



PRODUCT SPECIFICATION

TITLE

868/915MHZ FLEXIBLE ANTENNA

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Address:

2222 Wellington Court
 Lisle, IL 60532
 USA

TEL : +1 800-786-6539

<https://tools.molex.com/molex/contact-us>

<u>REVISION:</u> A	<u>ECR/ECN INFORMATION:</u> EC No: 608264 DATE: 2018/12/03	<u>TITLE:</u> 868/915 MHz Flexible Antenna Product Specification	<u>SHEET No.</u> 1 of 7
<u>DOCUMENT NUMBER:</u> PS-2111400100	<u>CREATED / REVISED BY:</u> Kang Cheng 2018/11/20	<u>CHECKED BY:</u> Cooper Zhou 2018/11/20	<u>APPROVED BY:</u> Stary Song 2018/11/20

868/915 MHZ FLEXIBLE ANTENNA

1.0 SCOPE

This Product Specification covers the mechanical, electrical and environmental performances specification for 868/915 MHz Flexible Antenna.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

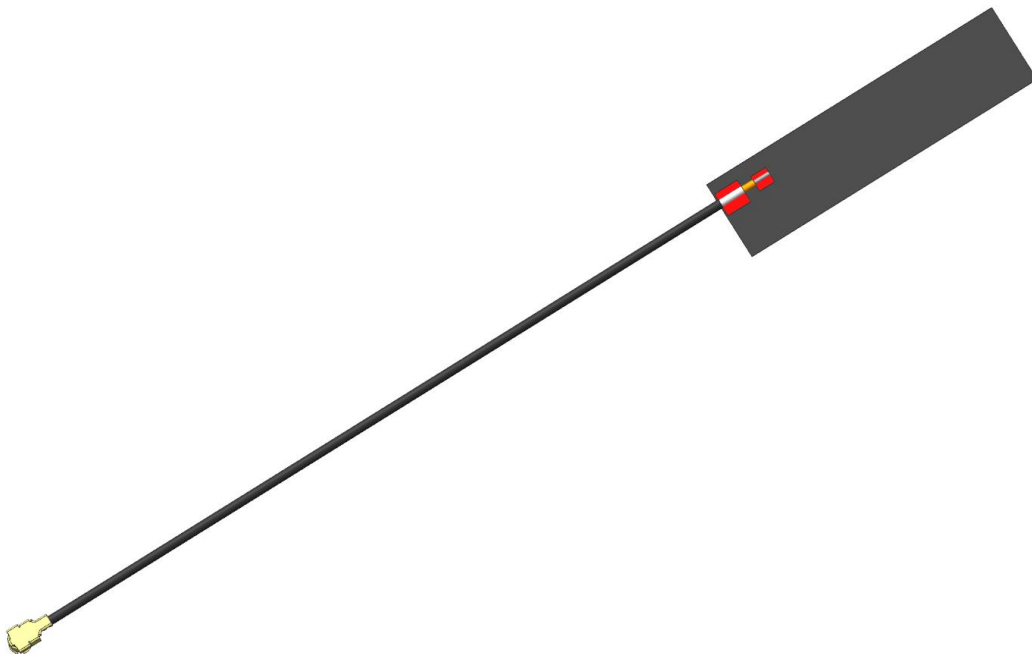
Product name: 868/915MHz Flexible Antenna
Series Number: 211140*

2.2 DESCRIPTION

211140 is a monopole flexible antenna for ISM 868/915MHz dual band. Antenna size 38x10x0.1mm is made from flexible polymer material, cable standard length 100mm. It can be easily installed by simply “peel and stick” on non-metal surface.

