TITLE

3IN1 (4G/GPS/WIFI) EXTERNAL ANTENNA

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3IN1 (4G/GPS/WiFi)

1.0 SCOPE

This product specification covers the mechanical, electrical and environmental performances specification for 3in1 (GPS/4G/WiFi).

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

Product name: 3in1 (4G/GPS/WiFi) External antenna
Series Number: 2068663000

2.2 DESCRIPTION

206866 is 4G/GPS/WiFi 3in1 external antenna for use in Automotive Telematics, Transportation and remote monitoring applications.

2.3 FEATURES

- Applicable frequency band: GPS:1575.42±1.023MHz; 4G:824-960MHz/1710-2690MHz; WiFi: 2400-2500MHz;
- Product size: Ø70*15mm
- Cable type: RG174(4G/GPS/WiFi)
- Cable Length:3m
- Three Fakra connector (Model C/D/E)
- 3M Adhesive
- IP66 Waterproof
- Operation Temperature: -40°C to 85°C
- Storage Temperature: -40°C to 85°C
- RoHS Compliant

Molex 2068663000 3in1 (4G/GPS/WiFi) 3D View

2.4 PRODUCT STRUCTURE INFORMATION

P/N	2068663000

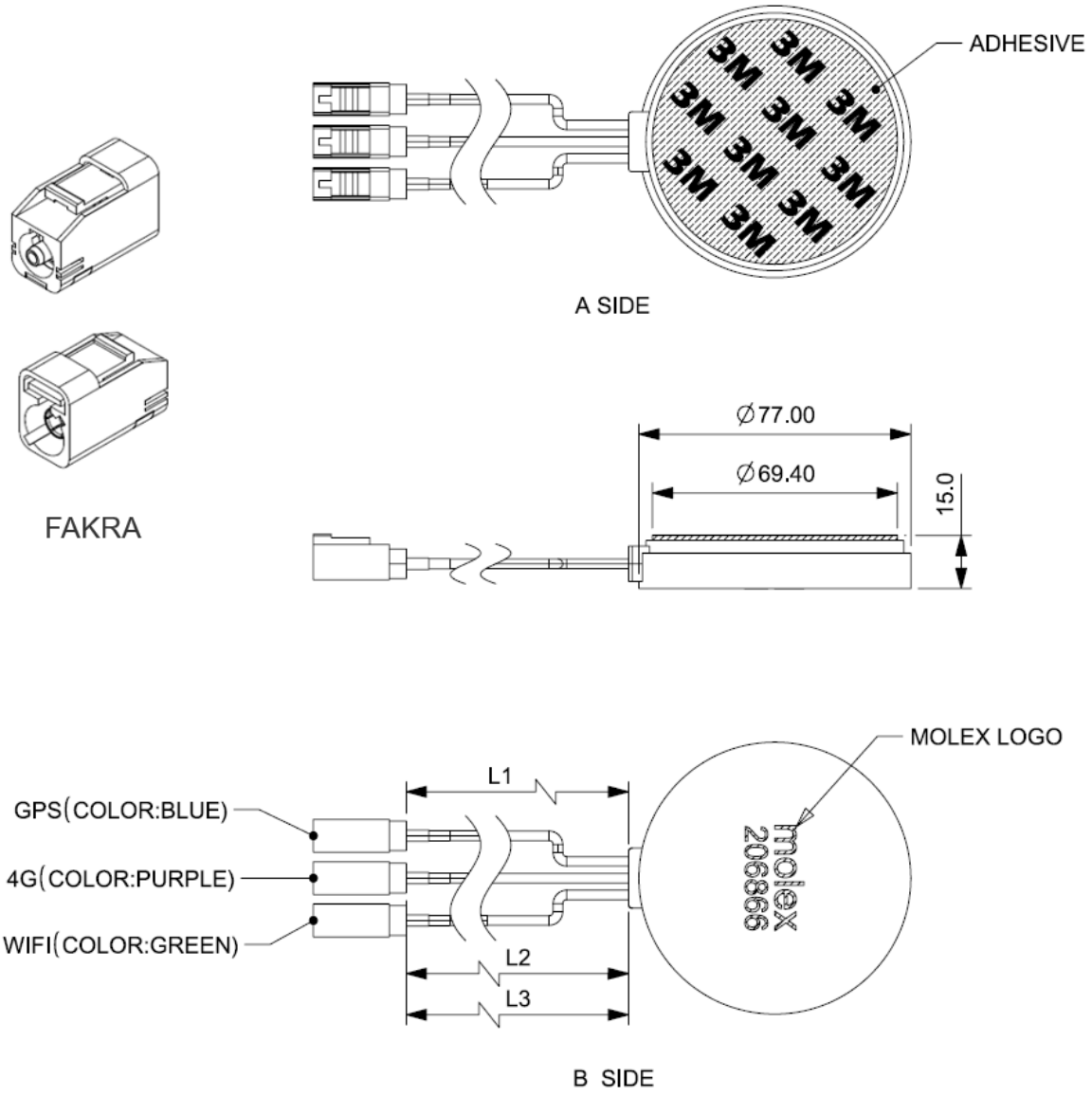


TABLE A		
ITE	MATERIAL	DESCRIPTION
1	ANTENNA	DIELECTRIC CERAMIC
2	PLASTIC CASE	ABS
3	PCB	FR4
4	SHIELDING CASE	TINPLATE
5	CABLE	RG174
6	GPS CONNECTOR	FAKRA-C
7	GSM CONNECTOR	FAKRA-D
8	WIFI CONNECTOR	FAKRA-E
9	ADHSIVE	3M

NOTE:
1. CABLE LENGTH:L1=3000±100mm;L2=3000±100mm;
L3=3000±100mm
2. FOAM GLUE FIXED ON THE A SIDE, A SIDE UP WHEN USED.
3. MATERIAL PLEASE REFER TO TABLE A.

Mechanical Structure Information for 2068663000

3.0 APPLICABLE DOCUMENTS

Document	Number	Description
Sale Drawing(SD)	SD-2068663000	Mechanical Dimension of the product
Application Guide(AS)	AS-2068663000	Antenna Application and surrounding
Packing Drawing(PK)	PK-2068663000	Product packaging specifications

4.0 GENERAL SPECIFICATION

4.1.1 GPS ANTENNA

DESCRIPTION	EQUIPMENT	REQUIREMENT
Frequency Range	VNA E5071C	1575.42±1.023 MHz
VSWR	VNA E5071C	≤2.0
Average Total Efficiency	OTA Chamber	26.2%
Peak Gain (Max)	OTA Chamber	3dBic Based on 70*70mm ground plane
Polarization	OTA Chamber	RHCP
Input Impedance	VNA E5071C	50 ohms

4.1.2 GPS LNA

DESCRIPTION	EQUIPMENT	REQUIREMENT
Frequency Range	VNA E5071C	1575.42±1.023 MHz
DC Voltage	DC Supplier	3-5V
Gain	VNA E5071C	28±3dB
VSWR	VNA E5071C	≤2.0
Noise Figure	VNA E5071C	≤1.5dB
DC Current	DC Supplier	11±3m A (at 3.3V)

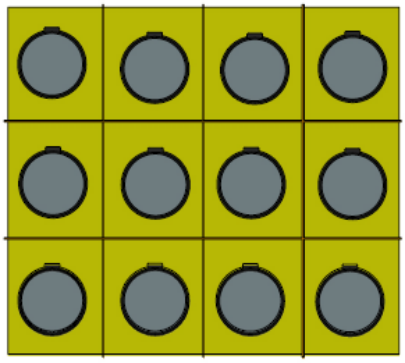
4.2 4G ANTENNA			
DESCRIPTION	**EQUIPMENT**	**REQUIREMENT**	
Frequency Range	VNA E5071C	824-960MHz	1710-2690MHz
Average Total Efficiency	OTA Chamber	21.6%	27.2%
Peak Gain (Max)	OTA Chamber	-0.5dBi type	0dBi type
Polarization	OTA Chamber	Linear	
VSWR	VNA E5071C	≤3.0	
Input Impedance	VNA E5071C	50 ohms	
4.3 WIFI&BT ANTENNA			
DESCRIPTION	**EQUIPMENT**	**REQUIREMENT**	
Frequency Range	VNA E5071C	2.4-2.5GHz	
VSWR	VNA E5071C	≤2.0	
Average Total Efficiency	OTA Chamber	23.3%	
Peak Gain (Max)	OTA Chamber	-2.7dBi	
Polarization	OTA Chamber	Linear	
Input Impedance	VNA E5071C	50 ohms	

