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RELEASE NOTE

Recommendation GSM 04.02

GSM PLMN Access Reference Configuration

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1. Reason for changes

No changes since the previously distributed version.

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PREFATORY NOTE

ETSI has constituted stable and consistent documents which give specifications for the implementation of the European Cellular Telecommunications System. Historically, these documents have been identified as "GSM recommendations".

Some of these recommendations may subsequently become Interim European Telecommunications Standards (I-ETSs) or European Telecommunications Standards (ETSs), whilst some continue with the status of ETSI-GSM Technical Specifications. These ETSI-GSM Technical Specifications are for editorial reasons still referred to as GSM recommendations in some current GSM documents.

The numbering and version control system is the same for ETSI-GSM Technical Specifications as for "GSM recommendations".

ETSI/GSM Approved Version 3.0.2

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RECOMMENDATION GSM 04.02

Title : GSM PLMN ACCESS REFERENCE CONFIGURATION

List of contents:

1. General

2. Definitions

   2.1 Reference Configurations
   2.2 Functional Groups
   2.3 Reference Points
   2.4 GSM Interface Points

3. Reference Configuration

4. Physical Realisation

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1. General

This recommendation describes the reference configuration for access to a GSM PLMN.

A user accesses a GSM PLMN via a number of interfaces, including the MS-BS interface. The purpose of this recommendation is to indicate the possible access arrangements that may be used in conjunction with the MS-BS interface.

2. Definitions

The following definitions 2.1-2.3 are based on those used for an 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. Note that 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.

The following definition is used in this recommendation:

2.4 GSM Interface Points

GSM Interface Points are reference points within a GSM PLMN at which a GSM recommended interface is always identified.

3. GSM Reference Configuration

The reference configuration for GSM PLMN access interfaces is shown in figure 1.

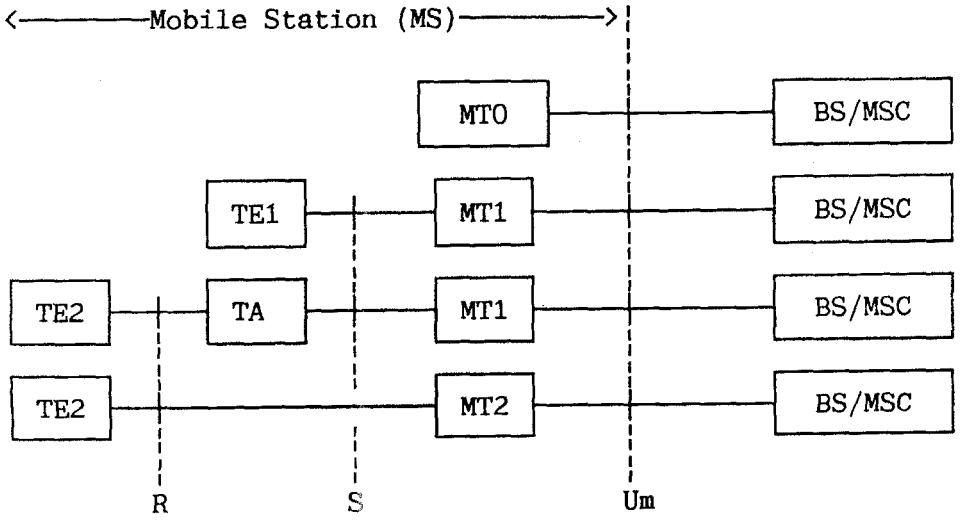

Figure 1/GSM 04.02 : GSM PLMN Access Reference Configuration

The terminal equipment functional groups TE1, TE2 and TA are conceptually the same functional groups as those in the ISDN. The two new functional groups are:

3.1 Mobile Termination (MT),

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 forretransmission);

- 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 between the radio channel rate and user rates;

- multiple terminal support;

- mobility management.

There are three types of MT:
- MT0 includes functions belonging to the functional group MT, with support of no terminal interfaces.

- MT1 includes functions belonging to the functional group MT, and with an interface that complies with the GSM recommmended subset of the ISDN user-network interface recommendations.

- MT2 includes functions belonging to the functional group MT, and with an interface that complies with the GSM recommended subset of the CCITT X or V series interface recommendations.

The MT plus any TE/(TE + TA) constitutes the Mobile Station, MS.

Note: The GSM recommended subsets of interfaces are specified in recommendation GSM 02.02.

3.2 Base Station + MSC (BS/MSC),

which include the following functions:

- radio transmission termination;

- speech transcoding;

- radio transmission channel management;

- 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);

- link layer functions for signalling across the radio path;

- MS-BS circuit establishment and release functions;

- handover functions;

- rate adaptation of user data.

