PRODUCT SPECIFICATION

TITLE

2.4GHz MID SMT ANTENNA

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2.4GHz MID SMT Antenna

1.0 SCOPE

This Product Specification covers the mechanical, electrical and environmental performances requirements and test methods for 2.4GHz MID SMT ANTENNA.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER

2.4GHz MID SMT antenna 47948.

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) Housing: LCP E840i
b) Plating: Cu:8-12um, Ni:1-2.5um, Au: 0.05um min

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 Max

4.2 TEMPERATURE

Operating: - 40°C to 125°C
Storage : - 40°C to 125°C

4.3 HUMIDITY

Storage : 15~70% RH
Test : 80~95% RH

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.1.1	Frequency Range	Measure antenna on recommended PCB through VNA E5071C	2400MHz-2500MHz
5.1.2	Return Loss	Measure antenna on recommended PCB through VNA E5071C	< -7 dB
5.1.3	Peak Gain (Max)	Measure antenna on recommended PCB through OTA chamber	3.3dBi
5.1.4	Avg. Total Efficiency	Measure antenna on recommended PCB through OTA chamber	-1.8dB
5.1.5	Polarization	Measure antenna on recommended PCB through OTA chamber	Linear
5.1.6	Input Impedance	Measure antenna on recommended PCB through VNA E5071C	50Ohms

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.2.1	Plating thickness measure	Use X-ray measure the thickness of plating	The plating thickness SPEC: Cu 12~16um; Mid-P Ni 2~4um; Au 0.1 ~0.2um.
5.2.2	Cross cut Test	Cross cut adhesion test Testing is performed in accordance with ASTM D-3359-93	Acceptance criteria > 2B as acceptance, <35% peeling off.

5.3 RELIABILITY REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.3.1	**Shear Force**	Apply six axial peeling force on parts soldered on the PCB at the speed rate of 25±3 mm/minute	8 N Min
5.3.2	Solderability testing	Dip solder tails into the molten solder (held at 245+-5°C for 5s)	Solder coverage: 95% Min.

5.4 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.4.1	Temperature /Humidity cycling	Test condition: 1) The device under test is kept for 30 mins in an environment with a temperature of -40 ℃. 2) Kept for 4 Hours in an environment with a temperature of 85 degrees and a relative humidity of 95%. 3) Kept for 2 Hours in an environment with a temperature of 125 degrees and a relative humidity of 95%. 4) The cycle is repeated until a total of 40 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
5.4.2	Temperature Shock	Test condition: 1) The device under test at -40 ℃⇔125 ℃ by 100 cycles, Dwell of 30 mins, transition time between Dwell 30 secs (~ 61 mins / cycle) and each item should be measured after exposing them in normal temperature and humidity for 24 h.	1) Parts should meet RF spec before and after test. 2） No cosmetic problem
5.4.3	High Temperature	Test condition: 1) Temperature:125℃， time:1008hours 2) There is no substantial obstruction to air flow across and around the samples, and the samples are not touching each other	1) Parts should meet RF spec before and after test. 2) No visible corrosion. Discoloration accept.
5.4.4	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.
5.4.5	HNO3 Test	General test condition	1) No corrosion.

The meaning of text "**No mechanical damage**" in the table above is:

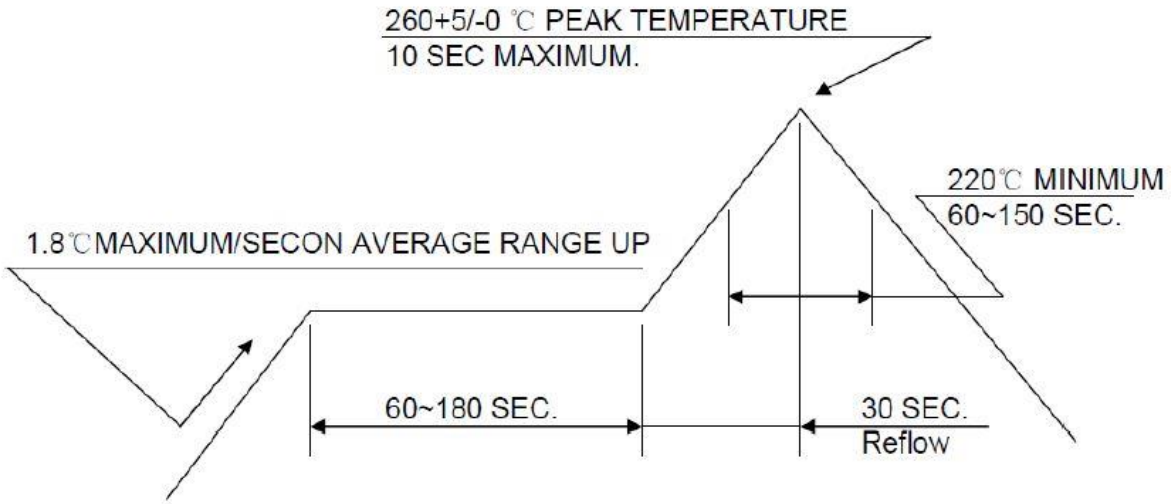
a. No soldering problem
b. No mechanical damage
c. No peel off of plating

6.0 TEST GROUPINGS

Note: All test specimens (except group 5) shall pass the reflow process for 3 times.

Test Item	Description	Group1	Group2	Group3	Group4	Group5	Group6
5.3.1	Shear force	X					
5.3.2	Solderability testing		X				
5.4.1	Temperature /Humidity cycling			X			
5.4.2	Temperature Shock				X		
5.4.3	High Temperature					X	
5.4.4	Salt mist test						X
	Sample Quantity	5	5	5	5	5	5

7.0 RECOMMENDED REFLOW CONDITION



8.0 PACKAGING

Refer to Molex packaging drawing of PK-47948-001