto-answering procedures are not prohibited provided that mapping in a functionally equivalent way to 3GPP TS 24.008 call control is also provided).

Other functional entities may be envisaged apart from the TAF. One of the physical interface to all these functions is the DTE/DCE interface to the MT. Normally, this DTE/DCE interface is associated with the TAF, if available. Therefore the access to any of these other functional entities, if implemented, via the DCE/DTE interface, are triggered by appropriate command sequences which are described in the applicable specifications (although the use of other procedures is not prohibited provided that mapping in a functionally equivalent way is also provided). These command sequences shall be issued by the DTE only when the MT is in the appropriate command status and there is no data connection pending. They are interpreted by an MT internal control function and result in an association of the DTE/DCE interface with the addressed function, if available.

Next amended section

6.3.1 End to End Flow Control

A DTE may wish to send a flow control active condition to another DTE.

Provisions exist in the L2R entity to transfer a flow control active condition (sent by its associated DTE) to the other L2R entity as soon as possible. This mechanism in the L2R entities allows such a flow control condition to be put ahead of any queuing which exists in the L2R entities.

Such a mechanism avoids undesirable build up of data buffers.

The L2R entity, receiving a flow control active condition from its associated DTE, stops sending data to that associated DTE immediately.

Next amended section

8.2.2.3 Filtering mechanism

8.2.2.3.1 Traffic channel types TCH/F4.8 and TCH/F9.6

A filtering mechanism shall be provided by an integration process on those SB and X bits carrying status information in the V.110 frame or in the multiframe structure. The integration periods applied are:

V-series	Transition	Integration period	Status stream
CT 106	Off-On	1 s	X
CT 106	On-Off	1 s	X
CT 109	Off-On	200 ms	SB
CT 109	On-Off	5 s	SB
X-series	Transition	Integration period	Status stream
I-circuit	Off-On	40 ms	SB
I-circuit	On-Off	5 s	SB

The integration process shall ensure that the interchange circuits do not change state in response to spurious transitions of the status bits during the integration period.

The integration process shall operate reliably with error characteristics as specified in 3GPP TS ~~05.05~~[45.005](#).