



INTERNATIONAL TELECOMMUNICATION UNION

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E.173

THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

**TELEPHONE NETWORK AND ISDN
OPERATION, NUMBERING, ROUTING
AND MOBILE SERVICE**

**ROUTING PLAN FOR INTERCONNECTION
BETWEEN PUBLIC LAND MOBILE
NETWORKS AND FIXED TERMINAL
NETWORKS**

Recommendation E.173



Geneva, 1991



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FOREWORD

The CCITT (the International Telegraph and Telephone Consultative Committee) is a permanent organ of the International Telecommunication Union (ITU). CCITT is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The Plenary Assembly of CCITT which meets every four years, establishes the topics for study and approves Recommendations prepared by its Study Groups. The approval of Recommendations by the members of CCITT between Plenary Assemblies is covered by the procedure laid down in CCITT Resolution No. 2 (Melbourne, 1988).

Recommendation E.173 was prepared by Study Group II and was approved under the Resolution No. 2 procedure on the 23rd of August 1991.

CCITT NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication Administration and a recognized private operating agency.

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Recommendation E.173**ROUTING PLAN FOR INTERCONNECTION BETWEEN
PUBLIC LAND MOBILE NETWORKS AND FIXED TERMINAL NETWORKS****1 Introduction**

1.1 With the worldwide introduction of public land mobile service there exists a need for interconnection between public land mobile networks (PLMN) and fixed terminal networks (e.g. PSTN/ISDN and PSPDN).

1.2 This Recommendation covers the routing plan for interconnection between PLMN and the public switched telephone network/integrated services digital network (PSTN/ISDN) and between PLMN and the public data networks (PDN).

1.3 It provides guidelines for routing when interconnecting PLMN and fixed terminal networks, and indicates some basic rules for routing of calls between the networks. Routing between networks must adhere to regulatory conditions which exist within a given country or Administration. Bilateral agreements may be required to establish the actual interconnection arrangements between network operators.

1.4 This Recommendation covers terrestrial-based PLMNs. Satellite-based PLMNs are for further study.

1.5 Routing requirements within fixed terminal networks are described in the following Recommendations:

E.171 International telephone routing plan;

E.172 Call routing in the ISDN era;

X.110 International routing principles and routing plan for public data networks;

G.173 (Draft) Transmission planning aspects of the speech service in digital public land mobile networks.

2 Terminology

CSPDN Circuit switched public data network

DCME Digital circuit multiplexing equipment

DSI Digital speech interpolation

DTE Data terminal equipment

FDTE Fixed data terminal equipment, e.g. a DTE connected to the (PDN)

IDSE International data switching exchange

ISC International switching centre

ISDN Integrated services digital network (within this Recommendation ISDN means the circuit switched part of the network; for the packet switched part see PDN)

LMDTE Land mobile data terminal equipment, e.g. a DTE connected to PLMN

LMS Land mobile station

LRE Low rate encoding

MSC Mobile switching centre (this is a centre that handles mobile traffic)

PDN Public data network, e.g. CSPDN, PSPDN or PHPDN in ISDN

PHPDN Packet handler public data network

PLMN Public land mobile network

PSPDN Packet switched public data network

PSTN Public switched telephone network

QOS Quality of service

TASI Time assignment speech interpolation

TE Terminal equipment

3 Scope

3.1 This Recommendation includes the routing of calls between users of PLMN and the users of PSTN/ISDN or PDN. The term "call" encompasses all types of user-to-user communication, e.g. normal speech calls, data calls, text messages and emergency calls.

3.2 The following interconnection cases are considered:

PLMN $\longleftrightarrow$ PSTN/ISDN (see Note 1)

PLMN $\longleftrightarrow$ PSTN/ISDN $\longleftrightarrow$ PLMN (see Note 1)

PLMN $\longleftrightarrow$ PDN (see Note 2)

PLMN $\longleftrightarrow$ PDN $\longleftrightarrow$ PLMN (see Note 2)

PLMN $\longleftrightarrow$ PSTN/ISDN $\longleftrightarrow$ PDN (see Note 2)

PLMN $\longleftrightarrow$ PSTN/ISDN $\longleftrightarrow$ PDN $\longleftrightarrow$ PSTN/ISDN $\longleftrightarrow$ PLMN (see Note 2)

Note 1 – The abbreviation PSTN/ISDN means one or more networks of the same type in series.

Note 2 – The abbreviation PDN means one or more networks of the same type in series.

3.3 A PLMN may be configured either as an extension of PSTN/ISDN or as an integral part of PSTN/ISDN. This Recommendation deals only with the first case. When PLMN and PSTN/ISDN are integrated, the routing of calls shall follow the routing Recommendations E.171 for the PSTN and E.172 for the ISDN era.

4 Network structure

The network structure shows the last choice routes, e.g. normally the route with the highest number of circuits in tandem. The last choice route will be determined by the type of traffic (e.g. speech versus packet data) and the location of the originating and terminating terminals.

4.1 Between PLMN and PSTN/ISDN

To minimize the administrative and operational burden on international switching centres (ISC), the interconnection between PLMN and PSTN/ISDN should take place nationally. The network structure for the traffic between PLMN and PSTN/ISDN is shown in Figure 1/E.173. It indicates the last choice route between two mobile stations in different countries.

2 Recommendation E.173