Doc - No	ALDSNM146EU

SPECIFICATION

Product Name	INTENNA
Specification	ALDSNM146EU
Model Name	SM-M146B
SEC CODE	GH42-06965A
Weight	6.10g
Special Specification	WiFi(2.4GHz,5GHz)
Classification	Sub
Form of Production	LDS
REVISION	Ver_0.1
production company	P A R T R O N

MSL	LEAD FREE	Halogen Free
MSL LEVEL 1	LEAD-FREE	HF BFRs/CFRs/PVC-Free

Drafter	Examination (Structure)	Examination (Passive)	Examination (Quality)	Admission
G.Y.Jeong	**C.Y.Lee**	**C.S.Kim**	**H.S.J**	**C.I.JEON**
Jeong Geon Yeong	Lee Chang Yeob	Kim Chung Soo	Jeon Hyo Sang	Jeon Chan Ik

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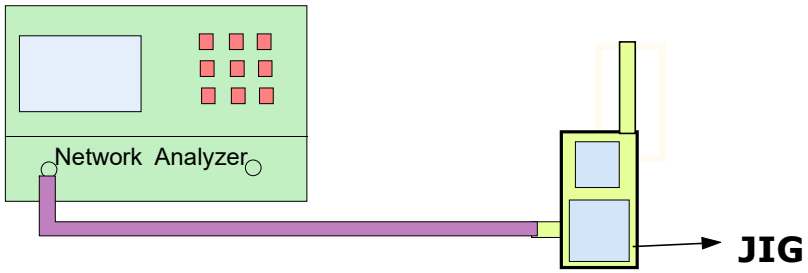
1. Revision history

Revision no.	Originator	Description of changes	Date of changes
Ver_0.1	Jeong Geon Yeong	Initial release	2023.01.02

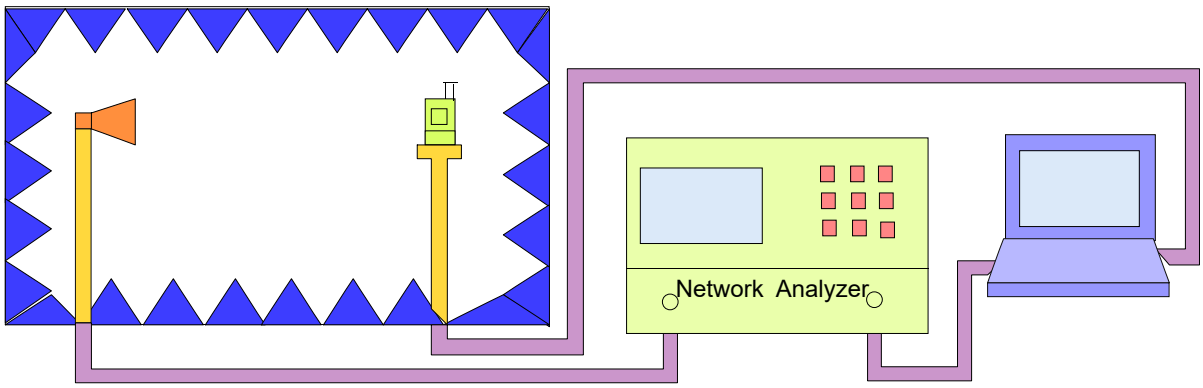
2. Making Measurements

Connect the device under test and required test equipment (Network analyzer). Measuring VSWR and frequency. Measurements include the magnitude and phase of both the vertical and horizontal components of the 3-D antenna pattern of actual hardware in an anechoic chamber (Partron). all measurements are made with antennas installed.

