PRODUCT SPECIFICATION

TITLE

2.4GHZ/5GHZ CERAMIC SMT ANTENNA

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2.4GHZ/5GHZ CERAMIC SMT ANTENNA

1.0 SCOPE

This Product Specification covers the mechanical, electrical and environmental performances requirements and test methods for 2.4GHz/5GHz Ceramic SMT Antenna.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER

Product name: 2.4GHz/5GHz Ceramic SMT Antenna -2030060001

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) Refer to sales drawing of 2030060001

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

Max: 2 Watts

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

Configuration1: Application For 2.4GHz

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.1.1	Frequency Range	Measure antenna on recommended PCB through VNA E5071C	2.4GHz-2.5GHz
5.1.2	Return Loss	Measure antenna on recommended PCB through VNA E5071C	< -10 dB
5.1.3	Peak Gain (Max)	Measure antenna on recommended PCB through OTA chamber	2.3dBi
5.1.4	Avg. Total Efficiency	Measure antenna on recommended PCB through OTA chamber	>70%
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

Configuration2: Application For 2.4GHz/5GHz

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.1.7	Frequency Range	Measure antenna on recommended PCB through VNA E5071C	2.4-2.5GHz	5.15-5.85GHz
5.1.8	Return Loss	Measure antenna on recommended PCB through VNA E5071C	< -5 dB	
5.1.9	Peak Gain (Max)	Measure antenna on recommended PCB through OTA chamber	2.1dBi	1.5dBi
5.1.10	Avg. Total Efficiency	Measure antenna on recommended PCB through OTA chamber	>60%	>55%
5.1.11	Polarization	Measure antenna on recommended PCB through OTA chamber	Linear	
5.1.12	Input Impedance	Measure antenna on recommended PCB through VNA E5071C	50 Ohms	

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.2.1	Plating thickness measure	Use X-ray measure the thickness	Thickness: 8um min
5.2.2	Tape test	Attach the tape (3M610) on to the above without air bubble. Wait for 5minutes, release tape at fast speed	Acceptance <10% peeling off.

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.3.1	**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
5.3.2	**Temperature cycling test**	1.Test condition: The device under test at -40 ℃⇔125 ℃ by 72 cycles, Dwell of 30 min, transition time between Dwell 15 sec (~ 61 min / 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
5.3.3	**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.
5.3.4	**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 cosmetic problem

The meaning of text "**NO COSMETIC PROBLEM**" in the table above is:

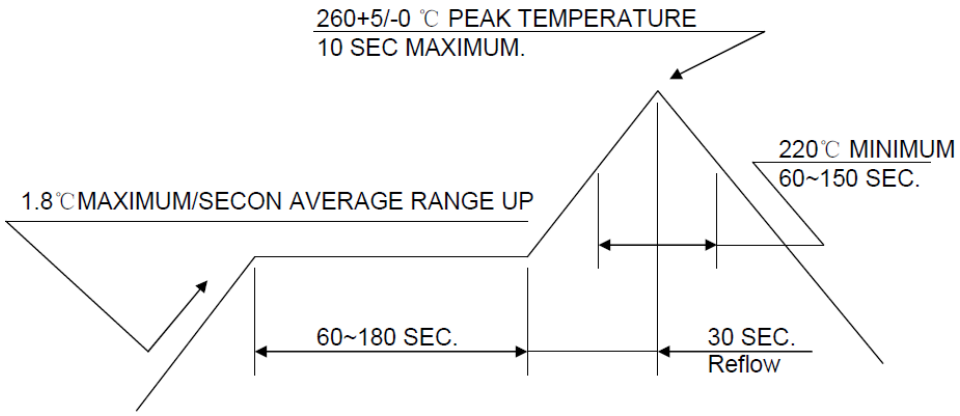
a. No bubble issue.
b. No plating peeling off issue.
c. No mechanical damage.

6.0 ERFORMANCE

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

Test Item	Description	Group1	Group2	Group3	Group4	Group5	Group6
5.2.1	Plating thickness	X					
5.2.2	Tape test		X				
5.3.1	Humidity Test			X			
5.3.2	Temperature cycling test				X		
5.3.3	Salt mist test					X	
5.3.4	High Temperature						X
Sample Quantity		5	5	5	5	5	5

7.0 RECOMMENDED REFLOW CONDITION



(Preheat temperature: 150~200℃ MAX)

8.0 PACKAGING

Refer to packaging drawing of 2030060001.