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Private Integrated Services Network (PISN); Inter-exchange Signalling Protocol;
Message Centre Monitoring and Mailbox Identification supplementary service

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Technical Specification

**Private Integrated Services Network (PISN);
Inter-exchange Signalling Protocol;
Message Centre Monitoring and
Mailbox Identification supplementary service**

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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
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Foreword

This Technical Specification (TS) has been produced by ECMA on behalf of its members and those of the European Telecommunications Standards Institute (ETSI).

Brief history

The present document is one of a series of ECMA Standards defining services and signalling protocols applicable to Private Integrated Services Networks (PISNs). The series uses ISDN concepts as developed by ITU-T and conforms to the framework of International Standards for Open Systems Interconnection as defined by ISO/IEC. It has been produced under ETSI work item DTS/ECMA-00230.

The present document specifies the signalling protocol for use at the Q reference point in support of the Message Centre Monitoring supplementary service as well as the Mailbox Identification supplementary service. The protocol defined in the present document forms part of the PSSI protocol (informally known as QSIG).

SS-MCM is based on SS-MWI and includes its entire functionality. The interoperability with SS-MWI is therefore guaranteed. Compared to SS-MWI, SS-MCM offers an enhanced functionality for monitoring status changes of messages stored in the Served User's Mailbox as follows:

- individual activation and deactivation for the monitoring of messages of different Message Type(s) within the Mailbox as well as interrogation of the actual SS-MCM configuration;
- retrieval of information about all messages (i.e. new and retrieved messages) in the mailbox independent of the Message Status;
- request of detailed updated information about messages stored in the mailbox.

The present document is based upon the practical experience of ECMA member companies and the results of their active and continuous participation in the work of ISO/IEC JTC1, ITU-T, ETSI and other international and national standardization bodies. It represents a pragmatic and widely based consensus.

1 Scope

The present document specifies the signalling protocol for the support of the Message Centre Monitoring supplementary service (SS-MCM) as well as the Mailbox Identification supplementary service (SS-MID) at the Q reference point between Private Integrated services Network eXchanges (PINXs) connected together within a Private Integrated Services Network (PISN).

The supplementary service MCM enables a Served User to get informed by a Message Centre about the status and status changes of messages stored in that Served Users Mailbox.

The supplementary service MID enables a Message Centre to identify a specific mailbox of a Served User in case the Served User has more than one mailbox within the Message Centre. In addition SS-MID enables a Served User to authenticate himself/herself at a specific mailbox located within the Messages Centre.

The Q reference point is defined in ECMA-133 [1].

Service specifications are produced in three stages and according to the method specified in ETS 300 387 [9]. The present document contains the stage 3 specification for the Q reference point and satisfies the requirements identified by the stage 1 and stage 2 specifications in ECMA-346 [8].

The signalling protocol for SS-MCM and SS-MID uses certain aspects of the generic procedures for the control of supplementary services specified in ECMA-165 [4].

The present document also specifies additional signalling protocol requirements for the support of interactions at the Q reference point between SS-MCM as well as SS-MID and other supplementary services and ANFs.

NOTE: Additional interactions that have no impact on the signalling protocol at the Q reference point can be found in the relevant stage 1 specifications.

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2 Conformance

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In order to conform to the present document, a PINX shall satisfy the requirements identified in the Protocol Implementation Conformance Statement (PICS) proforma in annex A.

Conformance to the present document includes conforming to those clauses that specify protocol interactions between SS-MCM as well as SS-MID and other supplementary services and ANFs for which signalling protocols at the Q reference point are supported in accordance with the stage 3 standards concerned.

3 References (normative)

The following standards contain provisions which, through reference in this text, constitute provisions of the present document. All standards are subject to revision, and parties to agreements based on the present document are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

In the case of references to ECMA Standards that are aligned with ISO/IEC International Standards, the number of the appropriate ISO/IEC International Standard is given in brackets after the ECMA reference.

