



***Society of Cable  
Telecommunications  
Engineers***

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**ENGINEERING COMMITTEE  
Interface Practices Subcommittee**

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**AMERICAN NATIONAL STANDARD**

**ANSI/SCTE 03 2003**  
(Formerly IPS TP 007)

**Test Method for Coaxial Cable  
Structural Return Loss**

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## 1.0 SCOPE AND DEFINITIONS

### 1.1 SCOPE

1.1.1 The purpose of this procedure is to provide instructions to measure cable structural return loss (SRL). There are two test methods presented, as the accuracy, ease-of-use, and required test equipment differs for each test method. The two methods, with their major advantages and delinquencies, are described below:

1.1.2 Variable Bridge Method: The return loss of a cable is measured, while varying the impedance of a reflection bridge, until the return loss is minimized. This method requires simple, magnitude only (scalar) measurements, but is subject to errors from the cable connection, and operator skill.

1.1.3 Fixed Bridge Method: The cable impedance as a function of frequency is calculated from a vector (magnitude and phase) return loss. The average of this impedance across the desired frequency range is the "cable reference impedance." The structural return loss is calculated from the cable impedance as a function of frequency and the cable reference impedance. This may be automated, but requires a vector network analyzer, and may be subject to errors due to the cable connection

### 1.2 DEFINITIONS

1.2.1 Structural Return Loss (SRL): The return loss of the cable relative to its own impedance.

1.2.2 Return Loss: The ratio of reflected signal to incident signal, expressed in dB.

1.2.3 Bridge: A device for separating the incident and reflected signals in a return loss measurement.

1.2.4 Network Analyzer: An instrument for measuring the swept frequency response of a cable.