2.3 FEATURES

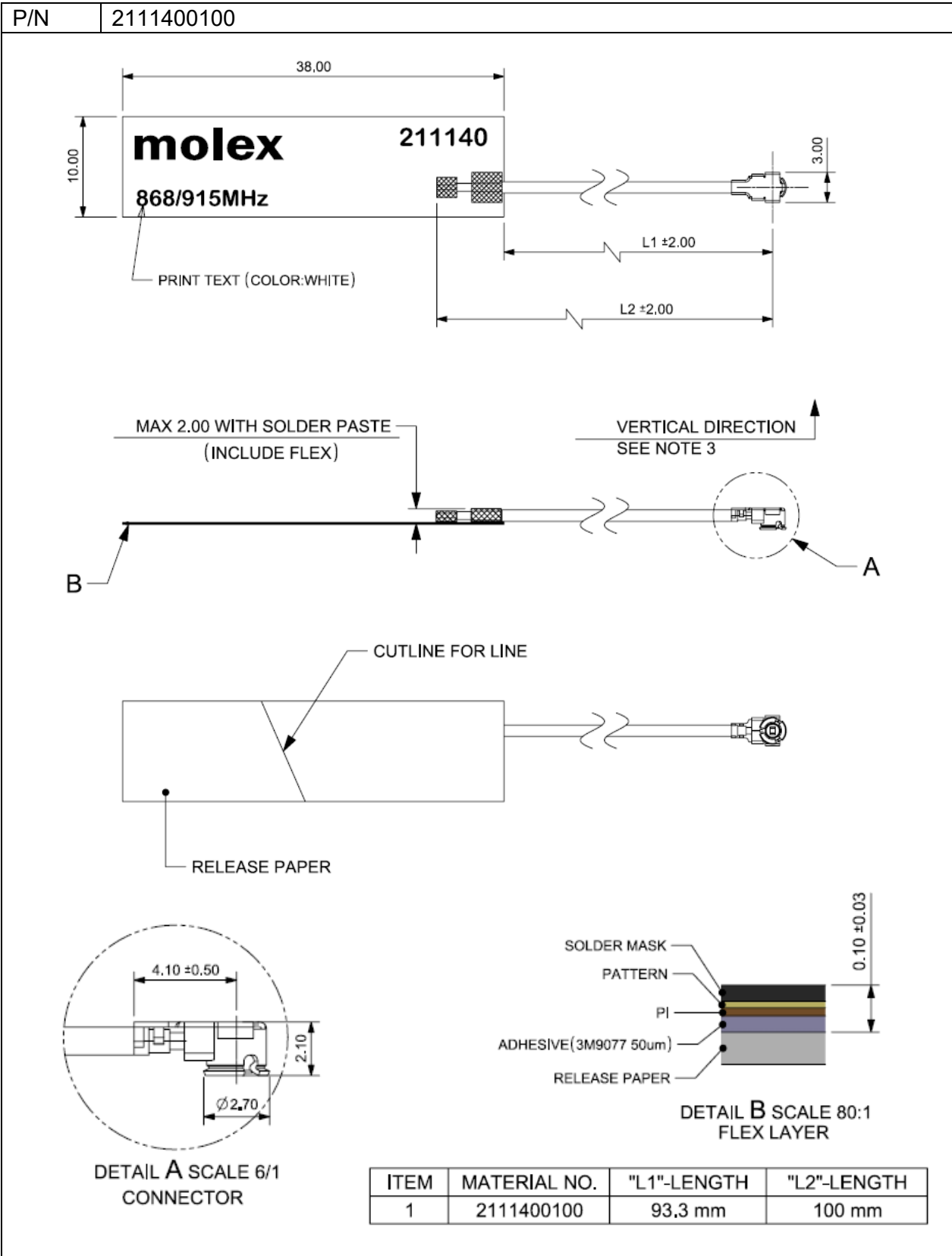
- ISM 868/915MHz dual band
- Antenna size 38x10x0.1mm
- IPEX MHF (U.FL compatible) connector
- Cable OD1.13mm, standard length options for 100 mm
- Cable and connector can be customized
- RoHS Compliant



Molex 2111400100 868/915 MHz FLEXIBLE ANTENNA MODULE 3D VIEW

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2.4 PRODUCT STRUCTURE INFORMATION



Mechanical Structure Information for 2111400100

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3.0 APPLICABLE DOCUMENTS

Document	Number	Description
Sale Drawing(SD)	SD-2111400100	Mechanical Dimension of the product
Application Guide(AS)	AS-2111400100	Antenna Application and surrounding
Packing Drawing(PK)	PK-2111400100	Product packaging specifications

