PRODUCT SPECIFICATION

NO.SPEC-ANC-4003

MHF series micro coaxial connector

（Product NO. ANC0**-4*1）**

	APPROVED	CHECKED	PREPARED	ISSUED BY :
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***** REVISION HISTORY *****

Rev.	Date	Revision Page No.	Notes
A	**2019-01-08**	**New Reversion**	初次发行
B	**2020-06-05**	修改参数	
C	**2022-10-17**	修改参数	
D			
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1. Scope

Micro series micro coaxial connector is a wire to board connector for RF IV 1.13 coaxial cable.

2. Objectives

This specification covers the requirements for product performance and test methods of MHF series micro coaxial connector.

3. Part No.，construction，material and finish

（1）Part No. Plug：ANC01131-4*1，Receptacle：ANB0150*-411

（2）Construction，material and finish of the connector are covered as each drawing.

4. Applicable cable

4-1 Part No. ANC01131-4*1

（1）Description

Inner conductor ：AWG#32（7/0.05）

Silver plating annealed copper wire or silver plating tin-copper alloy

Dielectric core：Fluoro-plastics，diameter 0.68（+0.04，-0.02）mm，nominal thickness 0.22mm

Outer conductor：8/5/0.05，nominal diameter 0.93mm，silver plating annealed copper wire

Jacket：Fluoro-plastics，diameter 1.13（+0.08，-0.05）mm，nominal thickness 0.1mm

（2）Requirements

Characteristic impedance：50（+2，-2）ohm by TDR method

Nominal capacitance（Reference value）：97 pF/m

Conductor resistance of inner conductor at 293K（20℃）（Reference value）：520 ohm/km

Insulation resistance：1500 mega-ohm.km MIN.

Dielectric withstand voltage：no breakdown at AC 500V for 1 minutes.

4-2 Part No. ANC0081*-431

（1）Description

Inner conductor ：AWG#36（7/0.05）

Silver plating annealed copper wire or silver plating tin-copper alloy

Dielectric core：Fluoro-plastics，diameter 0.4（+0.04，-0.02）mm，nominal thickness 0.125mm

Outer conductor：8/5/0.05，nominal diameter 0.65mm，silver plating annealed copper wire

Jacket：Fluoro-plastics，diameter 0.81（+0.04，-0.02）mm，nominal thickness 0.1mm

（2）Requirements

Characteristic impedance：50（+2，-2）ohm by TDR method

Nominal capacitance（Reference value）：96 pF/m

Conductor resistance of inner conductor at 293K（20℃）（Reference value）：1400 ohm/km

Insulation resistance：1000 mega-ohm.km MIN.

Dielectric withstand voltage：no breakdown at AC 1000V for 1 minutes.

5.Ratings

Rated voltage	AC60Vrms
Nominal characteristic Impedance	50 ohm
Frequency	DC~8GHz
VSWR	Plug：0.1~3GHZ 1.3Max 3~6GHZ 1.5Max 6~8GHZ 1.6Max Receptacle： 0.1~3GHZ 1.3Max 3~6GHZ 1.4Max 6~8GHZ 1.5Max
Service Temperature	233K~363K(-40℃~90℃)

6. Test and Performance

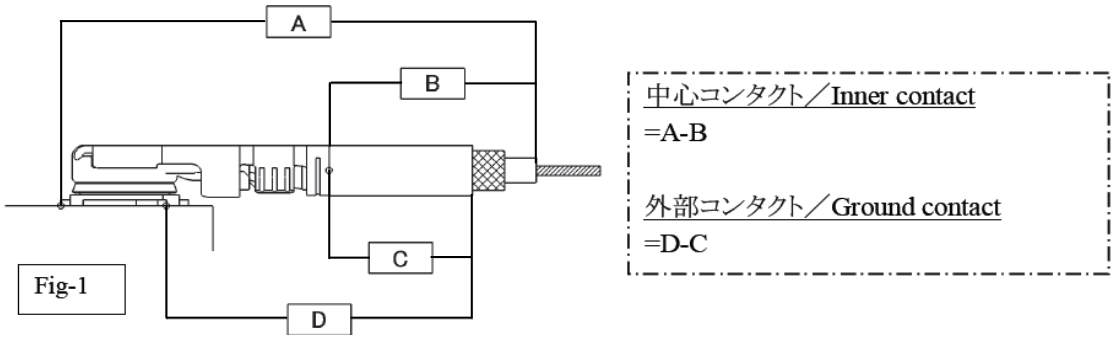
Test Condition

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

Temperature -----288K~308K(15℃~35℃)

Humidity ------45~75%R.H.