- [1] ECMA-133: "Private Integrated Services Network (PISN) - Reference Configuration for PISN Exchanges (PINX), (International Standard ISO/IEC 11579-1)".
- [2] ECMA-142: "Private Integrated Services Network (PISN) - Circuit Mode 64kbit/s Bearer Services - Service Description, Functional Capabilities and Information Flows (BCSD), (International Standard ISO/IEC 11574)".
- [3] ECMA-143: "Private Integrated Services Network (PISN) - Circuit Mode Bearer Services - Inter-Exchange Signalling Procedures and Protocol (QSIG-BC), (International Standard ISO/IEC 11572)".

- [4] ECMA-165: "Private Integrated Services Network (PISN) - Generic Functional Protocol for the Support of Supplementary Services - Inter-Exchange Signalling Procedures and Protocol (QSIG-GF), (International Standard ISO/IEC 11582)".
- [5] ECMA-174: "Private Integrated Services Network (PISN) - Inter-Exchange Signalling Protocol - Call Diversion Supplementary Services (QSIG-CF), (International Standard ISO/IEC 13873)".
- [6] ECMA-241: "Private Integrated Services Network (PISN) - Specification, Functional Model and Information Flows - Message Waiting Indication Supplementary Service (MWISD), (International Standard ISO/IEC 15505)".
- [7] ECMA-242: "Private Integrated Services Network (PISN) - Inter-Exchange Signalling Protocol - Message Waiting Indication Supplementary Service (QSIG-MWI), (International Standard ISO/IEC 11506)".
- [8] ECMA-346: "Private Integrated Services Network (PISN)-Specification, Functional Model and Information Flows-Message Centre Monitoring and Mailbox Identification Supplementary Services (MCM-SD/MID-SD)".
- [9] ETSI ETS 300 387: "Private Telecommunication Network (PTN); Method for the specification of basic and supplementary services".
- [10] ISO 8601: "Data elements and interchange formats - Information interchange - Representation of dates and times".
- [11] ITU-T Recommendation I.112: "Vocabulary of terms for ISDNs".
- [12] ITU-T Recommendation I.210: "Principles of telecommunication services supported by an ISDN and the means to describe them".
- [13] ITU-T Recommendation Q.950: "Supplementary services protocols, structure and general principles".
- [14] ITU-T Recommendation Z.100: "Specification and Description Language (SDL)".

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4 Definitions

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

4.1 External definitions

For the purposes of the present document the following terms and definitions given in other documents apply:

address header: See ECMA-346 [8].

Application Protocol Data Unit (APDU): See ECMA-165 [4].

call-independent: See ECMA-165 [4].

complete information: See ECMA-346 [8].

compressed information: See ECMA-346 [8].

gateway PINX: See ECMA-165 [4].

mailbox: See ECMA-346 [8].

Message Centre (MC): See ECMA-346 [8].

message status: See ECMA-346 [8].

message type: See ECMA-346 [8].

Message Waiting Signal (MWS): See ECMA-346 [8].

new message: See ECMA-346 [8].

originating PINX: See ECMA-165 [4].

Private Integrated services Network eXchange (PINX): See ECMA-133 [1].

Private Integrated Services Network (PISN): See ECMA-133 [1].

retrieved message: See ECMA-346 [8].

served user: See ECMA-346 [8].

signalling: ITU-T Recommendation I.112 [11].

Supplementary Service (SS): See ITU-T Recommendation I.210 [12].

supplementary service control entity: See ECMA-165 [4].

terminating PINX: See ECMA-165 [4].

transit PINX: See ECMA-165 [4].

