

Main RF & BT/WIFI Ant Specification

FCC ID: A3LSMA233JPN

Main Ant 1/2

- Antenna Type : Metal
- Antenna Manufacturer : Samsung Electronics Co, Ltd

Sub Ant 1

- Antenna Type : Metal+LDS
- Antenna Manufacturer : Samsung Electronics Co, Ltd.(Metal)
Galtronics Corporation Ltd.(LDS)

Sub Ant 3

- Antenna Type : Metal+LDS
- Antenna Manufacturer : Samsung Electronics Co, Ltd.(Metal)
Galtronics Corporation Ltd.(LDS)

Gain value is measured by Samsung Electronics.

Gain value is measured in active call & Antenna selection.

Antenna gain is measured in RTS60 Chamber.

* RTS60 Chamer

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 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).



Main1 PCS1900	1	2
Frequency(MHz)	1850	1920
Efficiency(dB)	-5	-5
Efficiency(%)	31.6	31.6
Peak Gain(dBi)	-4.4	-4.8

Main1 LTE B5/26, GSM850, W5	1	2
Frequency(MHz)	814	894
Efficiency(dB)	-6.8	-6.5
Efficiency(%)	20.9	22.4
Peak Gain(dBi)	-6.5	-6.3

Main1 LTE B12	1	2
Frequency(MHz)	699	746
Efficiency(dB)	-6.5	-6.0
Efficiency(%)	22.4	25.1
Peak Gain(dBi)	-6.5	-6.3

Main2 LTE B41	1	2
Frequency(MHz)	2496	2690
Efficiency(dB)	-5.7	-5.5
Efficiency(%)	26.9	28.2
Peak Gain(dBi)	-5.5	-5.3

SUB3 WiFi 2.4G BT	1	2	3
Frequency(MHz)	2400	2440	2480
Efficiency(dB)	-4.5	-4.2	-4.4
Efficiency(%)	35.6	38.1	36.1
Peak Gain(dBi)	-4.3	-4.2	-4.3

SUB3 WiFi 5G	1	2	3
Frequency(MHz)	5150	5500	5825
Efficiency(dB)	-6.7	-6.5	-6.5
Efficiency(%)	21.6	22.3	22.4
Peak Gain(dBi)	-6.7	-6.3	-6.2

*Test Equipment list

Description	Manufacturer	Model	S/N	Cal Due
Network Analyzer	R&S	ZNB 8	105157	2023.04.21.

- **Return Loss & VSWR Test**

The VSWR measurement of antennas assembled into a fully operating **SC-56C** 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, **SC-56C** 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 **SC-56C** 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.](#)