DM3 BT WIFI #1 (SUB4/SUB3)

Freq. [Hz]	Efficiency [%]	Avg. [dBi]	Peak [dBi]
2,400,000,000 Hz	14.1	-9.86	-4.7
2,412,000,000 Hz	13.6	-10.03	-4.49
2,437,000,000 Hz	13.5	-10.08	-4.87
2,442,000,000 Hz	13.2	-10.16	-4.55
2,450,000,000 Hz	11.1	-10.99	-4.68
2,462,000,000 Hz	10.9	-11.06	-4.77
2,472,000,000 Hz	11.2	-10.92	-4.84
2,484,000,000 Hz	13.4	-10.11	-4.11
2,500,000,000 Hz	15.2	-8.53	-4.53
5,150,000,000 Hz	16.7	-8.32	-4.32
5,200,000,000 Hz	17.1	-8.62	-4.48
5,220,000,000 Hz	17.5	-9.14	-4.54
5,250,000,000 Hz	11.4	-10.86	-5.94
5,280,000,000 Hz	10.3	-11.32	-6.43
5,300,000,000 Hz	11.7	-10.74	-5.7
5,350,000,000 Hz	12.2	-10.55	-4.86
5,400,000,000 Hz	11.5	-10.83	-5.17
5,500,000,000 Hz	12.6	-10.39	-5.08
5,600,000,000 Hz	11.7	-10.74	-4.66
5,700,000,000 Hz	10.5	-11.25	-4.89
5,785,000,000 Hz	7.2	-13.05	-4.98
5,800,000,000 Hz	7.5	-12.83	-5.44
5,805,000,000 Hz	7.3	-13	-4.97
5,850,000,000 Hz	7.8	-12.64	-5.44
5,885,000,000 Hz	7.6	-12.78	-5.08
5,895,000,000 Hz	7.8	-12.65	-5.72
5,925,000,000 Hz	7.4	-12.91	-5.93
6,025,000,000 Hz	7	-13.2	-6.74
6,125,000,000 Hz	7	-13.21	-7.46
6,225,000,000 Hz	6.9	-13.29	-7.21
6,325,000,000 Hz	6.4	-13.62	-8.63
6,425,000,000 Hz	5	-14.9	-9.68
6,525,000,000 Hz	4.6	-15.34	-9.41
6,625,000,000 Hz	3.9	-16.23	-10.63
6,725,000,000 Hz	4.4	-15.57	-9.91
6,825,000,000 Hz	5	-14.88	-9.88
6,925,000,000 Hz	5.6	-14.26	-9.03
7,025,000,000 Hz	5.8	-14.1	-8.25
7,125,000,000 Hz	7.6	-12.77	-7.39

DM3 BT WIFI #2 (SUB6/SUB1)

Freq. [Hz]	Efficiency [%]	Avg. [dBi]	Peak [dBi]
2,400,000,000 Hz	3.31	-16.82	-10.09
2,412,000,000 Hz	3.31	-16.81	-10.07
2,437,000,000 Hz	3.61	-16.7	-9.78
2,442,000,000 Hz	3.81	-16.61	-9.66
2,450,000,000 Hz	3.91	-16.47	-9.71
2,462,000,000 Hz	4.81	-15.23	-8.73
2,472,000,000 Hz	5.11	-14.92	-8.38
2,484,000,000 Hz	5.81	-14.26	-7.73
2,500,000,000 Hz	5.51	-14.54	-8.16
5,150,000,000 Hz	5.11	-14.94	-8.58
5,200,000,000 Hz	5.91	-14.11	-8.06
5,220,000,000 Hz	7.51	-12.92	-6.59
5,250,000,000 Hz	7.91	-11.7	-5.38
5,280,000,000 Hz	8.31	-10.87	-5.17
5,300,000,000 Hz	9.61	-10.09	-4.79
5,350,000,000 Hz	10.61	-9.96	-4.22
5,400,000,000 Hz	11.21	-9.49	-4.02
5,500,000,000 Hz	11.91	-9.24	-4.22
5,600,000,000 Hz	13.21	-8.63	-3.88
5,700,000,000 Hz	13.51	-8.9	-4.07
5,785,000,000 Hz	14.91	-9.26	-4.9
5,800,000,000 Hz	13.41	-9.7	-5.38
5,805,000,000 Hz	14.71	-9.31	-4.84
5,850,000,000 Hz	14.91	-9.89	-5.41
5,885,000,000 Hz	13.11	-10.17	-6
5,895,000,000 Hz	13.01	-10.18	-5.92
5,925,000,000 Hz	13.51	-10	-5.23
6,025,000,000 Hz	13.91	-9.87	-5.17
6,125,000,000 Hz	13.81	-9.92	-5.55
6,225,000,000 Hz	12.21	-10.49	-5.52
6,325,000,000 Hz	11.61	-10.74	-5.27
6,425,000,000 Hz	9.21	-11.86	-5.64
6,525,000,000 Hz	9.71	-11.59	-6.62
6,625,000,000 Hz	9.71	-11.61	-6.43
6,725,000,000 Hz	10.61	-11.19	-6.59
6,825,000,000 Hz	8.81	-12.07	-7.92
6,925,000,000 Hz	7.31	-13.01	-8.44
7,025,000,000 Hz	7.31	-13.04	-8.05
7,125,000,000 Hz	8.11	-12.52	-6.98

