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Telecommunications
Engineers***

**ENGINEERING COMMITTEE
Interface Practices Subcommittee**

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**Test Procedure for Contact Resistance Measurement of
Mainline Plug Interface**

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1.0 SCOPE

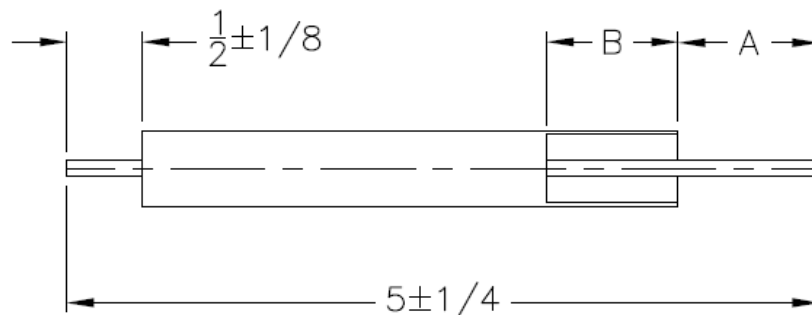
- 1.1 The purpose of this test procedure is to measure the resistance between the contact of the connector and cable interfaces. High resistance contacts may cause excessive energy losses, overheating and possibly common path distortions. It is most desirable to have contact resistance as low as possible.

2.0 TEST SAMPLES

2.1 Sample Preparation

- 2.1.1 Prepare one end of an appropriately sized cable in accordance with the connector manufacturer's instruction. If the cable is jacketed remove all jacket material using the appropriate jacket stripping tool. For QR cables leave the jacket on to facilitate proper coring and preparation.
- 2.1.2 Prepare the remaining cable end to meet the dimensions depicted in Figure 1. Dimensions A and B are the connector manufacturers recommended center conductor protrusion and core depth respectively.

Figure 1



- 2.1.3 Install the connector sample in accordance with manufacturer's instruction.
- 2.1.4 For QR cables, remove the remaining jacket to the back of the connector.

3.0 EQUIPMENT

- 3.1 4-wire resistance measurement device capable of measuring in the micro-ohm to milliohm range. The measurement device should be able to clamp the open circuit test voltage to 20 mV maximum (dry circuit condition) to avoid puncturing surface oxides and films in the connector contact area. Example: Keithley Model 580 Micro-Ohmmeter or equivalent with appropriate clip leads and probes to facilitate stable attachment to the device under test.

4.0 PROCEDURE

- 4.1 Turn on the test equipment and allow an adequate warm-up period in accordance with the equipment manufacturer's instruction. Set the equipment parameters as follows:
 - 4.1.1 Drive- Pulsed (Pulsed drive cancels thermal offsets in the test lead connections and the device under test)
 - 4.1.2 Polarity- + (Positive)
 - 4.1.3 Dry circuit test (20 mV Max.)
 - 4.1.4 Range- 200 m Ω
- 4.2 Null out the test leads in accordance with the test equipment manufacturer's instructions to establish a "zero" baseline reading.
- 4.3 Center conductor resistance measurement
 - 4.3.1 Attach one test lead to the connector center pin within ¼" of the 5/8-24 threaded interface. Attach the remaining test lead to the cable center conductor within ¼" of the cable outer conductor/dielectric. Refer to Figure 2.

Figure 2



4.3.2 Allow reading to stabilize and record the resistance value on the Data Sheet.

4.4 Outer conductor resistance measurement

4.4.1 Attach one test lead to the connector as near to the end of the 5/8-24 threaded interface as practical. Attach the remaining test lead to the cable outer conductor within 1/4" of the conductor back nut. Refer to Figure 3.

Figure 3



4.4.2 Allow reading to stabilize and record the resistance value on the Data Sheet.

5.0 CONDUCTOR RESISTANCE DATA SHEET

Sample Description:		
Equipment used:		
Test conditions:		
Sample #	Center Conductor Resistance, mΩ	Outer Conductor Resistance, mΩ

Comments/Observations:	
Technician:	Date: