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ETSI Standard

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Fixed network Multimedia Messaging Service (F-MMS); PSTN/ISDN; Part 5: Digital Subscriber Signalling System No. One (DSS1) protocol, Signalling System No.7 (SS7) - ISDN User Part (ISUP), and interworking between DSS1 and ISUP

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Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN), and is now submitted for the ETSI standards Membership Approval Procedure.

The present document is part 5 of a multi-part deliverable covering the Fixed network Multimedia Messaging Service (F-MMS); PSTN/ISDN, as identified below:

TS 102 314-1:   Overview;

ES 202 314-2:   Service description;

TS 102 314-3:   Network architecture and interconnection;

ES 202 314-4:   Multimedia Message communication between a fixed network Multimedia Messaging Terminal Equipment and a Multimedia Messaging Service Centre;

ES 202 314-5:   Digital Subscriber Signalling System No. One (DSS1) protocol, Signalling System No. 7 (SS7) - ISDN User Part (ISUP), and interworking between DSS1 and ISUP;

TR 102 314-6:   Control strings (service code) for MMS functions and MMS supplementary services.

Introduction

The Multimedia Messaging Service (MMS) is a service, applicable at the coincident S and T reference point and T reference point, to provide the served user the ability to send and receive MMS-related information via one ore more transparent bearer connections. In the network, the MMS-related information is not transported in the Signalling System No.7 network but in connections which have to be established by ISUP.

1 Scope

The present document specifies the DSS1 and ISUP aspects for the transfer of the MMS-related information in support of the Multimedia Messaging Service (MMS, see [4]) for the pan-European Integrated Services Digital Network (ISDN) as provided by European public telecommunications operators at the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [7]) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol and in the network by means of Signalling System No.7 ISDN User Part (ISUP). The present document specifies also the interworking between ISUP and DSS1 for MMS purposes.

In addition, the present document specifies the protocol requirements at the T reference point where the service is provided to the user via an intermediate private ISDN.

The present document does not specify the additional protocol requirements where the service is provided to the user via a telecommunication network that is not an ISDN but it does include interworking requirements of other networks with the public ISDN.

The MMS is provided using the bearer capabilities of the B-channel which have to be established by DSS1 and the connections which have to be established by ISUP.

The means by which the receiving user manages these features are outside the scope of the present document.

The preparation of an MM as well as the kind of data transmission between the sending or receiving users and the MMSC are outside the scope of the present document.

Charging principles are outside the scope of the present document.

The present document is applicable to equipment supporting the MMS, to be attached at either side of a T reference point or coincident S and T reference point when used as an access to the public ISDN.

Other documents specify further aspects of MMS, see Foreword.

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 and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

[1] ETSI EN 300 403-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".

[2] ETSI EN 300 356-1: "Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP) version 4 for the international interface; Part 1: Basic services [ITU-T Recommendations Q.761 to Q.764 (1999) modified]".

[3] ETSI EN 300 899-1: "Integrated Services Digital Network (ISDN); Signalling System No.7; Interworking between ISDN User Part (ISUP) version 2 and Digital Subscriber Signalling System No. one (DSS1); Part 1: Protocol specification [ITU-T Recommendation Q.699, modified]".

[4] ETSI ES 202 314-2: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Fixed network Multimedia Messaging Services (F-MMS); PSTN/ISDN; Part 2: Service description".

[5]   ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[6]   ITU-T Recommendation I.112: "Vocabulary of terms for ISDNs".

[7]   ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".

[8]   ITU-T Recommendation Q.9 (1988): "Vocabulary of switching and signalling terms".

[9]   ETSI ES 202 314-4: "Access and Terminals (AT); Fixed network Multimedia Messaging Services (F-MMS); PSTN/ISDN; Part 4: Multimedia Message communication between a fixed network Multimedia Messaging Terminal Equipment and a Multimedia Messaging Service Centre".

[10]   ETSI EN 300 356 (Parts 2 to 36): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the following terms and definitions apply:

basic access: See ITU-T Recommendation Q.9 [8], definition 1551.

basic call procedures: procedures by which a call (as an instance of a telecommunications service) is established and terminated

destination MMTE: See ES 202 314-2 [4].

Integrated Services Digital Network (ISDN): See ITU-T Recommendation I.112 [6], definition 308.

ISDN number: number conforming to the numbering plan and structure specified in ITU-T Recommendation E.164 [5]

MMS-related information: information within the multimedia message communication between a fixed network multimedia messaging terminal equipment and a multimedia messaging service centre.

NOTE: This information is specified in ES 202 314-4 [9].

MMTE: See ES 202 314-2 [4].

multimedia message: See ES 202 314-2 [4].

multimedia messaging service: See ES 202 314-2 [4].

originating MMTE: See ES 202 314-2 [4].

primary rate access: See ITU-T Recommendation Q.9 [8], definition 1552.

3.2   Abbreviations

For the purposes of the present document, the following abbreviations apply:

BCIE	Bearer Capability Information Element
DSS1	Digital Subscriber Signalling System No. one
IAM	Initial Address Message
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
MM	Multimedia Message
MMS	Multimedia Messaging Service
MMSC	MMS Centre
MMTE	Multimedia Messaging Terminal Equipment
SS7	Signalling System No.7
TMR	Transmission Medium Requirement

4   Description

The Multimedia Messaging Service (MMS) (see ES 202 314-2 [4]) shall be available to users who are connected to the network via a basic access or primary rate access and are addressed by an ISDN number.