Radiation Pattern Test

Antennas tested for Gain and Efficiency must be assembled into the enclosure and tested in the fully assembled and operating DM3 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.

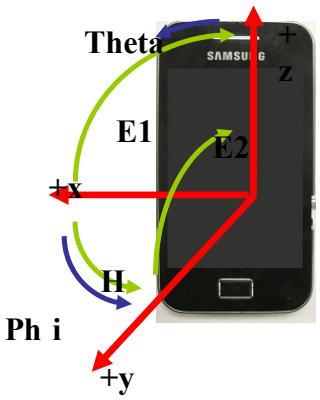


Figure 1: Geometry for DM3 for Radiation patterns.

Chamber Information

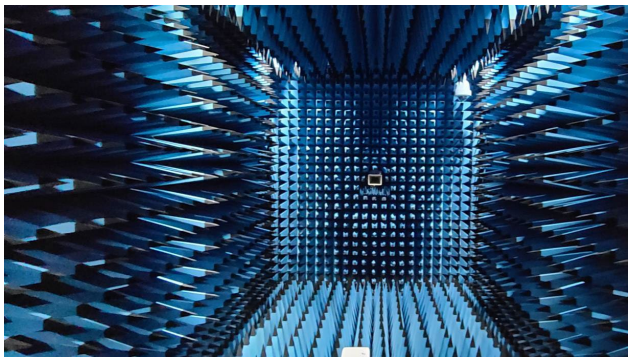
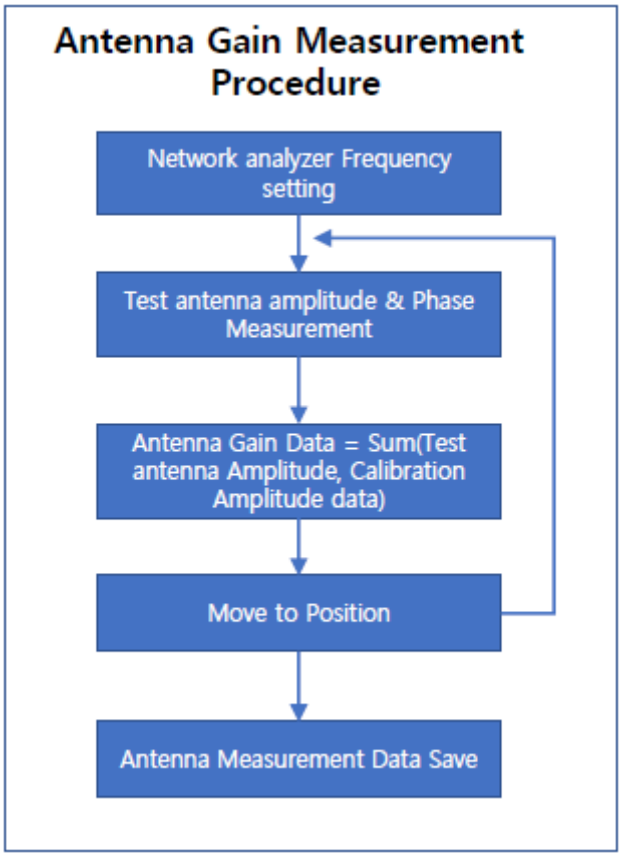


Figure 2: Geometry of Anechoic Chamber for Radiation patterns.

