



Unlicensed Band Antenna Gain

Model: SC-54D, SCG23

FCC ID: A3LSMF731JPN

Radiation Patterns (Peak. Gain)

| B5_JPN Wi-Fi1 (SUB2) | |
|-----------------------|-----------------|
| Freq. | Peak_Gain (dBi) |
| 2.400 | -5.65 |
| 2.412 | -5.78 |
| 2.437 | -6.05 |
| 2.442 | -6.09 |
| 2.450 | -5.16 |
| 2.462 | -5.44 |
| 2.472 | -5.79 |
| 2.484 | -5.41 |
| 2.500 | -5.31 |
| 5.150 | -4.52 |
| 5.200 | -4.49 |
| 5.220 | -4.49 |
| 5.250 | -5.41 |
| 5.280 | -5.38 |
| 5.300 | -4.63 |
| 5.350 | -4.51 |
| 5.400 | -5.46 |
| 5.500 | -6.01 |
| 5.600 | -5.66 |
| 5.700 | -5.72 |
| 5.785 | -5.92 |
| 5.800 | -6.46 |
| 5.805 | -6.42 |
| 5.850 | -5.78 |
| 5.885 | -5.78 |
| 5.895 | -5.66 |
| 5.925 | -10.51 |
| 6.025 | -10.75 |
| 6.125 | -10.37 |
| 6.225 | -10.16 |
| 6.325 | -10.95 |
| 6.425 | -10 |
| 6.525 | -10.77 |
| 6.625 | -10.65 |
| 6.725 | -10.29 |
| 6.825 | -10.28 |
| 6.925 | -10.39 |
| 7.025 | -10.74 |
| 7.125 | -10.42 |

| B5_JPN Wi-Fi2 (SUB4)_fcc | |
|----------------------------|-----------------|
| Freq. | Peak_Gain (dBi) |
| 2.400 | -9.67 |
| 2.412 | -8.62 |
| 2.437 | -8.12 |
| 2.442 | -7.96 |
| 2.450 | -7.42 |
| 2.462 | -7.47 |
| 2.472 | -7.42 |
| 2.484 | -7.26 |
| 2.500 | -7.69 |
| 5.150 | -6.34 |
| 5.200 | -6.56 |
| 5.220 | -6.46 |
| 5.250 | -6.31 |
| 5.280 | -5.72 |
| 5.300 | -6.05 |
| 5.350 | -6.24 |
| 5.400 | -6.11 |
| 5.500 | -6.74 |
| 5.600 | -6.89 |
| 5.700 | -6.38 |
| 5.785 | -7.29 |
| 5.800 | -8.13 |
| 5.805 | -7.38 |
| 5.850 | -7.15 |
| 5.885 | -6.96 |
| 5.895 | -7.47 |
| 5.925 | -10.61 |
| 6.025 | -10.05 |
| 6.125 | -10.61 |
| 6.225 | -10.04 |
| 6.325 | -10.13 |
| 6.425 | -10.64 |
| 6.525 | -10.3 |
| 6.625 | -10.79 |
| 6.725 | -10.28 |
| 6.825 | -10.42 |
| 6.925 | -10.55 |
| 7.025 | -10.35 |
| 7.125 | -10.84 |

Radiation Pattern Test

Antennas tested for Gain and Efficiency must be assembled into the enclosure and tested in the fully assembled and operating **A3LSMF731JPN** 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.

A picture showing the geometry for this device is included in the test setup photos.