The MMS user may submit and retrieve the MMS-related information within one or more B-channels, depending on the access capabilities (either Basic Access or Primary Rate Access) of its access by using the DSS1 basic call procedures. In the network, the MMS-related information is not transported in the Signalling System No.7 network but in connections which have to be established by ISUP.

5   Operational requirements

5.1   Provision and withdrawal

None.

5.2   Requirements on the receiving user's network side

None.

5.3   Requirements on the controlling user's network side

None.

6   Coding requirements

The coding of the MMS-related information is transparent to the local exchange to which the MMTE is connected.

The Bearer Capability information element (BCIE) shall be coded according to clause 4.5.5 of [1].

If, according to the access capabilities at a primary rate access, two or more B-channels are being used, the coding of the relevant information elements shall be according to clause 8 of [1].

The ISUP coding requirements are specified in [2].

7 Signalling procedures

7.1 Signalling procedures at the coincident S and T reference point

When the originating or destination MMTE is initiating a connection to the MMSC within one or two B-channels at a basic access, a call shall be established according to clause 5.1 or 5.2 of [1], respectively.

7.2 Signalling procedures at the T reference point

When the originating or destination MMTE is initiating a connection to the MMSC within one or more B-channels at a primary rate access, a call shall be established according to clause 8 of [1].

7.3 Signalling procedures in the network

In the network, connections are established by ISUP.

The ISUP signalling procedures for the basic call as specified in [2] apply. The procedures for the supplementary services are specified in EN 300 356 [10].

ETSI ISUP according to [2] does not support n x 64 kbit/s connection types but only multirate connection types (2 x 64 kbit/s, 384 kbit/s, 1 536 kbit/s, 1 920 kbit/s). If more than one B-channel with "unrestricted digital information" is being used for the transport of the MMS-related information, the appropriate multirate connection type or the appropriate number of single and independent calls with 64 kbit/s connection types are used in the network. If one B-channel with "unrestricted digital information" is being used, one single 64 kbit/s connection type is to be used in the network.

7.4 Interworking from DSS1 to ISUP at the originating local exchange

The interworking between DSS1 and ISUP is specified in [3].

The ISDN user part preference indicator in the Forward Call Indicators parameter shall always be set to "10 - ISDN user part required all the way".

As far as the bearer service "unrestricted digital information" is concerned, for every Initial Address Message (IAM) the following requirements apply:

If multirate connection types are supported in the network, the value of the Transmission Medium Requirement (TMR) parameter shall be set to:

- "0000 0010 - 64 kbit/s unrestricted" (in case of 1 B-channel with "unrestricted digital information"); or

- "0000 0111 - 2 x 64 kbit/s unrestricted" (in case of 2 B-channels with "unrestricted digital information"); or

- "0000 1000 - 384 kbit/s unrestricted" (in case of 3-6 B-channels with "unrestricted digital information"); or

- "0000 1001 - 1 536 kbit/s unrestricted" (in case of 7-24 B-channels with "unrestricted digital information"); or

- "0000 1010 - 1 920 kbit/s unrestricted" (in case of 25-30 B-channels with "unrestricted digital information").

If multirate connection types are not supported in the network, the value of the Transmission Medium Requirement parameter shall be set to "0000 0010 - 64 kbit/s unrestricted" in case of 1 B-channel with "unrestricted digital information". If more than one B-channel with "unrestricted digital information" is being used, the corresponding number of single and independent calls with 64 kbit/s unrestricted connection types is established. Each of the Transmission Medium Requirement parameters shall be set to "0000 0010 - 64 kbit/s unrestricted".

7.5   Interworking from ISUP to DSS1 at the destination local exchange

The received Initial Address message is mapped to a SETUP message according to [3].

In case of the receipt of multiple independent calls with 64 kbit/s unrestricted connection types, it is the responsibility of the application to derive the MMS-related information from the calls and the associated B-channels.

7.6   Handling at the fixed network MMSC

In case of the receipt of multiple independent calls with 64 kbit/s unrestricted connection types, it is the responsibility of the application to derive the MMS-related information from the calls and the associated connections.

When establishing the connection(s) in the network and sending the Initial Address Message (IAM), the ISUP procedures as outlined in clauses 7.3 and 7.4 apply.

8   Procedures for interworking with private ISDNs

The MMS shall be provided to the whole private ISDN access (T reference point).

At the T reference point, the procedures as specified in clause 7.2 shall apply.

The ISUP procedures and the interworking between DSS1 and ISUP as specified in clauses 7.3 to 7.5 apply.

9   Interactions with other networks

No impact.

10   Interactions with supplementary services

The interactions of MMS with supplementary services are described in [4].

Annex A (informative):
Bibliography

ETSI TS 102 314-1: "Access and Terminals (AT); Fixed network Multimedia Messaging Services (F-MMS); PSTN/ISDN; Overview".

History

Document history			
V1.1.1	February 2004	Membership Approval Procedure	MV 20040423: 2004-02-24 to 2004-04-23