SLOVENSKI STANDARD
SIST ETS 300 378-1:1997

01-november-1997

Signalizacijski protokoli in komutacija (SPS) - Vmesnik Q3 v dostopovnem omrežju (AN) za upravljanje vzdrževalnih funkcij vmesnikov V5 in pridruženih uporabniških priključkov - 1. del: Specifikacija vmesnika Q3

Signalling Protocols and Switching (SPS) - Q3 interface at the Access Network (AN) for fault and performance management of V5 interfaces and associated user ports; Part 1: Q3 interface specification

Ta slovenski standard je istoveten z: **ETS 300 378-1 Edition 1**

ICS:

33.040.30	Komutacijski in signalizacijski sistem	Switching and signalling systems

SIST ETS 300 378-1:1997 **en**

EUROPEAN TELECOMMUNICATION STANDARD

ETS 300 378-1

November 1995

Source: ETSI TC-SPS

Reference: DE/SPS-03014.1

ICS: 35.100.70

Key words: TMN, information model, Q3 interface, AN, V5 interface, fault, performance, management

Signalling Protocols and Switching (SPS); Q3 interface at the Access Network (AN) for fault and performance management of V5 interfaces and associated user ports; Part 1: Q3 interface specification

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS is part 1 of a multi-part standard as described below:

Part 1: **"Q3 interface specification at the Access Network (AN) for fault and performance management of V5 interfaces and associated user ports";**

NOTE: A possible further part 2 may contain the Managed Object Conformance Statement (MOCS) proforma specification.

The following standards are directly related to this ETS:

ETS 300 376: "Q3 interface at the Access Network (AN) for configuration management of V5 interfaces and associated user ports";

ETS 300 377: "Q3 interface at the Local Exchange (LE) for configuration management of V5 interfaces and associated customer profiles";

ETS 300 379: "Q3 interface at the Local Exchange (LE) for fault and performance management of V5 interfaces and associated customer profiles".

Transposition dates	
Date of adoption of this ETS:	17 November 1995
Date of latest announcement of this ETS (doa):	28 February 1996
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 August 1996
Date of withdrawal of any conflicting National Standard (dow):	31 August 1996

Introduction

V5 interfaces, as described in ETS 300 324-1 and ETS 300 347-1, operate between a Local Exchange (LE) and an Access Network (AN) to support various narrowband Integrated Services Digital Network (ISDN) and Public Switched Telephone Network (PSTN) services. These interfaces and their associated user ports need to be managed by the Operations Systems (OSs) within the Telecommunications Management Network (TMN). This management is performed by means of Q3 interfaces.

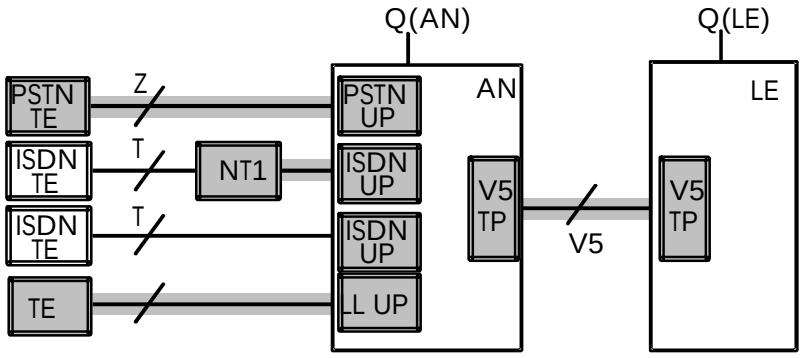
The companion standard on configuration management ETS 300 376-1 defines how the Q3 interface of an AN handles the configuration information for V5 interfaces and their associated user ports. This ETS specifies the extension to include fault and performance management.

Fault management of V5 interfaces and associated user ports is part of a management activity which is performed by the operator in order to detect failure conditions and to bring the customer access back to its normal state of operation whenever a deviation occurs.

Performance management of V5 interfaces and associated user ports is part of a management activity which is employed in order to maintain the quality of service levels agreed with the customers. The activities undertaken in performance management are monitoring, analysis and problem alerting, diagnosis, optimization and control.

