SAMSUNG

Antenna Gain Main Band

Model: SM-M356B/DS

FCC ID: A3LSMM356B

▣ Antenna Manufacturer

- Main Ant : SAMSUNG

Antenna A (Main1)

- MFA

- Manufacturer : Kyocera

Antenna A (main1)	**Band**	**GSM850**	**WCDMA5**		
	Peak Gain (dBi)	-3.9 dBi	-3.9 dBi		
	Avg Gain (dBi)	-8.4 dBi	-8.4 dBi		
	Band	**LTE B5**	**LTE B12**	**LTE B17**	**LTE B26**
	Peak Gain (dBi)	-3.9 dBi	-4.7 dBi	-4.6 dBi	-3.8 dBi
	Avg Gain (dBi)	-8.4 dBi	-8.5 dBi	-8.4 dBi	-8.3 dBi
	Band	**n5**			
	Peak Gain (dBi)	-3.9 dBi			
	Avg Gain (dBi)	-8.4 dBi			

Antenna B (Main2)

- MFA

- Manufacturer: Kyocera

Antenna B (main2)	**Band**	**GSM1900**	**WCDMA2**	**WCDMA4**	
	Peak Gain (dBi)	-0.3 dBi	-0.3 dBi	1.3 dBi	
	Avg Gain (dBi)	-5.2 dBi	-5.2 dBi	-5.0 dBi	
	Band	**LTE B2**	**LTE B4**	**LTE 41/n41**	**LTE B66/n66**
	Peak Gain (dBi)	-0.3 dBi	1.3 dBi	-4.0 dBi	-5.0 dBi
	Avg Gain (dBi)	-5.2 dBi	-5.0 dBi	2.1 dBi	1.5 dBi
	Band	**n41 SRS**			
	Peak Gain (dBi)	-4.0 dBi			
	Avg Gain (dBi)	2.1 dBi			

Antenna C (Main3)

- MFA
- Manufacturer: Kyocera

Antenna C (main3)	Band	n41 SRS
	Peak Gain (dBi)	-8.9 dBi
	Avg Gain (dBi)	-13.4 dBi

Antenna D (Sub1)

- MFA
- Manufacturer : kyocera

Antenna D (Sub1)	Band	n41 SRS
	Peak Gain (dBi)	-4.0 dBi
	Avg Gain (dBi)	-10.5 dBi

Antenna F (Sub3)

- MFA
- Manufacturer : kyocera

Antenna F (sub3)	Band	n77
	Peak Gain (dBi)	-1.9 dBi
	Avg Gain (dBi)	-6.6 dBi

Antenna G (Sub4)

- IFA
- Manufacturer : kyocera

Antenna G (sub4)	Band	n41 SRS
	Peak Gain (dBi)	-4.9 dBi
	Avg Gain (dBi)	-11.1 dBi

Antenna Measurement information

- **Measurement information**

Gain value is measured by Samsung Electronics.

Gain Value is measured in active call &

Antenna selection. Antenna gain is

measured in AC Chamber.

* Test date : 24.03.20

* Name of test peronnel

Kicheol Sung (s88.byun@samsung.com)

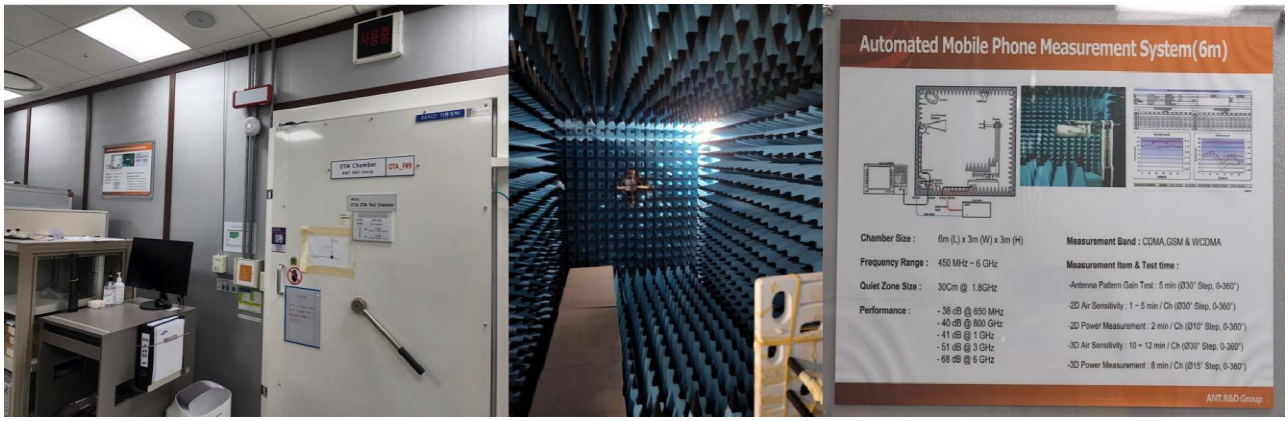
Signature of Person Respoisble :

