Serial ATA
International Organization

Version 1.0
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Serial ATA Interoperability Program Revision 1.1 ETC MOI for Cable Pull-out (Non-Latching and Latching) (MCI-05) Tests

TABLE OF CONTENTS

MODIFICATION RECORD

Revision	Date	Comments
0.10	01/12/06	INITIAL DRAFT RELEASE
0.90	02/23/06	Modified to new format, a number of edits, and some additional tests (cable pull-out) added.
0.92	08/15/06	Minor editorial
0.93	09/05/06	Added MCI-01 Visual and Dimensional inspections and MCI-04 Removal Force (Latching) Modified insertion and remove force and Cable pull out test setup
0.94	09/28/06	Removed MCI-01 to MCI-04 Revised MCI-05 test set up & procedure
0.95	10/18/06	Update title information Added conductor resistance test procedure Modified Pass/Fail Criteria
0.96	10/31/06	Added a photo to show the weight how attached in the bottom of the cable
1.0RC	11/10/06	Approved Release Candidate draft for Rev1.1 program

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INTRODUCTION

The tests contained in this document are organized in order to simplify the identification of information related to a test, and to facilitate in the actual testing process. Tests are separated into groups, primarily in order to reduce setup time in the lab environment, however the different groups typically also tend to focus on specific aspects of device functionality.

The test definitions themselves are intended to provide a high-level description of the motivation, resources, procedures, and methodologies specific to each test. Formally, each test description contains the following sections:

Purpose

The purpose is a brief statement outlining what the test attempts to achieve. The test is written at the functional level.

References

This section specifies all reference material *external* to the test suite, including the specific subclauses references for the test in question, and any other references that might be helpful in understanding the test methodology and/or test results. External sources are always referenced by a bracketed number (e.g., [1]) when mentioned in the test description. Any other references in the test description that are not indicated in this manner refer to elements within the test suite document itself (e.g., "Appendix 6.A", or "Table 6.1.1-1")

Resource Requirements

The requirements section specifies the test hardware and/or software needed to perform the test. This is generally expressed in terms of minimum requirements, however in some cases specific equipment manufacturer/model information may be provided.

Last Modification

This specifies the date of the last modification to this test.

Discussion

The discussion covers the assumptions made in the design or implementation of the test, as well as known limitations. Other items specific to the test are covered here as well.

Test Setup

The setup section describes the initial configuration of the test environment. Small changes in the configuration should not be included here, and are generally covered in the test procedure section (next).

Procedure

The procedure section of the test description contains the systematic instructions for carrying out the test. It provides a cookbook approach to testing, and may be interspersed with observable results.

Observable Results

This section lists the specific observables that can be examined by the tester in order to verify that the DUT is operating properly. When multiple values for an observable are possible, this section provides a short discussion on how to interpret them. The determination of a pass or fail outcome for a particular test is generally based on the successful (or unsuccessful) detection of a specific observable.

Possible Problems

This section contains a description of known issues with the test procedure, which may affect test results in certain situations. It may also refer the reader to test suite appendices and/or other external sources that may provide more detail regarding these issues.

REFERENCES

The following documents are referenced in this text:

[1] Serial ATA Revision 2.5, section 6.1.10.2, Table 5
[2] Serial ATA Interoperability Program Unified Test Document, Revision 1.072, Section 2.6.5
[3] Serial ATA Interoperability Program Policy Document, Revision 1.0
[4] EIA-364-18 Visual and Dimensional Inspection
[5] EIA-364-38 Cable Pull-Out Test Procedure for Electrical Connectors

Test title: MCI-05 Cable Pull-out (Non-Latching and Latching)

Purpose: This test verifies that the cable meets the Cable pull out requirement of the spec, so the cable and SR will not be remove or damage.

