PRODUCT SPECIFICATION

TITLE

868/915MHz ISM Standalone Antenna

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868/915MHz ISM Standalone Antenna

1.0 SCOPE

This Product Specification covers the mechanical, electrical and environmental performances requirements and test methods for 868/915MHz ISM Standalone Antenna.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

Product name: 868/915MHz ISM Standalone Antenna 105262-****
Sub number for 100 mm cable is 0001.
Sub number for 150 mm cable is 0002.
Sub number for 200 mm cable is 0003.

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 Watt max

4.2 TEMPERATURE

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

4.3 HUMIDITY

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

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS FOR CABLE LENGTH 100mm (105262-0001)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.1.1	Frequency Range	500 – 3000 MHz	863 – 870 MHz	902 – 928 MHz
5.1.2	Reflection 20*log10(|S11|) 50 Ohm	Antenna flex placed in center off 120 x 120 x 2.5 mm^3 PC plate and fed via 100mm of 1.13mm micro coax cable.	< -6 dB	
5.1.3	Peak Gain	Measure antenna on PC plate in anechoic chamber.	0.4 dBi	1.4 dBi
5.1.4	Total Efficiency	Measure antenna on PC plate in anechoic chamber	> -3.0 dB	> -1.8 dB
5.1.5	Polarization	Measure antenna on PC plate in anechoic chamber	Linear	

Test plate is PC (Poly Carbonate) Xantar 18R

5.2 ELECTRICAL REQUIREMENTS FOR CABLE LENGTH 150mm (105262-0002)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.2.1	Frequency Range	500 – 3000 MHz	863 – 870 MHz	902 – 928 MHz
5.2.2	Reflection 20*log10(|S11|) 50 Ohm	Antenna flex placed in center off 120 x 120 x 2.5 mm^3 PC plate and fed via 100mm of 1.13mm micro coax cable.	< -6 dB	
5.2.3	Peak Gain	Measure antenna on recommended PC plate in anechoic chamber.	0.3 dBi	1.3 dBi
5.2.4	Total Efficiency	Measure antenna on recommended PC plate in anechoic chamber	> -3.1 dB	> -1.9 dB
5.2.5	Polarization	Measure antenna on recommended PC plate in anechoic chamber	Linear	

5.3 ELECTRICAL REQUIREMENTS FOR CABLE LENGTH 200 mm (105262-2001)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.3.1	Frequency Range	500 – 3000 MHz	863 – 870 MHz	902 – 928 MHz
5.3.2	Reflection 20*log10(|S11|) 50 Ohm	Antenna flex placed in center off 120 x 120 x 2.5 mm^3 PC plate and fed via 100mm of 1.13mm micro coax cable.	< -6 dB	
5.3.3	Peak Gain	Measure antenna on recommended PC plate in anechoic chamber.	0.2 dBi	1.2 dBi
5.3.4	Total Efficiency	Measure antenna on recommended PC plate in anechoic chamber	> -3.2 dB	> -2.0 dB
5.3.5	Polarization	Measure antenna on recommended PC plate in anechoic chamber	Linear	

5.4 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.4.1	Pull test	Test machine: Max intelligent load tester Stick the flex antenna in a PC block, pull cable in horizontal direction	Pull force : 5N MIN
5.4.2	**Plating thickness measure**	Use X-ray measure the thickness of plating	The plating thickness SPEC: Cu 18~20um; Mid-P Ni 1~3um; Au 0.10um Min.
5.4.3	**x-cut Tape Test**	Cross cut adhesion test Testing is performed in accordance with ASTM D-3359-93	Acceptable criteria ≥3B as acceptance criteria, <15% peeling off is acceptable.
5.4.4	**Solderability testing**	Dip solder tails into the molten solder (held at 245+-5°C for 5s)	Solder coverage: 95% Min.

5.5 RELIABILITY REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.5.1	**Cross section**	Cross section on pad soldering area. Check under microscope	No soldering problem

5.6 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.6.1	**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
5.6.2	**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
5.6.3	**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 accepts.

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	Group5	Group6
5.4.1	Pull test	X					
5.4.4	**Solderability testing**		X				
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	5	5

7.0 PACKAGING

Refer to the Molex related packaging drawings.