



FCC SAR TEST REPORT

Report No.: STS2302307H02

Issued for

AGM MOBILE LIMITED

FLAT/RM 2253 22/F HOI TAI FACTORY ESTATE TSING
YEUNG CIRCUIT TUEN MUN NT HONG KONG

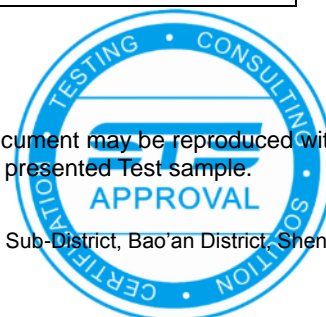
Product Name:	5G Smart phone
Brand Name:	AGM
Model Name:	AGM G2
Series Model:	AGM G2 Pro, AGM G2 Guardian, AGM G2 1KM, Glory G2
FCC ID:	2A3DR-G2
Test Standard:	ANSI/IEEE Std. C95.1
	FCC 47 CFR Part 2 (2.1093)
	IEEE 1528: 2013
Max. Report SAR(Head and Body): 1g	Head: 0.492 W/kg
	Body:0.984 W/kg

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ShenZhen STS Test Services Co.,Ltd.

A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

TEL: +86-755 3688 6288 FAX: +86-755 3688 6277 E-mail:sts@ststest.com





Test Report Certification

Applicant's name : AGM MOBILE LIMITED
Address : FLAT/RM 2253 22/F HOI TAI FACTORY ESTATE TSING YEUNG
 CIRCUIT TUEN MUN NT HONG KONG
Manufacturer's Name : Shenzhen AIJIEMO Technology Company Limited
Address : 1st Floor 101 and 2nd Floor 201, Building A2, Huafeng Century
 Technology Park, Nanchang Community, Xixiang, Baoan District,
 Shenzhen, China

Product description

Product name : 5G Smart phone
Brand name : AGM
Model name : AGM G2
Series Model..... : AGM G2 Pro, AGM G2 Guardian, AGM G2 1KM, Glory G2
Standards : ANSI/IEEE Std. C95.1-1992
 FCC 47 CFR Part 2 (2.1093)
 IEEE 1528: 2013

The device was tested by Shenzhen STS Test Services Co., Ltd. in accordance with the measurement methods and procedures specified in KDB 865664 The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Date of Test :
Date (s) of performance of tests : 10 Feb. 2023 ~ 21 Feb. 2023
Date of Issue..... : 23 Feb. 2023
Test Result..... : **Pass**

Testing Engineer : Shi fan-long
 (Shifan. Long)

Technical Manager : Sean she
 (Sean she)

Authorized Signatory : Bovey Yang
 (Bovey Yang)





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Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	23 Feb. 2023	STS2302307H02	ALL	Initial Issue





1. General Information

Environmental evaluation measurements of specific absorption rate (SAR) distributions in emulated human head and body tissues exposed to radio frequency (RF) radiation from wireless portable devices for compliance with the rules and regulations of the U.S. Federal Communications Commission (FCC).

1.1 EUT Description

Product Name	5G Smart phone
Brand Name	AGM
Model Name	AGM G2
Series Model	AGM G2 Pro, AGM G2 Guardian, AGM G2 1KM, Glory G2
Model Difference	Only different in model name.
Battery	Rated Voltage:3.85V Charge Limit Voltage: 4.4V Capacity: 7000mAh
Device Category	Portable
Product stage	Production unit
RF Exposure Environment	General Population / Uncontrolled
IMEI	359420560005289 A100005EFD32B1 359420560005271
Hardware Version	V1.00
Software Version	N2060.6.01.00.00
Frequency Range	GSM 850: 824 MHz ~ 849 MHz PCS1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV:1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz CDMA BC0: 824.70 MHz ~ 848.31 MHz CDMA BC1: 1851.25MHz ~ 1908.75 MHz CDMA BC10: 817.90MHz ~ 823.10 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz~2570 MHz LTE Band 12: 699 MHz~716 MHz LTE Band 13: 777 MHz~787 MHz LTE Band 17: 704 MHz~716 MHz LTE Band 25: 1850 MHz~1915 MHz LTE Band 26: 814 MHz~849 MHz LTE Band 38: 2570 MHz~2620 MHz LTE Band 40: 2305 MHz~2315MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G n2: 1850-1910 MHz 5G n5: 824-849 MHz 5G n7: 2500-2570 MHz 5G n41: 2496-2690 MHz 5G n66: 1710-1780 MHz



n77: 3450-3550 MHz&3700-3980 MHz
 n78: 3450-3550 MHz&3700-3800 MHz
 WLAN802.11b/g/n20/ax20: 2412 MHz ~ 2462 MHz
 WLAN 802.11n40/ax40: 2422 MHz ~ 2452 MHz
 WLAN 802.11a/n20/n40/ac20/ac40/ac80/ax20/ax40/ax80: 5150 ~ 5250 MHz
 WLAN 802.11a/n20/n40/ac20/ac40/ac80/ax20/ax40/ax80: 5250 ~ 5350 MHz
 WLAN 802.11a/n20/n40/ac20/ac40/ac80/ax20/ax40/ax80: 5470 ~ 5725 MHz
 WLAN 802.11a/n20/n40/ac20/ac40/ac80/ax20/ax40/ax80: 5725 ~ 5850 MHz
 Bluetooth: 2402 MHz to 2480 MHz

