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**Digital cellular telecommunications system (Phase 2+) (GSM);
Universal Mobile Telecommunications System (UMTS);
LTE;
5G;
GSM - UMTS Public Land Mobile Network (PLMN)
Access Reference Configuration
(3GPP TS 24.002 version 17.0.0 Release 17)**



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Contents

Intellectual Property Rights	2
Legal Notice	2
Modal verbs terminology.....	2
Foreword.....	4
1 Scope	5
1.1 References	5
1.2 Abbreviations	6
2 General definitions	6
2.1 Reference Configurations.....	7
2.2 Functional Groups	7
2.3 Reference Points.....	7
2.4 Interface Points.....	7
2.5 Terminal Definitions	7
3 Reference Configuration	8
3.0 General	8
3.1 Mobile Termination (MT).....	9
3.2 Void.....	10
4 Physical Realisation	10
Annex A (informative): Change history	11
History	12

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1 Scope

The present document describes the reference configuration for access to a PLMN.

A user accesses a PLMN via a number of interfaces, including the MS-BS (in A/Gb mode and GERAN Iu mode), UE-UTRAN (in UTRAN Iu mode), UE-E-UTRAN, and UE-5G-AN interface. The purpose of this document is to indicate the possible access arrangements that may be used in conjunction with the MS-BS (in A/Gb mode and GERAN Iu mode), UE-UTRAN (in UTRAN Iu mode), UE-E-UTRAN, and UE-5G-AN interface.

1.1 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.
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[13]	Void.	
[14]	3GPP TS 44.021: "Rate adaption on the Mobile Station - Base Station System (MS - BSS) interface".	
[15]	Void.	
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[20]	Void.	
[21]	Void.	

- [22] Void.
- [23] Void.
- [24] Void.
- [25] Void.
- [26] Void.
- [27] Void.
- [28] Void.
- [29] Void.
- [30] Void.
- [31] Void.
- [32] Void.
- [33] 3GPP TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".
- [34] 3GPP TS 27.002: "Terminal Adaptation Functions (TAF) for services using asynchronous bearer capabilities".
- [35] 3GPP TS 27.003: "Terminal Adaptation Functions (TAF) for services using synchronous bearer capabilities".
- [36] Void.
- [37] Void.
- [38] Void.
- [39] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications." <https://standards.iteh.ai/catalog/standards/sist/0f189fa9-e1cd-4690-9ef2-e74817d69c73/etsi-ts-124-002-v17-0-0-2022-05>
- [40] Void.
- [41] 3GPP TS 25.322: "Radio Link Control (RLC) Protocol Specification".
- [42] ITU-T Recommendation V.24 (1996): "List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE)".
- [43] ITU-T Recommendation V.28 (1993): "Electrical characteristics for unbalanced double-current interchange circuits".
- [44] Infrared Data Association IrDA: "IrPHY Physical layer signalling standard".
- [45] Personal Computer Memory Card Association: "PCMCIA 2.1 or PC-Card 3.0 electrical specification or later revisions".
- [46] Void.

1.2 Abbreviations

Abbreviations used in the present document are listed in 3GPP TR 21.905 [39].

2 General definitions

The following definitions 2.1-2.3 are based on those used for ISDN.

2.1 Reference Configurations

Reference Configurations are conceptual configurations useful in identifying access arrangements to a network. Two concepts are used in defining reference configurations:

reference points and functional groups.

2.2 Functional Groups

Functional Groups are sets of functions which may be needed in network access arrangements. In a particular access arrangement, specific functions in a functional group may or may not be present. Specific functions in a functional group may be performed in one or more pieces of equipment.

2.3 Reference Points

Reference Points are the conceptual points dividing functional groups. In a specific access arrangement, a reference point may correspond to a physical interface between pieces of equipment, or there may not be any physical interface corresponding to the reference point.

2.4 Interface Points

Interface Points are reference points within a PLMN at which a 3GPP specified interface is always identified.

2.5 Terminal Definitions

The term 'mobile station' (MS) in the present document is synonymous with the term 'user equipment' (UE) in 3G terminology as defined in 3GPP TR 21.905 [39].