Chamber Information

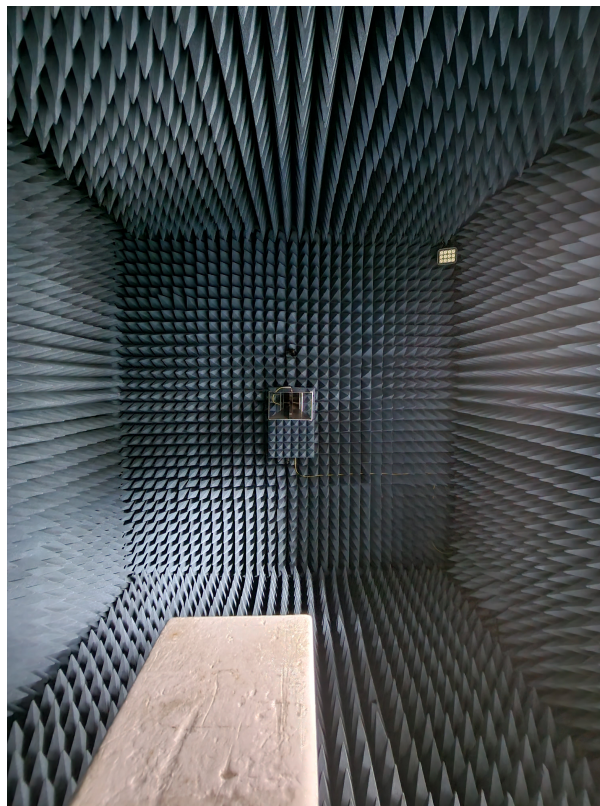
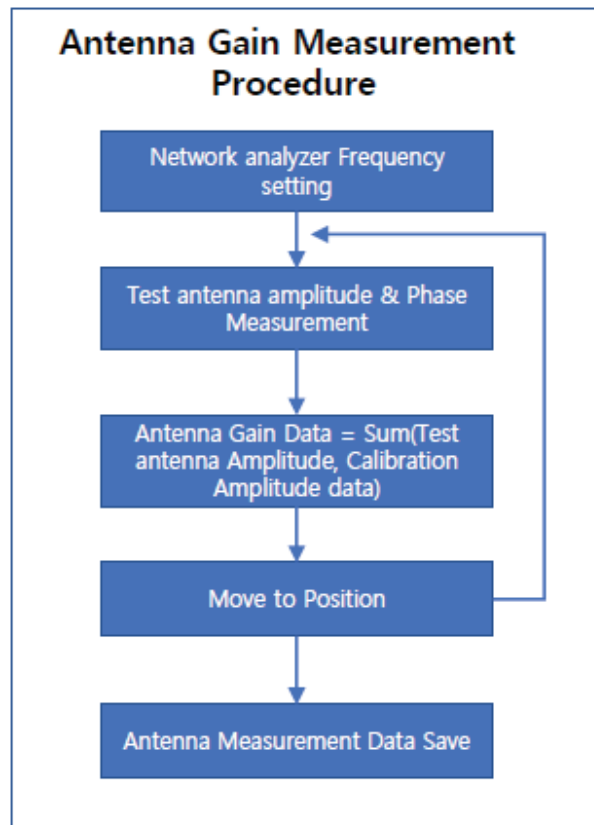


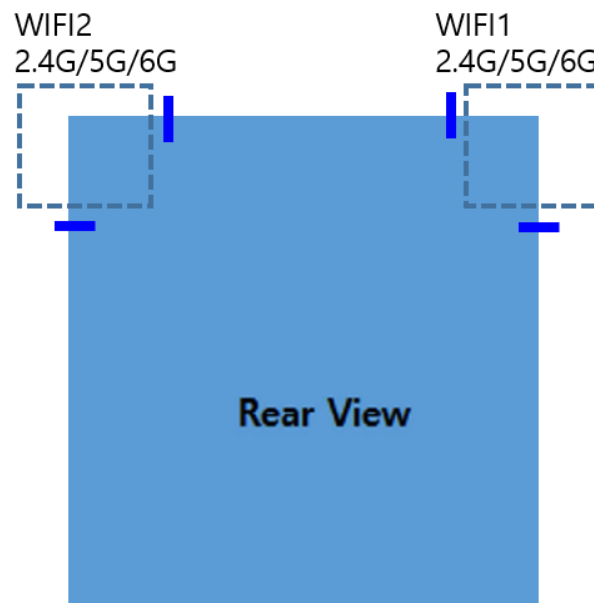
Figure 2: Geometry of Anechoic Chamber for Radiation patterns.

