

Model name : SM-S911B/DS, SM-S911B

BT/WLAN antenna type : Metal

Radiation Patterns (Avg. Gain)

DM1 BT WIFI #1 (SUB4)

Freq. [Hz]	Avg. [dBi]
2,400,000,000 Hz	-8.27 dBi
2,412,000,000 Hz	-7.67 dBi
2,437,000,000 Hz	-8.34 dBi
2,442,000,000 Hz	-8.34 dBi
2,450,000,000 Hz	-7.55 dBi
2,462,000,000 Hz	-6.84 dBi
2,472,000,000 Hz	-5.58 dBi
2,484,000,000 Hz	-5.16 dBi
2,500,000,000 Hz	-6.11 dBi
5,150,000,000 Hz	-11.76 dBi
5,200,000,000 Hz	-11.51 dBi
5,220,000,000 Hz	-11 dBi
5,250,000,000 Hz	-10.67 dBi
5,280,000,000 Hz	-10.02 dBi
5,300,000,000 Hz	-9.54 dBi
5,350,000,000 Hz	-9.13 dBi
5,400,000,000 Hz	-8.93 dBi
5,500,000,000 Hz	-9.21 dBi
5,600,000,000 Hz	-8.25 dBi
5,700,000,000 Hz	-8.41 dBi
5,785,000,000 Hz	-8.62 dBi
5,800,000,000 Hz	-8.83 dBi
5,805,000,000 Hz	-8.59 dBi
5,850,000,000 Hz	-8.73 dBi
5,885,000,000 Hz	-8.48 dBi
5,895,000,000 Hz	-9.06 dBi
5,925,000,000 Hz	-8.99 dBi
6,025,000,000 Hz	-9.88 dBi
6,125,000,000 Hz	-10.1 dBi
6,225,000,000 Hz	-10.54 dBi
6,325,000,000 Hz	-10.82 dBi
6,425,000,000 Hz	-10.39 dBi
6,525,000,000 Hz	-10.8 dBi
6,625,000,000 Hz	-12.1 dBi
6,725,000,000 Hz	-12.5 dBi
6,825,000,000 Hz	-11.91 dBi
6,925,000,000 Hz	-11.53 dBi
7,025,000,000 Hz	-12.68 dBi
7,125,000,000 Hz	-12.95 dBi

DM1 BT WIFI #2 (SUB6/SUB1)

Freq. [Hz]	Avg. [dBi]
2,400,000,000 Hz	-14.36 dBi
2,412,000,000 Hz	-14.29 dBi
2,437,000,000 Hz	-14.91 dBi
2,442,000,000 Hz	-14.54 dBi
2,450,000,000 Hz	-13.26 dBi
2,462,000,000 Hz	-12.43 dBi
2,472,000,000 Hz	-12.23 dBi
2,484,000,000 Hz	-12.54 dBi
2,500,000,000 Hz	-12.72 dBi
5,150,000,000 Hz	-9.06 dBi
5,200,000,000 Hz	-8.87 dBi
5,220,000,000 Hz	-8.5 dBi
5,250,000,000 Hz	-8.41 dBi
5,280,000,000 Hz	-8.55 dBi
5,300,000,000 Hz	-8 dBi
5,350,000,000 Hz	-8.09 dBi
5,400,000,000 Hz	-8.37 dBi
5,500,000,000 Hz	-10.07 dBi
5,600,000,000 Hz	-9.88 dBi
5,700,000,000 Hz	-10.36 dBi
5,785,000,000 Hz	-10.14 dBi
5,800,000,000 Hz	-10.2 dBi
5,805,000,000 Hz	-10.14 dBi
5,850,000,000 Hz	-9.68 dBi
5,885,000,000 Hz	-9.7 dBi
5,895,000,000 Hz	-9.78 dBi
5,925,000,000 Hz	-9.82 dBi
6,025,000,000 Hz	-10.37 dBi
6,125,000,000 Hz	-11.91 dBi
6,225,000,000 Hz	-12.46 dBi
6,325,000,000 Hz	-12.86 dBi
6,425,000,000 Hz	-11.9 dBi
6,525,000,000 Hz	-11.65 dBi
6,625,000,000 Hz	-11.98 dBi
6,725,000,000 Hz	-12.87 dBi
6,825,000,000 Hz	-12.66 dBi
6,925,000,000 Hz	-12.38 dBi
7,025,000,000 Hz	-12.89 dBi
7,125,000,000 Hz	-12.28 dBi

Radiation Patterns (Peak. Gain)

