Product specification

1. Scope

This specification applies to the RF Connector, specifying the product's performance indicators, test methods and test requirements.

Applicable Product Models: SMA series.

2. Applicable Standards

The following documents form a part of this specification. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

3. Parameter Range

Parameter Name	Value & Unit
Product Examination	50 Ω
Rated Voltage	335V
Operating Temperature Range	-40 ℃ ~+125 ℃

4. Appearance and Dimensions

4.1 Appearance：The product surface shall be free from defects, dirt, cracks and mechanical damage. Contacts shall be free from rust, oxidation or plating peeling.

4.2 Appearance and dimensions shall comply with the requirements of product drawings.

4.3 Exchangeable: Exchangeable with same specification products.

5. Materials

Materials used in the construction of this product shall be as specified on the applicable product drawing.

6. Test Requirements and Procedures Summary

Serial No.	Item	Test Method	Technical Requirements

1	Examination of Product	Visual inspection	Meet the drawing requirements, no damage or abnormality in visual appearance
Electrical Requirement			
2	Nominal Impedance	Test Environment: 25±5℃, 45%~75% RH.Test Frequencies: 1MHz (reference) + maximum operating frequency 10GHz Instrument:High-precision impedance analyzer / milliohm meter (accuracy ±0.1Ω) Wiring: 4-terminal measurement to eliminate lead resistance effects. (MIL-PRF-39012, paragraph 3.1)	50 Ω
3	Voltage Standing Wave Ratio (VSWR)	Test Environment: 25±5℃, 45%~75% RH. Instrument: Vector Network Analyzer (VNA, accuracy ±0.05dB).Calibration: SOLT (Short-Open-Load-Through) calibration to the connector interface.Sweep Parameters: DC~10GHz, ≥1001 points, ≥3 averages.Requirement: Test fixture VSWR ≤1.05 (test band), with de-embedding applied（IEC 61169-1, paragraph 9.2.1）	VSWR≤1.20.（DC~10GHz）
4	Contact Resistance	Test Environment: 25±5℃, 45%~75%RH. Instrument:4-terminal milliohm meter (accuracy ±0.1mΩ).est Conditions: 100mA DC test current, open-circuit voltage ≤20mV.Test Points: Center conductor at mating interface, outer conductor at threaded engagement.Stabilization Time: Record reading after stabilization (typically ≥5 seconds). (IEC 61169-1 Clause 9.2.3)	Center Conductor：5 mΩ Max. Outer Conductor：2.5 mΩ Max.

5	Insulation Resistance	Test Environment: 25±5℃, 45%~75% RH. Instrument: Insulation resistance tester (accuracy ±10%).Test Voltage: 500V DC.Charge Time: Hold voltage for 1 minute before reading.Test Location: Between center conductor and outer conductor. (Per IEC 61169-1 Clause 9.2.5)	Insulation Resistance ≥1000 MΩ
6	Dielectric Withstand Voltage	Relative humidity: 50% Max. Voltage source: AC (60Hz) Rate of voltage: approximately 500 V/sec. Testing time : 60 seconds(at sea level). Smoothly ramp up to 750V RMS. Reduce test voltage by 1% per 300m altitude increase. (IEC 61169-1, paragraph 9.2.6)	No breakdown, no arcing, no sudden leakage current increase
Mechanical Characteristics			
7	Durability	Test Environment: 25±5℃, 45%~75% RH. Instrument: Automatic insertion and extraction tester.Test Conditions: 10~15 cycles per minute, full engagement (torqued to specification) and full separation each cycle. (Per IEC 61169-1 Clause 9.3.15)	500 cycles Min. No cracks, deformation, or part loss; contact resistance and VSWR remain within specification.
Environmental Performance			
8	Temperature cycling	One cycle consists of -40±3℃ 30min,room temp 10-15min 125±3℃ 30min,room temp 10-15min Total cycle :5cycle. (MIL-STD-202, Method 105)	No evidence of damage. Contact Resistance and Insulation Resistance shall meet the requirements of the applicable product drawing.

9	Salt Spray	Test Environment: 35±1℃, 95%~98% RH. Salt Solution: 5%±1% sodium chloride solution, pH 6.5~7.2 (at 25℃).Spray Mode: Continuous spray, settlement rate 1.0~2.0 mL/(80cm²·h).Test Duration: 48 hours. Instrument: Salt spray test chamber. Rinse with clean water and dry after test, visual inspection for defects. (MIL-STD-202,Method101,Test Condition B)	No evidence of corrosion and pitting. No exposure of the base metal on the interface or mating surface.
10	Moisture Resistance Test	Cycle Program: 25℃ for 3 hours → 65℃, 95% RH for 3 hours (1 cycle).Number of Cycles: 10 cycles total (60 hours).Final Hold: Maintain at 50℃, 95% RH for 24 hours after last cycle.Instrument: Constant temperature and humidity test chamber. Recover for 2 hours under standard conditions, test electrical properties immediately. (MIL-STD-202, Method 106)	No evidence of damage. Contact Resistance and Insulation Resistance shall meet the requirements of the applicable product drawing.