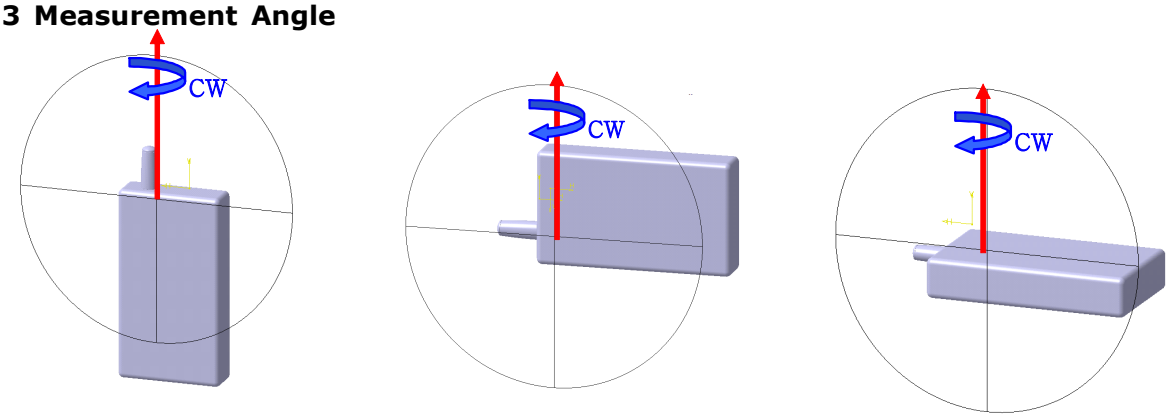
2.1 Frequency, VSWR Measurement



2.2 Gain Measurement



2.3 Measurement Angle



Azimuth Plane Elevation 1 Plane Elevation 2 Plane

- Co-Polarization, Cross-Polarization Meaning
- Co-Polarization : When Radiated Vertical and Horizontal Polarization in Source Ant. Co-Polarization is Higher Polarization that is Ave. Gain Value
- Cross-Polarization : When Radiated Vertical and Horizontal Polarization in Source Ant. Co-Polarization is Lower Polarization that is Ave. Gain Value

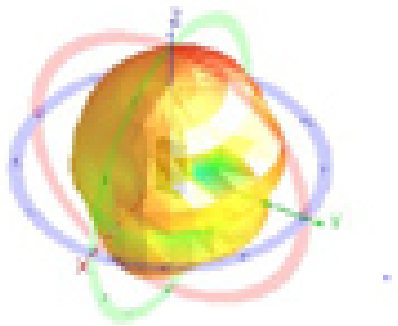
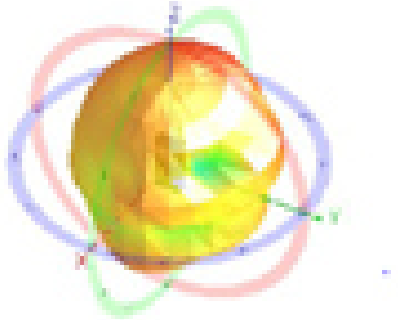
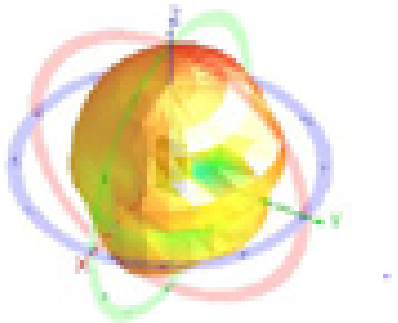
3. Electrical Specification

3.1 RF Antenna Gain

- Antenna GPS, WiFi(2.5G&5G)

Frequency [dBi]	Avg Gain [dBi]	Peak Gain [dBi]	Efficiency [%]
2400	-3.40	-0.17	45.71
2442	-4.13	-0.67	38.64
2485	-4.88	-1.35	32.51
5150	-4.61	-1.36	34.59
5500	-5.36	-2.05	29.11
5850	-4.91	-1.83	32.28