6-1 Electrical Performance

NO	Item	Test conditions	Specifications
1	Contact resistance	Subject the receptacle connector to the test board and mate the plug connector together , then measure the contact resistance as shown in Fig.1 by the four terminal method. Apply the low level condition in accordance with MIL-STD-202G, Method307. Open circuit voltage：20mV MAX Circuit current：10mA MAX (DC or AC1kHz) Contact resistance of Inner contact=A-B Contact resistance of Ground contact=D-C	Contact resistance of inner contact Initial: 20 mΩ Max. After testing: △R20 mΩ Max. Contact resistance of Ground contact Initial: 20 mΩ Max. After testing: △R20 mΩ Max.
	Fig1  		
2.	Insulation Resistance	Mate the receptacle and plug connector together, and then apply DC 100V between the inner contact and the ground contact in accordance with MIL-STD-202G, Method 302.	Initial :500MΩ MIN After testing :100 MΩ MIN

NO	Item	Test conditions	Specifications
3	Dielectric Withstanding Voltage	Mate the receptacle and plug connector together, and then apply AC 200V rms between the inner contact and the ground contact for a minute in accordance with MIL-STD-202G, Method 301.	No creeping discharge, flashover, no insulator breakdown shall occur.
4.	VSWR	Measure the VSWR as shown in Fig2 by the network analyzer. Frequency: 100M~8GHz	1.3MAX. at 0.1~3GHz 1.5MAX .at 3~6GHz 1.6Max .at 6~8GHz

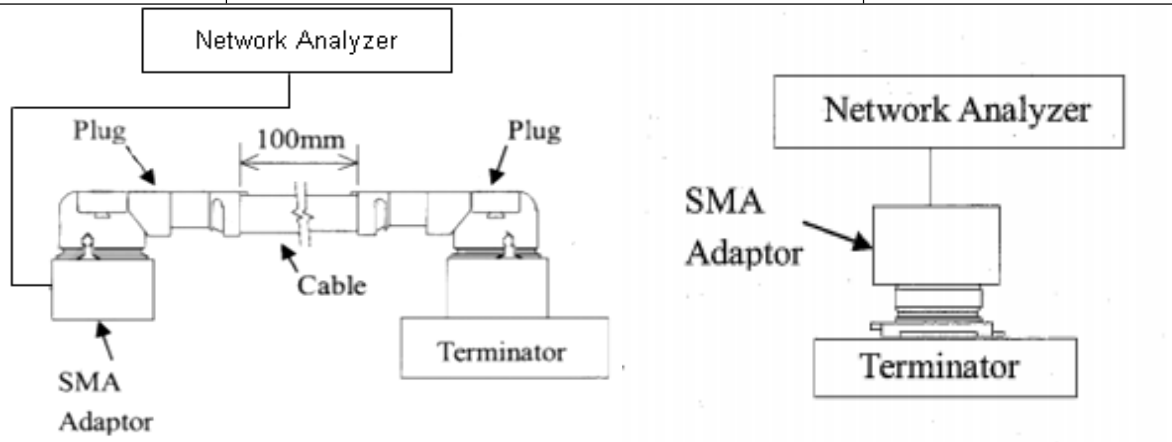
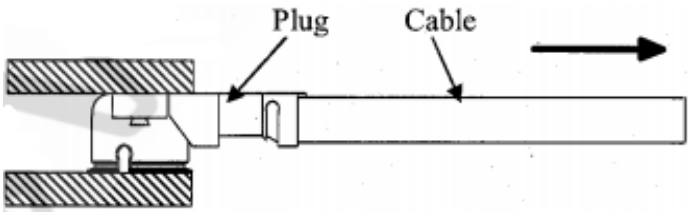
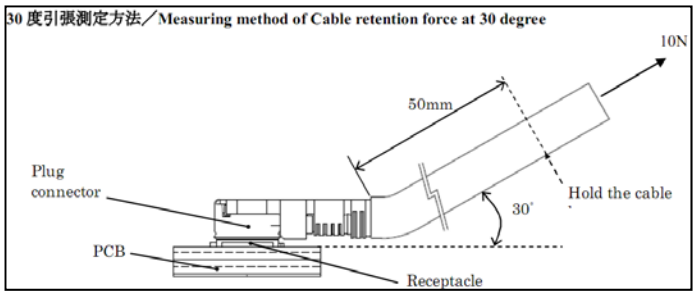
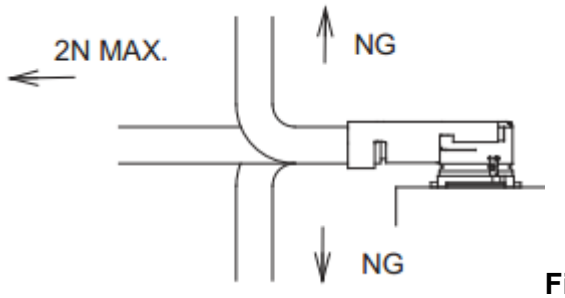