*Test Equipment list

Description	Manufacturer	Model	S/N	Cal Due
Network Analyzer	R&S	ZNB 8	001-A-061	24.4.13.

- **Return Loss & VSWR Test**

The VSWR measurement of antennas assembled into a fully operating SM-F946U 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.

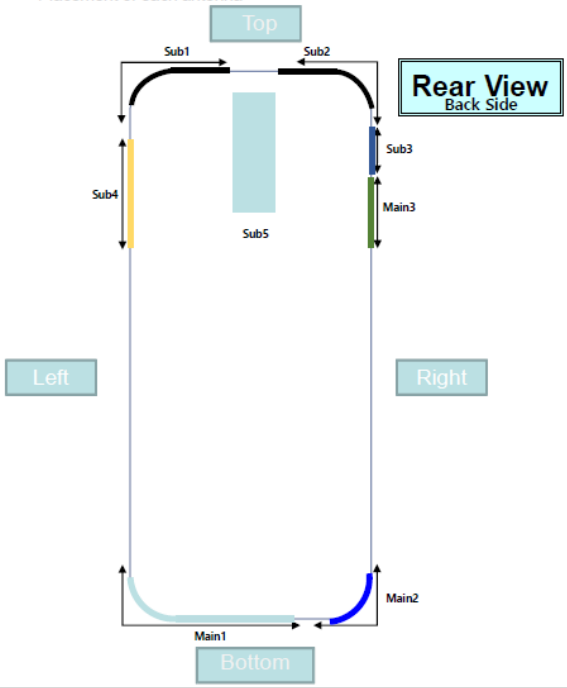


- **Return Loss & VSWR Test**

Samsung has a system that can measure VSWR using AC 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, SM-F946U is assembled in the same state as the user environment

SAMSUNG Confidential

* Placement of each antenna



Tx Antenna Information Blue Highlighted

Ant	Support Band List
Main1 [ANT A]	LB 1. TX1/PRX1 NR N5, 8, 20, 28 LTE B5, 8, 12, 17, 20, 26, 28 WCDMA W5, 8 / GSM850,900
Main2 [ANT B]	MB/HB/n77/n78 1. TX1/PRX1 NR N1, 3, 7, 38, 40, 41, 66 LTE B1, 2, 3, 4, 7, 38, 40, 41, 66 WCDMA W1, 2, 4 / GSM1800, 1900 2. n77/n78 DRX2 3. N41 SRS0
Main3 [ANT C]	MB/hb 1. TX2/PRX1 (TRX for ENDC) NR N1, 3, 66 LTE B1, 3, 2, 4, 66 2. hb PRX2 NR N7, 38, 41 LTE B7, 38, 41 3. N41 SRS2
SUB1 [ANT D]	lb/mb/hb 1. DRX1 NR N1, 3, 5, 7, 8, 20, 28, 38, 40, 41, 66 LTE B1, 2, 3, 4, 5, 7, 8, 12, 17, 20, 26, 28, 38, 40, 41, 66 WCDMA W1, 2, 4, 5, 8 / GSM850,900,1800,1900 2. N41 SRS1
SUB2 [ANT E]	WiFi 1st, GPS, n77/n78 1. n77/n78 PRX2 2. WIFI1 2G/5G 3. GPS L1
SUB3 [ANT F]	N77/N78 TX/PRX1
SUB4 [ANT G]	hb, n77/n78 1. n77/n78 DRX1 2. hb DRX2 NR N7, 38, 41 LTE B7, 38, 41 3. N41 SRS3
SUB5 [ANT H]	WiFi 2nd 2G/5G