4.0 GENERAL SPECIFICATION

Product name	868/915 MHz Flexible Antenna	
Part number	2111400100	
Frequency	868-870 MHz	902-928 MHz
Polarization	Linear	
Operating with matching	-40°C to 85°C	
Storage with matching	-40°C to 85°C	
RF Power	2 Watts	
Impedance with matching	50 Ohms	
Antenna type	Flex	
Connector type	U.FL (MHF compatible)	
User Implementation type	Adhesive 3M 9077	
Cable diameter	Ø1.13mm	
Single weight	0.626 g (P/N For 2111400100)	
Cable length	100 mm (P/N for 2111400100)	

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PRODUCT SPECIFICATION

5.0 ANTENNA SPECIFICATION.

5.1 ELECTRICAL REQUIREMENT

5.1.1 ELECTRICAL REQUIREMENTS FOR CABLE LENGTH 100mm		
P/N	2111400100	
Frequency Range	868-870MHz	902-928MHz
Peak Gain(Max)	0.3dBi	1.0dBi
Average Total efficiency	>55%	>60%
Return Loss	< -5 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.

6.0 MECHANICAL SPECIFICATION

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

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DOCUMENT NUMBER: PS-2111400100	CREATED / REVISED BY: Kang Cheng 2018/11/20	CHECKED BY: Cooper Zhou 2018/11/20	APPROVED BY: Stary Song 2018/11/20



