Society of Cable Telecommunications Engineers

ENGINEERING COMMITTEE
Interface Practices Subcommittee

AMERICAN NATIONAL STANDARD

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Flexure Method for Drop Cable Conditioning

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1.0 SCOPE

1.1 This test procedure provides a method of flex fatigue for accelerating the degradation of coaxial drop cable in the laboratory environment. The degradation observed, as measured by various performance criteria (shield effectiveness, DC resistance, etc.), is not intended to predict life expectancy of the cable under test (CUT). The test data obtained is for relative comparison purposes only.

2.0 COMPLIANCE NOTATION

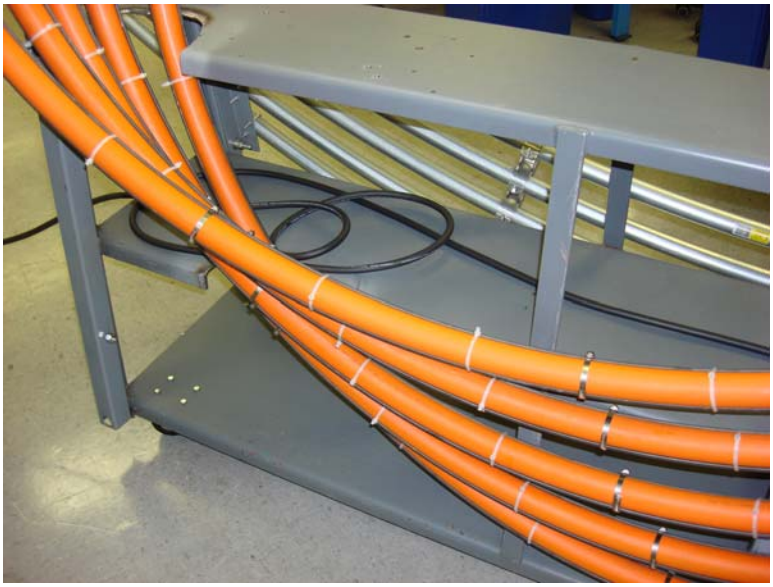
"SHALL"	This word or the adjective "REQUIRED" means that the item is an absolute requirement of this specification.
"SHALL NOT"	This phrase means that the item is an absolute prohibition of this specification.
"SHOULD"	This word or the adjective "RECOMMENDED" means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighted before choosing a different course.
"SHOULD NOT"	This phrase means that there may exist valid reasons in particular circumstances when the listed behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
"MAY"	This word or the adjective "OPTIONAL" means that this item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because it enhances the product, for example; another vendor may omit the same item.

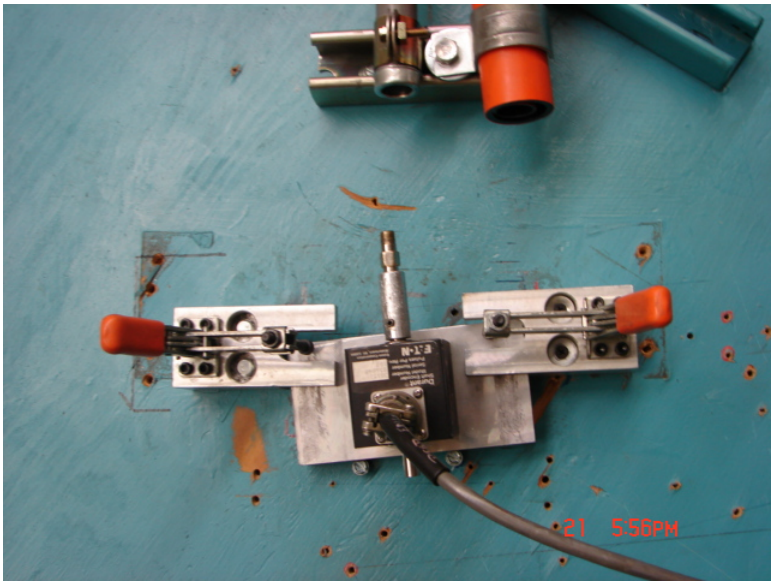
3.0 EQUIPMENT

3.1 Coaxial Cable Flex Tester. The coaxial cable flex tester is to consist of a means to drive or rotate the cables under test and count the number of rotations or flex cycles the CUT is exposed. Device shall be capable of rotating samples under test at a rate of 500 ± 50 rpm.

