TITLE

865/915MHZ ISM STAND ALONE ANTENNA

TABLE OF CONTENTS

824/915MHz ISM STAND ALONE ANTENNA

1.0 SCOPE

This Product Specification covers the mechanical, electrical and environmental performances specification for 865/915MHz ISM Stand Alone Antenna.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

Product name: 865/915MHz ISM Stand Alone Antenna

Series Number: 105262

2.2 DESCRIPTION

Series 105262 is a ISM standard alone antenna for 868/915 MHz applications, including LoRa, Neul, SigFox, Z-Wave, Zigbee and others. This antenna is made from poly flexible material with size 79*10*0.1mm, and has double-sided adhesive tape for easy “peel and stick” mounting. This balanced antenna with ground plane independent design offers various cable length options for ease of integration into various devices.

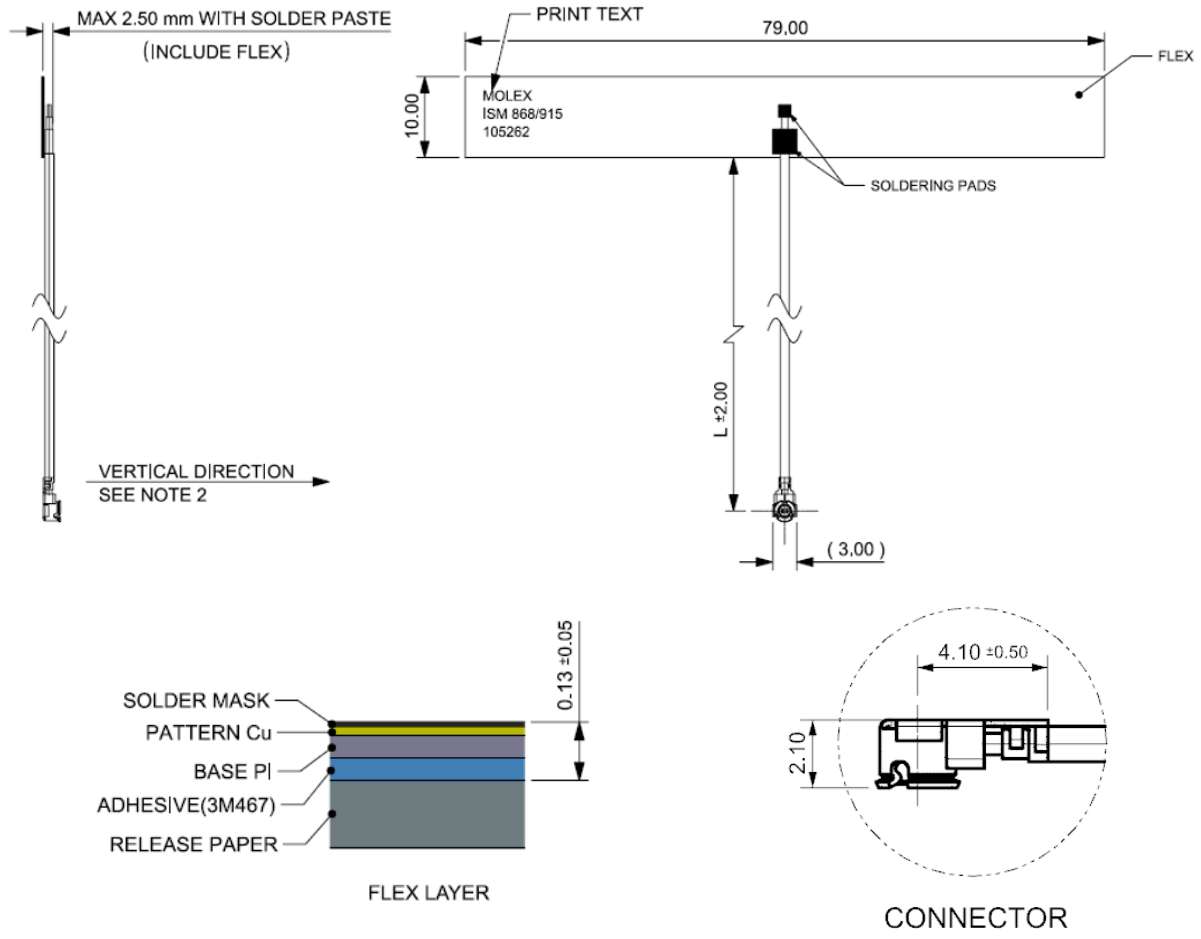
2.3 FEATURES

- 868/915MHz, Linear polarization
- Flex size:79x10x0.1mm
- MHF (U.FL compatible) connector
- Cable OD1.13mm, 3 standard length options (100/150/200mm)
- Cable and connector can be customized
- RoHS Compliant

