PRODUCT SPECIFICATION

TITLE

2.4/ 5GHz Stand Alone Antenna (34.9mm*15.9mm)

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2.4/5GHZ Stand Alone Antenna

1.0 SCOPE

This Product Specification covers the mechanical, electrical and environmental performances requirements and test methods for 2.4/5GHz stand alone antenna.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

Product name: 2.4/5 GHZ Stand Alone Antenna 47950-****

2.2 Design and Construction

Antenna shall be of the design, construction and physical dimensions specified on the applicable sales drawing.

2.3 Materials

a) Flex: Refer to respective Molex sales or engineering drawings
b) Plating: Refer to respective Molex sales or engineering drawings
c) Cable Line: Refer to respective Molex sales or engineering drawings
d) Connector: Refer to respective Molex sales or engineering drawings

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See drawings and other sections of this specification for the relevant reference documents. In cases where the specification differs from the drawings, the drawings take precedence.

4.0 RATINGS

4.1 RF POWER

2 WATTS

4.2 TEMPERATURE

Operating: - 30°C to + 85°C
Storage : - 40°C to + 95°C

4.3 HUMIDITY

Storage : -30℃to+85℃
-30℃to+50℃,85%RH or less
+50℃to+85℃,60%RH or less
Test : -30℃to+85℃
-30℃to+50℃,85%RH or less
+50℃to+85℃,60%RH or less

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS FOR CABLE LENGTH 100MM (47950-0011)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.1.1	Frequency Range	2.3GHz~5.85GHz	2.4GHz~2.5GHz	5.15GHz~5.85GHz
5.1.2	Return Loss	Antenna loads on PC/ABS housing with 100mm; 1.13mm diameter micro coax cable. Measured by VNA5071C	< -10 dB	
5.1.3	Peak Gain	Measure antenna on recommended PC/ABS housing through OTA chamber	2.27 dBi	4.9 dBi
5.1.4	Total Efficiency	Measure antenna on recommended PC/ABS housing through OTA chamber	>85%	>85%
5.1.5	Polarization	Measure antenna through the OTA chamber	Liner	
5.1.6	Input Impedance	Measure antenna on recommended PCB through VNA E5071C	50Ohms	

5.2 ELECTRICAL REQUIREMENTS FOR CABLE LENGTH 150MM (47950-1011)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.2.1	Frequency Range	2.3GHz~5.85GHz	2.4GHz~2.5GHz	5.15GHz~5.85GHz
5.2.2	Return Loss	Antenna loads on PC/ABS housing with 100mm; 1.13mm diameter micro coax cable. Measured by VNA5071C	< -10 dB	
5.2.3	Peak Gain	Measure antenna on recommended PC/ABS housing through OTA chamber	3.0 dBi	4.8 dBi
5.2.4	Total Efficiency	Measure antenna on recommended PC/ABS housing through OTA chamber	>80%	>75%
5.2.5	Polarization	Measure antenna through the OTA chamber	Liner	
5.2.6	Input Impedance	Measure antenna on recommended PCB through VNA E5071C	50Ohms	

5.3 ELECTRICAL REQUIREMENTS FOR CABLE LENGTH 200MM (47950-2011)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.3.1	Frequency Range	2.3GHz~5.85GHz	2.4GHz~2.5GHz	5.15GHz~5.85GHz
5.3.2	Return Loss	Antenna loads on PC/ABS housing with 100mm; 1.13mm diameter micro coax cable. Measured by VNA5071C	< -10 dB	
5.3.3	Peak Gain	Measure antenna on recommended PC/ABS housing through OTA chamber	2.6 dBi	4.4dBi
5.3.4	Total Efficiency	Measure antenna on recommended PC/ABS housing through OTA chamber	>80%	>75%
5.3.5	Polarization	Measure antenna through the OTA chamber	Linear	
5.3.6	Input Impedance	Measure antenna on recommended PCB through VNA E5071C	50Ohms	

5.4 ELECTRICAL REQUIREMENTS FOR CABLE LENGTH 300MM (47950-4011)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.4.1	Frequency Range	2.3GHz~5.85GHz	2.4GHz~2.5GHz	5.15GHz~5.85GHz
5.4.2	Return Loss	Antenna loads on PC/ABS housing with 100mm; 1.13mm diameter micro coax cable. Measured by VNA5071C	< -10 dB	
5.4.3	Peak Gain	Measure antenna on recommended PC/ABS housing through OTA chamber	2.3 dBi	3.1 dBi
5.4.4	Total Efficiency	Measure antenna on recommended PC/ABS housing through OTA chamber	>73%	>70%
5.4.5	Polarization	Measure antenna through the OTA chamber	Linear	
5.4.6	Input Impedance	Measure antenna on recommended PCB through VNA E5071C	50Ohms	

5.5 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Pull test	Test machine: Max intelligent load tester Stick the flex antenna in a PC block, pull cable in horizontal direction	Pull force >4.5N

5.6 RELIABILITY REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.6.1	Cross section	Cross section on pad soldering area. Check under microscope	No soldering issue.

5.7 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.7.1	Humidity Test	1.Test condition: The device under test is kept for 12 hours in an environment with a temperature of 55 degrees and a relating humidity of 95%. Thereafter for 12 Hours in an environment with a temperature of 25 degrees and a relative humidity of 95%. The cycle is repeated until a total of 6 cycles have been completed. Hereafter the conditions are stabilized at room temperature.	1) Parts should meet RF spec before and after test. 2) No cosmetic problem
5.7.2	Temperature cycling test	1.Test condition: The product temperature is decreased from room temperature to -40 degrees during 2 Hours and kept there for 2 hours. Then temperature is increased to 85 degree during 2 hours and kept for 2 hours. The temperature is then again decreased to -40 degrees during a 2-hours period. The cycle is repeated until a total of 6 cycles have been completed. Hereafter the conditions are stabilized at room temperature.	1) Parts should meet RF spec before and after test. 2) No cosmetic problem
5.7.3	Salt mist test	1.Test condition: The device under test is exposed to a spray of a 5% (by volume) resolution of Nacl in water for 2 hours. Thereafter the device under test is left for 1 week in room temperature at a relative humidity of 95%. The cycle is repeated until a total of 2 cycles have been completed. Here after the conditions are stabilized at room temperature.	1) Parts should meet RF spec before and after test. 2) No visible corrosion. Discoloration accept.

The meaning of text "**No Cosmetic Problem"** in the table above is:

a. no soldering problem
b. no adhesion problem of glue
c. no peel off of plating

6.0 TEST GROUPINGS

Test Item	Description	Group1	Group2	Group3	Group4
5.5.1	**Cross section**	X			
5.6.1	**Humidity Test**		X		
5.6.2	**Temperature cycling test**			X	
5.6.3	**Salt mist test**				X
	Sample Quantity	5	5	5	5

7.0 PACKAGING

Refer to the Molex related packaging drawings.