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PRODUCT SPECIFICATION

NO.SPEC-ANC-1001

MHF series micro coaxial connector
(Product NO. AN CZ113*-1**)

	APPROVED	CHECKED	PREPARED	ISSUED BY :
By	Wesley.wang	Roy.Duan	Roy.Duan	
Date	2020-06-05	2020-06-05	2020-06-05	

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***** **REVISION HISTORY** *****

Rev.	Date	Revision Page No.	Notes
A	2011-06-18	New Reversion	初次发行
B	2020-06-05	修改参数	
C			
D			
E			
F			
G			
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1. Scope

Micro series micro coaxial connector is a wire to board connector for RF I 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: ANCZ113*-1**, Receptacle: ANB0200*-12*
- (2) Construction, material and finish of the connector are covered as each drawing.

4. Applicable cable

4-1 Part No. ANCZ113*-1**

(1) Description

Inner conductor : AWG#32 (7/0.08)

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 (+0.04, -0.02) 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°C) (Reference value) : 520 ohm/km

Insulation resistance: 1500 mega-ohm.km MIN.

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

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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°C~90°C)
Storage condition	Tempereature:248K~333K(-25°C~+60°C) Humidity:85% MAX.(No condensation)

6. Test and Performance

Test Condition

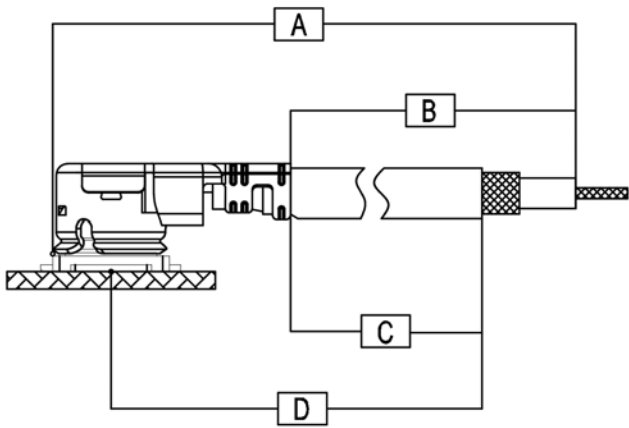
Unless otherwise specified, all tests and measurements shall be performed under the following condition in accordance with MIL-STD-202G.

Temperature -----288K~308K(15°C~35°C)

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

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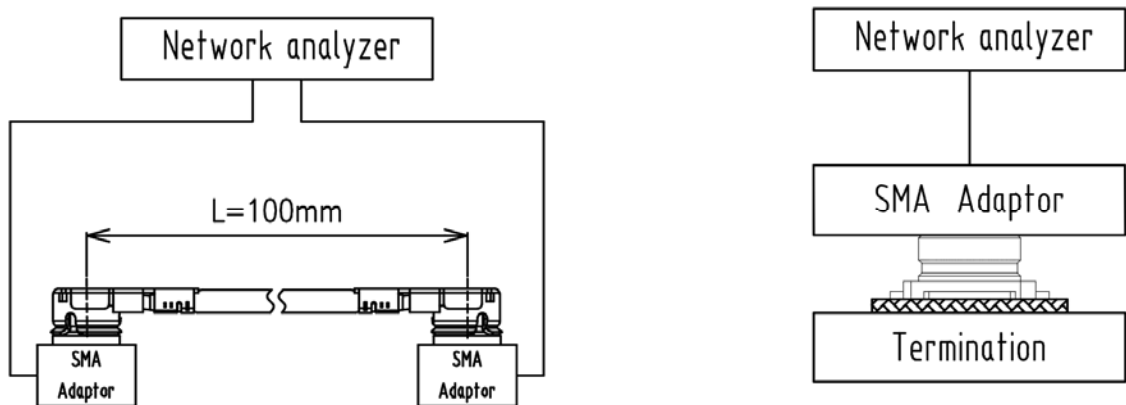
6-1 Electrical Performance

NO	Item	Test conditions	Specifications
1	Contact resistance	<p>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.</p> <p>Open circuit voltage: 20mV MAX Circuit current :10mA MAX (DC or AC1kHz)</p> <p>Contact resistance of inner contact Contact resistance of Inner contact=A-B</p> <p>Contact resistance of Ground contact=D-C</p>	<p>Contact resistance of inner contact Initial: 20 mΩ Max. After testing: 25 mΩ Max.</p> <p>Contact resistance of Ground contact Initial: 10 mΩ Max. After testing: 15 mΩ Max.</p>
<p>Fig.1</p> 			
2.	Insulation Resistance	<p>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.</p>	<p>Initial :500MΩ MIN After testing :100 MΩ MIN</p>

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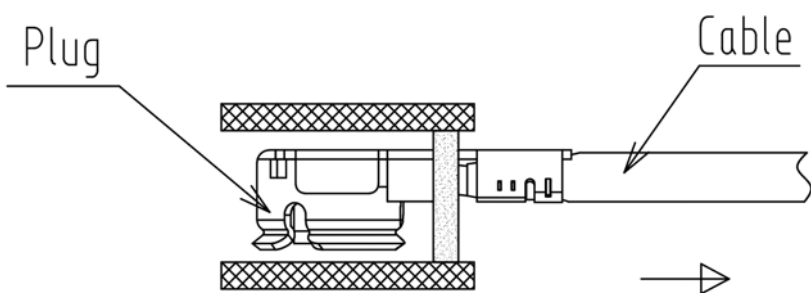
NO	Item	Test conditions	Specifications
3	Dielectric Withstanding Voltage	Mate the receptacle and plug connector together, and then apply AC 200V rms between the inner contact and the ground contact for a minute in accordance with MIL-STD-202G, Method 301.	No creeping discharge, flashover, no insulator 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

