



Customer Interface Publication: KCOM (Hull) CIP 005

Integrated Services Digital Network (ISDN)

Technical Characteristics of the ISDN 2 and ISDN 30 (I.421) Interfaces

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The information in this document is provided in accordance with the requirements of the Telecommunications (Voice Telephony) Regulations 1997 and Radio Equipment and Telecommunications Terminal Equipment Regulations 2000 to publish (in accordance with the EC Voice Telephony Directives 95/62/EC & 98/10/EC and Radio and Telecommunications Terminal Equipment Directive 99/05) technical characteristics of interfaces to the public fixed telephone network.

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Note: this document replaces KCOM Group PLC CIP005 and Torch CIP003 on the same subject – see document history.

1. Scope

This document specifies those technical characteristics of an ISDN 2 and ISDN 30 (I.421) interface of the Integrated Services Digital Network (ISDN) operated by KCOM Group PLC and delivered to a customer at the Network Terminating Point (NTP). The NTP is the socket on the Network Terminating and Test Apparatus (NTTA).

In cases where the Network Termination Equipment (NTE) is mains powered, the conditions quoted in this CIP apply when mains power is being applied to the NTE. The conditions applicable when mains power is removed from the NTE may be different to those quoted in this CIP.

Much of the information contained in this document has been published previously in various documents such as ITU-T, ETSI and BSI standards.

Changes to the network that affect the correct working of approved terminal equipment will be published by KCOM Group PLC in various documents made available from the address below. If the changes impact on this document then it will be updated.

Enquiries relating to the technical content of this document and the availability of other publications should be directed to:

KCOM Group PLC Regulatory Affairs
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Kingston Upon Hull.
HU1 3RE

Telephone: 01482 602100
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2. General

The ISDN 2 and ISDN 30 Services currently offered by KCL are compatible with the European Memorandum of Understanding (MOU) and are in accordance with European Telecommunication Standards.

3. ISDN 2 Interface

The customer interface is presented to the user via an NTTA. The NTTA performs the NT1 function specified in the ETSI Standards.

The NTTA offers a socket in accordance with EN 28877 [1] for connection of terminal equipment to the service. Currently, the NTTA is line powered and provides Power Source 1 (PS 1) restricted in accordance with ETS 300 012 [2]. PS 1 normally can be provided using an auxiliary power supply as defined ETS 300 012. Note: Other powering options may be implemented in the future e.g. the use of mains powered NTTA and/or the cessation of the provision of PS1 restricted.

3.1 FULL ETSI CALL CONTROL PLATFORM (ISDN 2)

The user-network interface for ISDN 2 is specified in the following ETSI standards:

Layer 1 - ETS 300 012
Layer 2 - ETS 300 402-2 [3]
Layer 3 - ETS 300 403-1[4] and ETS 300 267-1 [5]

3.2 Network implementation details

The following network implementations should be noted:

3.2.1 T-reference point configuration

Layer 1: Access is permanently activated

Layer 2: TEI=0 only is supported and is permanently assigned

Layer 3: Point to Point procedures apply to Call Offering

The Destination local exchange will send the B-Channel identification information element with the preferred/exclusive bit set to “exclusive, only the indicated channel is acceptable”

Restart procedure used

Lower Layer compatibility negotiation is supported

Bearer Connection prior to Call Acceptance not supported

Segmentation Procedure not supported at the present time. Future use not precluded.

3.2.2 S/T-reference point configuration

Layer 1: Deactivation procedures applied when access is idle (in accordance with ETS 300 012)

Layer 2: All TEI values supported. TEI assignment procedures must be used to assign the TEI

Layer 3: Point to multi-point procedures will apply to Call Offering

The Destination local exchange will send the B-Channel identification information element with the preferred/exclusive bit set to “exclusive, only the indicated channel is acceptable”

Restart procedures not used

Lower Layer compatibility negotiation is supported

Bearer Connection prior to Call Acceptance not supported

Segmentation Procedure not supported at the present time. Future use not precluded.

