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**NETWORK CONNECTION SPECIFICATION  
FOR ACCESS OF CABLE MODEM BASED ON ITU-T  
RECOMMENDATIONS OR DOCSIS STANDARDS TO  
PUBLIC TELECOMMUNICATIONS SERVICES VIA  
IN-BUILDING COAXIAL CABLE DISTRIBUTION  
SYSTEM (IBCCDS)**



**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 cable modem based on ITU-T Recommendations or DOCSIS standards issued by the Cable Television Laboratories, Inc. (CableLabs) and used as customer premises equipment (CPE) for access to public telecommunications services via the In-Building Coaxial Cable Distribution System (IBCCDS). The IBCCDS refers to the coaxial cable systems in residential and/or business premises for the distribution and relaying of signals for telecommunications, broadcasting and security services. The IBCCDS may include Communal Aerial Broadcast Distribution (CABD) Systems, Satellite Master Antenna Television (SMATV) Systems, Closed Circuit Television (CCTV) Systems, Cable Television (CTV) Systems or any combination of these systems.
2. Telecommunications services supported by cable modems may be provided by any one of the Fixed Telecommunication Network Services (FTNS) operators in Hong Kong. According to the licensing conditions of the wireless and cable-based FTNS operators, technical standard used for the interface between their services and other public telecommunications networks, services and CPE should be widely accepted, open and non-proprietary. 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 prescribed label may be affixed to the equipment which has been certified. Details of the labelling arrangement can be found in the Standardisation Guide HKTA 3211.
4. The Telecommunications Authority (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:

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

Fax: +852 2343 5824  
Email: [certification@ofta.gov.hk](mailto:certification@ofta.gov.hk)

8. Enquiries about this specification may be directed to:

Radio Laboratory  
Standards Section  
Office of the Telecommunications Authority  
29/F Wu Chung House  
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## AMENDMENT TABLE

| Item | Issue No.           | Paragraph | Descriptions  |
|------|---------------------|-----------|---|
| 1.   | Issue 2<br>Feb 2003 | Foreword  | Certification and labelling arrangements are updated.                                     |
| 2.   | Issue 3<br>Jan 2004 | 4.3       | The ITU-T Recommendation J.122 is included  |
| 3.   | Issue 4<br>Sep 2008 | 4.3       | DOCSIS 3.0 specifications and the ITU-T Recommendations J.222.1 and J.222.2 are included. |

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## 1. SCOPE

This network connection specification covers the technical requirements for cable modem based on ITU-T Recommendations or the equivalent DOCSIS standards issued by the Cable Television Laboratories, Inc. (CableLabs) and used as customer premises equipment (CPE) for access to public telecommunications services via the In-Building Coaxial Cable Distribution System (IBCCDS).

## 2. BASIC REQUIREMENTS

The CPE shall comply with HKTA 2035 “Basic Requirements of Telecommunications Equipment for Connection to In-Building Coaxial Cable Distribution System (IBCCDS)” issued by the Telecommunications Authority (TA).

## 3. FREQUENCY CHANNELS

The CPE shall use downstream channels (6 MHz) and upstream channels for carriage of telecommunications services as defined in Annex 1D of HKTA 1105 “Technical Information for Frequency Planning of In-building Coaxial Cable Distribution System (IBCCDS)” issued by the TA.

## 4. INTERFACE REQUIREMENTS

### 4.1 INTERCONNECT POINT

The CPE is interconnected at a coaxial cable outlet with the IBCCDS which is in turn connected to the network of the Fixed Telecommunication Network Services (FTNS) operator providing the telecommunications service to the customer (see Figure 1).

