



**CONSULTATION PAPER ISSUED BY  
THE INFO-COMMUNICATIONS DEVELOPMENT AUTHORITY  
OF SINGAPORE**

**PUBLIC CONSULTATION ON REVISION OF  
TECHNICAL SPECIFICATIONS FOR LINE TERMINAL EQUIPMENT**

**24 JULY 2013**

## REVISION OF TECHNICAL SPECIFICATIONS FOR LINE TERMINAL EQUIPMENT

### BACKGROUND

1. A Special Working Group (“SWG”) of the IDA Telecommunications Standards Advisory Committee (“TSAC”) has been formed, and has commenced the programme to review and update the existing equipment standards in March 2013. The primary objective of the review is to streamline standards for the continuous support of legacy services in IP-based networks.
2. With contributions from the TSAC SWG, the review of existing IDA Technical Specifications for Terminal Equipment (“TE”) intended for connection to the following public networks and services has been completed:
  - a. Public Switched Telephone Network
  - b. Integrated Services Digital Network
  - c. Broadband Multimedia Cable Network
  - d. Asymmetric Digital Subscriber Line Access Network
  - e. Digital Leased Lines

### PROPOSAL

3. The TSAC SWG proposes that the following streamlined IDA Technical Specifications be re-issued:
  - a. Technical Specification for Terminal Equipment connecting to the Network Terminating Equipment (“NTE”) or the Public Switched Telephone Network (“PSTN”) for access to voice band services (Draft “IDA TS PSTN” Issue 2)

The scope of this IDA TS PSTN has been enlarged to cover requirements for TE (e.g. telephone, fax machine, automatic answering machine etc.) which may be connected to the PSTN, or to the NTE, which presents the PSTN functions for IP-based or next generation networks (“NGNs”) to interwork with the TE.

**Question 1:**

*IDA seeks views from the industry on whether the revised IDA TS PSTN has defined the PSTN functions adequately for the TE to access voice band services via the NGNs, in terms of call set-up, signalling and requirements of additional features; and on scenarios in which manufacturers/suppliers may discontinue the supply of new analogue PSTN TE.*

- b. Technical Specification for Terminal Equipment connecting to the Integrated Services Digital Network (“ISDN”) (Draft “IDA TS ISDN” Issue 2)

The IDA TS ISDN has been consolidated to address the physical Layer 1 requirements for both the ISDN Basic and Primary Rate Access, and streamline the data link Layer 2 and network Layer 3 requirements for enabling the mapping of ISDN Layer 2 and 3 signalling protocols with Access Network protocols of the NGNs.

**Question 2:**

*IDA seeks feedback from the industry on scenarios in which manufacturers/suppliers may discontinue or have discontinued the supply of new ISDN TE, for example, ISDN Basic Access and Broadband ISDN user-network interface equipment.*

- c. Technical Specification for Cable Modems (“CM”) connected to High-Speed Data-Over-Cable-Systems (Draft “IDA TS CM” Issue 2)

The IDA TS CM has been consolidated to define requirements for CM connecting to the 2<sup>nd</sup> and 3<sup>rd</sup> generations High-Speed Data-Over-Cable-Systems (DOCSIS 2.0 and 3.0).

- d. Technical Specification for Asymmetrical Digital Subscriber Line (“ADSL”) Modems (Draft “IDA TS ADSL” Issue 2)

The IDA TS ADSL has been streamlined for the 2<sup>nd</sup> generation ADSL modems – ADSL2/ADSL2+; and implementation of requirements may be verified, using the Broadband Forum test plan for the ADSL2/ADSL2plus functionality.

**Question 3:**

*IDA seeks feedback from the industry on scenarios in which manufacturers/suppliers have discontinued the supply of 1<sup>st</sup> generation CM and ADSL modems.*

- e. Technical Specification for Terminal Equipment connected to 2 Mbit/s, 34 Mbit/s and 140 Mbit/s Digital Line Lines (Draft “IDA TS DLCN” Issue 2)

The IDA TS DLCN has streamlined and harmonised the network interface requirements for 2Mbit/s, 34 Mbit/s and 140 Mbit/s digital leased lines, allowing users to determine their own use of circuit timing and data structure, as digital leased line connections do not require any exchange of protocol at the network.

**Question 4:**

*IDA seeks feedback from the industry on scenarios in which manufacturers/suppliers may discontinue or have discontinued the supply of Time Division Multiplexing (“TDM”) equipment which employs these digital leased line connections.*

## **SUMMARY OF PROPOSED CHANGES**

4. Summary of proposed changes is given in Annex A.

## **EFFECTIVE DATE OF SPECIFICATIONS**

5. Upon ratification of the final draft Technical Specifications, a lead time (about 6 months) for implementation of the revised Technical Specifications, may be given to equipment suppliers/dealers for the purpose of equipment registration with IDA.

## **REQUEST FOR COMMENTS**

6. IDA hereby invites interested parties to submit comments regarding the Technical Specifications. Respondents must identify the specific TS, questions or areas of the TS in which they are commenting. Where appropriate, respondents are encouraged to suggest proposed changes, including drafting language and an explanation of the reasons for the proposed changes.
7. All views and comments should be submitted in writing and sent to IDA in soft copy (preferably in Microsoft Word format). The submissions must reach IDA by 12 noon, 16 August 2013. Respondents are required to include personal/company particulars as well as correspondence addresses in their submissions. The submission should be addressed to:

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IDA reserves the right to make public all or parts of any written comment and to disclose the identity of the source. Commenting parties may request confidential treatment for any part of the comment that the commenting party believes to be proprietary, confidential or commercially sensitive. Any such information should be clearly marked and placed in a separate annex. If IDA grants the request for confidential treatment, it will consider, but it will not publicly disclose, the information. If IDA rejects the request for confidential treatment, it will return the information to the commenting party, and will not consider the information as part of its review. As far as possible, commenting parties should limit any request for confidential treatment of information submitted. IDA will not accept any comment that requests for confidential treatment of all or a substantial part of the comment.

## **SUMMARY OF PROPOSED CHANGES**

### **Technical Specification for Terminal Equipment connecting to the Network Terminating Equipment or the Public Switched Telephone Network for access to voice band services (Draft IDA TS PSTN Issue 2, Jun 2013)**

8. The scope of the Specification has been enlarged to cover all types of terminal equipment (“TE”) that may be connected to the Public Switched Telephone Network (“PSTN”); or to the network terminating equipment (“NTE”), which presents the PSTN functions for the IP-based or next generation networks to interwork with the TE. There is no change to the basic requirements set out previously in the IDA Technical Specification for TE for connecting to PSTN (IDA TS PSTN Issue 1 Rev 2, May 2011).

9. Annexes to the Specification on requirements for the use of optional facilities supported by network operators, have also been updated and streamlined accordingly:

Annex E and Annex F	For TE that incorporates coin collection facility or smart cards mode of payment, it shall have the capability to set charging rates according to the prevailing tariff rates.
Annex G	Requirements for receiving the Analogue Calling Line Identity Presentation (A-CLIP) information have been consolidated in Annex G, where reference to a separate Technical Specification for the A-CLIP facility for connection to PSTN is no longer necessary.
Annex J	Annex J has been deleted, as “Input Procedure for Sending Alphanumeric Characters is no longer supported.
Annex K	Annex K has been deleted, as “Short Message Service (SMS)” facility of the PSTN is no longer supported.
Annex L	Requirements have been updated for TE which incorporates POTS splitter for xDSL system variants such as ADSL, ADSL2 and ADSL2plus.

10. This Specification will replace the IDA Technical Specification for Terminal Equipment connecting to the Public Switched Telephone Network (IDA TS PSTN Issue 1 Rev 2, May 2011).

11. As a result of this review, the IDA Technical Specification for Analogue Calling Line Identity Presentation (A-CLIP) Facility for connection to PSTN (IDA TS A-CLIP Issue 1 Rev 1, May 2011) will be withdrawn.

### **Technical Specification for Terminal Equipment connecting to the Integrated Services Digital Network (Draft IDA TS ISDN Issue 2, June 2013)**

12. The Technical Specification has been consolidated, based on the principles of presenting the Integrated Services Digital Network (“ISDN”) to the TE. It streamlines the requirements for: (a) the support of Layer 1 activation and deactivation procedures for both the Basic Access (“BA”) and the Primary Rate Access (“PRA”); (b) the electrical characteristics; and (c) the power arrangements. It consolidates (d) the Layer 2 and 3 signalling protocols, enabling the mapping of the Layer 2 and 3 signalling protocols with the Access Network protocols of the next generation networks.