5.0 ENVIRONMENTAL SPECIFICATION

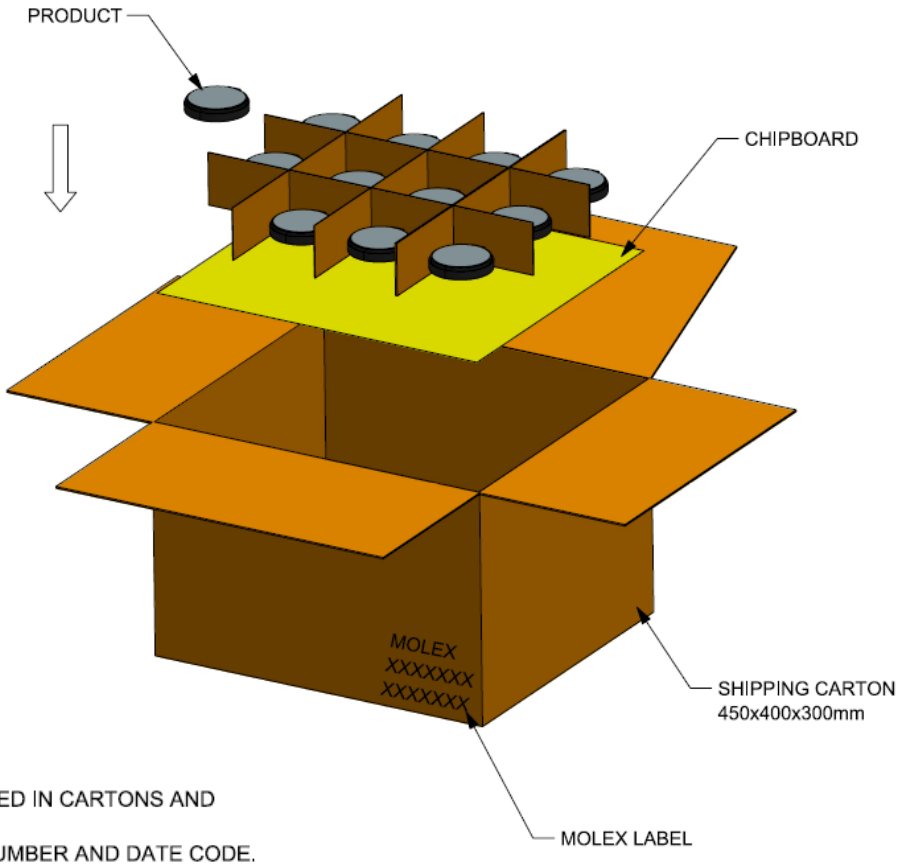
DESCRIPTION	SPECIFICATION
Sine vibration	1. Vibration frequency: 10 Hz~1000 Hz. Vibration direction: X、Y、Z. Vibration acceleration: 27.8m/s^2. Time: 8 hours. 2. Antenna in non-working state, all the experimental samples were fixed on the shaking table. 3. Parts should meet RF spec before and after test. 4. No cosmetic problem (No bubble issue、No plating peeling off issue、 No mechanical damage.)
Low Temperature	1. Temperature:-40℃±2℃, time:24 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 bubble issue、No plating peeling off issue、 No mechanical damage.)
High Temperature	1. Temperature:85℃±2℃, time:96 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 bubble issue、No plating peeling off issue、 No mechanical damage.)

Pull Test	1. The antenna is fixed on the fixture, the cable pulled to the axial direction. Pull force≥15N
Electrostatic ESD	1. Antenna in working condition, ± 8KV Air discharge test: Plastic shell surface height of 15 mm at any position, the discharge interval is greater than 5s, the number of positive and negative 3 times; ± 6KV Contact Experiment: Metal connector shell contact discharge, discharge interval greater than 5s, the number of positive and negative 3 times 2. Parts should meet RF spec before and after test. 3. No cosmetic problem (No bubble issue、No plating peeling off issue、 No mechanical damage.)
Connector Salt mist test	1. Concentration of salt solution: 5%±1%, Temperature range: 35±2°C, PH value range: 6.5-7.2, Settling amount of salt fog: 1-2ml/(80cm2•h), Test time: 48h 2. Parts should meet RF spec before and after test. 3. No visible corrosion. Discoloration is acceptable.
temperature cycle	1. In an environment of 20 ° C, the temperature reached -40 ° C within 60 min, and the test device was stored for 90 min. 2. The temperature reached 20°C in 60 minutes. 3. In an environment of 20 ° C, the temperature reached 85 ° C within 90 min, and the test device was stored for 110 min. 4. The temperature reached 20°C in 70 minutes. 5. The cycle is repeated until a total of 40 cycles have been completed. Cycle time: 8 hours 6. Parts should meet RF spec before and after test. 7. No visible corrosion. Discoloration is acceptable.
Temperature Shock	1. 1.The device under test at -30 ℃⇔70 ℃ by 100 cycles, Dwell of 2. 30 mins, transition time between Dwell 10 secs (45 mins / cycle) 3. Parts should meet RF spec before and after test. 4. No cosmetic problem（No soldering problem；No adhesion problem of glue）
Constant damp heat	1. Test temperature: 40±2°C, test humidity: 95%, storage time: 504h 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. Impact acceleration: a=500±10% m/S2, 2. Enter the time: t = 6 m/s, each space axis (six axis) each test 10 times.。 3. Parts should meet RF spec before and after test. 4. No cosmetic problem（No soldering problem；No adhesion problem of glue）

6.0 PACKING



PCS/LAYER



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.EACH LAYER IS SEPARATED BY CHIPBOARD.
5.THIS PACKAGINGSPECIFICATION TO BE USED FOR "3IN1 (4G/GPS/WIFI) EXTERNAL ANTENNA".

P/N	PCS/LAYER	LAYER/CARTON	PCS/CARTON
2068663000	12	5	60

Packaging information for 2068663000

CHANGE HISTORY			
REV	DATE	DESCRIPTION	PAGES CHANGED
A	2018/06/05	First Release	NA
B	2019/11/26	Update Release	Update the application:" Foam glue fixed on the A side, A side up when used."