MOLEX ANTENNA 3D VIEW

2.4 PRODUCT STRUCTURE INFORMATION

P/N	105262 Series



ITEM	MATERIAL NO.	CABLE LENGTH"L"
1	1052620001	93.5 mm
2	1052620002	143.5 mm
3	1052620003	193.5 mm

NOTE:
1. MATERIAL:FLEX SIZE:79*10 mm
   CABLE:∅1.13mm
   CONNECTOR:OD1.13 RF 2.5H U.FL CONNECTOR-PLUG GOLD PLATED
   (IPEX MHF-I COMPATIBLE)
2. CAN NOT LIFE UP CABLE IN VERTICAL DIRECTION
3. SOLDER MASK COVER:BLACK.
4. PRINT TEXT COLOR:WHITE.
5. ADHESIVE MATERIAL:3M-467 50um.
6. THE CONNECTOR WILL BE PROTECTED WITH A CAP

MECHANICAL STRUCTURE INFORMATION FOR 105262 SERIES

3.0 APPLICABLE DOCUMENTS

Document	Number	Description
Sale Drawing(SD)	SD-1052620001	Mechanical Dimension of the product
Application Guide(AS)	AS-1052620001	Antenna Application and surrounding
Packing Drawing(PK)	PK-1052620001	Product packaging specifications

4.0 GENERAL SPECIFICATION

Product name	865/915MHz ISM Stand Alone Antenna
Part number	105262 Series
Frequency	868/915 MHz
Polarization	Linear
Operating with matching	-40℃ to 85℃
Storage with matching	-40℃ to 85℃
RF Power	2 Watts
Impedance with matching	50 Ohms
Antenna type	Flex
Connector type	Compatible MHF-1&U.FL
User Implementation type	Adhesive 3M467
Cable	Ø1.13mm
Cable length	100mm (Molex p/n:1052620001)
	150mm (Molex p/n:1052620002)
	200mm (Molex p/n:1052620003)

5.0 ANTENNA SPECIFICATION.

5.1 ELECTRICAL REQUIREMENT

5.1.1 ELECTRICAL REQUIREMENTS FOR CABLE LENGHTH 100mm		
P/N	1052620001	
Frequency Range	868-870MHz	902-928MHz
Peak Gain(Max)	0.4 dBi	1.6 dBi
Average Total efficiency	>55%	>65%
Return Loss	< -6 dB	

5.1.2 ELECTRICAL REQUIREMENTS FOR CABLE LENGHTH 150mm		
P/N	1052620002	
Frequency Range	868-870MHz	902-928MHz
Peak Gain(Max)	0.3 dBi	1.5 dBi
Average Total efficiency	>53%	>63%
Return Loss	< -6 dB	

5.1.3 ELECTRICAL REQUIREMENTS FOR CABLE LENGHTH 200mm		
P/N	1052620003	
Frequency Range	868-870MHz	902-928MHz
Peak Gain(Max)	0.2 dBi	1.4 dBi
Average Total efficiency	>52%	>62%
Return Loss	< -6 dB	

Note that the above antenna performance is measured with just the antenna mounted on a PC/ABS block to similar a free-space condition. When implement into the system, the frequency resonant might be off-tune due to the loading of surrounding components especially metal plane. This off-tune can be compensated through matching. Although module manufacturers specify a peak gain limit, it is based on free-space conditions. The peak gain will be degraded by 1 to 2dBi in the actual implementation as the radiation pattern will change due to the surround components. As such, during selection of antenna, you can select one with high peak gain to compensate for the loss. Molex can offer assistant to choose the best location and best tuning in-order to meet this peak gain requirement.

5.2 CABLE LOSS

DESCRIPTION	TEST CONDITION	REQUIREMENTS	
Frequency Range	2.4GHz/5GHz	2.0GHz~3.0GHz	5.0GHz~6.0GHz
Attenuation	1m cable measured by VNA5071C	≤3.5dB/m	≤5.5dB/m

Balance antenna resonance is insensitive to cable's length, but the cable's loss will affect the total efficiency.

6.0 MECHANICAL SPECIFICATION

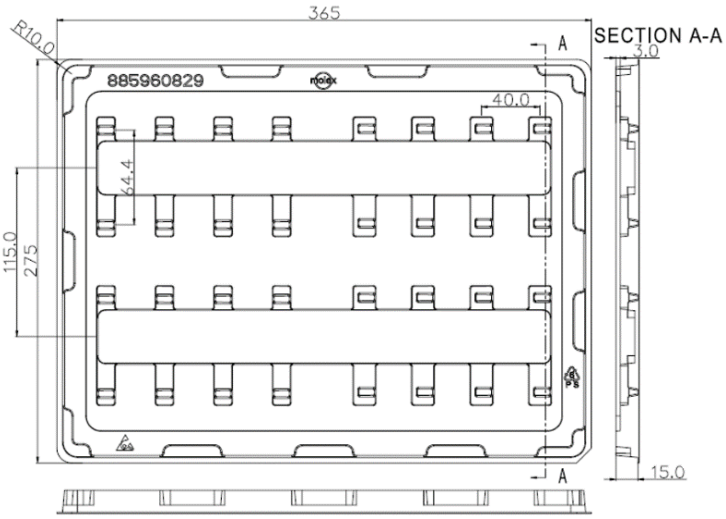
All measurements in this document are done with the part no.1052620001 for different cable length.

