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**NETWORK CONNECTION SPECIFICATION
FOR CONNECTION OF CUSTOMER
PREMISES EQUIPMENT (CPE) TO THE
PUBLIC TELECOMMUNICATIONS
NETWORKS (PTNs) USING DIGITAL LEASED
CIRCUITS AT DATA RATES OF 64 kbit/s OR
ABOVE BASED ON ITU-T V-SERIES
RECOMMENDATIONS**



**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 for connection of customer premises equipment (CPE) to the public telecommunications networks (PTNs) using digital leased circuits at data rates of 64 kbit/s or above based on the ITU-T V-series recommendations, including data rates of 1544 kbit/s (T1) and 2048 kbit/s (E1).
2. Digital leased circuits 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 digital leased circuits at data rates of 64 kbit/s or above provided by the FTNS operators. The general technical characteristics of the FTNS networks are given in HKTA 2201. 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.
3. 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 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 label prescribed by the Telecommunications Authority (TA) may be affixed to the certified equipment. Details of the labelling arrangement can be found in the Standardisation Guide HKTA 3211.
4. The TA may amend any part of this specification as and when he deems necessary.
5. 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.
6. 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.
7. The HKTA specifications and information notes issued by the TA can be downloaded from OFTA’s website at <http://www.ofta.gov.hk>. Enquiries about this specification can be directed to:

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AMENDMENT TABLE

Item	Issue No.	Paragraph	Descriptions
1.	Issue 2	Foreword	Certification and labelling requirements are updated.
2.	Issue 3	Title	Revise the title to cover only connection interfaces supporting data rates 64 kbit/s or above (including T1 and E1 data rates) based on ITU-T V-series Recommendations.
3.	Issue 3	Foreword	Update information on certification and labelling as a result of the accreditation of Certification Bodies (CBs).
4.	Issue 3	Foreword, Para. 1	Revise the information to reflect the coverage of only connection interfaces based on ITU-T V-series Recommendations.
5.	Issue 3	Para. 2.2, 5	Update the title of HKTA 2001.
6.	Issue 3	Para. 4.1	Delete the note about the use of other types of interfaces (other than V.35 and V.11 as specified in this specification).

CONTENTS

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1. SCOPE

This network connection specification covers the minimum technical requirements of customer premises equipment (CPE) to be connected to public telecommunications networks (PTNs) using digital leased circuits at data rates of 64 kbit/s or above, including data rates of 1544 kbit/s (T1) and 2048 kbit/s (E1), based on the ITU-T V-series recommendations.

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 public telecommunications networks (PTNs) in Hong Kong.

2.2 SAFETY REQUIREMENTS

The CPE shall comply with the HKTA 2001 specification entitled “Compliance Test Specification - Safety and Electrical Protection Requirements for Subscriber Telecommunications Equipment” issued by the Telecommunications Authority (TA).

3. INTERCONNECT POINT

3.1 Interconnection with the digital leased circuits at data rates of 64 kbit/s or above will require the installation of the FTNS operators’ equipment and internal cabling in customer premises. A normal office air-conditional environment is required together with a maintained power supply. Either a mains power supply at 220 Vrms \pm 10% taken from the same point in the building distribution as the CPE or a suitable power supply at -48 Vdc \pm 10% should be provided by the customer.

3.2 The interconnect point (IP) marks the division of responsibility between the FTNS operator and the customer (see Figure 1).

3.3 The FTNS operator will provide sockets for connection, disconnection or re-connection of the equipment to the IP. The customer will be responsible for connection and disconnection of CPE at the IP.

3.4 The connector used for connecting the CPE to the socket at the IP will depend on the type of interface used (see paragraph 4.1):

(a) For a V.35 interface, 34 pole ISO 2593 (M34) connector will be used.

(b) For a V.11 interface, 37 pole ISO 4902 (DB37) connector will be used.