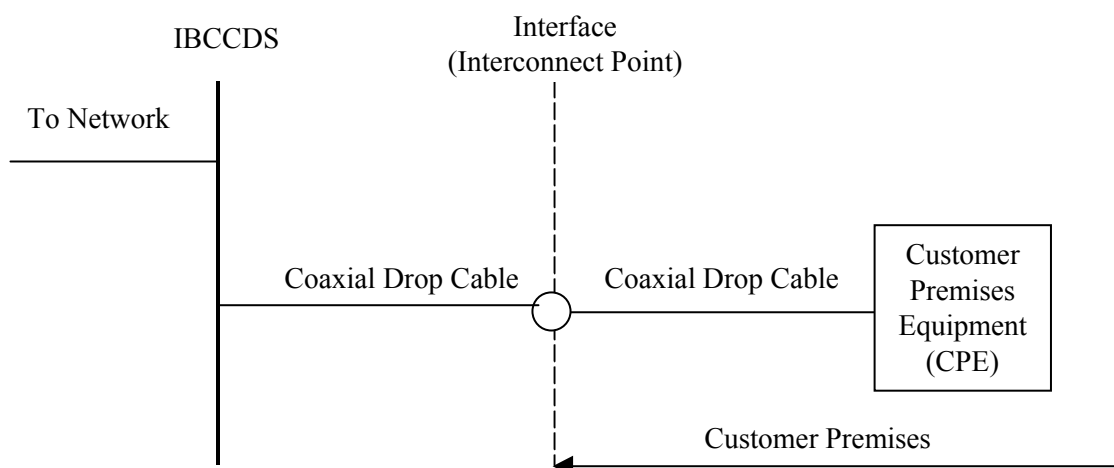


Figure 1 Interconnection of CPE with IBCCDS

## 4.2 FUNCTIONAL ASSUMPTIONS FOR CABLE PLANT

The characteristics of cable plant to be assumed for the operation of the CPE are described in HKTA 1104 “Performance Requirements for In-Building Coaxial Cable Distribution System (IBCCDS)” issued by the TA.

## 4.3 INTERFACE ELECTRICAL REQUIREMENTS

The interface of the CPE shall comply with the specification(s) as given in any of (a), (b) and (c) below:

- (a) ITU-T Recommendation J.112 Annex B “Data-over-cable service interface specifications: Radio-frequency interface specification” (except the Section on Functional Assumptions);

or

Data-Over-Cable Service Interface Specifications (DOCSIS): Radio Frequency (RF) Interface Specification version 1.0 issued by the CableLabs (except the Section on Functional Assumptions).

Note: The CPE may support enhanced functions (such as those contained in DOCSIS RF Interface Specification version 1.1) provided that it shall be compatible with the above electrical interface requirements. Support of such enhanced functions by the FTNS networks will be at the discretion of individual FTNS operators.

- (b) ITU-T Recommendation J.122 “Second-generation transmission systems for interactive cable television services - IP cable modems” (except the Section on Functional Assumptions);

or

Data-Over-Cable Service Interface Specifications (DOCSIS): Radio Frequency (RF) Interface Specification version 2.0 issued by the CableLabs (except the Section on Functional Assumptions).

- (c) ITU-T Recommendation J.222.1 “Third-generation transmission systems for interactive cable television services - IP cable modems: Physical Layer specification” (except the Section on Functional Assumptions); and

ITU-T Recommendation J.222.2 “MAC and Upper Layer protocols for third-generation transmission systems for interactive cable television services - IP cable modems”;

or

Data-Over-Cable Service Interface Specifications DOCSIS 3.0 Physical Layer Specification issued by the CableLabs (except Section 5 Functional Assumptions); and

Data-Over-Cable Service Interface Specifications DOCSIS 3.0 MAC and Upper Layer Protocols Interface Specification issued by the CableLabs.

## **5. REFERENCE**

- [1] HKTA 1104 “Performance Requirements for In-Building Coaxial Cable Distribution System (IBCCDS)” issued by the Telecommunications Authority
- [2] HKTA 1105 “Technical Information for Frequency Planning of In-Building Coaxial Cable Distribution System (IBCCDS)” issued by the Telecommunications Authority
- [3] HKTA 2035 “Basic Requirements of Telecommunications Equipment for Connection to In-Building Coaxial Cable Distribution System (IBCCDS)” issued by the Telecommunications Authority
- [4] ITU-T Recommendation J.112 Annex B “Data-over-cable service interface specifications: Radio-frequency interface specification”
- [5] ITU-T Recommendation J.122 “Second-generation transmission systems for interactive cable television services - IP cable modems”
- [6] ITU-T Recommendation J.222.1 “Third-generation transmission systems for interactive cable television services - IP cable modems: Physical Layer specification”
- [7] ITU-T Recommendation J.222.2 “MAC and Upper Layer protocols for third-generation transmission systems for interactive cable television services - IP cable modems”
- [8] Data-Over-Cable Service Interface Specifications (DOCSIS): Radio Frequency (RF) Interface Specification version 1.0 (SP-RFI) issued by the CableLabs
- [9] Data-Over-Cable Service Interface Specifications (DOCSIS): Radio Frequency (RF) Interface Specification version 1.1 (SP-RFIV1.1) issued by the CableLabs
- [10] Data-Over-Cable Service Interface Specifications (DOCSIS): Radio Frequency (RF) Interface Specification version 2.0 (SP-RFIV2.0) issued by the CableLabs
- [11] Data Over Cable Service Interface Specifications DOCSIS 3.0: Physical Layer Specification (SP-PHYv3.0) issued by the CableLabs
- [12] Data Over Cable Service Interface Specifications DOCSIS 3.0: MAC and Upper Layer Protocols Interface Specification (SP-MULPIv3.0) issued by the CableLabs

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