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**NETWORK CONNECTION SPECIFICATION
FOR CONNECTION OF
CUSTOMER PREMISES EQUIPMENT (CPE)
TO THE PUBLIC TELECOMMUNICATIONS
NETWORKS IN HONG KONG USING
ASYNCHRONOUS TRANSFER MODE (ATM)**



**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) in Hong Kong using Asynchronous Transfer Mode (ATM).
2. Public ATM services may be provided by any one of the Fixed Telecommunications Network Services (FTNS) operators in Hong Kong. ATM CPE should comply with this specification for connection to the networks of 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.
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 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.
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 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

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

Senior Telecommunications Engineer
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213 Queen's Road East
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Amendment Table

Item	Issue No.	Paragraph	Descriptions
1.	Issue 2 Nov. 96	2.2	According to the ITU-T resolution in October 1996, the Recommendation I.432 was split into 4 parts as I.432.1, I.432.2, I.432.3 and I.432.4. While Recommendation I.432.1 is general to all B-ISDN systems at the UNI, other parts of the Recommendation I.432 series give relevant characteristics for the specific bit rates. Corresponding amendment was made in this specification.
2.	Issue 3 July 97	2.2	The approved ITU-T Recommendation I.432.5 was included.
3.	Issue 4 July 00	Foreword	Include editorial changes to update contact information for FTNS operators / OFTA and to add information for the HKTEC Scheme.
4.	Issue 4 July 00	2.	Rewrite paragraph to focus on electrical safety requirements
5.	Issue 4 July 00	3	Rewrite paragraph to focus on physical layer requirements
6.	Issue 4 July 00	4-5	Add new paragraphs to define ATM layer requirements and give information about UNI signalling requirements.
7.	Issue 4 July 00	6	Add new paragraph for reference documents.
8.	Issue 5 February 03	Foreword	Certification and labelling arrangements are updated.

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1. **SCOPE**

This network connection specification covers the minimum technical requirements for connection of customer premises equipment (CPE) to the public telecommunications networks (PTNs) in Hong Kong using Asynchronous Transfer Mode (ATM).

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 Equipment Connected to the Public Telecommunications Networks in Hong Kong". issued by the Telecommunications Authority.

3. **PHYSICAL LAYER REQUIREMENTS**

The physical layer characteristics of the CPE shall comply with either (a) or (b) below:

(a) ITU-T Recommendation I.432.1: B-ISDN User – Network Interface – Physical layer specification - General characteristics

plus one of the four ITU-T Recommendations :-

- ITU-T Recommendation I.432.2: B-ISDN User – Network Interface – Physical layer specification for 155,520 kbit/s and 622,080 kbit/s
- ITU-T Recommendation I.432.3: B-ISDN User – Network Interface – Physical layer specification for 1,544 kbit/s and 2,048 kbit/s
- ITU-T Recommendation I.432.4: B-ISDN User – Network Interface – Physical layer specification for 51,840 kbit/s
- ITU-T Recommendation I.432.5: B-ISDN User – Network Interface – Physical layer specification for 25,600 kbit/s

(for ATM CPE using 1,544 kbit/s, 2,048 kbit/s, 25,600 kbit/s, 51,840 kbit/s, 155,520 kbit/s and 622,080 kbit/s data rates)

(b) ANSI T1.646 Telecommunications - Broadband ISDN - Physical Layer Specification for User-Network Interfaces Including DS/ATM

(for ATM CPE using 1,544 kbit/s, 44,746 kbit/s, 51,840 kbit/s, 155,520 kbit/s and 622,080 kbit/s data rates)

4. ATM LAYER REQUIREMENTS

4.1 ATM CELL FORMAT AND PROTOCOL PROCEDURES

The ATM cell structure, cell coding and protocol procedures of the CPE shall comply with ITU-T Recommendation I.361 : B-ISDN ATM Layer Specification.

4.2 ATM ADAPTATION

The ATM Adaptation Layer (AAL) of the CPE shall be compatible with one or more types of AAL defined in ITU-T Recommendation I.363 : B-ISDN ATM Adaptation Layer (AAL) Specification.

Note: The types of AAL provided by individual networks will be specified by the concerned network operators.

4.3 ATM TRAFFIC MANAGEMENT

The CPE should support traffic control and congestion control functions implemented by the network according to either one of the following :

- (a) ITU-T Recommendation I.371 : Traffic Control and Congestion Control in B-ISDN
- (b) Section 3.6 Traffic Control and Congestion Control of ATM Forum's User-Network Interface (UNI) Specification Version 3.1.

Note: The ATM quality of service classes provided by individual networks will be specified by the concerned network operators.

5. ATM UNI SIGNALLING REQUIREMENTS

If the CPE supports ATM switched virtual connection (SVC), reference on the UNI signalling requirements can be made to the HKTA 2034 specification issued by the Telecommunications Authority. Compliance with HKTA 2034 is not part of the requirements for compliance with this specification.

6. REFERENCE

- [1] HKTA 2001 "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
- [2] HKTA 2034 "Network Connection Specification for Connection of Customer Premises Equipment (CPE) to the Public Telecommunications Network (PTN) in Hong Kong using Asynchronous Transfer Mode (ATM) with Switched Virtual Connection (SVC)" issued by the Telecommunications Authority
- [3] ITU-T Recommendation I.432.1 : B-ISDN User – Network Interface – Physical layer specification - General characteristics
- [4] ITU-T Recommendation I.432.2 : B-ISDN User – Network Interface – Physical layer specification: 155,520 kbit/s and 622,080 kbit/s
- [5] ITU-T Recommendation I.432.3 : B-ISDN User – Network Interface – Physical layer specification: 1,544 kbit/s and 2,048 kbit/s operation
- [6] ITU-T Recommendation I.432.4 : B-ISDN User – Network Interface – Physical layer specification: 51,840 kbit/s operation
- [7] ITU-T Recommendation I.432.5 : B-ISDN User – Network Interface – Physical layer specification: 25,600 kbit/s operation
- [8] ITU-T Recommendation I.361 : B-ISDN ATM Layer Specification
- [9] ITU-T Recommendation I.363 : B-ISDN ATM Adaptation Layer (AAL) Specification
- [10] ITU-T Recommendation I.371 : Traffic Control and Congestion Control in B-ISDN
- [11] ANSI T1.646-1995 : Broadband ISDN - Physical Layer Specification for User-Network Interfaces including DS1/ATM
- [12] ATM User-Network Interface Specification Version 3.1 (af-uni-0010.002), 1994 published by the ATM Forum Technical Committee

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