4. Physical Realisation

In a GSM PLMN, the reference point Um is a GSM interface point, i.e. it is always implemented as a physical interface (according to GSM recommendations in the 04 and 05 series) . The reference points S and R may be optionally implemented as physical interfaces. The implementation of interfaces at these reference points is according to recommendations GSM 07.01, 07.02 and 07.03.

Figure 2 gives examples of configurations illustrating combinations of physical interfaces at reference points R and S. The examples shown are not exhaustive, but only serve to illustrate possible implementations of the respective functional blocks.

Example (a) of figure 2 illustrates a fully integrated MS including data terminal functions within the mobile station equipment.

Example (b) of figure 2 illustrates the connection of a TE1 in accordance with recommendations GSM 07.02/07.03 (and CCITT recommendation I.420). In this example the speech service is offered via the TE1.

Example (c) of figure 2 illustrates the connection of a TE2 by a CCITT X or V series interface according to recommendations GSM 07.02 and 07.03.

Example (d) of figure 2 illustrates the connection of a TE2 by means of an ISDN TA to the MT equipment.

Example (e) of figure 2 illustrates the connection of a speech-only MS.

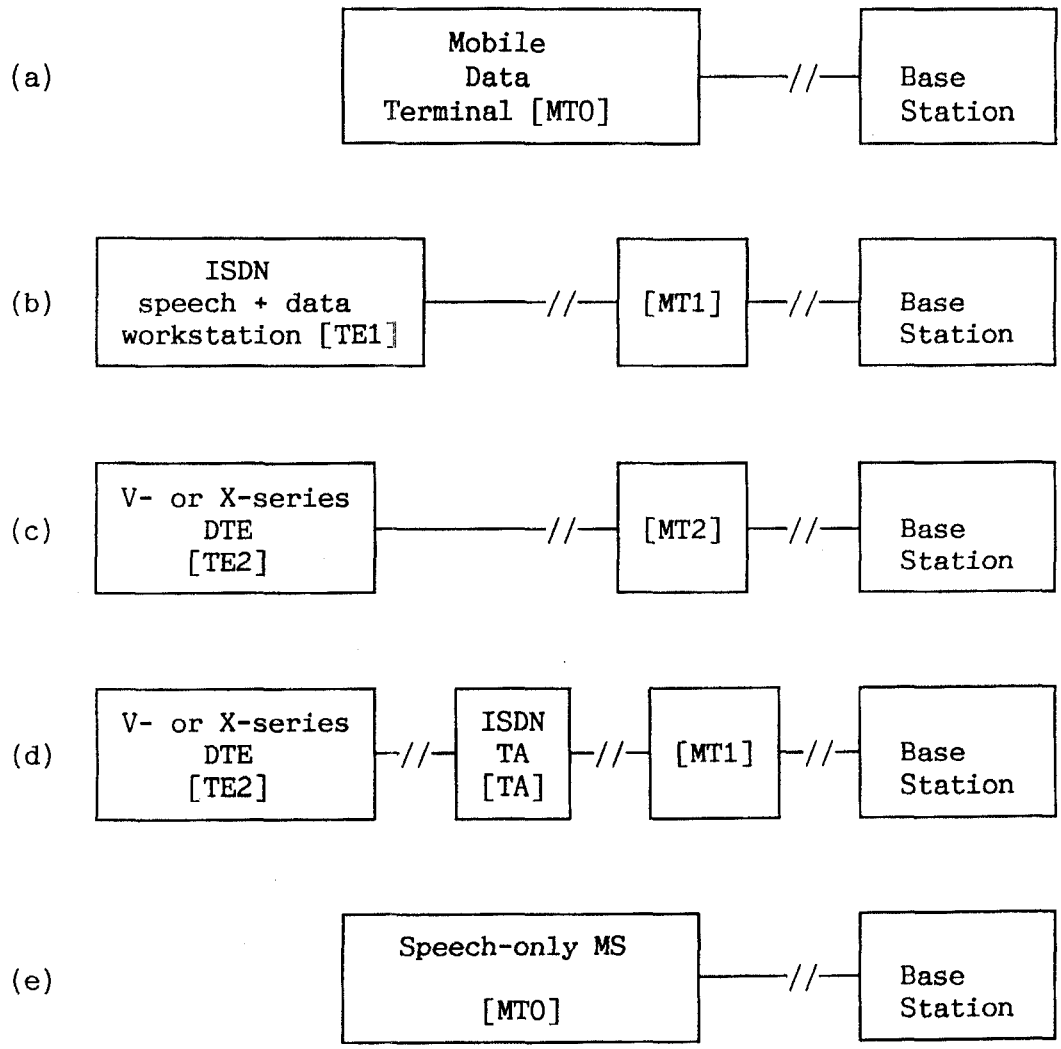

Figure 2/GSM 04.02 : Examples of physical implementations