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**NETWORK CONNECTION
SPECIFICATION
FOR CONNECTION OF
CUSTOMER PREMISES EQUIPMENT (CPE)
TO THE PUBLIC TELECOMMUNICATIONS
NETWORK (PTN) IN HONG KONG
USING ISDN BASIC RATE ACCESS (BRA)
BASED ON ANSI STANDARDS**



**TELECOMMUNICATIONS AUTHORITY
HONG KONG**

FOREWORD

1. This specification is issued pursuant to Section 32D of the Telecommunications Ordinance (Cap. 106). This specification sets out the technical requirements of customer premises equipment (CPE) which uses Basic Rate Access (BRA) and is to be connected to Integrated Services Digital Network (ISDN) based on ANSI standards.
2. The following services are classified as basic services and transparent communication of ISDN terminal equipment connected to different ISDNs is supported:
 - (a) basic voice and data communications by using the B channels;
 - (b) Calling Line Identification Presentation;
 - (c) Calling Line Identification Restriction;
 - (d) Multiple Subscriber Number;
 - (e) Subaddressing; and
 - (f) Group 4 fax transmission.

The three services (a), (b) and (c) above are the minimum services which must be included by the operators offering ISDN services in their portfolio. For ISDN services other than the basic services, they will be offered by individual operators at their own discretion.

3. ISDN services may be provided by any one of the Fixed Telecommunications Network Services (FTNS) operators in Hong Kong. CPE should comply with this specification for connection to the ANSI based BRA ISDN line provided by the FTNS operators. Supplementary information on network characteristics and services of the FTNS networks may be obtained direct from the operators. Contact information of the FTNS operators can be found in the information note OFTA I 412.
4. At present, the Office of the Telecommunications Authority (OFTA) operates a **Hong Kong Telecommunications Equipment Evaluation and Certification** (“HKTEC”) scheme. Details of the scheme can be found in the information note OFTA I 421. Under the scheme, suppliers or manufacturers may apply to OFTA for certification of their customer premises equipment against this specification. The application procedures for certification of customer premises equipment can be found in the information note OFTA I 412. A prescribed label may be affixed to the equipment which has been certified by the Telecommunications Authority (TA). Details of the labelling arrangement can be found in the Standardisation Guide HKTA 3211.
5. The TA may amend any part of this specification as and when he deems necessary.
6. In case of doubt about the interpretation of this specification, the methods of carrying out the test and the validity of statements made by the manufacturers of the equipment, the decision of the TA shall be final.

7. The TA accepts no responsibility for the satisfactory performance of the CPE connected to the public telecommunications networks. The CPE is not normally evaluated against performance, reliability or quality-of-service parameters.
8. The HKTA specifications and information notes issued by the TA can be obtained through one of the following methods:-
 - Downloading direct through the OFTA's Internet Home Page. The Home Page address is <http://www.ofta.gov.hk>;
 - Making a request for hard copies to:-

Senior Telecommunications Engineer
Standards Section
Office of the Telecommunications Authority
29/F Wu Chung House
213 Queen's Road East
Wanchai
Hong Kong

Fax: +852 2838 5004
Email: standards@ofta.gov.hk

9. Enquiries about this specification may be directed to:-

Senior Telecommunications Engineer
Standards Section
Office of the Telecommunications Authority
29/F Wu Chung House
213 Queen's Road East
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AMENDMENT TABLE

Item	Issue No.	Paragraph	Descriptions
1.	Issue 2	Foreword Para. 3	Update contact information for FTNS operators.
2.	Issue 2	Foreword Para. 6-7	Add information for HKTEC Scheme.
3.	Issue 2	Para. 2	The electrical safety requirement is grouped under this new paragraph.
4.	Issue 2	Para.5.1 & 5.2	The application and characteristics of supervisory tones are referred to HKTA 2201.
5.	Issue 3	Foreword	Certification and labelling arrangements are updated.
6.	Issue 4	Clause 5.1	Reference to ITU-T Recommendation P.31 is changed to P.310 as P.31 has been withdrawn with its content incorporated in P.310.
7.	Issue 4	Clause 8	ITU-T Recommendation P.31 is changed to P.310.