- ✓ 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

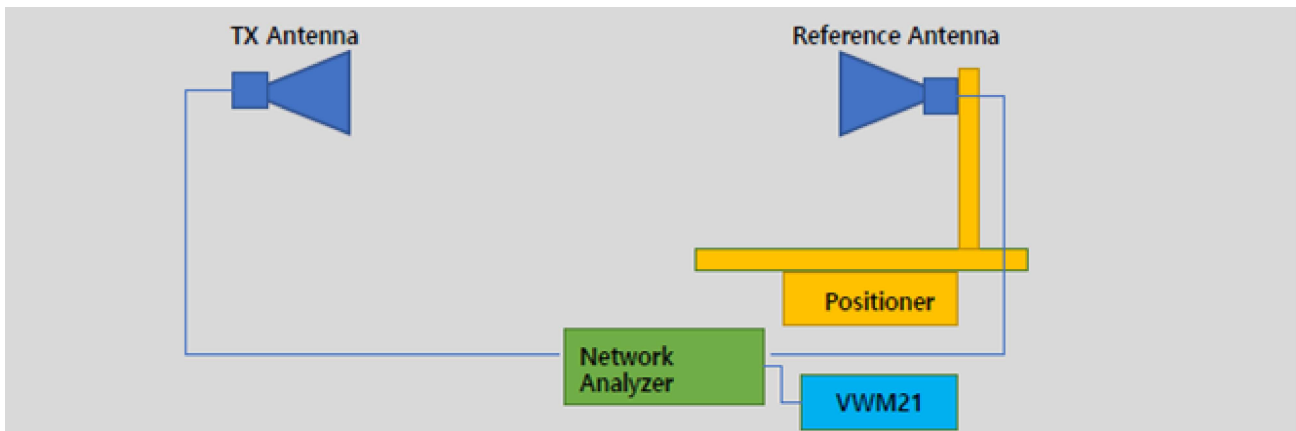


Detail antenna description



The antennas can be seen in the internal photos.

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

2023.03.07 ~ 2023.03.09

Names of test personnel

Kook Joo Lee

Names of commercial test software being used

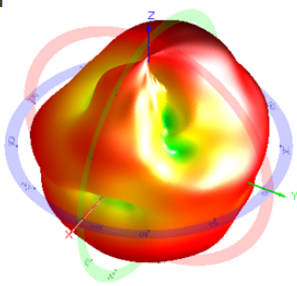
MTG Visual Wave-Mobile (Ver.2.1)

Test setup photos

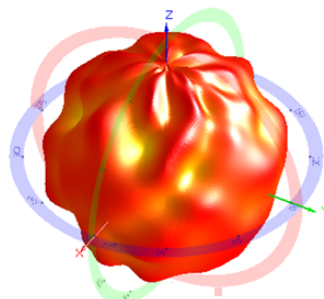
The antenna gain report test setup photos includes pictures of the measurement setup.

Radiation plots for max gain plane (3D)

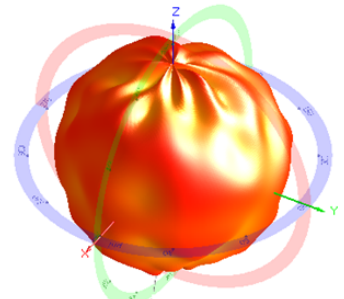
WiFi-1



2.5G

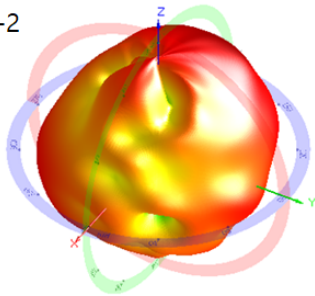


5G

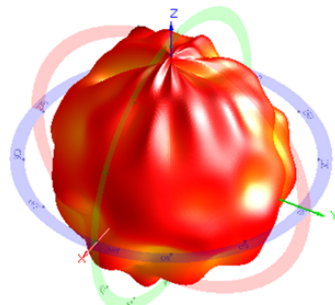


6G

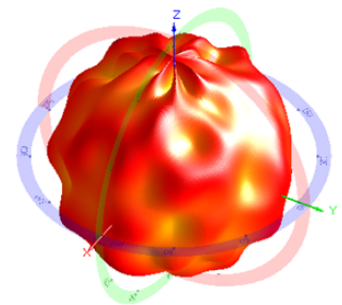
WiFi-2



2.5G



5G



6G