3.2 Radiation pattern & Gain

BAND	WiFi 2.4G		BAND	WiFi 2.4G	
2400 MHz			2442 MHz		
	Avg[dBi]	Peak[dBi]		Avg[dBi]	Peak[dBi]
	-3.40	-0.17		-4.13	-0.67
BAND	WiFi 2.4G				
2485 MHz					
	Avg[dBi]	Peak[dBi]			
	-4.88	-1.35			

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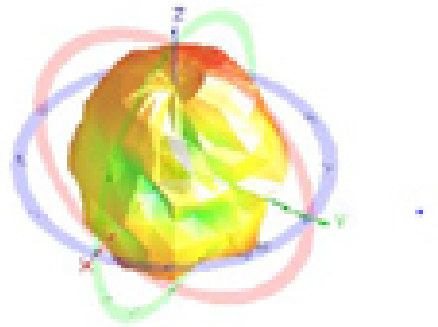
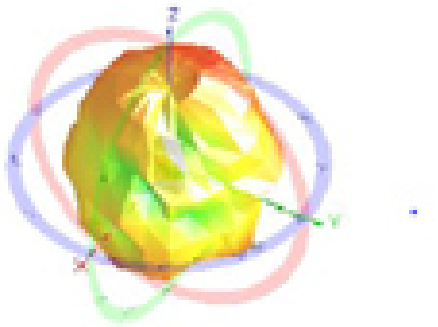
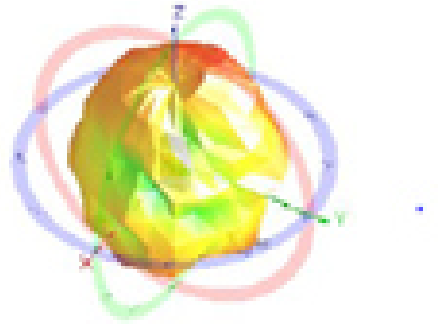
BAND	WiFi 5G		BAND	WiFi 5G	
5150 MHz			5550 MHz		
	Avg[dBi]	Peak[dBi]		Avg[dBi]	Peak[dBi]
	-4.61	-1.36		-5.36	-2.05

BAND	WiFi 5G	
5850 MHz		
	Avg[dBi]	Peak[dBi]
	-4.91	-1.83

■ Antenna Measurement information

● Measurement information

Gain value is measured by Samsung Electronics.

Gain Value is measured in active call & Antenna selection.

Antenna gain is measured in RTS60 Chamber.

*Test Equipment list

Description	Manufacturer	Model	S/N	Cal Due
Network Analyzer	Agilent Technologies	E5071C	B03704	2012.10.22

● Return Loss & VSWR Test

The VSWR measurement of antennas assembled into a fully operating SM-M146B/DSN phone handset is measured on the Network Analyzer. The handset is set up with a 50 Ohm coaxial cable connected to the 50 Ohm point. Calibration is done at the end of the 50 Ohm coaxial cable connection. The other end of the 50 Ohm coaxial cable is connected to a network analyzer. The handset is positioned on a non-conductive table for free space measurements.

See Photo #1

● Return Loss & VSWR Test

Samsung has a system that can measure VSWR using RTS60 chamber and ZNB 8 network analyzer for passive measurement. In order to measure the VSWR of each antenna, the lab connects the coaxial cable to the point in contact with the antenna on the main board. The VSWR is measured through the coaxial cable connected in the set. At this time, SM-A146M is assembled in the same state as the user environment

See Photo #2

● Radiation Pattern Test

The AC chamber has an axis because the cradle moves left and right up and down, and the RC chamber (RTS60) we use does not have an axis because the cradle does not move.

● Test Method (Manufacturing)

All measurements are done with SM-M146B/DSN fully assembled. Measure in consideration of the Customer’ s usage environment. Use a fully shielded chamber environment to prevent any noise-induced errors. Typically. The electrical properties of antenna are measured using a jig that can hold the set.

● Radiation Pattern

There is no Radiation Pattern due to passive measurement with RC chamber.