A customer access is considered as being that part of the local network which extends from the network termination equipment up to and including the exchange termination.

Here, only these parts of the activities are covered which are related directly to a V5 interface between a LE and an AN or to that part of the customer access which extends from the AN to the network termination equipment. An ISDN access extends to but does not include the T reference point. An analogue access extends to and may include the Customer Premise Equipment (CPE) (see figure 1).



NOTE: Shaded areas are subject to V5 fault and performance management. User ports represent the different configurations for Line Circuit (LC), Line Termination (LT), Exchange Termination (ET) and Network Termination (NT) as given in figure 2 of the V5 specifications ETS 300 324-1 and ETS 300 347-1. For leased lines (semi-permanent lines), this ETS only covers aspects which are common to PSTN and ISDN.

Figure 1: Scope of V5 fault and performance management

This ETS details only those functions and management information model components for which V5 specific descriptions are required. However, the use of other components which may be applicable from other specifications is not precluded. In this case, combined applications incorporating both V5 specific and more generic aspects would result. For example, if log control is to be provided in conjunction with the V5 specific alarm reporting function (see annex A), then other specifications (e.g. CCITT Recommendation X.735) are available to define this.

The management information model described in this ETS complements that for configuration; both information models will normally share the same physical interface.

1 Scope

This European Telecommunication Standard (ETS) specifies the Q3 interface between an Access Network (AN) and the Telecommunications Management Network (TMN) for the support of fault and performance management functions for V5 interfaces, as described in ETS 300 324-1 [4] and ETS 300 347-1 [5], and their associated user ports. The management of transmission, media and services which are not related to V5 interfaces is outside the scope of this ETS.

This ETS includes the testing of the lines and line circuits at the user ports associated with the V5 interface, and the logging of faults and related functions. Messages on the V5 interface associated with errors or other faults which are handled by local management (e.g. the non-deferred link blocking request) or which involve implementation specific issues (e.g. faults which may result in the connection incomplete information element being used in the Bearer Channel Connection (BCC) protocol) are outside the scope of this ETS.

The location of the Q3 interface to which this ETS refers is specified in ETS 300 376-1 [6].

This ETS does not constrain the logical or physical size of the AN or its geographical dispersion.

Existing protocols are used where possible, and the focus of this ETS is on defining the object models. The definition of Operations System (OS) functionality is outside the scope of this ETS.

2 Normative references

This ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] ETS 300 233 (1994): "Integrated Services Digital Network (ISDN); Access digital section for ISDN primary rate".

[2] I-ETS 300 291 (1995): "Network Aspects (NA); Functional specification of Customer Administration (CA) on the Operations System/Network Element (OS/NE) interface".

[3] ETS 300 297 (1995): "Integrated Services Digital Network (ISDN); Access digital section for ISDN basic access".

[4] ETS 300 324-1 (1994): "Signalling Protocols and Switching (SPS); V interfaces at the digital Local Exchange (LE); V5.1 interface for the support of Access Network (AN); Part 1: V5.1 interface specification".

[5] ETS 300 347-1 (1994): "Signalling Protocols and Switching (SPS); V interfaces at the digital Local Exchange (LE); V5.2 interface for the support of Access Network (AN); Part 1: V5.2 interface specification".

[6] ETS 300 376-1 (1994): "Signalling Protocols and Switching (SPS); Q3 interface at the Access Network (AN) for configuration management of V5 interfaces and associated user ports; Part 1: Q3 interface specification".

[7] ETS 300 377-1 (1994): "Signalling Protocols and Switching (SPS); Q3 interface at the Local Exchange (LE) for configuration management of V5 interfaces and associated customer profiles; Part 1: Q3 interface specification".

[8] ETS 300 379-1 (1995): "Signalling Protocols and Switching (SPS); Q3 interface at the Local Exchange (LE) for fault and performance management of V5 interfaces and associated customer profiles; Part 1: Q3 interface specification".