3.2.3 Network Options

The following network options as specified in ETS 300 403-1 have been implemented:

Coding of Called Party Number information element: the network will accept any Type of Number except network specific and abbreviated numbers with the numbering identification plan encoded “ISDN/telephony numbering plan (Recommendation E.164)”

Sending Complete Indicator: the network option to recognise a ‘#’ character included in a number field of the called party number information element as a Sending Complete Indicator is not supported (it will be treated as an invalid number). Note the network does recognise the Sending Complete information element

Transit Network and Network Specific Facilities information elements: these optional information elements are not supported and if received by the network, these information elements will be treated as un-recognised, non-mandatory information elements

Display information elements: at the present time the Display information element is not used by the network. This does not preclude the possibility of the Display information element being used in the future.

4. ISDN 30 (I.421) Interface

The customer interface is presented to the user via an NTTA.

The NTTA offers a socket in accordance with EN 28877¹ for connection of terminal equipment to the service. The NTTA is locally powered and will require a mains supply. The power consumption is approximately 20 Watts.

4.1 FULL ETSI CALL CONTROL PLATFORM

The user-network interface for ISDN 30 (I.421) on the *full ETSI call control platform* is specified in the following ETSI standards:

Layer 1 - ETS 300 011[6] Layer 2 - ETS 300 402-2
Layer 3 - ETS 300 403-1 and ETS 300 267-1

4.2 Network implementation details

The following network implementations should be noted:

Only the T-reference point configuration is currently supported on ISDN 30 (I.421) At layer 1, the access will be permanently activated

At layer 2, TEI=0 only is supported and will be permanently assigned At layer 3, the configuration options specified in 3.2.1 above apply The layer 3, network options as specified in 3.2.3 above apply

5. Supplementary Services

The following supplementary services are supported.

5.1 Calling Line Identification

Calling Line Identification Presentation (CLIP) and Restriction (CLIR) services are supported in accordance with the relevant ETSI standards.

5.2 Call Forwarding

Call Forwarding Unconditional (CFU), Busy (CFB) and NO Reply (CFNR) services are supported in accordance with the relevant ETSI standards with the following exceptions (Note: these apply to all Call Forwarding variants):

User control of the service is not supported. Per basic service provision not supported

¹ ETS 300 011 specifies that the connector for ISDN primary rate access is ISO/IEC 10173 [9]. However, it has been acknowledged in the international standards committee that there are manufacturing problems with the design of this connector. The connector specified in ISO/IEC 10173 has the same basic dimensions as the connector specified in EN 28877 but contains additional keying features to prevent inadvertent connection to services using that connector. The socket on the NTTA will permit the insertion of a plug to EN 28877. This is a permitted option in ISO/IEC 10173.

NB. The contact assignment shall be as specified in ISO/IEC 10173 even when a plug to EN 28877 is used. This change to the connector is included in Edition 2 of ETS 300 011.

Notification to any party is not supported

Capability to include a forward to party sub-address is not supported.

5.3 Direct Dialling In (DDI)

Direct Dialling In (DDI) is provided in accordance with the relevant ETSI standards and include the following options:

En-bloc sending

Support knowledge that a private ISDN is attached to the called access.

6. Safety and EMC Information

6.1 Safety

The normal working voltage of the interface is defined in the layer 1 specifications referred to in sections 3.1 and 4.1 above.

The interface presented to the customer is classified as exposed as defined in CENELEC Report/ETSI Guide ROBT-002/EG 201 212^[10].

6.2 EMC

The network equipment and network terminating equipment related to the provision of the interface comply with the current EMC regulations.

Whilst predominantly installed in commercial and light industrial environments, this does not preclude the interface being installed in other environments e.g. residential, industrial. This should be taken into account by the terminal equipment manufacturer when determining the limits of compliance relevant to their equipment in relation to the protection requirements of the EMC directive.