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1. SCOPE

This Network Connection Specification defines the requirements for the access protocol for interconnection between the FTNS operator's network and user's equipment (e.g. a terminal or terminal adapter) using Basic Rate Access (BRA) of Integrated Services Digital Network (ISDN). The protocol shall be applied to the S/T reference point as defined in the ANSI T1.605. ISDN terminal equipment intended to be connected to the ISDN by BRA in Hong Kong based on ANSI standards shall comply with this specification.

The layered protocol defined in this document is based on the ANSI specifications T1.605, T1.602 and T1.607. All definitions and descriptions contained in these specifications apply, except where contradicted by this and associated documents.

This specification only stipulates the technical requirements on the physical layer, data link layer and network layer protocols for a user to access to the ISDN using BRA.

2. ELECTRICAL SAFETY

2.1 PRINCIPLE OF PROTECTION

In order to safeguard operating personnel, users and plant, it is essential to prevent the transmission of excessive voltages from the CPE into the PTN in Hong Kong.

2.2 SAFETY REQUIREMENTS

The CPE shall comply with specification HKTA 2001 titled "Compliance Test Specification – Safety and Electrical Protection Requirements for Subscriber Equipment Connected to the Public Telecommunications Networks in Hong Kong" issued by the Telecommunications Authority (TA).

3. TECHNICAL REQUIREMENTS

ISDN CPE designed to connect to ISDN BRA Interface provided by FTNS operators based on ANSI standards shall comply with the following specifications:-

- a) ANSI T1.605 "Integrated Services Digital Network (ISDN) - Basic Access Interface for S and T Reference Points and Layer 1 Specification";
- b) ANSI T1.602 "Integrated Service Digital Network (ISDN) - Data-Link Layer Signaling Specification for Application at the User-Network Interface" with exception items indicated in Appendix 1; and

- c) ANSI T1.607 “Integrated Services Digital Network (ISDN) - Layer 3 Signaling Specification for Circuit Switched Bearer Service for Digital Subscriber Signaling System Number 1 (DSS1)”.

4. **INTERCONNECT POINT**

- 4.1 The interconnect point marks the division of responsibility between the network service provider and the customer (see Figure 1).
- 4.2 The operator will provide ISO 8877 8-pole jack(s) [see Figure 2(a)] with appropriate wiring configuration at the interconnect point within the customer premises. Space with ventilation may be required to install the operator’s equipment for providing the interconnect point. The customer is required to provide appropriate cords with plugs [see Figure 2(b)] for connecting the CPE to the jack(s).

