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ENGINEERING COMMITTEE
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Test method for "F" Connector Return Loss

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1.0   SCOPE AND DEFINITIONS

1.1   Scope

The purpose of this document is to provide a test method for measuring return loss of "F" Male Connectors with Cable in the frequency range of 5 MHz to 1002 MHz by utilizing the time domain-gating feature of the network analyzer.

Male "F" connectors that conform to SCTE 123 2006; *Specification for "F" Connector, Male, Feed-Through* or SCTE 124 2006; *Specification for "F" Connector, Male, Pin Type* that are used with 75 ohm flexible RF coaxial cable, such as, but not limited to, ANSI/ SCTE 74; *Specification for Braided 75 ohm Flexible RF Coaxial Drop Cable* shall be utilized.

1.2   Definitions

1.2.1   Gating: Technique for selectively isolating the response of a connector for return loss measurements.

1.2.2   Directivity: The figure of merit for how well a coupler separates forward and reverse waves is directivity. The greater the directivity of the device, the better the signal separation. System directivity is the vector sum of all leakage signals appearing at the analyzer receiver input. The error contributed by directivity is independent of the characteristics of the test device and it usually produces the major ambiguity in measurements of low reflection devices.

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

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

2.0   EQUIPMENT

2.1   Vector Network Analyzer (VNA), with Time Domain capability: Agilent 8753E with option 010 (time domain) and option 075 (75 ohm) or equivalent.

2.2   Type "F" 75-Ohm Calibration Kit, Agilent 85039B or equivalent.

2.3   Flexible Precision Test Cable(s); Agilent-11857B or equivalent.

2.4   Precision type "F" termination, Agilent 85039-6004 or equivalent.

2.5   Flexible RF coaxial cable and "F" male connectors of interest

Figure 1 illustrates a typical test set up.