DM1 BT WIFI #1 (SUB4)

Freq. [Hz]	Avg. [dBi]
2,400,000,000 Hz	-3.16 dBi
2,412,000,000 Hz	-2.21 dBi
2,437,000,000 Hz	-2.97 dBi
2,442,000,000 Hz	-3.25 dBi
2,450,000,000 Hz	-2.68 dBi
2,462,000,000 Hz	-2.13 dBi
2,472,000,000 Hz	-2.01 dBi
2,484,000,000 Hz	-2.15 dBi
2,500,000,000 Hz	-2.37 dBi
5,150,000,000 Hz	-6.61 dBi
5,200,000,000 Hz	-5.27 dBi
5,220,000,000 Hz	-5.07 dBi
5,250,000,000 Hz	-4.84 dBi
5,280,000,000 Hz	-4.11 dBi
5,300,000,000 Hz	-3.14 dBi
5,350,000,000 Hz	-3.14 dBi
5,400,000,000 Hz	-3.29 dBi
5,500,000,000 Hz	-4.03 dBi
5,600,000,000 Hz	-2.91 dBi
5,700,000,000 Hz	-2.69 dBi
5,785,000,000 Hz	-3.6 dBi
5,800,000,000 Hz	-2.79 dBi
5,805,000,000 Hz	-2.32 dBi
5,850,000,000 Hz	-3.17 dBi
5,885,000,000 Hz	-3.14 dBi
5,895,000,000 Hz	-3.67 dBi
5,925,000,000 Hz	-2.56 dBi
6,025,000,000 Hz	-3.03 dBi
6,125,000,000 Hz	-3.44 dBi
6,225,000,000 Hz	-4.61 dBi
6,325,000,000 Hz	-4.89 dBi
6,425,000,000 Hz	-4.13 dBi
6,525,000,000 Hz	-4.59 dBi
6,625,000,000 Hz	-6.81 dBi
6,725,000,000 Hz	-7.18 dBi
6,825,000,000 Hz	-6.46 dBi
6,925,000,000 Hz	-6.84 dBi
7,025,000,000 Hz	-6.71 dBi
7,125,000,000 Hz	-7.34 dBi

DM1 BT WIFI #2 (SUB6/SUB1)

Freq. [Hz]	Avg. [dBi]
2,400,000,000 Hz	-8.17 dBi
2,412,000,000 Hz	-8.04 dBi
2,437,000,000 Hz	-8.9 dBi
2,442,000,000 Hz	-8.49 dBi
2,450,000,000 Hz	-7.25 dBi
2,462,000,000 Hz	-6.14 dBi
2,472,000,000 Hz	-6.13 dBi
2,484,000,000 Hz	-6.32 dBi
2,500,000,000 Hz	-6.73 dBi
5,150,000,000 Hz	-4.04 dBi
5,200,000,000 Hz	-3.36 dBi
5,220,000,000 Hz	-3.05 dBi
5,250,000,000 Hz	-3.42 dBi
5,280,000,000 Hz	-2.58 dBi
5,300,000,000 Hz	-2.12 dBi
5,350,000,000 Hz	-3.48 dBi
5,400,000,000 Hz	-3.79 dBi
5,500,000,000 Hz	-5.59 dBi
5,600,000,000 Hz	-5.14 dBi
5,700,000,000 Hz	-5.11 dBi
5,785,000,000 Hz	-5.32 dBi
5,800,000,000 Hz	-5.07 dBi
5,805,000,000 Hz	-5.98 dBi
5,850,000,000 Hz	-5.5 dBi
5,885,000,000 Hz	-4.77 dBi
5,895,000,000 Hz	-4.82 dBi
5,925,000,000 Hz	-4.89 dBi
6,025,000,000 Hz	-5.37 dBi
6,125,000,000 Hz	-6.09 dBi
6,225,000,000 Hz	-7.62 dBi
6,325,000,000 Hz	-5.8 dBi
6,425,000,000 Hz	-4.96 dBi
6,525,000,000 Hz	-4.98 dBi
6,625,000,000 Hz	-5.69 dBi
6,725,000,000 Hz	-6.35 dBi
6,825,000,000 Hz	-5.62 dBi
6,925,000,000 Hz	-5.12 dBi
7,025,000,000 Hz	-7.35 dBi
7,125,000,000 Hz	-6.38 dBi

Radiation Pattern Test

Antennas tested for Gain and Efficiency must be assembled into the enclosure and tested in the fully assembled and operating DM1 handset. The antenna is tested in free space in the anechoic chamber in the H, E1 and, E2 planes. The radiation patterns are measured at the center of transmit and receive bands.

