SMA Jack Connector

Part No. 60380 (O.D. 1.13) / 60381 (O.D. 1.37)

Product Specification

Qualification Test Report No. TR-25019

1	S25294	July 14, 2025	T. Takuno	-	K. Yufu
0	S25131	March 21, 2025	T. Takuno	-	K. Yufu
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Scope

This product specification defines the test conditions and the performances of the SMA Jack Connector

2. Product Name and Parts No.

2.1 Product Name

SMA Jack Connector

2.2 Parts No.

SMA Jack : 60380 (O.D. 1.13) / 60381 (O.D. 1.37)

3. Rating

3.1 Applicable Cable

3.1.1 φ1.13 Cable

(1) Structure

Inner conductor: AWG#32(7/0.083),Silver plated copper wire
Dielectric core: Fluoro-plastics, diameter 0.753±0.03mm
Outer conductor: Braid, diameter 0.96mm, tin plating copper wire
Jacket: Fluoro-plastics, diameter 1.15±0.05mm

(2) Requirements

Characteristic impedance : 50±2Ω by TDR method
Nominal capacitance (Reference value): 98 pF/m
Insulation resistance: 2500 MΩ・km

3.1.2 φ1.37 Cable

(1) Structure

Inner conductor: AWG#30(7/0.105),Silver plated copper wire
Dielectric core: Fluoro-plastics, diameter 0.925±0.03mm
Outer conductor: Braid, diameter 1.15mm, tin plating copper wire
Jacket: Fluoro-plastics, diameter 1.37±0.05mm

(2) Requirements

Characteristic impedance : 50±2Ω by TDR method
Nominal capacitance (Reference value): 98 pF/m
Insulation resistance: 2500 MΩ・km

3.2 Operating Conditions

Voltage: 60V AC (per contact)
Operating temperature: 233 to 363K(-40℃ to 90℃) (Containing temperature rise by current)
Tightening torque: 7~10 in-lbs (0.79~1.13N-m)

3.3 Storage Conditions

Storage temperature: 248 to 333K(-25℃ to 60℃)
Storage humidity: 85% max. (Non-condensing)

4. Test and Performance

Test Condition

Unless otherwise specified, all tests and measurements shall be performed.
under the following conditions in accordance with MIL-STD-202.

Temperature: 288K to 308K(15℃ to 35℃)
Pressure: 866hPa to 1066hPa (650mmHg to 800mmHg)
Relative humidity: 45 to75% R.H.

4.1. Electrical Performance

1. Contact resistance	
Reference standard:	MIL-STD-202-307
Test conditions:	Mate the SMA Jack and Plug connector together, then apply 20mV MAX. DC open circuit voltage and 10mA MAX. DC closed circuit current. Measure the contact resistance of Inner and Outer conductor at the section shown in Fig.1 by the four terminal methods.

Contact resistance of Inner conductor (A-C) = (B-D) – (A-B) – (C-D)
Contact resistance of Outer conductor (E-G) = (F-H) – (E-F) – (G-H)