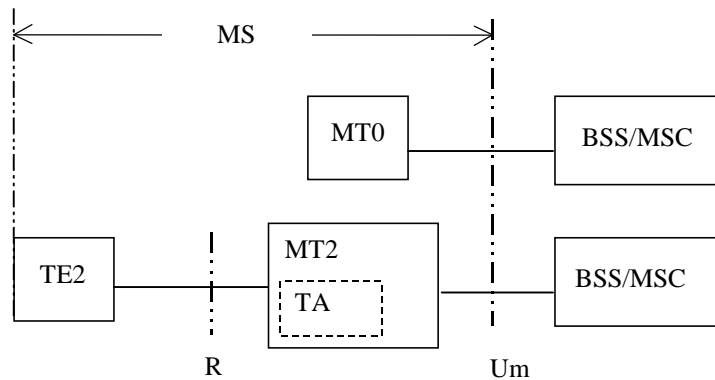
The term 'TE2' in the present document is synonymous with the term 'TE' in 3G terminology as defined in 3GPP TR 21.905 [39].

The term 'MT2' in the present document is synonymous with the term 'MT' in 3G terminology as defined in 3GPP TR 21.905 [39].

3 Reference Configuration

3.0 General

The reference configuration for PLMN (in A/Gb mode and GERAN Iu mode) access interfaces is shown in figure 1.



- ⊕ : reference point.
- TE2: V-type terminal.
- TA: Terminal Adaptor.
- GERAN: GSM/EDGE Radio Access Network.
- CN: Core Network.

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

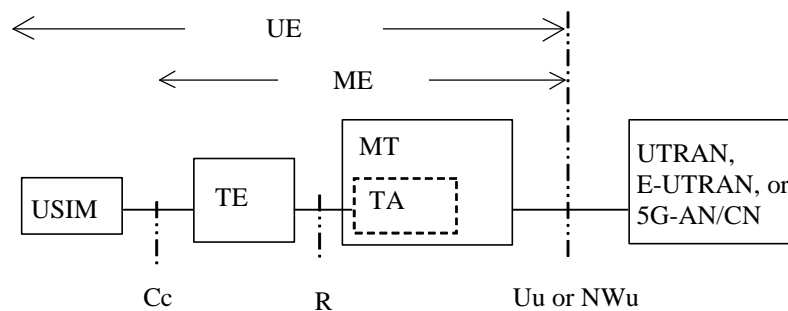
There are two types of MT:

- MT0 includes functions belonging to the functional group MT, with support of no terminal interfaces.
- MT2 includes functions belonging to the functional group MT, and with an interface that complies with the 3GPP TS 27.00z series Terminal Adaptation Function specifications [33], [34], [35]. Accordingly, the interchange circuit mapping at the MT2 to TE interface shall comply with the ITU-T V.24 [42] recommendation; while the physical implementation shall conform either to the ITU-T V.28 [43], or to the IrDA IrPHY Physical signalling standard specification [44], or to the PCMCIA 2.1 [45], or to the PC-Card 3.0 [45], electrical specification or to later revisions.

The MT plus any TE constitutes the Mobile Station, MS.

The terminal equipment functional groups TE2 and TA are conceptually the same functional groups as those in the ISDN.

The reference configuration for PLMN (Iu mode) access interfaces is shown in figure 2.



- ⊕ : reference point.
- TA: Terminal Adaptor.
- MT: Mobile Termination.
- ME: Mobile Equipment.
- UE: User Equipment
- UTRAN: UMTS Radio Access Network.
- E-UTRAN: Evolved UMTS Radio Access Network.
- CN: Core Network.
- 5G-AN: 5G Access Network.

Figure 2: PLMN Access Reference Configuration (UTRAN lu mode, E-UTRAN, or 5G-AN)

There is no reference point identified for the TA Function. The TA Function is considered as a part of the Mobile Termination and with an interface that complies with the 3GPP TS 27.00z series Terminal Adaptation Function specifications [33], [34], [35].

3.1 Mobile Termination (MT)

The MT performs the following functions, which performs the following functions:

- radio transmission termination;
- radio transmission channel management;
- terminal capabilities, including presentation of a man-machine interface to a user;
- speech encoding/decoding;
- error protection for all information sent across the radio path. This includes FEC (forward error correction) and, for signalling and user data (except for transparent data services), ARQ (automatic request for retransmission);
- flow control of signalling and mapping of user signalling to/from PLMN access signalling;
- flow control of user data (except for transparent data services) and mapping of flow control for asynchronous transparent data services;
- rate adaptation of user data (see 3GPP TS 44.021[14]) and data formatting for the transmission SAP (3GPP TS 25.322 [41]);
- multiple terminal support;
- mobility management.