PRODUCT SPECIFICATION

TITLE

GNSS/Wifi Combo Ceramic Antenna

TABLE OF CONTENTS

1.0 SCOPE

2.0 PRODUCT DESCRIPTION

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

4.0 RATINGS

5.0 PERFORMANCE

6.0 TEST GROUPINGS

7.0 RECOMMENDED REFLOW CONDITION

8.0 PACKING

GNSS/Wifi Combo Ceramic Antenna

1.0 SCOPE

This Product Specification covers the mechanical, electrical and environmental performances requirements and test methods for GNSS/Wifi Combo Ceramic Antenna.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER

Product name: GNSS/Wifi Combo Ceramic Antenna/203007

2.2 Design and Construction

Antenna shall be of the design, construction and physical dimensions specified on the applicable sales drawing SD of 2030070001

2.3 Materials

a) Body: Ceramic
b) Plating: Ag 4-11um

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

DESCRIPTION	Test Condition	Requirement				
Frequency Range	Measure antenna on recommended PCB through VNA E5071C	1561MHz	1575MHz	1602MHz	2.4-2.5GHz	5.15-5.85GHz
Return Loss	Measure antenna on recommended PCB through VNA E5071C	< -6 dB	< -10 dB	< -6 dB	< -6 dB	< -5.5 dB
Peak Gain (Max)	Measure antenna on recommended PCB through OTA chamber	0.9 dBi	1 dBi	-0.3 dBi	0.6 dBi	1 dBi
Avg. Total Efficiency	Measure antenna on recommended PCB through OTA chamber	>55%	>55%	>50%	>55%	>50%
Polarization	Measure antenna on recommended PCB through OTA chamber	Linear				
Input Impedance	Measure antenna on recommended PCB through VNA E5071C	50Ohms				

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.2.1	Ag thickness measure	Use X-ray measure the thickness of Ag	Ag thickness spec: 4-11um.
5.2.2	Tape test	Attach the tape (3M610) on to the surface without air bubble. Wait for 5 minutes. Release tape at fast speed.	Acceptance <10% peeling off.
5.2.3	Shear force test	Push the assembled antenna body from a side then record the force when antenna body broken.	Acceptance > 20N

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	**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	2) Parts should meet RF spec before and after test. 3) No cosmetic problem
5.3.4	**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.

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

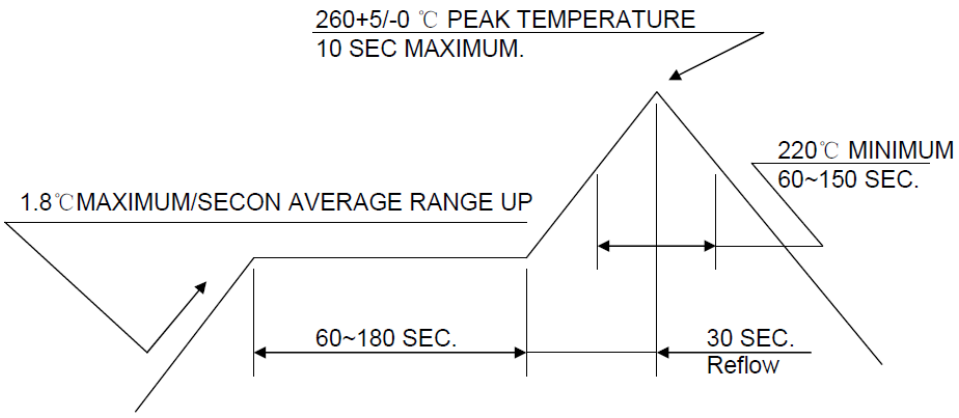
a. No bubble issue.
b. No plating peeling off issue.
c. No mechanical damage.

6.0 TEST GROUPINGS

Note: All test specimens (except group1, 2, 3,) shall pass the reflow process 3 times.

Test Item	Description	Group1	Group2	Group3	Group4	Group5	Group6	Group7
5.2.1	Ag thickness	X						
5.2.2	Tape test		X					
5.2.3	Shear force test			X				
5.3.1	Humidity Test				X			
5.3.2	Temperature cycling test					X		
5.3.3	High Temperature						X	
5.3.4	Salt mist test							X
Sample Quantity		5	5	5	5	5	5	5

7.0 RECOMMENDED REFLOW CONDITION



(Preheat temperature: 150~200℃ MAX)

8.0 PACKAGING

Refer to packaging drawing: PK of 2030070001.