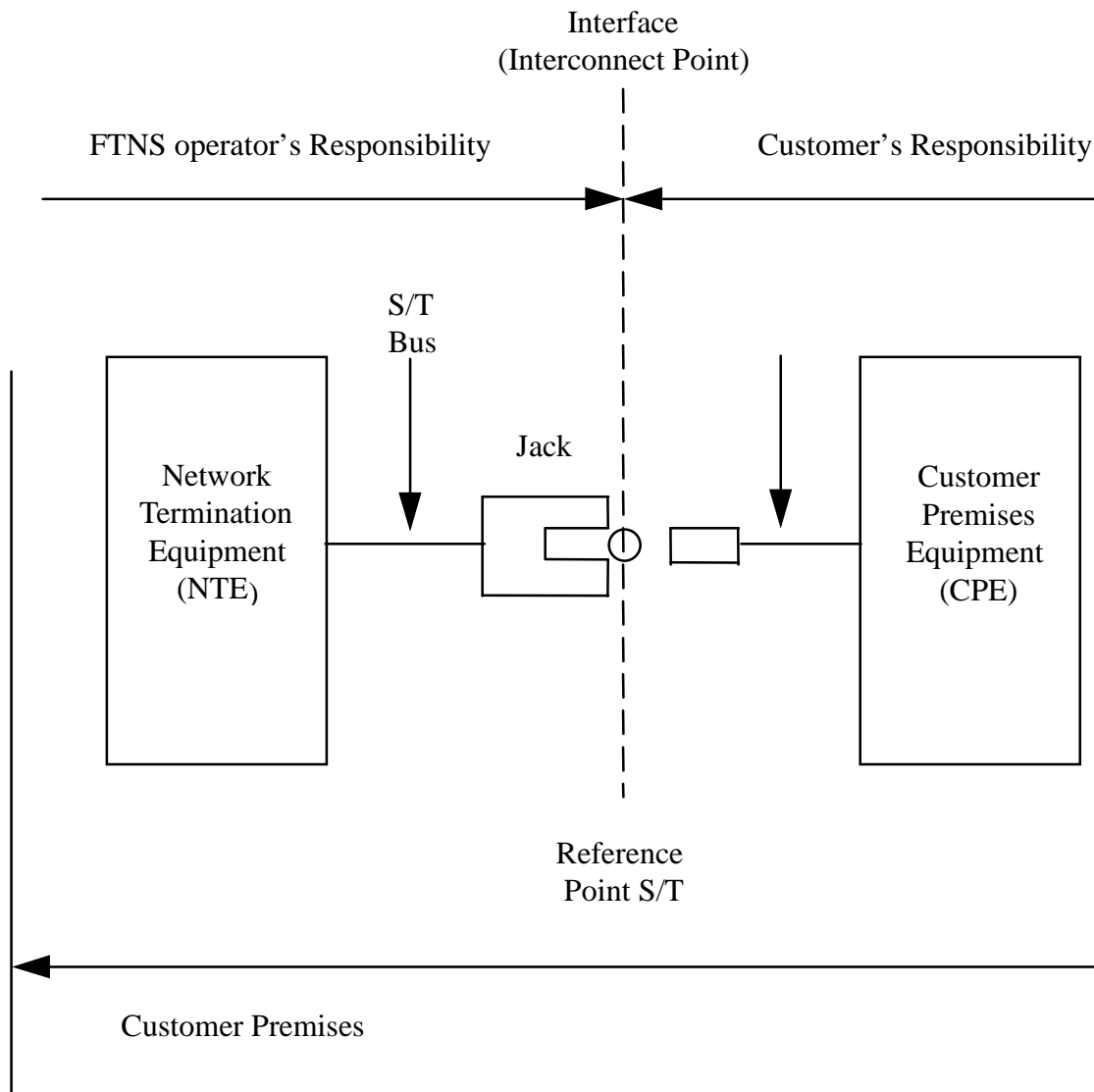


Figure 1 Interconnection of CPE to FTNS operator's ISDN BRA service at Interconnect Point