7. Recommended Terminal Equipment Standards

The minimum recommended terminal equipment performance standard for the ISDN2 service is ETSI TBR 3^[11] incorporating the latest edition of the ITAAB permanent reference document.

The minimum recommended terminal equipment performance standard for the ISDN30 service is ETSI TBR 4^[12] incorporating the latest edition of the ITAAB permanent reference document.

The minimum recommended terminal equipment EMC specifications are listed in the Official Journal of the European Communities for use under the Electromagnetic Compatibility Directive (89/336). The lists are updated regularly and the terminal manufacturer is recommended to comply with the listed standards applicable to their equipment and the target electromagnetic environment.

The minimum recommended terminal equipment electrical safety specifications are listed in the Official Journal of the European Communities for use under the Low Voltage Directive (73/23/EEC). The lists are updated regularly and the terminal manufacturer is recommended to comply with the listed standards applicable to their equipment.

8. Glossary

BS	British Standard
BSI	British Standards Institute
CFB	Call Forwarding on Busy
CFNR	Call Forwarding on No Reply
CFU	Call Forwarding Unconditional
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
DSS 1	Digital Signalling System N ^o . 1
EC	European Community
ETS	European Telecommunication Standard
ETSI	European Telecommunications Standards Institute
ISDN	Integrated Services Digital Network
ITU-T	International Telecommunications Union –
NT1	Network Termination Type 1
NTE	Network Termination Equipment
NTP	Network Terminating Point
NTTA	Network Terminating and Test Apparatus
PS 1	Power Source 1
TE	Terminal equipment
TFC IN	Traffic In
TFC OUT	Traffic Out

9. References

Ref	Standard	Title	Date
[1]	EN 28877	Interface connector and contact assignments for ISDN basic access interface located at reference points S and T	1993
[2]	ETS 300 012 + amendment 2	ISDN: Basic user-network interface Layer 1 specification and principles	1991
[3]	ETS 300 402-2	ISDN: DSS1 Protocol; Data Link Layer; General Protocol specification	1995
[4]	ETS 300 403-1 + corrigendum	ISDN: DSS1 Protocol; Signalling network layer for circuit- mode basic call control	1995
[5]	ETS 300 267-1+ amendment 1	ISDN: Telephony 7 kHz and videotelephony teleservice; DSS1 protocol	1994
[6]	ETS 300 125	ISDN: User-network interface data link layer specification	1991
[7]	BS6305	General requirements for apparatus for connection to public switched telephone networks run by certain public telecommunications operators	1992

[8]	ETS 300 001	Attachments to Public Switched Telephone Networks an analogue interface in the PSTN (PSTN); general requirements for equipment connected to	1997
[9]	ISO/IEC 10173	ISDN connector up to 8 pins and up to 2048 kbit/s	1991
[10]	R0BT-002/EG 201 212 V.1.2.1 (1998-11)	Electrical Safety ; Classification of interfaces for equipment to be connected to telecommunications networks	1998
[11]	ETSI TBR3	Integrated Services Digital Network (ISDN); Attachment requirements for terminal equipment to connect to an ISDN using ISDN basic access	1998
[12]	ETSI TBR4	Integrated Services Digital Network (ISDN); Attachment requirements for terminal equipment to connect to an ISDN using ISDN primary rate access	1995 & 1997 (A1)

The above documents may be obtained from:

British Standards Institution
Customer Services, Sales Department
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10. History

Date	Issue	Comments	Author
Precursor documents:			
<ul style="list-style-type: none"> Technical Characteristics of the ISDN2 and ISDN30 (I.421) [Issue 2 May 2000] KCL CIP005 Technical Characteristics of the ISDN2 and ISDN30 (I.421) [Issue 2 May 2000] TCH CIP003 			
Dec 2003	Issue 1.0	KCOM Group PLC publication to replace the above	M.D.Crowther
Aug 2007	Issue 1.1	KCOM Group PLC publication to replace the above and change of contact information.	M.D.Crowther
Apr 2016	Issue 1.2	KC name change to KCOM and formatting changes	Amanda Woodard