[9] ETR 080 (1993): "Transmission and Multiplexing (TM); Integrated Services Digital Network (ISDN) basic rate access - Digital transmission system on metallic local lines".

[10] CEPT Recommendation T/S 54-08 E (1987): "ISDN subscriber access and installation maintenance".

[11] CCITT Recommendation G.821 (1988): "Error performance of an international digital connection forming part of an integrated services digital network".

[12] ITU-T Recommendation G.826 (1993): "Error performance parameters and objectives for international, constant bit rate digital paths at or above the primary rate".

[13] CCITT Recommendation M.3010 (1992): "Principles for a telecommunications management network".

[14] CCITT Recommendation M.3100 (1992): "Generic network information model".

[15] ITU-T Recommendation Q.543 (1993): "Digital exchange performance design objectives".

[16] ITU-T Recommendation Q.821 (1993): "Stage 2 and stage 3 description for the Q3 interface - Alarm surveillance".

[17] ITU-T Recommendation Q.822: "Stage 1, stage 2 and stage 3 description for the Q3 interface - Performance management".

[18] CCITT Recommendation X.208 (1988): "Specification of Abstract Syntax Notation One (ASN.1)".

[19] CCITT Recommendation X.711 (1991): "Common management information protocol definition for CCITT applications".

[20] CCITT Recommendation X.720 (1992) | ISO/IEC 10165-1 (1993): "Information technology - Open systems interconnection - Structure of management information: Management information model".

[21] CCITT Recommendation X.721 (1992) | ISO/IEC 10165-2 (1992): "Information technology - Open systems interconnection - Structure of management information: Definition of management information".

[22] CCITT Recommendation X.730 (1992) | ISO/IEC 10164-1 (1993): "Information technology - Open systems interconnection - Systems management: Object management function".

[23] CCITT Recommendation X.731 (1992) | ISO/IEC 10164-2 (1993): "Information technology - Open systems interconnection - Systems management: State management function".

[24] CCITT Recommendation X.732 (1992) | ISO/IEC 10164-3 (1993): "Information technology - Open systems interconnection - Systems management: Attributes for representing relationships".

[25] ITU-T Recommendation X.737 | ISO/IEC 10164-14: "Information technology - Open systems interconnection - Systems management: Confidence and diagnostic test function".

[26] ITU-T Recommendation X.738 (1993) | ISO/IEC 10164-13: "Information technology - Open systems interconnection - Systems management: Summarization function".

[27] ITU-T Recommendation X.739 (1993)| ISO/IEC 10164-11 (1994): "Information technology - Open systems interconnection - Systems management: Metric objects and attributes".

[28] ITU-T Recommendation X.745 (1993)| ISO/IEC 10164-12 (1994): "Information technology - Open systems interconnection - Systems management: Test management function".

[29] ITU-T Recommendation X.746 (1995)| ISO/IEC 10164-15: "Information technology - Open systems interconnection - Systems management: Scheduling function".

[30] ITU-T Recommendation M.3603: "Application of maintenance principles to ISDN basic rate access".

[31] ITU-T Recommendation M.3604: "Application of maintenance principles to ISDN primary rate access".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the following definitions apply:

Access Network (AN): See ETS 300 324-1 [4].

activation-deactivation of the line: See subclause C.3.5.

bearer channel: See ETS 300 324-1 [4].

Bearer Channel Connection (BCC): See ETS 300 347-1 [5].

cable pair identification tone: See subclause C.3.5.

capacitance measurement: See subclause C.3.5.

codec testing: See subclause C.3.5.

Communication Channel (C-Channel): See ETS 300 324-1 [4].

communication path: See ETS 300 324-1 [4].

control protocol: See ETS 300 324-1 [4].

dial pulse test: See subclause C.3.5.

dial tone test: See subclause C.3.5.

digit reception: See subclause C.3.5.

dry loop: See subclause C.3.5.

Digital Tone Multi-Frequency (DTMF) dialling test: See subclause C.3.5.

envelope function address: See ETS 300 324-1 [4].

feeding current: See subclause C.3.5.

feeding voltage: See subclause C.3.5.

foreign voltage: See subclause C.3.5.