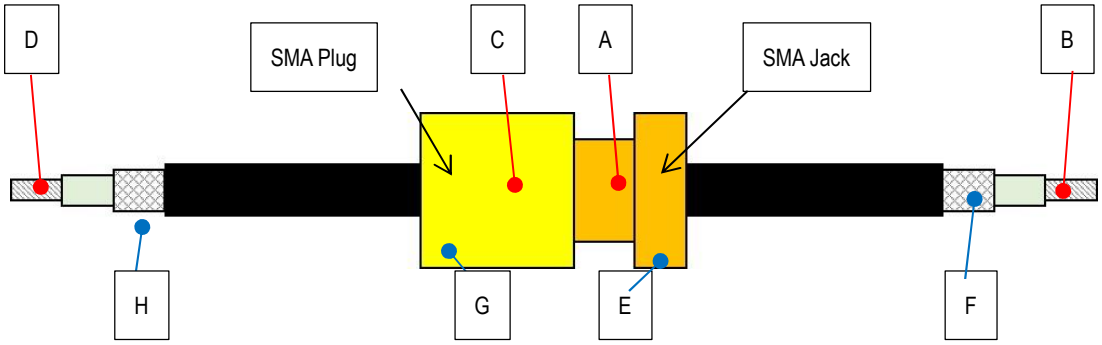


Fig.1

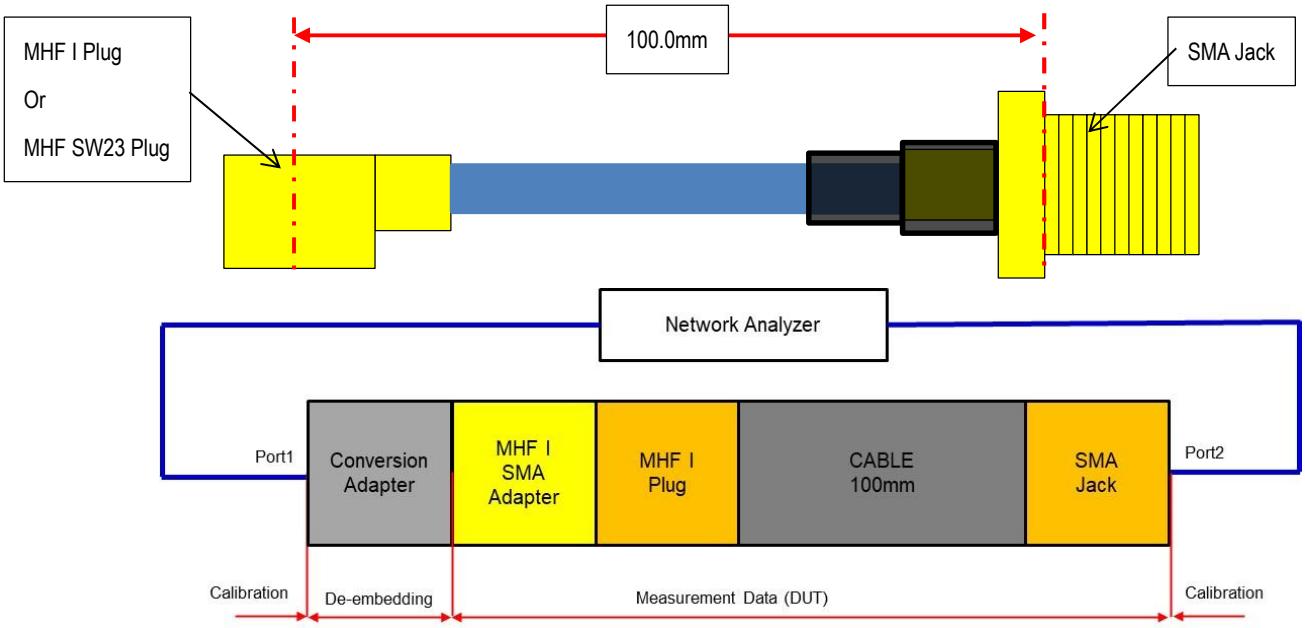
Pass criteria:	Contact resistance of Inner conductor Initial: 3 mΩMAX. Contact resistance of Outer conductor Initial: 2 mΩ MAX.

2. Insulation resistance	
Reference standard:	MIL-STD-202-302, Test condition A
Test conditions:	Mate the SMA Jack and Plug connecter together, and then apply DC 100 V between the inner contact and the ground contact.
Pass criteria:	Initial: 500 MΩ MIN.