References: See main reference section

Resource Requirements:

Cable Clamp Adaptor (TBD, get part number from ECT)
Mass weights 40N in combinations of 10N and 15N metal blocks
Multimeter

Test procedure:

1. Measure and record the each conductor resistance of cable for R1.
2. Tie the weights together to have a total of 40N using approved string material.
3. Securely wrap the other end of the string at a position about 25cm from one connector end of the cable under test. If cable length is not longer than 25cm, securely wrap the other end of the string at the end of the cable under test. (Refer to Fig. 1) (Caution: All wrapping and twist on the cable MUST be reversible so that no damage is incurred on the cable under test after test. The cable is expected to be used for electrical tests if necessary.)
4. Hold the near end of the cable plug with a clamp (Refer to Fig. 2). Let the weight hang in air for 1minute minimum (Refer to Fig. 3).
5. After cable pull-out test, visually examine the connector and cable material for any tension failure.
6. Measure the each conductor resistance of cable for R2. Calculate the value of $\triangle R$ as $\triangle R = R1 - R2$.
   (Test conduction of conductor resistance refer to Fig. 4)

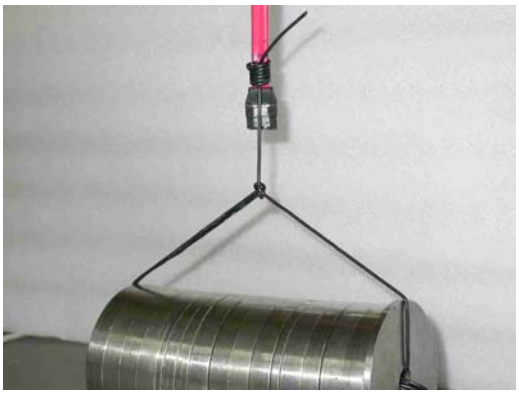


Fig. 1：The condition of hanging the weight in the end of cable

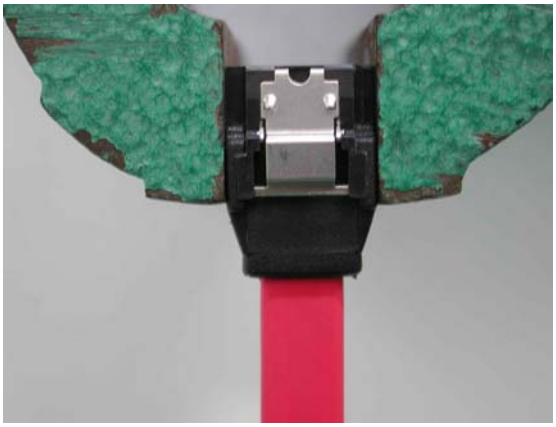

Fig. 2：Hold the near end of the cable plug with a clamp

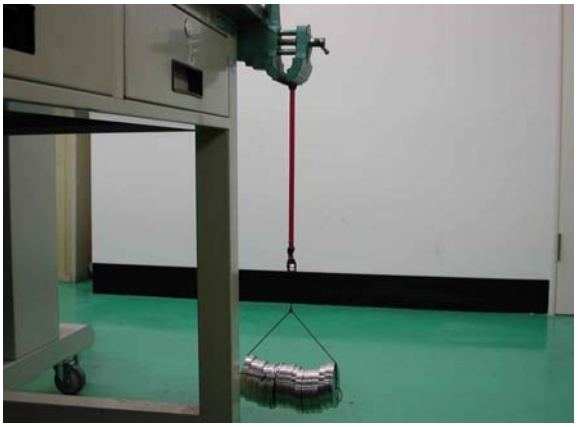

Fig. 3：weight hang in air

Fig. 4：Conductor resistance measurement condition

Pass/Fail Criteria

(1) Visually inspect

- Conductor insulation and conductor damage.
- Cable disengagement from the clamp
- Cable-to-connector seal damage.
- No distortion or bending of metal parts on the connector.

(2) Conductor resistance

The change of conductor resistance of cable between before and after cable pull out test should be below 1Ω. ($\triangle R \leqq 1\Omega$)