4.2 Other definitions

4.2.1 Message Centre PINX

PINX where the Message Centre is located

4.2.2 Served User PINX

PINX where the Served User is located

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5 Acronyms

For the purposes of the present document the following acronyms apply:

ANF	Additional Network Feature
ANF-CIDL	Call Identification and Call Linkage
ANF-PR	Path Replacement
ANF-PUMI	Private User Mobility Incoming Call
ANF-PUMO	Private User Mobility Outgoing Call
ANF-RRC	Route Restriction Class
ANF-TC	Transit Counter
APDU	Application Protocol Data Unit
ASN.1	Abstract Syntax Notation One
ISDN	Integrated Services Digital Network
MC	Message Centre
MID	Mailbox IDentification
MWS	Message Waiting Signal
NFE	Network Facility Extension
PICS	Protocol Implementation Conformance Statement
PINX	Private Integrated services Network eXchange
PISN	Private Integrated Services Network
SDL	Specification and Description Language
SS	Supplementary Service
SS-AOC	Advice of Charge
SS-CCBS	Completion of Calls to Busy Subscribers
SS-CCNR	Completion of Calls on No Reply

SS-CD	Call Deflection
SS-CFB	Call Forwarding Busy
SS-CFNR	Call Forwarding No Reply
SS-CFU	Call Forwarding Unconditional
SS-CI	Call Intrusion
SS-CINT	Call INTerception
SS-CLIP	Calling Line Identification Presentation
SS-CLIR	Calling/Connected Line Identification Restriction
SS-CMN	Common Information
SS-CNIP	Calling Name Identification Presentation
SS-CNIR	Calling/Connected Name Identification Restriction
SS-CO	Call Offer
SS-COLP	Connected Line Identification Presentation
SS-CONP	Connected Name Identification Presentation
SS-CPI(P)	Call Priority Interruption (Protection)
SS-CT	Call Transfer
SS-DND	Do Not Disturb
SS-DNDO	Do Not Disturb Override
SS-MCM	Message Centre Monitoring
SS-MCR	Make Call Request
SS-MID	Mailbox Identification
SS-MWI	Message Waiting Indication
SS-PUMR	Private User Mobility Registration
SS-RE	REcall
SS-SD	Simple Dialog
SS-SMS	Short Message Service
SS-SSCT	Single Step Call Transfer
SS-WTAN	Wireless Terminal Authentication of the PISN
SS-WTAT	Wireless Terminal Authentication of a WTM User
SS-WTLR	Wireless Terminal Location Registration
SS-WTMI	Wireless Terminal Incoming Call
SS-WTMO	Wireless Terminal Outgoing Call

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6 Signalling protocol for the support of SS-MCM

6.1 SS-MCM description

The supplementary service MCM enables a Message Centre to inform a registered Served User about the status and status changes of messages stored in the Served User's Mailbox. This can be due to the arrival of New Messages or due to the change of the Message Status of stored messages (e.g. retrieval or deletion of messages). Additionally the Served User can request the current status of the messages in the Mailbox from the Message Centre.

If there are new messages for the Served User stored in the mailbox, a Message Waiting Signal may be set at the Served User's terminal.

Additionally a Served User might activate, deactivate or interrogate Message Centre Monitoring individually for the different Message Types.

6.2 SS-MCM operational requirements

6.2.1 Requirements on a Message Centre PINX

Call establishment procedures for the incoming and outgoing side of an inter-PINX link and call release procedures, as specified in ECMA-143 [3], shall apply.

Generic procedures for call-independent control (connection-oriented) of supplementary services, as specified in ECMA-165 [4] for an Originating PINX and for a Terminating PINX, shall apply.

6.2.2 Requirements on a Served User PINX

Call establishment procedures for the incoming and outgoing side of an inter-PINX link and call release procedures, as specified in ECMA-143 [3], shall apply.

Generic procedures for call-independent control (connection-oriented) of supplementary services, as specified in ECMA-165 [4] for a Terminating PINX and for an Originating PINX, shall apply.

6.2.3 Requirements on a Transit PINX

Basic Call procedures, specified in ECMA-143 [3] for a Transit PINX, shall apply.

Generic procedures for call-independent control (connection-oriented) of supplementary services, as specified in ECMA-165 [4] for a Transit PINX, shall apply.

6.3 SS-MCM coding requirements

6.3.1 Operations

The operations defined in Abstract Syntax Notation One (ASN.1) in table 1 shall apply.

NOTE: The coding includes the operations as defined in SS-MWI (ECMA-242 [7]) but with the new operations names of SS-MCM.

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