3.2 Test Sample Profile.

1 1/4" HDPE SDR11 Conduit 1.338 ± 0.0325" (31.75 mm ± 0.83mm) inner diameter, or as necessary for the cable under test. Conduit shall be smooth wall have a low coefficient of friction with the jacket material.
Cables with a diameter of 0.310" or less, may be rotated in a SDR11 conduit of ¾" with an inner diameter of 0.840 ± 0.0156" (21.34mm ± 0.40mm)
Conduit will be fabricated with an appropriate bend radius of 40 inch radius, to simulate aerial cable fatigue. {*Bend is meant to simulate a 3.5% - 4.0% installed sag value, approximately a 40 inch radius*}.





End of sample opposite to the drive portion of the flex tester shall be supported so that the end remains centered during the flexure cycle. This may be accomplished on of several ways: spindle supported in bearing assembly or encoder, or a low-coefficient of friction plug with ability to connect to the CUT during flexure.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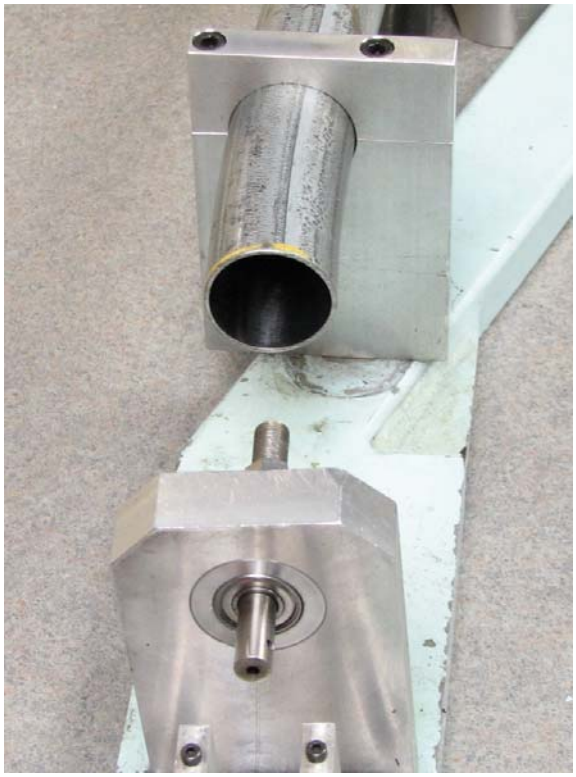

3.3 Connectors and Adapters

3.4 Appropriate Tools (to include, but not limited to):

- 3.4.1 Cable Preparation Tool
- 3.4.2 Crimp Tool / Compression Tool
- 3.4.3 Cable Cutters

4.0 SAMPLE PREPARATION

4.1 Obtain the necessary drop cable samples as required.

4.2 If connectors are not installed on samples prior to conditioning (flexure), prepare one end of the sample using a drop cable stripping tool. Perform connector installation per manufacturer's instructions.

4.3 Install adapters necessary to connect the sample to the drop cable flex-tester.

5.0 TEST PROCEDURE

5.1 For comparison purposes, conduct a base-line test (shield effectiveness, DC resistance, etc.) on a control sample of appropriate length necessary for test fixture.

5.2 Insert CUT into the conduit and connect to the motor shaft adapter. Connect opposite end of CUT to spindle, plug, or other device to maintain sample center during flexure.

5.3 Adjust the preset counter to the desired number of flexures. Typically, samples are conditioned for 5,000 flexures minimum in increments of 5,000 cycles.

5.4 Energize the motor and control panel for the drop cable flex tester.

5.5 Using a built in or hand held tachometer, stopwatch, or a clock; adjust the speed of rotation for 500 ± 50 rpm.

5.6 Remove the coaxial cable sample from the flexure tester after completing the desired conditioning (flexure). CUT must include the center section of the fatigued cable specimen.

5.7 Conduct the appropriate test of interest (shielding effectiveness, DCR, etc.) on the conditioned cable sample.

5.8 Record both the pre and post conditioning test results. Since this test is a relative test comparison, both sets of data from the control sample and CUT are to be compared for analysis.

6.0 DATA RECORDING & ANALYSIS

Flexure Method for Drop Cable Conditioning	
Tester:	Date:
Cable Manufacturer:	
Cable Type/Size:	
Sample No.:	
No. Flexure Cycles:	
RPM:	
Cooled (yes / no):	
Comments:	