13. It will supersede the following 2 Technical Specifications:

- a. Technical Specification for connecting to the ISDN using BA (IDA TS ISDN BA Issue 1 Rev 1, May 2011)

- b. Technical Specification for connecting to the ISDN using PRA (IDA TS ISDN PRA Issue 1 Rev 1, May 2011)
14. There is no change to the requirements set out previously in the 2 Technical Specifications for the purpose of conformity assessment for connection to the ISDN using BA or PRA.
15. As a result of this review, the following Specifications will be withdrawn, as there is no demand for conformity assessment for the use of Broadband ISDN (“BISDN”) services.
- a. Technical Specification for connecting to the Broadband ISDN (IDA TS BISDN Issue 1 Rev 1, May 2011)
  - b. Reference Specification for BISDN User-Network Interface – Physical Layer (IDA RS BISDN 1, Dec 1999)
  - c. Reference Specification for BISDN User-Network Interface – Signalling for Basic Call Connection Control (IDA RS BISDN 2, Dec 1999)

Technical Specification for Cable Modems connected to High-Speed Data-Over-Cable-Systems (Draft IDA TS CM Issue 2, Jun 2013)

16. This Specification will supersede the IDA TS CM Issue 1 (May 2011). It defines the Radio Frequency Interface (“RFI”) requirements for Cable Modems (“CM”) connecting to 2<sup>nd</sup> and 3<sup>rd</sup> generations of high-speed Data-Over-Cable Systems based on the following ITU-T Recommendations:

- a. J.122 (12/2007) (DOCSIS 2.0 equivalent)
- b. J.222.1, J.222.2 & J.222.3 (DOCSIS 3.0 equivalent)

17. For conformity assessment, the CM shall comply with requirements outlined in the draft IDA TS CM Issue 2, Jun 2013, in accordance with (a) J.122; or (b) J.222.1, J.222.2 and J.222.3.

18. A new Annex A has been added, which streamlines conformity assessment requirements for the CM to be integrated with the IPCablecom Media Terminal Adaptor (“MTA”) for supporting analogue PSTN terminal equipment, and delivering PSTN services over the J.122 transport.

19. Requirements formerly specified in the following 2 Reference Specifications have been updated and incorporated into the draft IDA TS CM Issue 2, Jun 2013, and as a result, these 2 Specifications will be withdrawn:

- a. Reference Specification for Cable Modems connected to the Radio Frequency Interface of the High-speed Data-Over-Cable Systems (IDA RS CM3 Issue 1, Oct 2003)
- b. Reference Specification for Multimedia Terminal Adapter (IDA RS MTA Issue 1, Jun 2003)

Technical Specification for Asymmetrical Digital Subscriber Line Modems (Draft IDA TS ADSL Issue 2, Jul 2013)

20. This Specification has been streamlined for the 2<sup>nd</sup> generation ADSL modems – ADSL2/ADSL2+, based on ITU-T Rec. G.992.3/G.992.5 (2009), and will be re-issued. Implementation of the functional requirements conforming to G.992.3/G.992.5 may be verified, using the Broadband Forum ADSL2/ADSL2plus Functionality Test PlanTR-105 (2011).

21. It is intended that ADSL modems are designed for multi-mode operation, capable of supporting ADSL2 and/or ADSL2+ standards that provide for backward compatibility, for interworking with network equipment of the 1<sup>st</sup> generation ADSL standards (based on the ITU-T Rec. G.992.1). References to the 1st generation ADSL standards are no longer required, as G.992.3 has been developed in relation to G.992.1.

IDA Technical Specification for Terminal Equipment connected to 2Mbit/s, 34 Mbit/s and 140 Mbit/s Digital Leased Lines (Draft IDA TS DLCN Issue 2, Jul 2013)

22. This Specification has streamlined and harmonised the network interface requirements for 2Mbit/s, 34 Mbit/s and 140 Mbit/s digital leased lines, based on relevant sections of the ITU-T Rec. G.703, and the ETSI EN 300 418 and EN 300 686. As digital leased line connections do not require any protocol to be exchanged at the network for call establishment and release, users may determine their use of circuit timing and data structure.

23. This Specification will replace the IDA Technical Specification for Digital Interfaces based on hierarchical bit rates of 2,048 kbit/s, 34,368 kbit/s and 139,264 kbit/s (IDA TS DLCN Issue 1 Rev 1, May 2011).