TITLE

MOLEX 5G COMPATIBLE ANTENNA HINGED

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MOLEX 5G COMPATIBLE ANTENNA HINGED

1.0 SCOPE

This product specification covers the mechanical, electrical and environmental performances specification for Molex 5G compatible antenna hinged.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

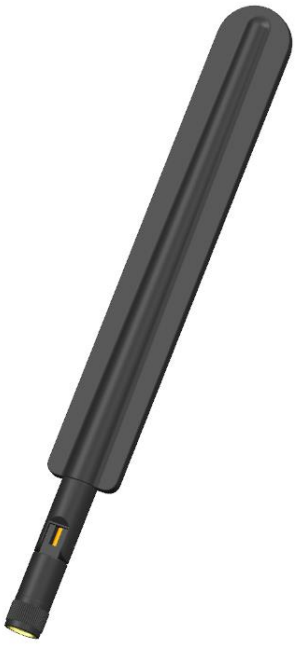
Product name: Molex 5G compatible antenna hinged
Series Number: 214429

2.2 DESCRIPTION

214429 is external antenna being designed to cover all Cellular working frequencies in the 698-5000MHz spectrum. The joint hinge of the antenna allows 90°rotating on vertical plane, and the SMA-J connector allows 180°rotating on horizontal plane.

2.3 FEATURES

- Full band cellular antenna
- Flex size 171.5 x 19.4 mm
- SMA connector
- Black and white color
- Connector can be customized between SMA-J (male pin) and RP-SMA-J (female socket)
- RoHS Compliant



MOLEX 214429 SERIES MODULE BLACK 3D VIEW

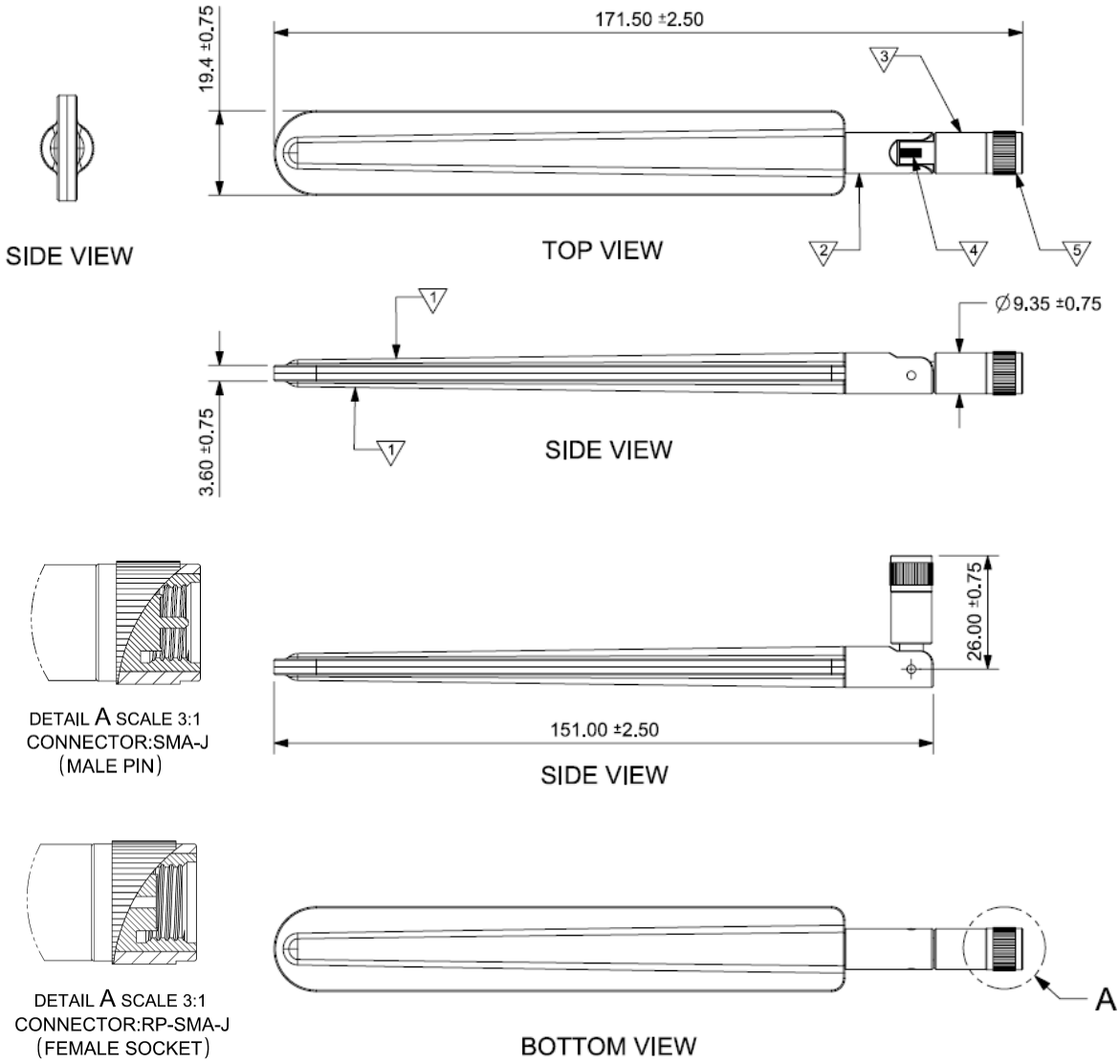
MOLEX 214429 SERIES MODULE WHITE 3D VIEW

214429 Series Material Number:

MOLEX P/N	DESCRIPTION	COLOR	CONNECTOR
2144290001	Molex 5G compatible antenna hinged B-M	Black	SMA-J
2144290011	Molex 5G compatible antenna hinged B-F	Black	RP-SMA-J
2144291001	Molex 5G compatible antenna hinged W-M	White	SMA-J
2144291011	Molex 5G compatible antenna hinged W-F	White	RP-SMA-J

2.4 PRODUCT STRUCTURE INFORMATION

P/N	214429



DESCRIPTION		
ITEM	MATERIAL P/N	CONNECTOR
1	2144290001	SMA-J(MALE PIN)
2	2144290011	RP-SMA-J(FEMALE SOCKET)
3	2144291001	SMA-J(MALE PIN)
4	2144291011	RP-SMA-J(FEMALE SOCKET)

Mechanical Structure Information for 214429 Series

3.0 APPLICABLE DOCUMENTS

Document	Number	Description
Sale Drawing (SD)	SD-2144290001	Mechanical Dimension of the product
Application Guide (AS)	AS-2144290001	Antenna Application and surrounding
Packing Drawing (PK)	PK-2135230001	Product packaging specifications

4.0 GENERAL SPECIFICATION

Product name	698~5000MHz External Antenna	
Part number	2144290001(Black)	2144290011(Black)
	2144291001(White)	2144291011(White)
Frequency	698~5000 MHz	
Polarization	Linear	
Operating with matching	-40℃ to 85℃	
Storage with matching	-40℃ to 85℃	
RF power	2 Watts	
Impedance with matching	50 Ohms	
Connector type	SMA-J (male pin)	RP-SMA-J (female socket)
Single weight	14.125g	14.25g

5.0 ANTENNA SPECIFICATION.

All measurements are done of the antenna mounted on a 100*100mm ground with VNA Agilent 5071C and Over-The-Air (OTA) chamber for the part No.214429 series.

5.1 ELECTRICAL REQUIREMENT

Description	Equipment	Requirement			
Frequency Range	VNA E5071C	698-960MHz	1.7-2.69GHz	3.3-4.2GHz	4.4-5GHz
Return Loss	VNA E5071C	<-5 dB	<-10 dB	<-5 dB	<-5 dB
Peak Gain (Max)	OTA Chamber	1.6dBi	5.5dBi	3.6dBi	3.5dBi
Average Total Efficiency	OTA Chamber	>55%	>70%	>60%	>55%
Polarization	OTA Chamber	Linear			
Input Impedance	VNA E5071C	50 ohms			

Note that the above antenna performance is measured with just the antenna mounted on a PCB to simulate 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.

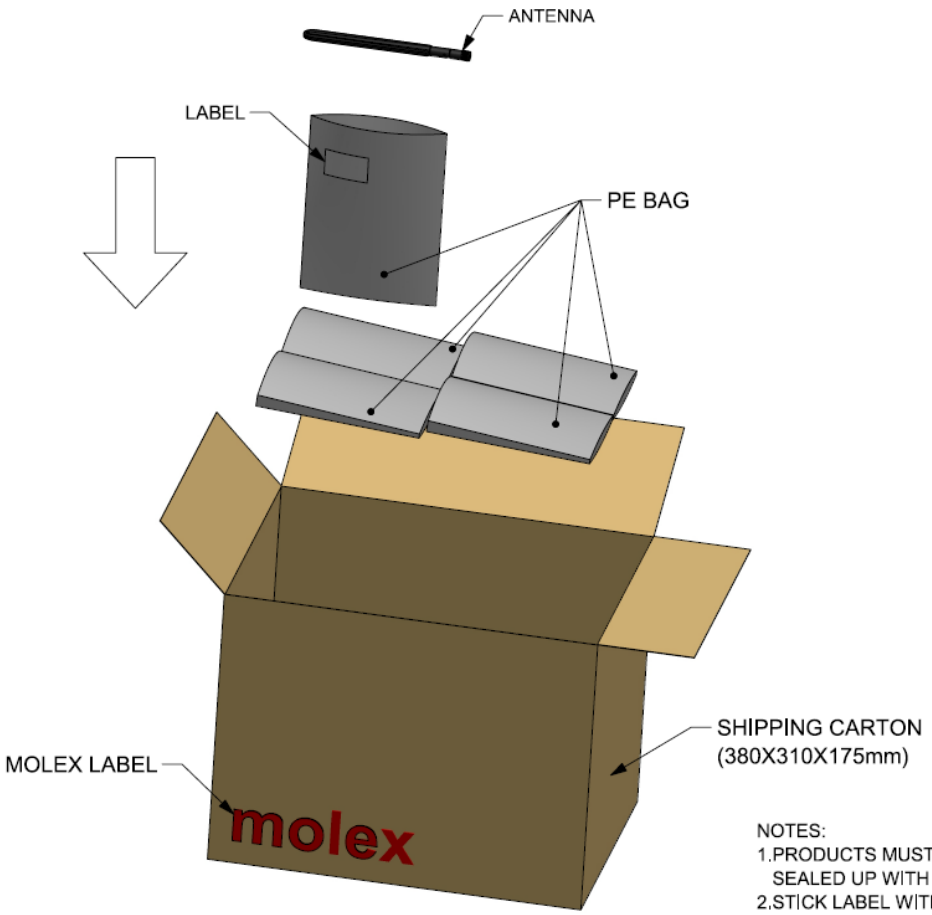
6.0 ENVIRONMENTAL SPECIFICATION

DESCRIPTION	SPECIFICATION
Low Temperature Storage	1. Keep test samples in -40±2℃ chamber with 24 hours. 2. Parts should meet RF spec before and after test. 3. No cosmetic problem（No soldering problem；No adhesion problem of glue）
High Temperature Storage	1. Keep test samples in 85±2℃ chamber with 48 hours. 2. Parts should meet RF spec before and after test. 3. No cosmetic problem（No soldering problem；No adhesion problem of glue）
Mechanical Shock	1. Shock accelerated speed: a=500±10% m/S2， 2. Time input: t=6 ms, Test 10 times each in six axis（X,Y,Z,-X,-Y,-Z）Mechanical and Function in spec after test 3. Mechanical and Function in spec after test.
Salt Mist	1. NACL concentration:5%±1%; Temperature:35±2℃; PH Range:6.5-7.2, Salt fog deposition:1-2ml/(80cm2•h), Time:48h 2. Parts should meet RF spec before and after test. 3. No visible corrosion. 4. Discoloration acceptable
Humidity Test	1. Test temperature：40±2℃，humidity：95%，time：96h 2. Parts should meet RF spec before and after test. 3. No cosmetic problem（No soldering problem；No adhesion problem of glue）

Thermal Cycle	1. Test steps: • Temperature High: +85°C, uncontrolled humidity • Temperature Low: -40°C, uncontrolled humidity • Ramp Rate: 20°C / min. • Dwell Time: 23 minutes at High and Low temperatures Close to 60 min /cycle. Repeat 30cycles. 2. Parts should meet RF spec before and after test. 3. No cosmetic problem（No soldering problem；No adhesion problem of glue）
Drop Test	1. Drop height :1 m, tested surface: each surface of product. The surface that product will land: Marble surface 2. Parts should meet RF spec before and after test. 3. No cosmetic problem（No discolor ,No crack, No damage）

7.0 PACKING

PART NUMBER	PCS/PE BAG	PE BAG/SHIPPING BAG	QTY/CARTON
2135230001	50	10	500
2135230011	50	10	500
2135231001	50	10	500
2135231011	50	10	500
2144290001	50	10	500
2144290011	50	10	500
2144291001	50	10	500
2144291011	50	10	500



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 "HINGE SMA EXTERNAL ANTENNA".

Packaging Information For 214429 Series