



PRODUCT SPECIFICATION

TITLE

Molex GNSS Antenna-Magnetic Mount

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PENDING
APPROVAL

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<u>DOCUMENT NUMBER:</u>	<u>CREATED / REVISED BY:</u>	<u>CHECKED BY:</u>	<u>APPROVED BY:</u>
PS-2134993000	Cooper Zhou 2019/11/22	Chen Kang 2019/11/22	Stary Song 2019/11/22

Molex GNSS Antenna Magnetic Mount

1.0 SCOPE

This product specification covers the mechanical, electrical and environmental performances specification for Molex GNSS Antenna Magnetic Mount.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

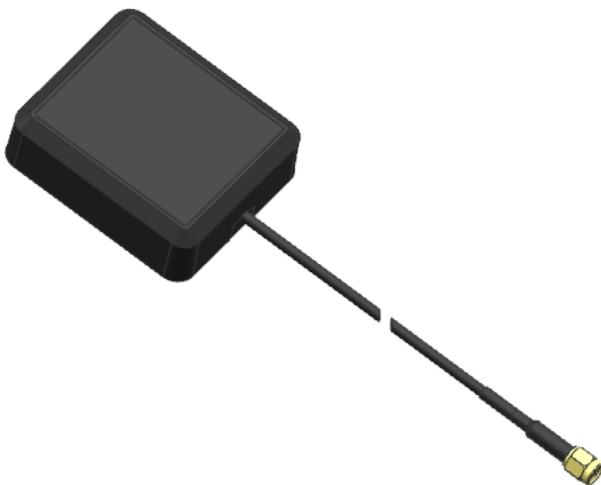
Product name: Molex GNSS Antenna Magnetic Mount
Series Number: 213499

2.2 DESCRIPTION

2134993000 is external antenna being designed for GNSS (BeiDou, GPS and Glonass). It has plastic housing with Magnetic mounted on a metal surface.

2.3 FEATURES

- Working frequency Range $1561.098\pm2.046\text{MHz}$, $1575.42\pm1.023\text{MHz}$ and $1602\pm4\text{MHz}$
- Antenna size: 55x47x16.7mm with 3m cable length
- Connector type: SMA(M)
- Color: Black
- Mounting type: Magnetic mount
- IPX7Compliance
- RoHS Compliant



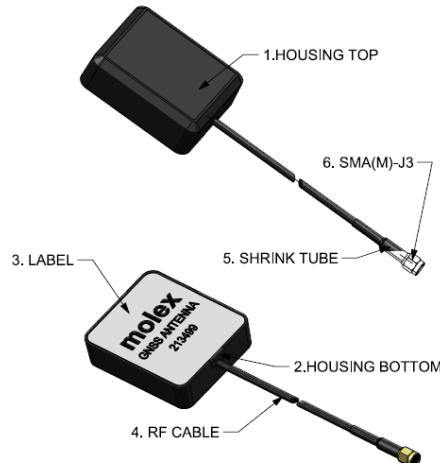
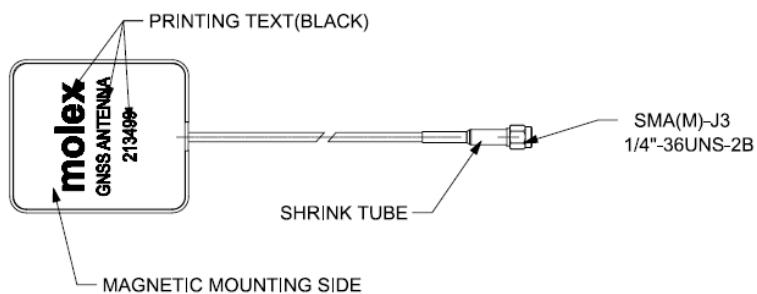
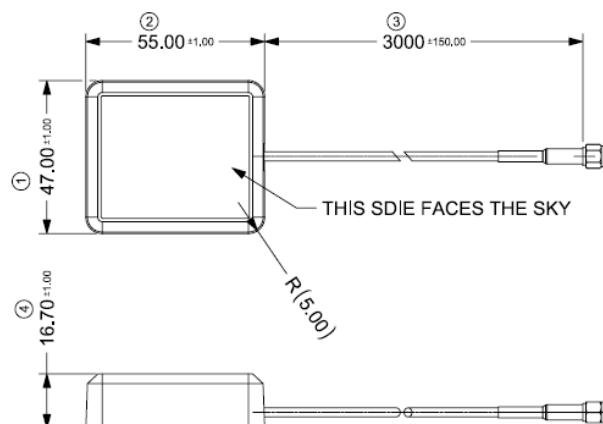
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2.4 PRODUCT STRUCTURE INFORMATION

P/N

2134993000



ITEM	COMPONENTS	MATERIAL	FINISH	QTY
1	HOUSING TOP	ABS	BLACK	1
2	HOUSING BOTTOM	ABS	BLACK	1
3	LABEL	DUMB SILVER ADHESIVE	SILVER	1
4	RF CABLE	RG174(LOW SMOKE, NON-HALOGEN)	BLACK	1
5	SHRINK TUBE	PE/EVA	BLACK	1
6	SMA(M)-J3	BRASS	GOLD PLATING	1

Mechanical Structure Information for 213499 Series

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3.0 APPLICABLE DOCUMENTS

Document	Number	Description
Sale Drawing (SD)	SD-2134993000	Mechanical Dimension of the product
Application Guide (AS)	AS-2134993000	Antenna Application and surrounding
Packing Drawing (PK)	PK-2134993000	Product packaging specifications

4.0 GENERAL SPECIFICATION

Product name	Molex GNSS Antenna Magnetic Mount		
Part number	2134993000		
Antenna Color	Black		
Frequency Range	1561.098±2.046MHz	1575.42±1.023 MHz	1602±4 MHz
Polarization	RHCP		
Operating with matching	-40°C ~+85°C		
Storage with matching	-40°C to +85°C		
Impedance with matching	50 Ohms		
Connector type	SMA(M)-J3		
Single weight	93.14g		

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5.0 ANTENNA SPECIFICATION.

All measurements in this document are done in free space with VNA Agilent 5071C and Over-The-Air (OTA) chamber for the part No.213499 series.

5.1 ELECTRICAL REQUIREMENT

GNSS ANTENNA				
DESCRIPTION	EQUIPMENT	REQUIREMENT		
Frequency Range	VNA E5071C	1561.098±2.046 MHz	1575.42±1.023 MHz	1602+/-4MHz
VSWR	VNA E5071C	≤ 2		
Average Total Efficiency	OTA Chamber	>20%	>30%	>25%
Peak Gain (Max)	OTA Chamber	-1.7dBi	-0.4dBi	-1.4dBi
Polarization	OTA Chamber	RHCP		
Input Impedance	VNA E5071C	50 ohms		
GNSS LNA				
DESCRIPTION	EQUIPMENT	REQUIREMENT		
Frequency Range	VNA E5071C	1561.098±2.046 MHz	1575.42±1.023 MHz	1602+/-4MHz
DC Voltage	DC Supplier	3V		
Gain	VNA E5071C	28±3dB		
VSWR	VNA E5071C	≤ 2		
Noise Figure	VNA E5071C	≤ 1.5 dB		
DC Current	DC Supplier	11±3m A (at 3.3V)		

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.

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6.0 ENVIRONMENTAL AND MECHANICAL SPECIFICATION

DESCRIPTION	SPECIFICATION
Low Temperature Storage	<ol style="list-style-type: none">1. Keep test samples in $-40 \pm 2^\circ\text{C}$ chamber with 96 hours.2. Parts should meet RF spec before and after test.3. No cosmetic problem (No discolor, No crack, No damage)
High Temperature Storage	<ol style="list-style-type: none">1. Keep test samples in $85 \pm 2^\circ\text{C}$ chamber with 96 hours.2. Parts should meet RF spec before and after test.3. No cosmetic problem (No discolor, No crack, No damage)
Salt Mist	<ol style="list-style-type: none">1. NACL concentration: $5\% \pm 1\%$; Temperature: $35 \pm 2^\circ\text{C}$; PH Range: 6.5-7.2, Salt fog deposition: $1-2\text{ml}/(80\text{cm}^2 \cdot \text{h})$, Time: 48h2. Parts should meet RF spec before and after test.3. No visible corrosion and discoloration acceptable.
Thermal Cycle	<ol style="list-style-type: none">1. Test steps: Within 60min from 20°C to -40°C, stay 90min; Within 60min from -40°C to 20°C; Within 90min from 20°C to 85°C, stay 110min; Within 70min from 85°C to 20°C; 8hours one cycle, Repeat 30cycles.2. Parts should meet RF spec before and after test.3. No cosmetic problem (No discolor, No crack, No damage)
Humidity Test	<ol style="list-style-type: none">1. Test temperature: $40 \pm 2^\circ\text{C}$, humidity: 95%, time: 240hours2. Parts should meet RF spec before and after test.3. No cosmetic problem (No discolor, No crack, No damage)
Mechanical Shock	<ol style="list-style-type: none">1. Shock accelerated speed: $a=500 \pm 10\% \text{ m/S}^2$, Time input: $t=6\text{ms}$, Test 10 times each in six axis (X, Y, Z, -X, -Y, -Z)2. Parts should meet RF spec before and after test.3. No cosmetic problem (No discolor, No crack, No damage)
Drop Test	<ol style="list-style-type: none">1. Drop height :1 m, tested surface: each surface of product. The surface that product will land : Marble surface2. Parts should meet RF spec before and after test.3. No cosmetic problem (No discolor, No crack, No damage)

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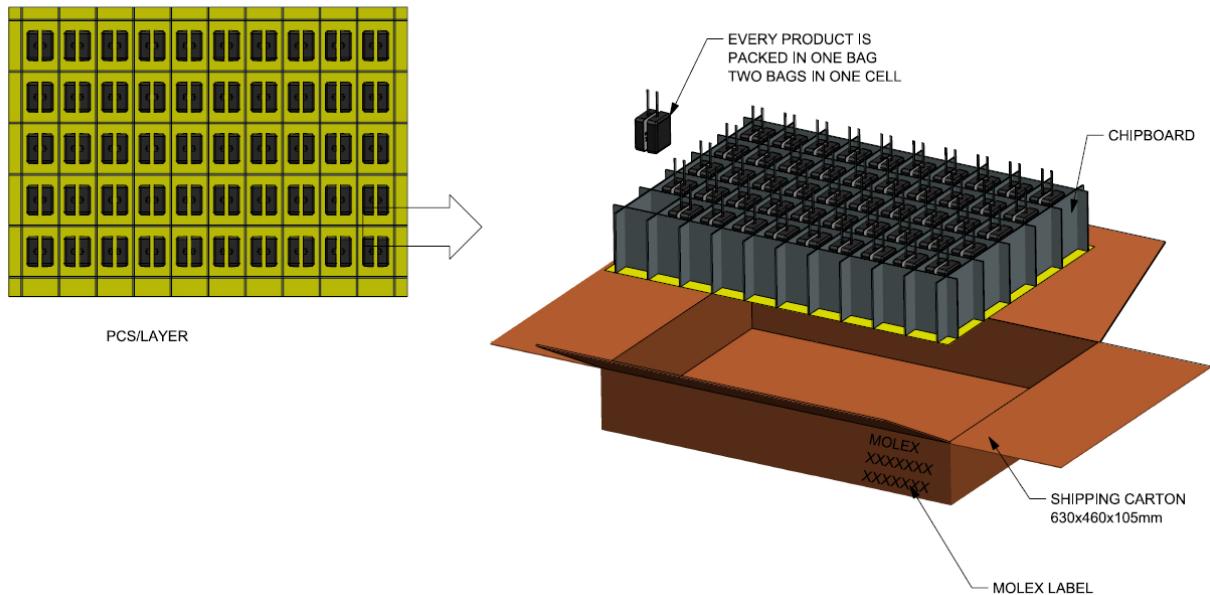
	Vibration Test	1. Vehicle : accelerated speed 27.8 m/s ² , Frequency 10-1000Hz, Vibration time: 8 hours in each axis direction (X,Y,Z). 2. Parts should meet RF spec before and after test; 3. No cosmetic problem (No discolor , No crack, No damage)
	Pull Force Test	Full force between SMA Connector and Cable>=50N, Pull force between cable and Antenna body>=15N;
	ESD Test	1. The antenna is in working state, +/-8KV air discharge experiment: the discharge interval is greater than 5S at any position of 15mm on the surface of plastic shell, and 3 times each for positive and negative ; +/-6KV contact discharge experiment(Contact metal interface of shell): the discharge interval is greater than 5s, And 3 times each for positive and negative ; 2. Parts should meet RF spec before and after test; 3. No cosmetic problem (No discolor, No crack, No damage).

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7.0 PACKING

P/N	PCS/BAG	BAGS/CELL	CELLS/BOX	PCS/CARTON
2134993000	1	2	50	100



NOTES:

1. STICK LABEL WITH PART NUMBER AND DATE CODE.
2. STANDARD PACKAGING QUANTITY: SEE TABLE.
3. EACH LAYER IS SEPARATED BY CHIPBOARD.
4. THIS PACKAGING SPECIFICATION TO BE USED FOR
"MOLEX GNSS ANTENNA MAGNETIC MOUNT".

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Packaging Information For 213499 Series

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Change History

Revision Number	Revision Date	Description	Pages Changed
A	2019/11/22	First Release	NA

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