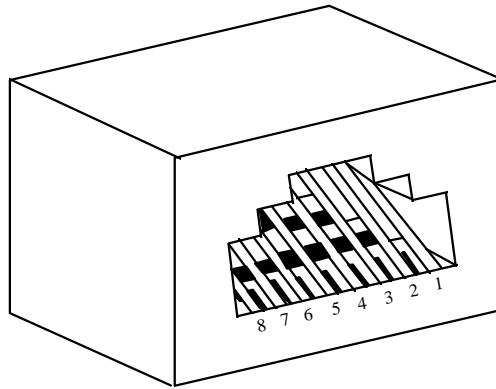


Figure 2(a) 8-Pole Jack

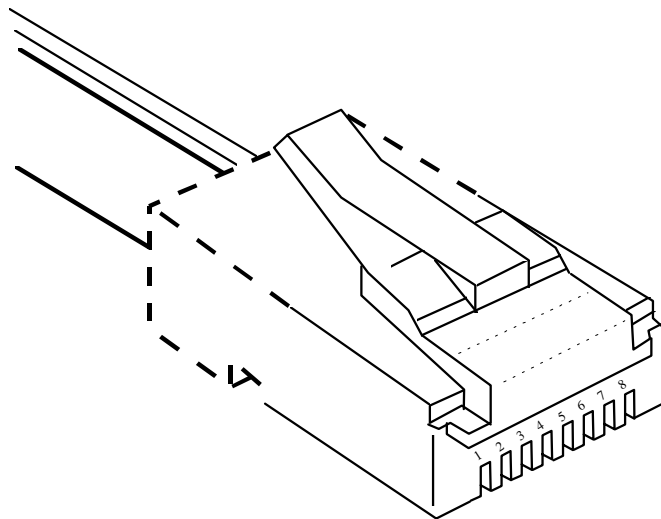


Figure 2(b) 8-Pole Plug

5. CHARACTERISTICS OF DIGITAL PHONES AND VOICE PORTS

5.1 DIGITAL PHONES

Digital phones when connected to the ISDN are recommended to follow ITU-T Recommendation P.310.

Short-term objective of loudness rating:

- Send Loudness Rating (SLR): within the range of 5 to 11 dB
- Receive Loudness Rating (RLR): within the range of -1 to 5 dB

Long-term objective of loudness rating:

- Send Loudness Rating (SLR): 8 dB
- Receive Loudness Rating (RLR): 2 dB

Application and Characteristics of Supervisory Tones:

Please refer to HKTA 2201 “General Technical Characteristics of the Fixed Telecommunications Network in Hong Kong”.

5.2 ANALOGUE INTERFACE

Analogue Interface when provided are highly recommended to support the supervisory tones as specified in the HKTA 2201.

6. PROPAGATION DELAY

Because of various types of connection media being used in the FTNS operator's network and international network, propagation delay varies significantly depending on media used, e.g. satellite, cable, etc. In order to adapt to delay caused by different media, CPE should be able to perform handshaking for propagation delay up to 800 ms. Capability of the CPE to handle extra delay which could occur in long distance calls will be desirable.

7. HOW TO OBTAIN THE TECHNICAL SPECIFICATIONS

7.1 The HKTA series specifications are issued by the TA. The documents can be obtained through the following method:-

- download direct through the OFTA's Internet Home Page. The Home Page address is <http://www.ofa.gov.hk>;

- Hard copies will be provided on request and the contact address is as follows:-

Office of the Telecommunications Authority,
29/F, Wu Chung House,
213 Queen's Road East, Wanchai,
Hong Kong.

(Attn. Senior Telecommunications Engineer (Standards))

- 7.2 The ANSI's technical references are available from the Committee T1's website at <http://www.t1.org>.

8. REFERENCE DOCUMENTS

- [1] ITU-T Recommendation I.430 Basic user-network interface layer 1 specification
- [2] ITU-T Recommendation Q.920 (I.440) ISDN user-network interface data link layer - General aspects
- [3] ITU-T Recommendation Q.921 (I.441) ISDN user-network interface data link layer specification
- [4] ITU-T Recommendation Q.930 (I.450) ISDN user-network interface layer 3 - General aspects
- [5] ITU-T Recommendation Q.931 (I.451) ISDN user-network interface layer 3 specification for basic call control
- [6] ITU-T Recommendation I.41X - ISDN user-network interfaces
- [7] ITU-T Recommendation P.310 - Transmission Characteristics for Telephone Band (300-3400 Hz) Digital Telephones

APPENDIX 1 - EXCEPTION ITEMS IN ANSI T1.602

- unnumbered information commands not supported
- DL-UNIT DATA primitive not supported
- broadcast procedures - TEI 127 is not supported
- management information transfer - SAPI 63 not supported
- identity remove message not supported
- MDL-UNIT DATA primitive not supported
- TEI removal procedure not supported (network or user will not be able to request the other end to remove its TEI)
- XID procedures not supported
- MPH primitives not supported
- deactivation procedures not supported
- only SAPI 0 is supported
- only TEI 0 is used by the network

-END-