Fig2

6-2 Mechanical Performance

NO	Item	Test conditions	Specifications
1	Mating Force And Un-mating Force	Solder the receptacle connector to the test board, then place the board and plug on push-on/pull-off machine, measure of initial and mating/un-mating 30 cycles at a speed 25±3mm/min. along the mating axis.	Mating Initial ： 30 N Max. 30cycles： 30 N Max. Total un-mating force Initial :5N Min. After 30 cycles:3N Min Un-mating force of inner contact Initial :0.15N Min. After 30 cycles:0.10N Min.
2	Cable retention force at 0 degree	Mate Plug with Receptacle and pull the Φ1.13 cable by 15N force toward horizontal direction. (Fig.3-1) In case of Φ 0.81 cable strength should have more than 10N	15N Min (Φ1.13) ← C 10N Min (Φ0.81)
		 Fig.3-1	
	Cable retention force at 30 degree	Mate Plug with Receptacle and tilt cable by 30 degree and pull the cable by 10N force with 10 cycles toward arrowhead direction. (Fig.3-2)	10N MIN
		 Fig.3-2	

3	Durability	Mate and un-mate the receptacle connector(soldered to the test board) and plug connector 30 cycles at speed 25±3 mm/minutes along the mating by the push-on / pull–off machine.	[Appearance] No abnormality [Contact Resistance] Shall meet 6.1.1

NO	Item	Test conditions	Specifications
4	Contact resistance with force on the cable	Apply force on the cable as shown in Fig4 During the testing, run 100mA DC to check electrical discontinuity.	[Appearance] Looseness between the parts, chipping, breakage or other abnormality shall not occur. [Electrical discontinuity] No electrical discontinuity grater than 1μs shall occur. [Contact Resistance] Shall meet 6.1.1
	 **Fig.4**		
5	Vibration	Apply the following vibration to the mating connector. During the testing, run 100mA DC to check electrical discontinuity. Frequency: 10Hz →100 Hz →10Hz/approx 20 minutes. Half amplitude, Peak value of acceleration : 1.5mm or 59m/s²(6G) Directions, cycle: 3 mutually perpendicular direction, 5 cycles about each direction.	[Appearance] Looseness between the parts, chipping, breakage or other abnormality shall not occur. [Electrical discontinuity] No electrical discontinuity grater than 1μs shall occur. [Contact Resistance] Shall meet 6-1-1

6	Shock	Apply the following vibration to the mating connector. During the testing, run 100mA DC to check electrical discontinuity. Peak value of acceleration: 735 m/s²(75G) Duration :11msec Wave Form :half sinusoidal Direction, cycle : 6 mutually perpendicular direction, 3cycle about each direction.	［Appearance］ Looseness between the parts, chipping, breakage or other abnormality shall not occur. ［Electrical discontinuity］ No electrical discontinuity grater than 1μs shall occur. ［Contact Resistance］ Shall meet 6-1-1