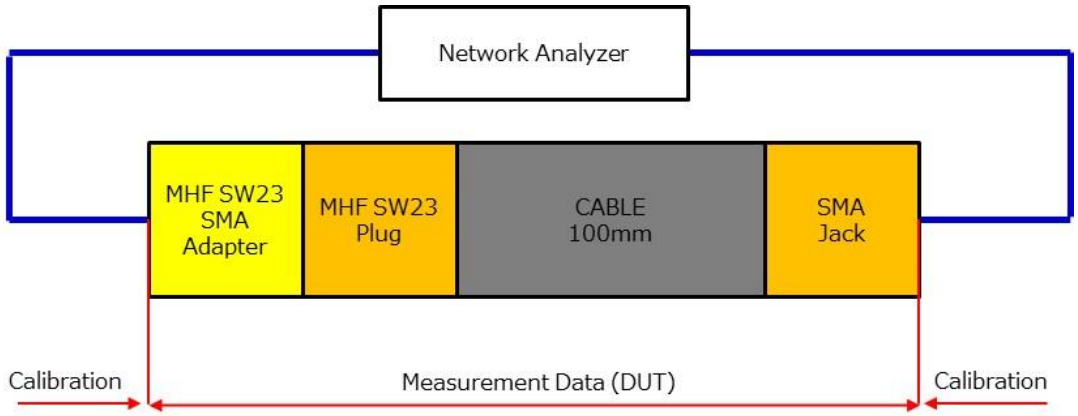
3. Dielectric withstanding voltage	
Reference standard:	MIL-STD-202-301
Test conditions:	Mate the SMA Jack and Plug connecter together, then apply AC 200V(rms) between the neighboring contacts for a minute.
Pass criteria:	No abnormalities such as creeping discharge, flashover, insulator breakdown occur.

4.1. Electrical Performance

4. VSWR	
Reference standard:	-
Test conditions:	Measure VSWR by network analyzer as shown in Fig. 2. Frequency: 100 MHz ~ 9.00 GHz Cable length: 100mm ※MHF I Plug or MHF SW23 Plug wired together



MHF I - SMA Jack Harness Measurement Method



MHF SW23 - SMA Jack Harness Measurement Method

Fig.2

Pass criteria:	MHF I – SMA Jack 100mm Harness 0.1～3.00GHz 1.40 MAX. 3.01～6.00GHz 1.60 MAX. 6.01～9.00GHz 1.90 MAX. MHF SW23 – SMA Jack 100mm Harness 0.1～3.00GHz 1.50 MAX. 3.01～6.00GHz 1.60 MAX. 6.01～9.00GHz 2.00 MAX.

4.2. Mechanical Performance

1. Durability	
Reference standard:	-
Test conditions:	Mate the SMA Jack and Plug 500 times. When mating, use a torque wrench to tighten the screws with a force of 0.9 N・m.
Pass criteria:	Contact resistance: Shall meet4.1.1

2. Shock	
Reference standard:	MIL-STD-202-213, Test condition A.
Test conditions:	Mate the SMA Jack and Plug connecter together, and place them on the shock machine. Then apply the following shock. MAX.G: 50G Duration: 11msec Wave Form: Half Sinusoidal Directions: 6 mutually perpendicular direction Cycle: 3 cycles each direction
Pass criteria:	Contact resistance: Shall meet 4.1.1. Electrical discontinuity: No electrical discontinuity greater than 1μs shall occur. Appearance: No abnormality adversely affecting the performance shall occur.

3. Cable retention force	
Reference standard:	-
Test conditions:	Place SMA Jack connector on the push-on/pull-off machine and pull the cable along the cable axis at a speed 25±3mm/min. Measure the force when the discontinuity occurs.
Pass criteria:	20 N MIN.

4.3. Environmental Performance

1. Saltwater spray	
Reference standard:	MIL-STD-202-101, Test condition B.
Test conditions:	Mate the SMA Jack and Plug connecter together, and expose them to the following environment. Temperature: 308±2K (35±2℃) Saltwater density: 5±1% [by weight] Duration: 48 hours
Pass criteria:	Contact resistance: Shall meet 4.1.1. Appearance: No abnormality adversely affecting the performance shall occur.

4.5 Test Sequence and Specimen Quantity

Details of the Testing Groups A to G are indicated in test report.

Table.1 Test Sequence and Sample Quantity

No.		Test Item	Testing Groups						
			A	B	C	D	E	F	G
4.1 Electrical Performance	1	Contact resistance				1,3	1,3		1,3
	2	Insulation resistance	1						
	3	Dielectric withstanding voltage		1					
	4	VSWR			1				
4.2 Mechanical Performance	1	Durability				2			
	2	Shock					2		
	3	Cable retention force						1	
4.3 Environmental Performance	1	Saltwater spray							2
Specimen quantity			5	5	5	5	5	5	5

※Numbers indicate test sequences.