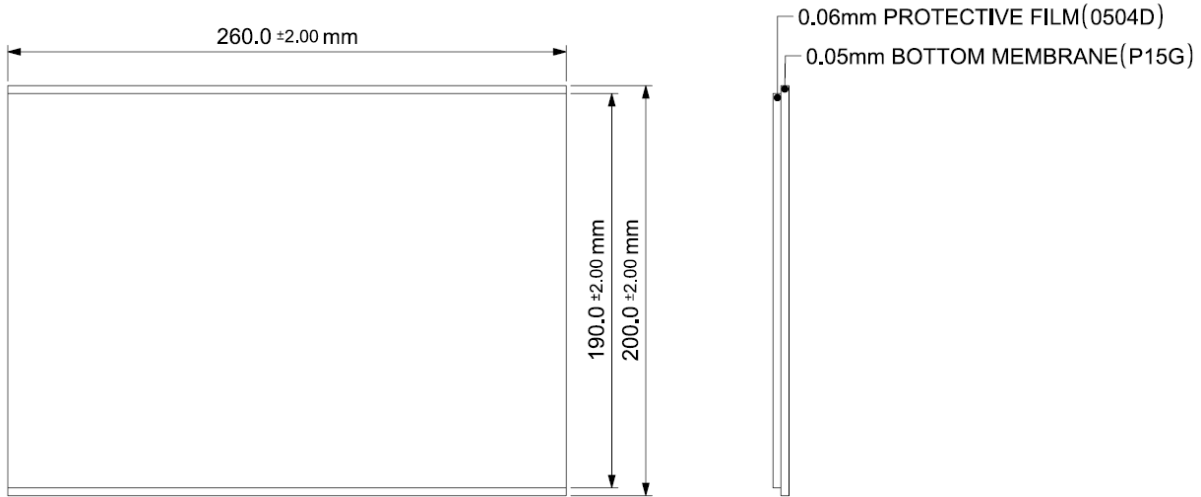
PRODUCT SPECIFICATION

7.0 ENVIRONMENTAL SPECIFICATION

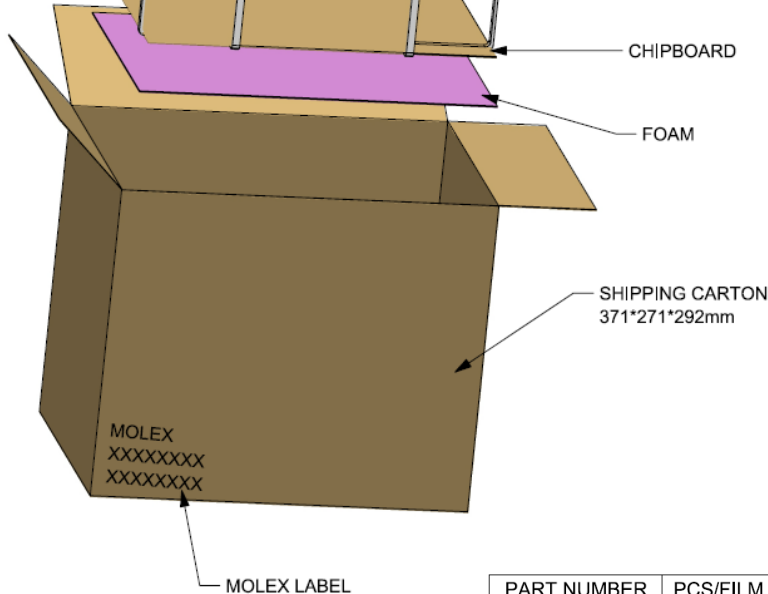
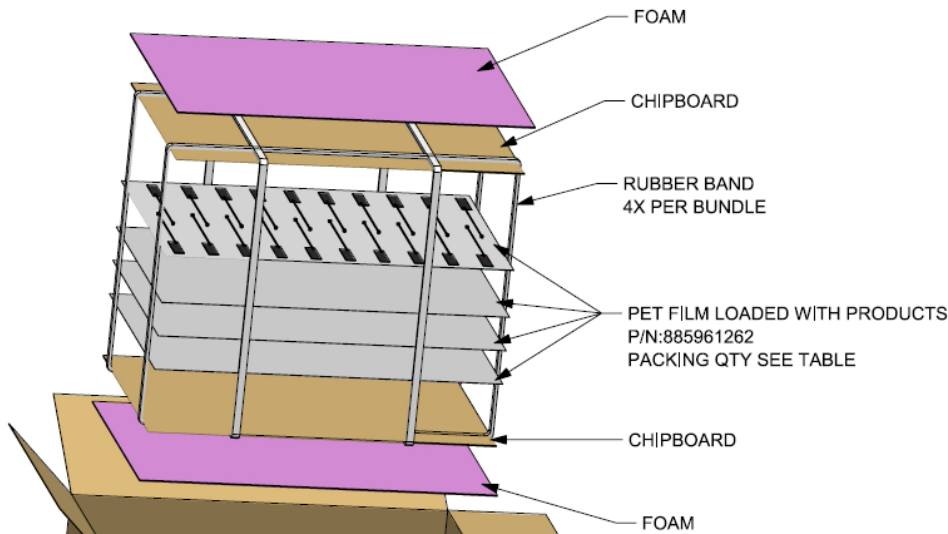
DESCRIPTION	SPECIFICATION
Temperature /Humidity cycling	<ol style="list-style-type: none"> 1.The device under test is kept for 30 mins in an environment with a temperature of -40 °C. 2. Kept for 4 Hours in an environment with a temperature of 85 degrees and a relative humidity of 95%. 3. Kept for 2 Hours 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. Transfer temperature 8°C per min. 5. Parts should meet RF spec before and after test. 6. No cosmetic problem (No soldering problem; No adhesion problem of glue.)
Temperature Shock	<ol style="list-style-type: none"> 1.The device under test at -40 °C⇔125 °C 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	<ol style="list-style-type: none"> 1.Temperature:125°C, 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	<ol style="list-style-type: none"> 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 accept.

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8.0 PACKING



PET FILM



NOTES:

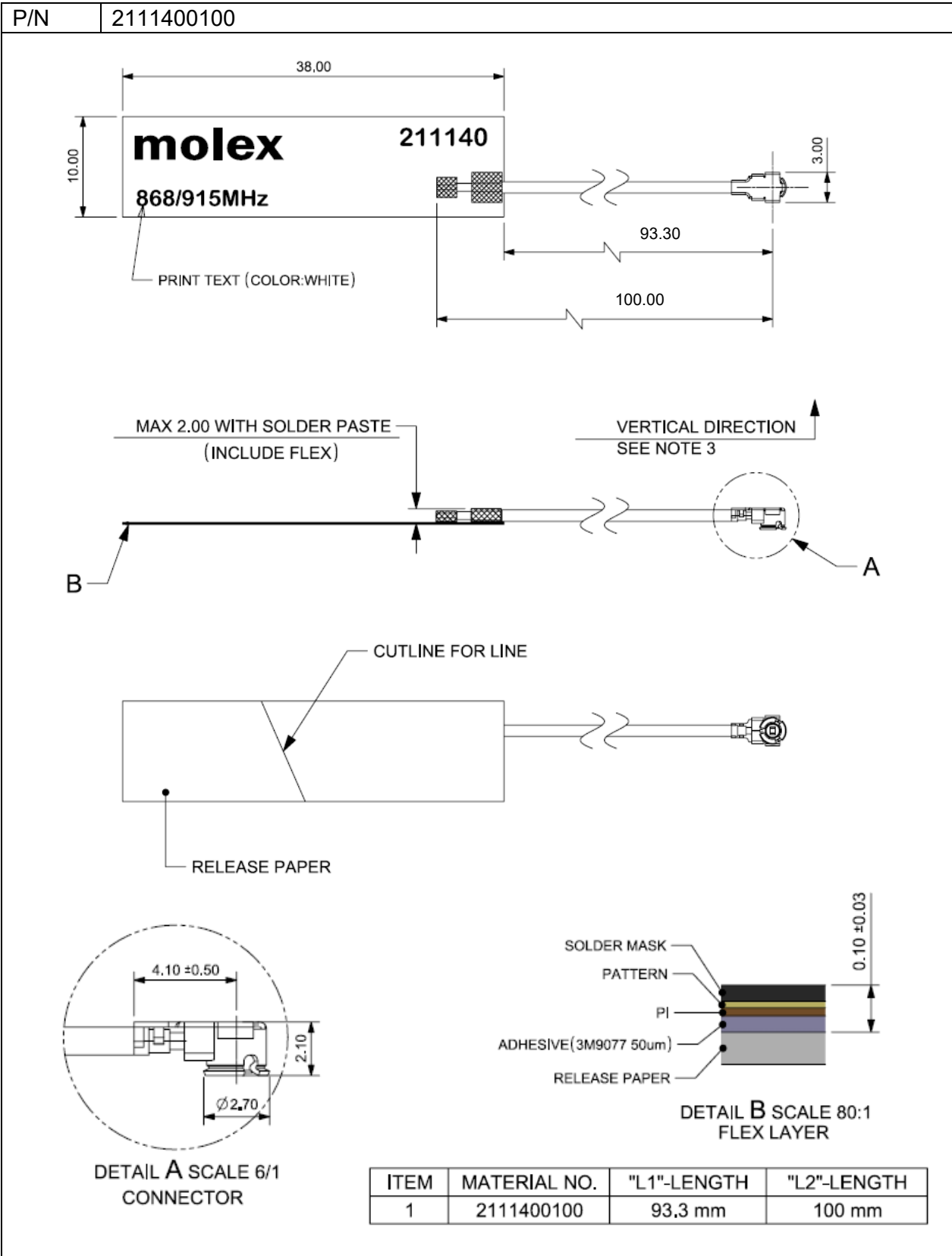
1. PRODUCTS MUST BE PACKED IN CARTONS AND SEALED UP WITH TAPE.
2. STICK LABEL WITH PART NUMBER AND DATE CODE
3. STANDARD PACKAGING QUANTITY: SEE TABLE
4. THIS PACKAGING SPECIFICATION TO BE USED FOR "868/915MHZ FLEXIBLE ANTENNA".
5. WHEN TAKING PRODUCT FROM PET FILM, PLEASE REMOVE THE COVER TAPE FIRST, THEN PICK UP THE PART FROM FLEX NOT THE CABLE, TO AVOID SOLDER JOINT DAMAGE.

PART NUMBER	PCS/FILM	FILM/BUNDLE	BUNDLE/CARTON	PCS/CARTON
2111400100	20	40	4	3200PCS

PACKAGING INFORMATION FOR 2111400100

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DOCUMENT NUMBER: PS-2111400100	CREATED / REVISED BY: Kang Cheng 2018/11/20	CHECKED BY: Cooper Zhou 2018/11/20	APPROVED BY: Stary Song 2018/11/20

