

APPROVAL SPECIFICATION

Product Name	INTENNA
Model Name	A3LSMA146M
Part No Frequency Band	WIFI(2.4GHz, 5GHz)
Production company	KESPION



KESPION

KESPION Co., Ltd.

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1. Manufacturer

- KESPION Co., Ltd.

2. Model Name

- Basic Model: SM-A146B_WiFi

3. Antenna Type

- WiFi: PIFA (Planar Inverted F Antenna)

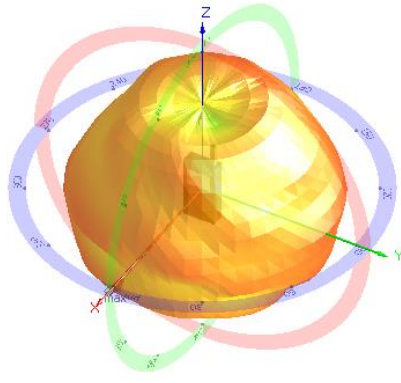
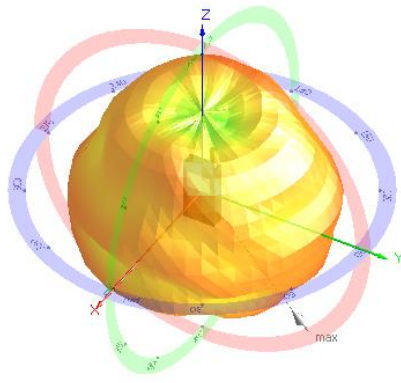
4. Electric Performance Data

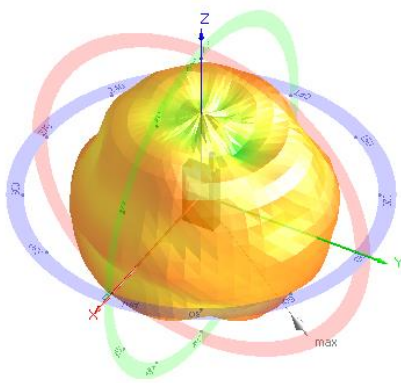
4.1 Antenna Gain

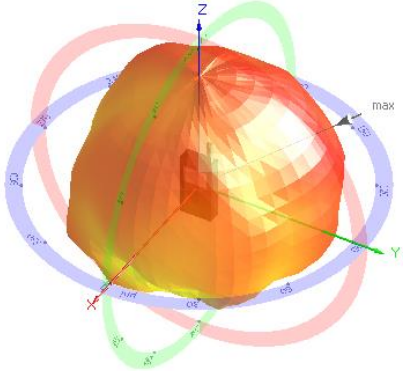
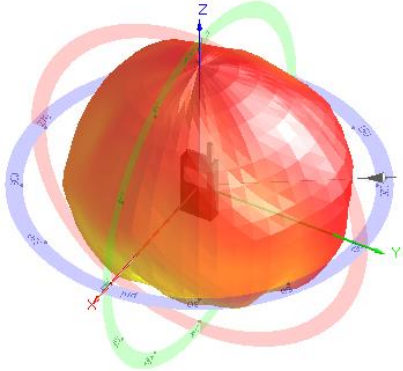
- WiFi

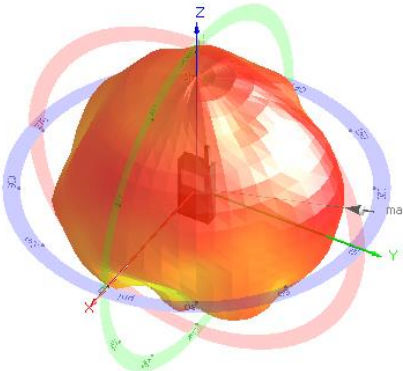
Freq.[MHz]	Eff.[%]	Avg.[dBi]	Peak[dBi]
2,400	35.08	-4.55	-2.73
2,442	29.83	-5.25	-3.31
2,485	27.22	-5.65	-3.48
5150	33.24	-4.78	-2.84
5550	51.63	-2.87	-1.13
5850	42.52	-3.71	-2.11

4.2 Radiation Pattern

주파수 대역 (Frequency Band)	WIFI	
	2,400 MHz	2,442 MHz
3D Radiation Pattern		
Avg Gain [dBi]	-4.55	-5.25
Peak Gain [dBi]	-2.73	-3.31

주파수 대역 (Frequency Band)	WIFI	
	2,485 MHz	
3D Radiation Pattern		
Avg Gain [dBi]	-5.65	
Peak Gain [dBi]	-3.48	

주파수 대역 (Frequency Band)	WIFI	
	5,150 MHz	5,550 MHz
3D Radiation Pattern		
Avg Gain [dBi]	-4.78	-2.87
Peak Gain [dBi]	-2.84	-1.13

주파수 대역 (Frequency Band)	WIFI	
	5,850 MHz	
3D Radiation Pattern		
Avg Gain [dBi]	-3.71	
Peak Gain [dBi]	-2.11	

■ 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	R&S	ZNB 8	001-A-061	2022.01.27.

- **Return Loss & VSWR Test**

The VSWR measurement of antennas assembled into a fully operating SM-A146M 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-A146M 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.