6-3 Environmental Performance

NO	Item	Test conditions	Specifications
1	Thermal Shock	Apply the following environment to the mating connector in accordance with MIL-STD-202G,Method 107G, Condition A. Temperature ： 218K (-55℃) →358K(85℃)： 30min Transition time ： 5min. MAX No. of cycles ： 5 cycles	［Appearance］ Looseness between the parts, chipping, breakage or other abnormality shall not occur. ［Contact Resistance］ Shall meet 6-1-1 ［Insulation Resistance］ Shall meet 6-1-2
2	Humidity (Steady State)	Apply the following environment to the mating connector in accordance with MIL-STD-202G,Method 103, Condition B. Temperature ： 313±2K (40±2℃) Humidity ： 90～95%RH Duration ： 96 hours	［Appearance］ Looseness between the parts, chipping, breakage or other abnormality shall not occur. ［Contact Resistance］ Shall meet 6-1-1 ［Insulation Resistance］ Shall meet 6-1-2.
3	Salt Water Spray	Apply the following environment to the mating connector in accordance with MIL-STD-202G,Method 101E, Condition B. Temperature ： 308±2K (35±2℃) Salt water density ： 5±1%(by weight) Duration ： 48 hours	［Appearance］No abnormality Adversely affecting the performance shall occur.

4	High **Temperature** Life	Apply the following environment to the mating connector Temperature : 363±2K (90±2℃) Duration : 96 hours	［Appearance］ Looseness between the parts, chipping, breakage or other abnormality shall not occur. ［Contact Resistance］ Shall meet 6-1-1

6-4 Soldering

NO	Item	Test conditions	Specifications
1	Solder ability	Dip the solder tine of the contacts in the solder bath at 518±5K(245±5℃) for 5±0.5seconds after immersing the tine in the flux of RMA type for 5 to 10 seconds in accordance with MIL-STD-202,Method 208.	More than 95%of the dipped surface shall be evenly wet .
2	Soldering Heat Resistance	Put on the receptacle connector to PCB, apply the heat 2 cycles as shown in Fig.5	［Appearance］No abnormality Adversely affecting the performance shall occur.

Fig.5

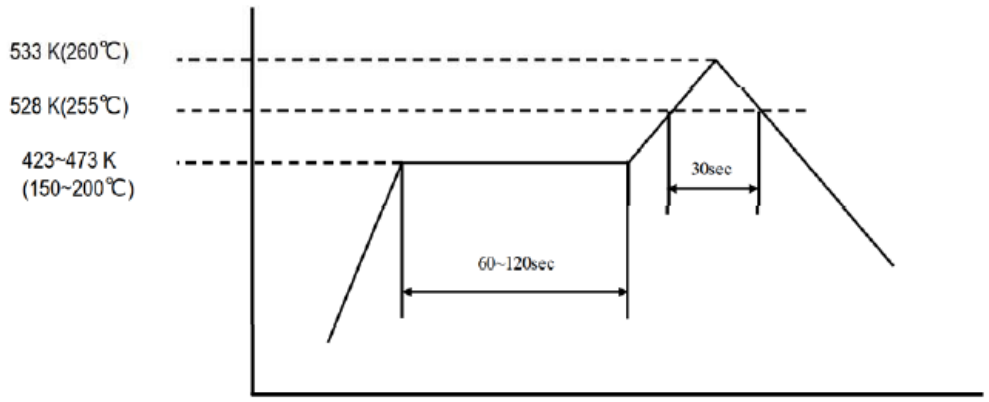


Table II: Test Sequence and Sample Quantity

Test: Measurement or Examination	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1.Contact Resistance				1,3	1,3	1,3	1,3	1,5	1,5	1,3	1,3	1,3		
2.Insulation Resistance								2,6	2,6					
3.Dielectric Withstanding Voltage								3,7	3,7					
4.VSWR	1													
5.Un-mating force		1												
6.Cable retention force			1											
7.Durability				2										
8.Contact resistance with force on the cable					2									
9.Vibration						2								
10.Shock							2							
11. Thermal Shock								4						
12. Humidity									4					
13. Salt Water Spray										2				
14. High Temperature Life											2			
15. Solder ability												2		
16.Soldering Heat Resistance													1	
Sample QTY.	10	10	10	10	10	10	10	10	10	10	10	10	10	10