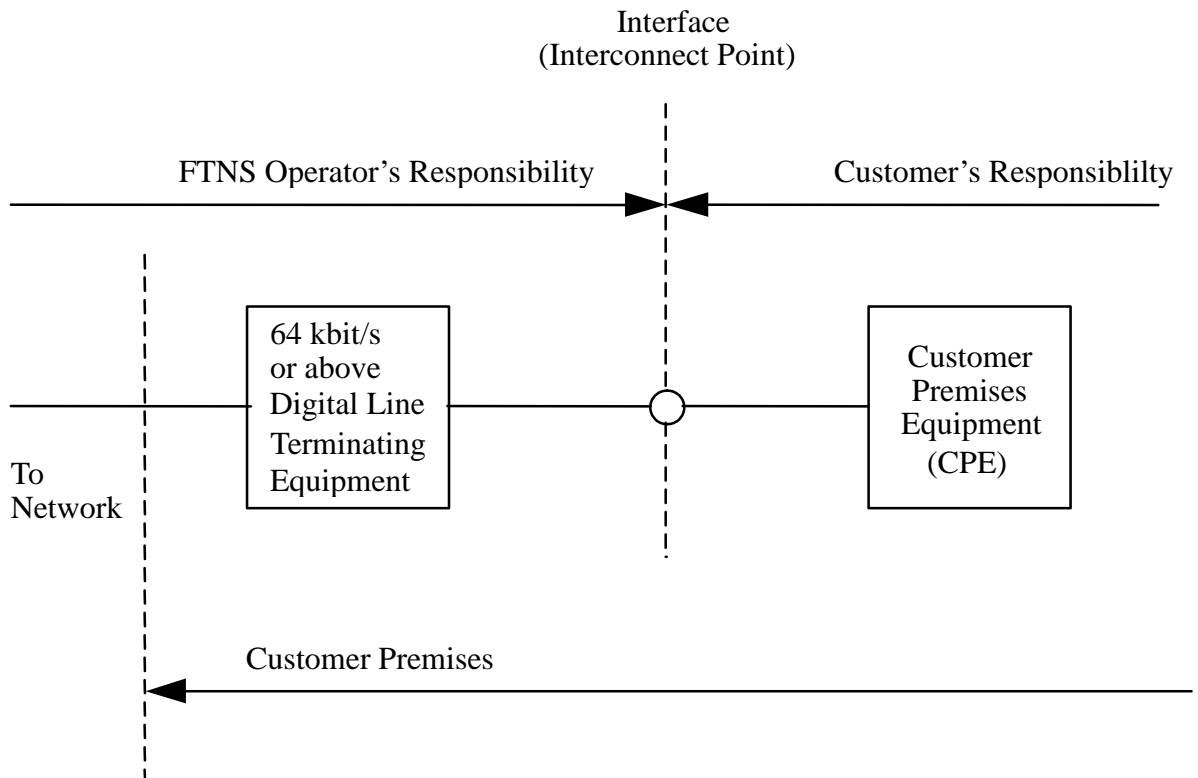


Figure 1 - Interconnection of CPE with 64 kbit/s or above digital interface to FTNS operator's PTN at the Interconnect Point

4. INTERFACE ELECTRICAL REQUIREMENTS (V.35/V.11 INTERFACE)

4.1 GENERAL

The digital interface of the CPE shall conform to either one of the following ITU-T Recommendations:

- (a) V.35; or
- (b) V.11.

4.2 DATA RATE AND TIMING

- 4.2.1 The CPE shall be capable of operating with a data rate of 64 kbit/s or above, including data rates of 1544 kbit/s (T1) and 2048 kbit/s (E1).

Note: The data rates that are supported by the network will be provided to the customer at the discretion of individual FTNS operator.

- 4.2.2 The CPE shall by default operate in Slave Timing (i.e. the master clock source is supplied by the network). The CPE can operate in Master Timing (i.e. the CPE itself acts as a master clock source) as an optional arrangement if so provided by the FTNS operator.

4.3 ELECTRICAL CHARACTERISTICS OF INTERCHANGE CIRCUITS FOR V.35 INTERFACE

4.3.1 The electrical characteristics of the unbalanced interchange circuits shall be in accordance with ITU-T Recommendation V.28.

4.3.2 The electrical characteristics of the balanced interchange circuits shall be in accordance with ITU-T Recommendation V.35, Appendix II, Red Book.

4.4 ELECTRICAL CHARACTERISTICS OF INTERCHANGE CIRCUITS FOR V.11 INTERFACE

4.4.1 The electrical characteristics of the unbalanced interchange circuits shall be in accordance with ITU-T Recommendation V.28.

4.4.2 The electrical characteristics of the balanced interchange circuits shall be in accordance with ITU-T Recommendation V.11.

5. REFERENCE

5.1 HKTA 2001 - "Compliance Test Specification - Safety and Electrical Protection Requirements for Subscriber Telecommunications Equipment" issued by the Telecommunications Authority

5.2 ITU-T Recommendation V.35, Red Book - Data transmission at 48 Kilobits per second using 60-108 kHz group band circuits

5.3 ITU-T Recommendation V.11 - Electrical characteristics for balanced double-current interchange circuits operating at data signalling rates up to 10 Mbit/s

5.4 ITU-T Recommendation V.28 - Electrical characteristics for unbalanced double-current interchange circuits

5.5 ISO/IEC 2593:1993 Information technology -- Telecommunications and information exchange between systems -- 34-pole DTE/DCE interface connector mateability dimensions and contact number assignments

5.6 ISO 4902:1989 Information technology -- Data communication -- 37-pole DTE/DCE interface connector and contact number assignments

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