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BASIC REQUIREMENTS OF BROADBAND ACCESS EQUIPMENT FOR CONNECTION TO LOCAL ACCESS LINK USING TWISTED METALLIC PAIRS

TELECOMMUNICATIONS AUTHORITY

HONG KONG

FOREWORD

1. This specification is issued pursuant to Section 32D of the Telecommunications Ordinance (Cap. 106). This specification stipulates the basic requirements of broadband access equipment for connection to the local access link (LAL) using twisted metallic pairs.

2. The TA Statement on broadband interconnection, dated 14 November 2000, mandated Type II Interconnection for broadband services. To effect Type II interconnection, coexistence of different broadband equipment in the same LAL cable binder must be made spectrally compatible. The purpose of this specification is to contain the power emission of broadband equipment, thereby facilitating a spectral environment for the coexistence.

3. Compliance with this specification does not guarantee acceptable performance of the equipment under all possible operating conditions. In some cases, measures beyond the scope of this specification may be necessary to resolve spectral compatibility problems.

4. This specification may be revised after the local experience develops over time under the Type II interconnection for broadband services. The TA may amend any part of this specification as and when he deems necessary.

5. The TA Statement, 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

6. 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	The Foreword is updated in order to align with other HKTA specifications.

CONTENTS

1. INTRODUCTION

This specification stipulates the basic requirements of broadband access equipment for connection to the local access link (LAL) using twisted metallic pairs.

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 equipment into the public telecommunications networks in Hong Kong.

2.2 SAFETY REQUIREMENTS

The equipment in customer premises shall comply with 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 TA.

3. PERFORMANCE REQUIREMENTS

3.1 EQUIPMENT TRANSMISSION

The broadband access equipment, including its accessories and components, when connected to the LAL, shall conform to the following power spectral density (PSD) requirements:

(a) Downstream transmission

The PSD output of the equipment for transmission from the exchange end to the customer end shall not exceed the limit of the Down Exchange mask.

(b) Upstream transmission

The PSD output of the equipment for transmission from the customer end to the exchange end shall not exceed the Up Short, Up Medium or Up Long mask which corresponds to the deployment reach of the equipment concerned, as classified in clause 3.2 below.

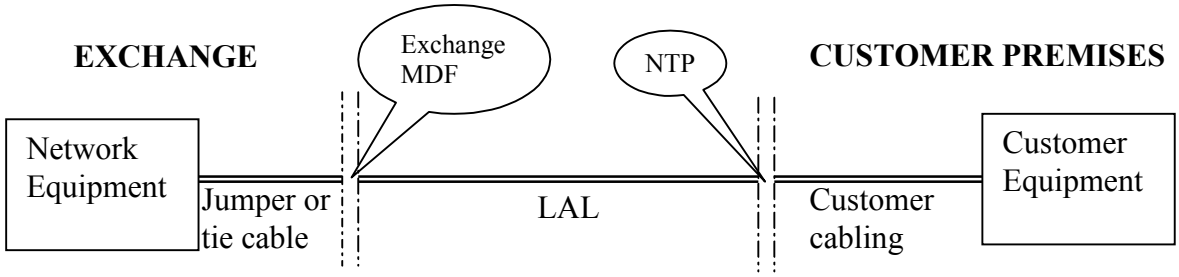
The limits of the PSD masks are given in the *Annex* to this specification.

3.2 DEPLOYMENT REACH CLASSIFICATION

The deployment reach is classified in terms of the insertion loss of the LAL at 100 kHz, as defined in *Table 1* below:

LOCAL ACCESS LINK	**INSERTION LOSS BETWEEN EXCHANGE MDF AND NTP** (refer to *Figure 1*)	**APPLICABLE UPSTREAM PSD MASK**
Short	26 dB or less	Up Short
Medium	within the range from 26 dB to 29 dB	Up Medium
Long	more than 29dB	Up Long

Table 1: LAL Classification



Abbreviations: MDF stands for Main Distribution Frame, NTP for Network Termination Point
NTP refers to a point with socket or network termination equipment. It may be taken as the Subscriber MDF if there is equipment terminating there, otherwise it should be the socket in the customer premises.