2.4 PRODUCT STRUCTURE INFORMATION



Mechanical Structure Information for 2111400100

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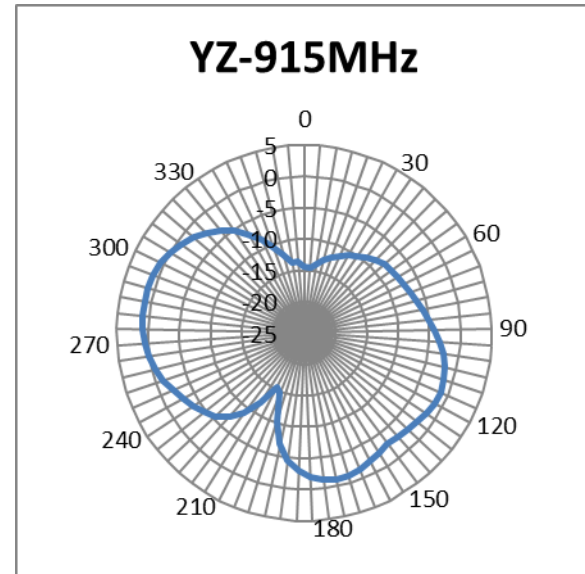
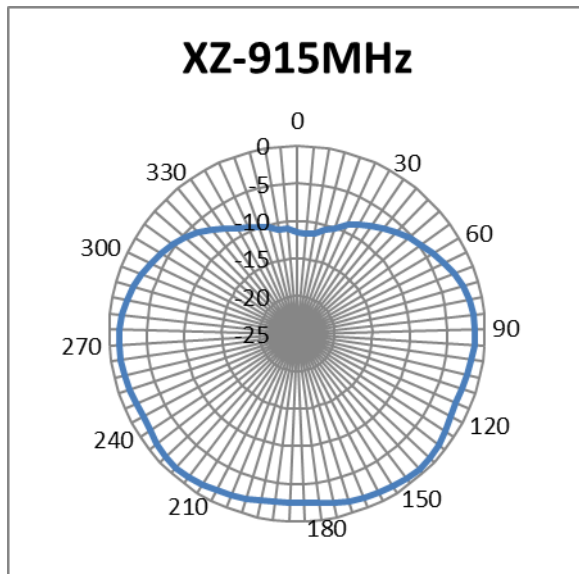
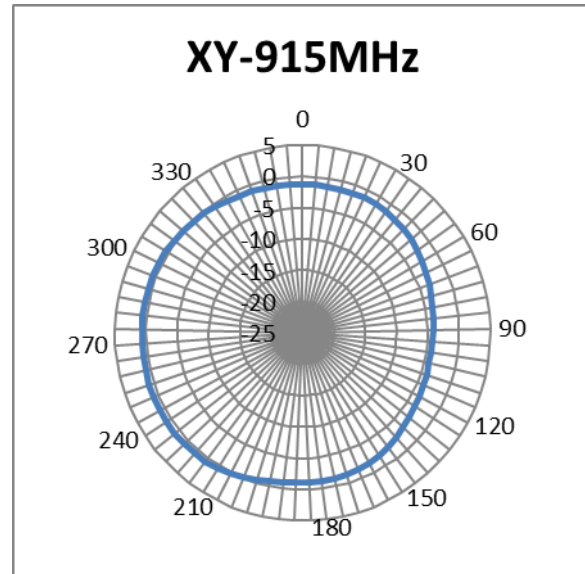
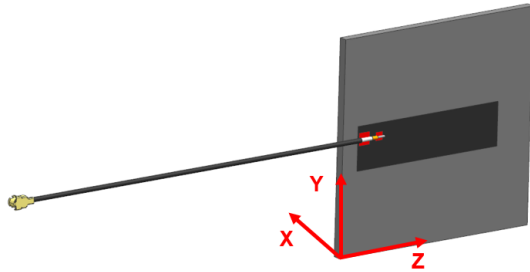


FIGURE 4.5.2 2D RADIATION PATTERN OF ANTENNA AT 915MHZ IN FREE SPACE

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DOCUMENT NUMBER: AS-2111400100	CREATED / REVISED BY: Liu Hai 2018/11/29	CHECKED BY: Cheng Kang 2018/11/29	APPROVED BY: Chris Zhong 2018/11/29



PRODUCT SPECIFICATION

5.0 ANTENNA SPECIFICATION.

5.1 ELECTRICAL REQUIREMENT

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