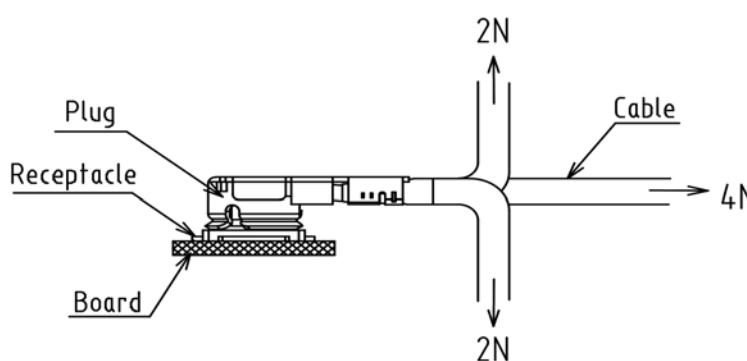


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6-2 Mechanical Performance

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 ± 3 mm/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	Crimp strength	Pull the cable as shown in Fig3 at speed 25 ± 3 mm/minutes by tensile strength machine.	15N Min.
<p>Fig.3</p> 			
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

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N O	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 $1\mu\text{s}$ shall occur. [Contact Resistance] Shall meet 6.1.1
<p>Fig.4</p> 			
5	Vibration	Apply the following vibration to the mating connector. During the testing, run 100mA DC to check electrical discontinuity. Frequency: 10Hz \rightarrow 100 Hz \rightarrow 10Hz/approx 20 minutes. Half amplitude, Peak value of acceleration : 1.5mm or $59\text{m/s}^2(6\text{G})$ Directions, cycle: 3 mutually perpendicular direction,3 cycles about each direction.	[Appearance] Looseness between the parts, chipping, breakage or other abnormality shall not occur. [Electrical discontinuity] No electrical discontinuity grater than $1\mu\text{s}$ 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: $735\text{ m/s}^2(75\text{G})$ 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 $1\mu\text{s}$ shall occur. [Contact Resistance] Shall meet 6-1-1

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6-3 Environmental Performance

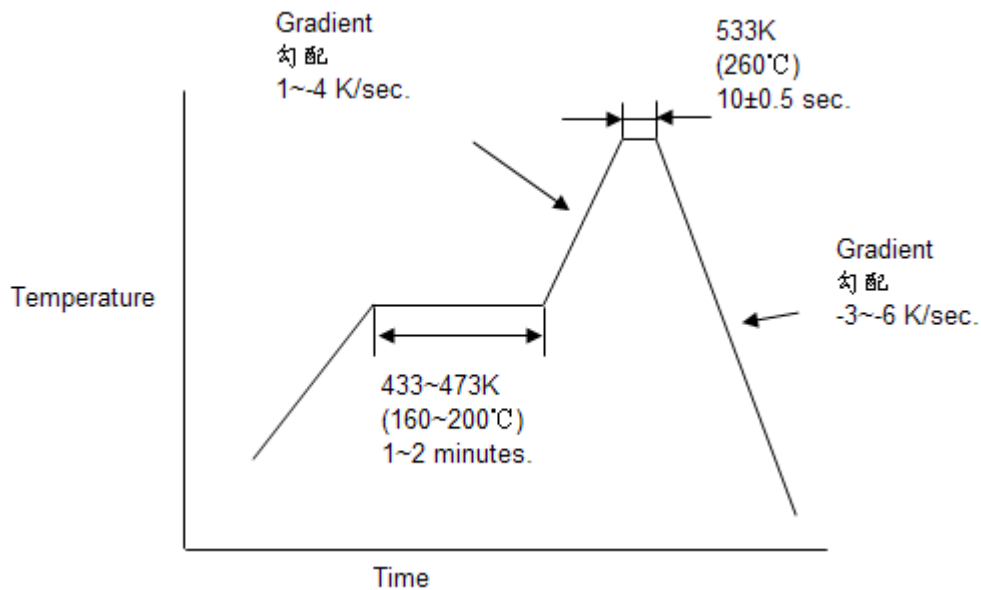
NO	Item	Test conditions	Specifications
1	Thermal Shock	Apply the following environment to the mating connector. Temperature, duration in accordance with MIL-STD-202G, Method 107G, Condition A. Temperature : 233K (-40°C)/ 30 minutes →278~308K(5~35°C)/5 minutes Max. →363K(90°C)/30 minutes →278~308K(5~35°C)/5 minutes 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°C) 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°C) 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°C) Duration : 96 hours	[Appearance] Looseness between the parts, chipping, breakage or other abnormality shall not occur. [Contact Resistance] Shall meet 6-1-1

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6-4 Soldering

NO	Item	Test conditions	Specifications
1	Solder ability	Dip the solder tine of the contacts in the solder bath at $518 \pm 5K(245 \pm 5^{\circ}C)$ for 5 ± 0.5 seconds 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



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Table II: Test Sequence and Sample Quantity

Test: Measurement or Examination	A	B	C	D	E	F	G	H	I	J	K	L	M
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.Crimp strength			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