Photo #1

Note: Please refer to photos uploaded in separate antenna test set up photos exhibit.

Figure 1: Geometry for DM1 for Radiation patterns.

Chamber Information

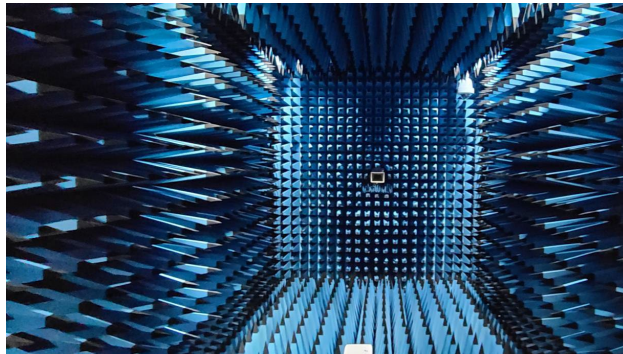
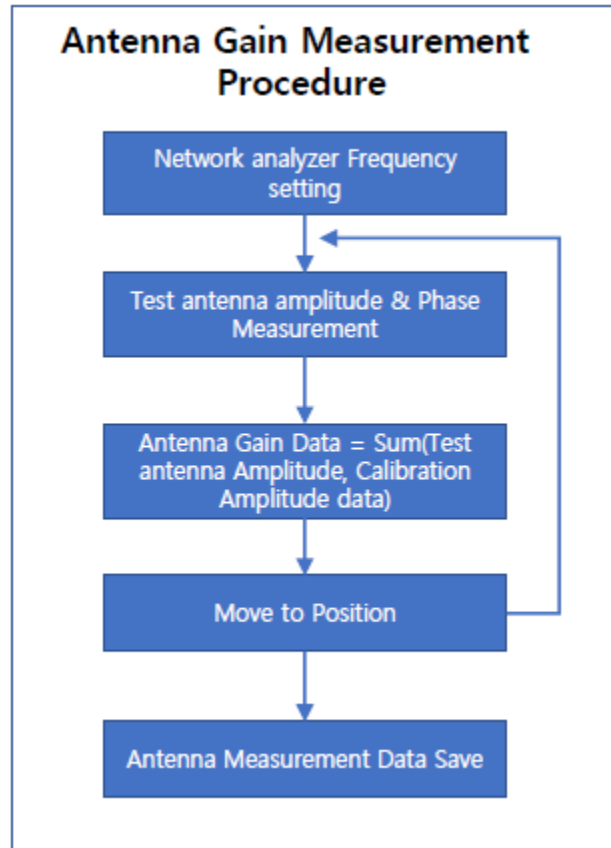


Figure 2: Geometry of Anechoic Chamber for Radiation patterns.

- ✓ Location : Samsung R&D Center R5 bld.
- ✓ Size : 4m x 2.5 x 2.5m (L x W x H)
- ✓ Frequency : 600 MHz -18GHz
- ✓ TX Antenna : 2GHz –18GHz Dual Polarization
- ✓ Quiet zone : 22cm @ 6GHz (Far-Field Length 2m)
- ✓ 2-axis DUT positioner -360°continuous rotation

