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Product Performance Specification
Mini Coaxial Connector

1. Scope

1.1 Content

This specification covers the performance, tests and quality requirements for the Mini Coaxial connector and connector system. This contact is a separable electrical connection device. Variations of this contact can be used with RG316, RG178, or board mounted. All Mini Coaxial contacts are to be used with connector modules.

1.2 Qualification Testing

When tests are performed on subject product line, the following procedures shall be used:
All inspections shall be performed using applicable inspection plans and product drawings. Upon completion of qualification testing, this specification will be assigned a number and be classified, as a Product Qualification Report which will be identified in section 2.

2. Applicable Documents

2.1 Content

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of a conflict between requirements of this specification and product drawing, product drawing will take precedence. In the event of a conflict between requirements of this specification and referenced documents, this specification shall take precedence.

2.2 Documents

A. Standards
- EIA-364
- MIL-STD-1344
- MIL-STD-202

B. Qualification Test Plan
- MET ESL Test Plan #24785

C. Product Qualification Reports
- MET Test Report 34057T-A

D. Product Drawings

Housing
- 510104120
- 510108111

Contacts
- 610103115
- 610103130
- 610103159
- 610104114
- 610104141
- 610104160

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3. Requirements

3.1 Design and Construction

Product shall be of design, construction and physical dimensions specified on applicable product drawings.

3.2 Materials

A. Female Contact
- Shield: brass with gold over nickel plating per MIL-DTL-45204D
- Center Conductor: beryllium copper with gold over nickel plating per MIL-DTL-45204D
- Dielectric: polytetrafluoroethylene

B. Male contact
- Shield: brass with gold over nickel plating per MIL-DTL-45204D
- Center Conductor: brass with gold over nickel plating per MIL-DTL-45204D
- Dielectric: polytetrafluoroethylene

C. Housing
- Black PPS

3.3 Ratings

A. Impedance
- 50 Ohms

B. Frequency Range
- 0 – 1 GHz for crimp and PCB mount contacts
- 0 – 2 GHz for solder sleeve contacts

C. Temperature
- -50^{o}C to +105^{o}C

3.4 Performance and Test Description

Product is designed to meet electrical, mechanical, and environmental requirements specified in Figure 1. Unless otherwise specified, all tests should be performed at ambient environmental conditions.

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3.5 Test Requirements and Procedures Summary

	Test Description	Requirement	Procedure
Preliminary	Examination of Product	Meets requirements of product drawing	Visual, dimensional, and functional examination per applicable quality inspection plan
Electrical	Initial Contact Resistance	≤ 5 mΩ	Measure with digital Ohmmeter using 4 wire terminal method
	Current Rating	Resistance < 10 mΩ at 500mA	Apply a current from a DC power source and measure final contact resistance
	Dielectric Breakdown	Current leak ≤ 20 mA	1500 VDC between pins in a module for no less then 60 seconds
	Insertion Loss	Loss < 1.2dB	Apply an arbitrary signal to mated contacts using a 1 GHz frequency generator and compare attenuation at input and output
	Impedance	Impedance within 50 Ω ± 5%	Measure with digital impedance meter.
	Crosstalk	≤ -60dB	Measured at 500 MHz between adjacent pins
	VSWR	≤ 1.1 (crimp and solder) ≤ 1.445 (PCB)	Measured with a network analyzer
	Frequency Range	DC to 1 GHz (crimp and PCB) DC to 2 GHz (solder)	Measured with a network analyzer
Mechanical	Durability	See Test Sequence: Figure 2	EIA-364-9: Mate and unmate sample for 20000 cycles
	Mating Force	≤ 24 oz. force per contact	EIA-364-13: Measure force necessary to mate samples at a normal rate of engagement of the ITA
	Unmating Force	≤ 24 oz. force per contact	EIA-364-13: Measure force necessary to unmate samples at a normal rate of disengagement of the ITA

Figure 1. Test Requirements and Procedure Summary

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3.6 Product Qualification and Requalification Test Sequence

Test or Examination	Test Group		
	I	**II**	**III**
Examination of Product	1	1	1, 5
Termination Resistance	2, 8		2
Current Rating			3
Voltage Breakdown			4
Frequency Range		3	
Impedance		4	
Crosstalk Measurement		5	
VSWR		2	
Durability	5		
Mating Force	3, 7		
Unmating Force	4, 6		

Figure 2. Test Sequence

Numbers indicate the sequence in which the tests are performed. For test group sample selection see 4.1 A.

4. Quality Assurance Provisions

4.1 Qualification Testing

A. Sample Selection

Samples shall be prepared in accordance with applicable instruction sheets and shall be selected at random from current production. All test groups shall each consist of a minimum of 2 connectors per module and an equal number of mating connectors and modules.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

4.2 Requalification Testing

If changes significantly affecting form, fit or function are made to product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of original testing sequence as determined by development/product and quality engineering

4.3 Acceptance

Acceptance is based on verification that product meets requirements of Figure 1. Failures attributed to equipment, test set-up or operator deficiencies shall not disqualify product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

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4.4 Quality Conformance Inspection

A Certificate of Conformance (C of C) dimensional inspection must be completed for all samples prior to Qualification testing. The applicable quality inspection plan will specify sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with applicable product drawing and this specification.

Rev	Date	Rev Change	Prepared By
1	4/9/08	Original Release	Eric Husted
2	10/21/08	Updated	Eric Husted
3	9/22/09	Updated	Eric Husted
4	11/16/09	Updated	Eric Husted
5	12/16/09	Added PCB Mount Contact	Eric Husted

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