- ✓ 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 (Metal Antenna)

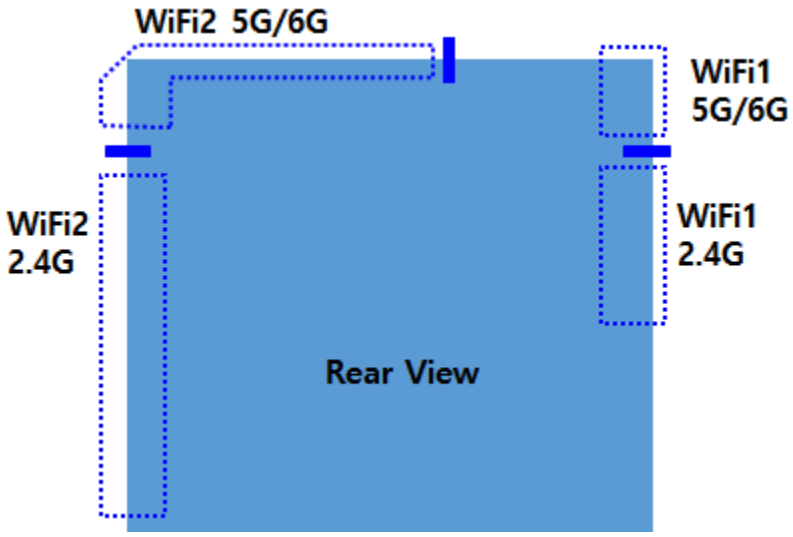
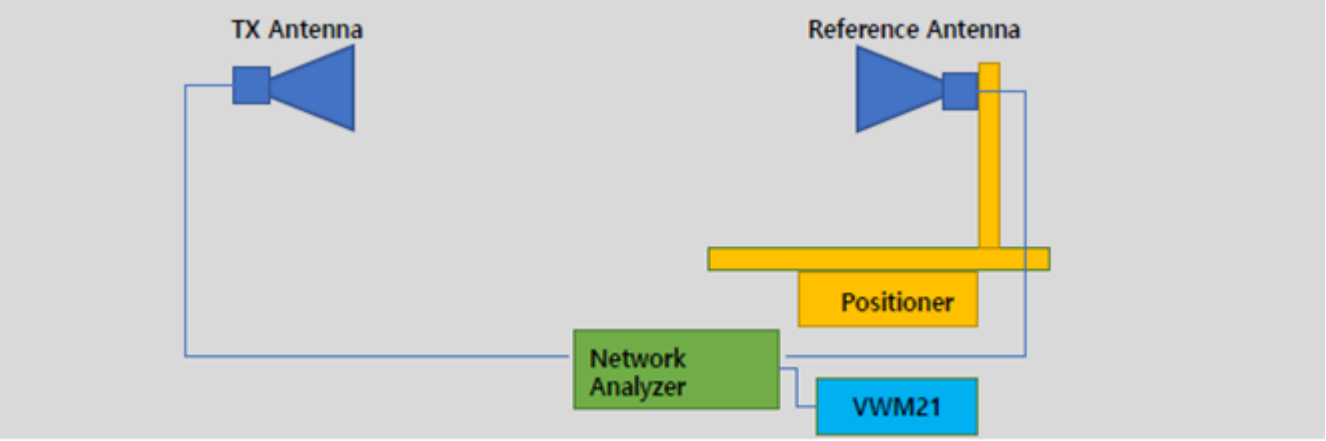


Table of calibrated equipment



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

2022.09.26

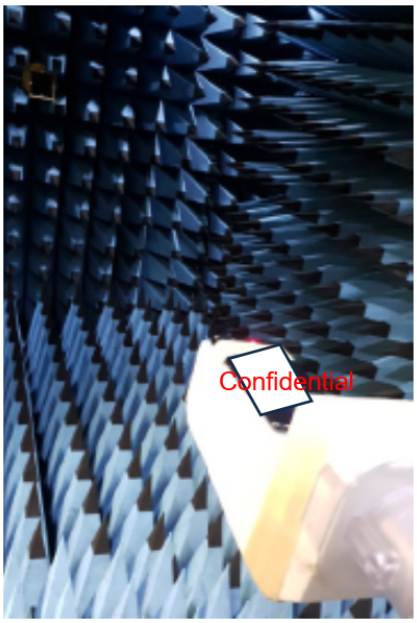
Names of test personnel

Hee-jun Lee, Myung-gu Kang

Names of commercial test software being used

MTG Visual Wave-Mobile (Ver.2.1)

Test setup photos



Radiation plots for max gain plane (3D)