Figure 1: Reference Points for Measurement of Insertion Loss

The LAL class of a given line is to be determined once only, and such class will not be re-assessed unless there is a major cabling re-arrangement affecting the line concerned.

4. PREVENTION OF RADIO INTERFERENCE

The equipment shall provide for transmission and reception of all wanted and unwanted signals such that it does not cause interference with any other authorized telecommunications or broadcasting services including the reception of off-air broadcast sound and television signals.

5. INTERFACE TO PUBLIC TELECOMMUNICATIONS NETWORKS

The equipment shall comply with other specifications issued by the TA on interface requirements for access to the public telecommunications services.

6. REFERENCE

The following reference document should be read together with this Specification.

HKTA 2001 Specification, entitled "Compliance Test Specification – Safety and Electrical Protection Requirements for subscriber Equipment Connected to the Public Telecommunications Networks in Hong Kong"

– END –

Annex - Power Spectral Density (PSD) Mask Definition

The PSD masks, in unit of dBm/Hz, are defined by the tabular data given below. Between the given data points the mask values are defined by interpolation (as a straight line on log frequency / linear dB axes).

Frequency [in kHz]	Up short PSD	Up medium PSD	Up long PSD	Down exchange PSD
0.1	-24.2438	-24.2438	-24.2438	-24.2438
1	-24.3086	-24.3086	-24.3086	-24.3086
2	-24.4406	-24.4406	-24.4406	-24.4406
3	-24.6366	-24.6366	-24.6366	-24.6366
4	-24.898	-24.898	-24.898	-24.898
5	-25.2272	-25.2272	-25.2272	-25.2272
6	-25.6302	-25.6302	-25.6302	-25.6302
7	-26.1266	-26.1266	-26.1266	-26.1266
47.8843	-34.4727	-34.47623	-34.5	-34.47269
48.1471	-34.4964	-34.5	-34.5	-34.49644
48.1866	-34.5	-34.5	-34.5	-34.5
76.3911	-34.5	-34.5	-34.5	-36.5
138	-34.5	-34.5	-34.5	-36.5
147.654	-39.1935	-39.1935	-39.193	-36.5
199.722	-39.1985	-39.19845	-60.1591	-36.5
239	-39.2014	-39.2014	-64.06	-36.5
248	-40.1521	-40.1521	-64.864	-36.5
249.819	-40.6974	-40.69742	-65.022	-36.5
256	-40.8785	-42.5212	-65.554	-36.5
262.988	-41.0781	-46.6735	-66.139	-36.5
266.667	-41.181	-46.9391	-66.441	-36.5
281	-41.569	-49.70765	-67.578	-36.5
300	-42.4219	-53.16755	-69	-36.5
301	-42.4653	-53.34353	-79	-36.5
303	-42.5516	-53.69374	-79.144	-36.5
319	-43.5645	-56.41492	-80.259	-36.5
333	-44.7054	-58.68625	-81.19	-36.5
333.333	-44.739	-58.7391	-81.212	-36.5
344.065	-45.8039	-63.2129	-81.898	-36.5
344.45	-45.8415	-63.2915	-81.923	-36.5
351	-46.2016	-64.6154	-82.331	-36.5
378	-47.6185	-70.3487	-83.937	-36.5
399	-48.6521	-74.958	-85.109	-36.5
400	-48.7	-75.19227	-85.163	-36.5
404.253	-49.2593	-76.1821	-85.393	-36.5
433.333	-52.9327	-69.2391	-86.898	-36.5
492	-59.6471	-69.2391	-89.65	-36.5
500	-60.5	-69.79643	-90	-36.5
545.545	-72.8087	-72.80873	-90	-36.5
613.094	-76.8423	-76.84229	-90	-36.5
650	-71	-78.8621	-90	-36.5
735	-71	-83.10869	-90	-36.5
897.226	-77.9396	-90	-90	-36.5
1104	-85.1558	-90	-90	-36.5
1268.91	-90	-90	-90	-43.73103
1400	-90	-90	-90	-48.83748
2645.69	-110	-110	-110	-81.89535
4545	-110	-110	-110	-110
11000	-110	-110	-110	-110