DESCRIPTION	TEST CONDITION	TEST RESULT
Pull Test	1. Test machine: Max intelligent load tester 2. Stick the flex antenna on a plastic board, pull cable in axial direction.	Pull force >8N
Un-mating force(connector)	Solder the receptacle connector to the test board, then place the board and plug on push-on/pull-off machine, and repeat mating and un-mating 30 cycles at a speed 25±3mm/min. along the mating axis.	Un-mating force: 0.5 kgf min

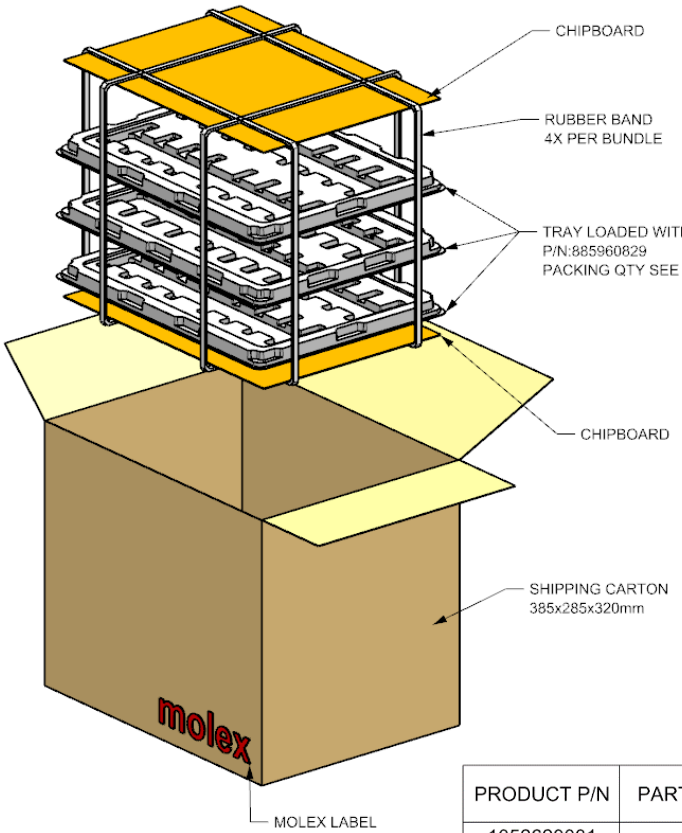
7.0 ENVIRONMENTAL SPECIFICATION

DESCRIPTION	SPECIFICATION
Temperature /Humidity cycling	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. 5. Parts meet antenna performance per section 5.0 before and after test. 6. No cosmetic problem (No soldering problem; No adhesion problem of glue.)
Temperature Shock	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. 2. Parts should meet RF spec before and after test. 3. No cosmetic problem（No soldering problem；No adhesion problem of glue）.
High Temperature	1.Temperature:125℃, time:1008 hours 2.There is no substantial obstruction to air flow across and around the samples, and the samples are not touching each other 3. Parts should meet RF spec before and after test. 4. No cosmetic problem（No soldering problem；No adhesion problem of glue）.
Salt mist test	1. 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. 2. Parts should meet RF spec before and after test. 3. No visible corrosion. Discoloration accepted.

8.0 PACKING



TRAY



NOTES:
1. STAPLES MUST BE USED TO SET UP CARTON CLOSURES MUST BE DONE WITH TAPE.
2. MARK CUSTOMER LABEL WITH PART UNMBER AND DATA CODE.
3. THIS PACKAGING SPECIFIACATION TO BE USED WITH ISM 868/915 MHz STAND ALONE ANTENNA (P/N:105262-0001, 105262-0002,105262-0003)

PRODUCT P/N	PARTS PER TRAY	TOTAL TRAY PER CARTON	TOTAL PARTS PER SHIPPING CARTON
1052620001	16	26+1	416
1052620002	16	26+1	416
1052620003	12	26+1	312

PACKAGING INFORMATION FOR 105262 SERIES

9.0 CHANGED HISTORY

REV	DATE	DESCRIPTION
E	2022/10/10	Updated page 5 (Return ross <-10 changed to <-6)