

# A3LSMG556B BT/WLAN/NFC Ant Specification

\* Antenna Manufacturer: KYOCERA AVX

\* Gain value is measured by KYOCERA AVX.

\* Gain Value is measured in active call & Antenna

\* Antenna gain is measured in KSS Chamber.

\* KSS Chamber

The Bluetest Reverberation Test Systems is the ideal choice for developers of wireless devices and components as well as operators wanting to verify their suppliers' wireless devices. Over-The-Air (OTA) measurements reflect the true performance of the device and ensure that the tested product performs as intended once released to the market. The patented design creates a rich and isotropic multipath environment inside the chamber allowing for fast, easy and realistic performance measurements on SISO as well as MIMO devices like LTE/NR and WLAN. The RTS is capable of performing passive measurements like antenna efficiency, diversity and MIMO gain as well as active measurements like TRP, TIS and Throughput (TPUT).

## \* Test Equipment list

Description	Manufacturer	Model	S/N	Cal Due
Network Analyzer	Agilent	E5071B	MY42403625	2024-06-04

\* Test dates: 2023.11.14

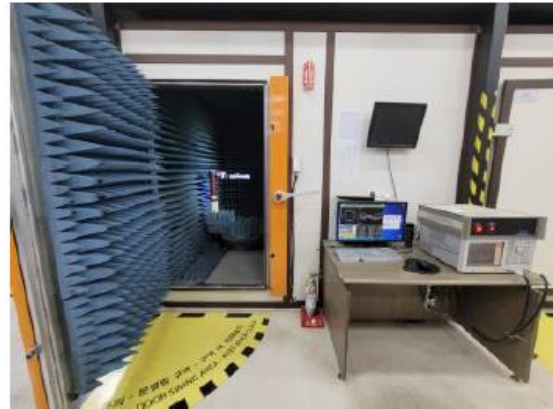
\* Names of test personnel

Sung-Yong Heo

\* Names of commercial test software being used KSS-ANT

### \* Return Loss & VSWR Test

The VSWR measurement of antennas assembled into a fully operating SM-G556B Smart Phone is measured on the Network Analyzer. The Smart Phone 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 Smart Phone is positioned on a non-conductive table for free space measurements.



### \* Return Loss & VSWR Test

Samsung Antenna Lab has a system that can measure VSWR using KSS chamber and ZNB8 network analyzer. 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-G556B is assembled in the same state as the user environment.

### \* Radiation Pattern Test

Antennas tested for Gain and Efficiency must be assembled into the enclosure and tested in the fully assembled and operating SM-G556B Smart Phone. 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.

[Unlicensed antenna setup photos includes pictures of the measurement setup.](#)

**\* Test Method (Manufacturing)**

All measurements are done with SM-G556B 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 the antenna are measured using a jig that can hold the set. Antenna E(Sub2)

**\* Detail antenna description**

[The antennas can be seen in the internal photos.](#)

**\* SM-G556B BT/WLAN RF Antenna Gain**

Antenna E (Sub2)

- SCI
- Manufacturer: KYOCERA AVX

	Band	GPS	WiFi 2G	WiFi 5G
Antenna E	Peak gain (dBi)	2.7	-3.7	-3.1
	Ave. gain (dBi)	-3.4	-8.0	-10.3

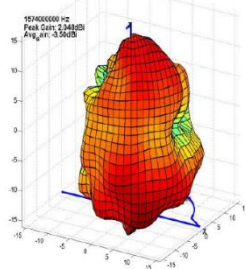
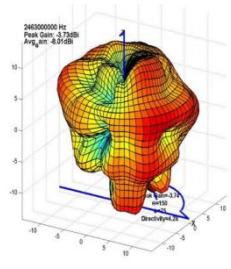
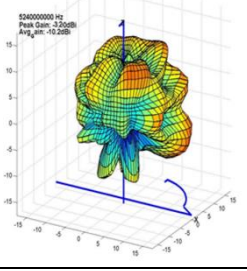
**\* SM-G556B NFC antenna**

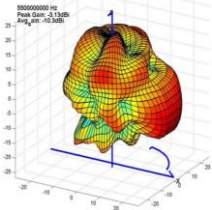
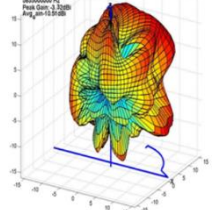
- Antenna type: FPCB type
- Antenna number of turns: 4 turns
- Antenna size: 50.0 x 40.0 mm
- Antenna photo: Please refer to internal photo

- Radiation Pattern (BT/WLAN)

There is Radiation Pattern due to passive measurement with KSS chamber.

Antenna E(Sub2)

주파수 대역	Sub2	
(Frequency Band)	GPS	WiFi 2G
3D Radiation Pattern		
Avg Gain [dBi]	-3.4	-8.0
Efficiency[%]	46.2	16.3
Peak Gain [dBi]	2.7	-3.7
주파수 대역	Sub2	
(Frequency Band)	WiFi 5G (5240MHz)	WiFi 5G (5320MHz)
3D Radiation Pattern		
Avg Gain [dBi]	-10.2	-10.5
Efficiency[%]	8.7	8.4
Peak Gain [dBi]	-3.2	-3.4
주파수 대역	Sub2	
(Frequency Band)	WiFi 5G (5500MHz)	WiFi 5G (5835MHz)

<p style="text-align: center;"><b>3D Radiation Pattern</b></p>		
<p><b>Avg Gain [dBi]</b></p>	<p style="text-align: center;"><b>-10.3</b></p>	<p style="text-align: center;"><b>-10.5</b></p>
<p><b>Efficiency[%]</b></p>	<p style="text-align: center;"><b>9.2</b></p>	<p style="text-align: center;"><b>8.5</b></p>
<p><b>Peak Gain [dBi]</b></p>	<p style="text-align: center;"><b>-3.1</b></p>	<p style="text-align: center;"><b>-3.3</b></p>