Antenna Gain Measurement Procedure

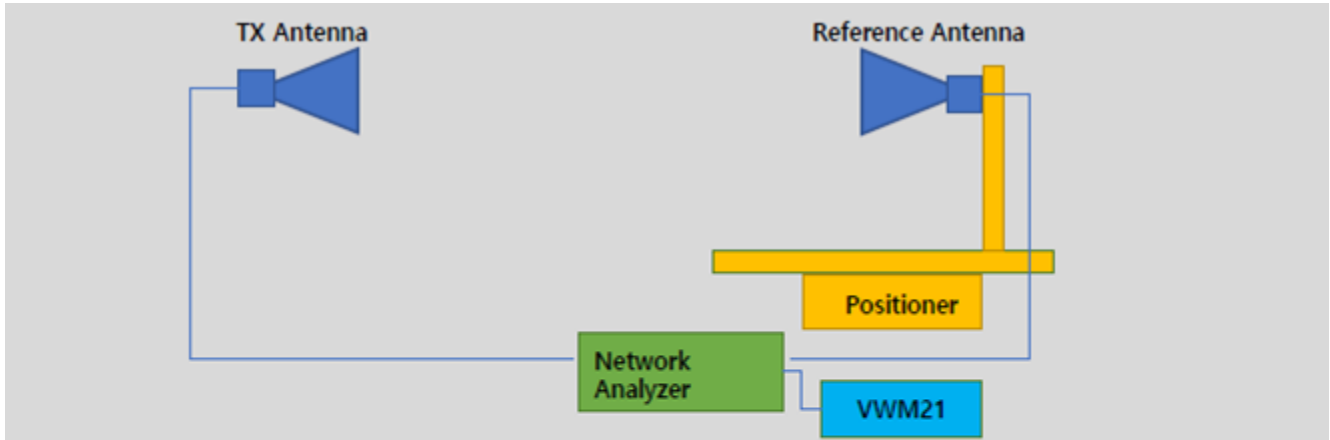


Detail antenna description

Photo #2

Note: Please refer to photos uploaded in separate antenna test set up photos exhibit.

Table of calibrated equipment



Part	Model Name	Specification	
TX Antenna	QRH-006M-006G	600MHz to 6GHz	
	QRH-002G-018G	2GHz to 18GHz	
Reference Antenna	BBHA9120LFA	680MHz to 6500MHz	Calibration Frequency (680MHz to 6GHz)
	BBHA9120C	2GHz to 18GHz	Calibration Frequency (2GHz to 8.5GHz)
Network Analyzer	Agilent 5071B	300KHz to 8.5GHz	Cal. Due : 2023.12.28
Measurement Software	VWM21		MTG Visual Wave-Mobile (Ver.2.1)

Test dates

2022.09.07

Names of test personnel

Jeong-hoon Kim, Jae-ho Lim

Names of commercial test software being used

MTG Visual Wave-Mobile (Ver.2.1)

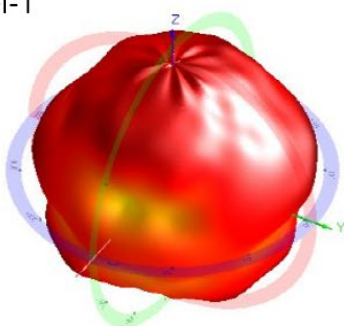
Test setup photos

Photo #3

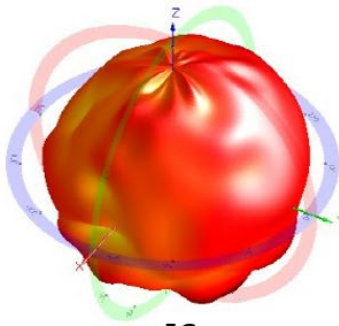
Note: Please refer to photos uploaded in separate antenna test set up photos exhibit.

Radiation plots for max gain plane (3D)

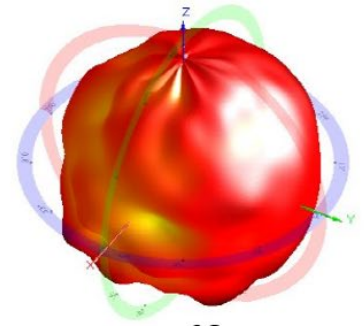
WiFi-1



2.5G

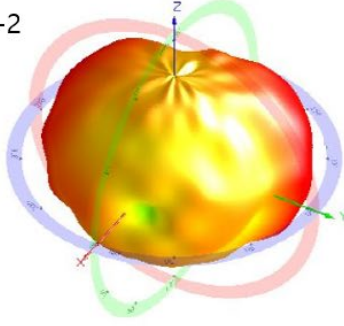


5G

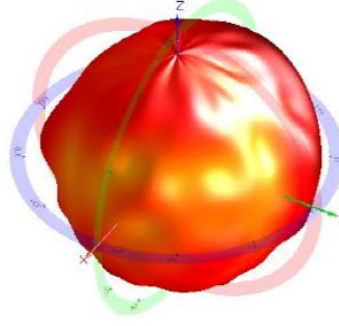


6G

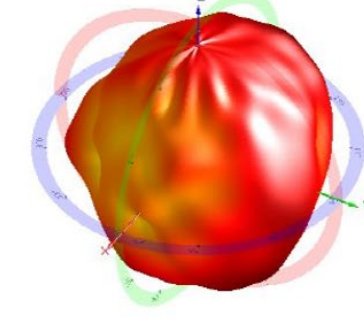
WiFi-2



2.5G



5G



6G

NFC antenna

- Antenna type: FPCB type
- Antenna number of turns: 3 turns
- Antenna size: 48.9 x 53.4 mm
- Antenna photo: Please refer to internal photo