ATIS-TRQ.10.2009

SPLITTERS USED FOR
LINE SPLITTING AND LINE SHARING APPLICATIONS

TECHNICAL REQUIREMENTS

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ATIS-TRQ.10.2009, *Splitters Used for Line Splitting and Line Sharing Applications*
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(Revision of T1.TRQ.10-2003)

Technical Requirement on

SPLITTERS USED FOR LINE SPLITTING AND LINE SHARING APPLICATIONS

Alliance for Telecommunications Industry Solutions

Approved June 2009

Abstract

This technical requirements (TRQ) document defines three types of network equipment facility line sharing splitters. The physical environment of the devices is not described in this TRQ. In order to minimize product restrictions and maximize choice of equipment configurations, the physical attributes, safety issues, and configurations are not specified. Service providers should specify these items in order to accommodate a variety of equipment configurations, installations, central office, and remote terminal environments.

This TRQ describes the electrical characteristics of three network equipment facility line sharing splitters that function to sufficiently reduce the DSL signal impact on the line card, and permit legacy plain ordinary telephone service (POTS) communication. These requirements support several types of DSL signal transmission. Also included in this TRQ are descriptions of test methods to ascertain compliance and minimize ambiguity of the intent of these requirements.

FOREWORD

The network equipment facility line sharing splitters defined in this document may be used to facilitate the deployment of various DSL technologies over a metallic facility that is also being used to provide POTS (plain ordinary telephone service) by means of the PSTN (public switched telephone network).

This technical requirement document specifies the electrical characteristics of several network equipment facility line sharing splitters. This document builds on ATIS-0600413.2009, Annex E, for the "Type A" category splitter, and contributions from T1E1.4 define "Type B and "Type C".

This revision to T1.TRQ.10 allows the CO Splitter Signature to be optional for all CO splitters including "Type A", "Type B", and "Type C". This document has been written to help ensure the proper interfacing and inter-working of DSL and the PSTN equipment at the central office. It also is intended to facilitate compliance with FCC Order 99-355 requiring shared access.

This document includes requirements, recommendations and options; these are designated by the words "shall," "should" and "may," respectively. The word "will" is used only to designate events that will take place under some defined set of circumstances. Suggestions for improvements of this document are welcomed. They should be sent to the Alliance for Telecommunications Industries Solutions, 1200 G Street, NW, Suite 500, Washington, DC 20005.

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At the time of initiation or issuance of the letter ballot for this document, NIPP, which was responsible for its development, had the following roster:

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The Network Access Interfaces (NAI) Subcommittee – formerly T1E1.4 -- was responsible for the development of this document.

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1 SCOPE & PURPOSE

1.1 Scope

This Technical Requirement document (TRQ) defines a minimal set of electrical requirements for a network equipment facility line-sharing filter, often referred to as a *central office (CO) Line Sharing Splitter (LSS)*. The parameters defined include terminations, frequencies, testing, test signatures, dc characteristics, voice-band characteristics, attenuation, envelope delay distortion, impedance, longitudinal balance, and metallic balance. Additional features and performance characteristics may be included in a network equipment facility LSS; however, such features and performance characteristics are beyond the scope of this document.

1.2 Purpose

This TRQ is intended to facilitate the provisioning of various digital subscriber line (DSL) technologies and voice-band services over the same loop. The document is written broadly to permit the LSS to be used for current DSL technologies and potential new DSL technologies that use the same frequency spectra.

1.3 Other Considerations

Network systems apply various electrical signals to the subscriber loop for the purpose of network maintenance and alerting the customer of an incoming call. These signals vary considerably in amplitude and can reach values of +/- 200Vdc for maintenance functions and 276.2 volts peak for alerting signals. When these signals are applied to an access line that also has a Network Equipment Facility LSS wired in series with the subscriber loop, the low pass section of the splitter may see the full magnitude of these signals. Therefore, consideration should be given to the selection of circuit components used for the LSS design. During the times these signals are applied, it is acceptable that the low pass filter does not perform all of its functions nor meet the all of the technical requirements in this document. However, the filter components should not be permanently damaged.

Such phenomena as lightning and over voltage due to inductive interference or power cross lie beyond the scope of this TRQ.

The detailed technical parameters of the network maintenance and alerting signals referenced here can be found in the informative references in clause 7.

2 REFERENCED STANDARDS

The following standards contain provisions that, through reference in this text, constitute provisions of this technical requirements document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this document are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.