Max. Reported SAR (Head and Body: 1g) Limit:1.6W/kg	Band	Mode	Head (W/kg)	Body Worn and Hotspot(W/kg)
		PCE	GSM 850	0.419
	PCE	GSM 1900	0.272	0.513
	PCE	WCDMA Band II	0.404	0.432
	PCE	WCDMA Band IV	0.327	0.526
	PCE	WCDMA Band V	0.355	0.594
	PCE	LTE Band 2	0.062	0.367
	PCE	LTE Band 4	0.165	0.624
	PCE	LTE Band 5	0.180	0.526
	PCE	LTE Band 7	0.076	0.261
	PCE	LTE Band 12	0.125	0.264
	PCE	LTE Band 13	0.056	0.314
	PCE	LTE Band 17	0.063	0.365
	PCE	LTE Band 25	0.462	0.531
	PCE	LTE Band 26	0.088	0.628
	PCE	LTE Band 38	0.061	0.443
	PCE	LTE Band 40	0.141	0.710
	PCE	LTE Band 41	0.162	0.415
	PCE	LTE Band 66	0.105	0.662
	PCE	SA N2	0.089	0.267
	PCE	SA N5	0.087	0.446
	PCE	SA N7	0.184	0.517
	PCE	SA N41	0.222	0.472
	PCE	SA N66	0.066	0.136
	PCE	SA N77	0.052	0.426
	PCE	SA N78	0.251	0.235
	DTS	2.4G WLAN ANT 1	0.492	0.144
	DTS	2.4G WLAN ANT 2	0.090	0.049
	DTS	2.4G WLAN MIMO	0.318	0.146
	NII	5.2G WLAN ANT 1	0.135	0.257
	NII	5.2G WLAN ANT 2	0.189	0.085
	NII	5.2G WLAN MIMO	0.289	0.254
	NII	5.3G WLAN ANT 1	0.151	0.091
	NII	5.3G WLAN ANT 2	0.228	0.505
	NII	5.3G WLAN MIMO	0.379	0.451
	NII	5.6G WLAN ANT 1	0.116	0.126
	NII	5.6G WLAN ANT 2	0.350	0.287
	NII	5.6G WLAN MIMO	0.272	0.26
	NII	5.8G WLAN ANT 1	0.137	0.171
	NII	5.8G WLAN ANT 2	0.184	0.233
	NII	5.8G WLAN MIMO	0.279	0.3
	DSS	Bluetooth	0.014	0.011
	PCE	CDMA BC0	0.176	0.295
	PCE	CDMA BC1	0.077	0.286
	PCE	CDMA BC10	0.046	0.187
	1-g Sum SAR		0.954	1.489



FCC Equipment Class	Licensed Portable Transmitter Held to Ear (PCE) Part 15 Spread Spectrum Transmitter (DSS) Digital Transmission System (DTS) Unlicensed National Information Infrastructure TX (NII)
Operating Mode:	GSM: GSM Voice; GPRS/EGPRS Class 12 WCDMA: RMC, HSDPA, HSUPA Release 6 CDMA: QPSK/8PSK LTE: QPSK, 16QAM 5G NR: DFT-s-OFDM, CP-OFDM ($\pi/2$ shift BPSK, QPSK, 16QAM, 64QAM, 256QAM) WLAN: 802.11b(DSSS): CCK, DQPSK, DBPSK 802.11g/a/n(OFDM): BPSK, QPSK, 16-QAM, 64-QAM 802.11ac(OFDM): BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM 802.11ax(OFDM, OFDMA): BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024QAM Bluetooth: GFSK + $\pi/4$ DQPSK+8DPSK BLE: GFSK
Antenna Specification:	GSM/WCDMA/CDMA/LTE/NR: PIFA Antenna Bluetooth: PIFA Antenna WLAN: PIFA Antenna
SIM Card	Support dual-SIM, dual standby, the multiple SIM card with two lines cannot transmitting at the same time
Hotspot Mode	Support
DTM Mode	Not Support
Note:	<ol style="list-style-type: none">1. The dual SIM card mobile has 2 SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (Single active)2. After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 card to perform all tests.3. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power



1.2 Test Environment

Ambient conditions in the SAR laboratory:

Items	Required
Temperature (°C)	18-25
Humidity (%RH)	30-70

1.3 Test Factory

ShenZhen STS Test Services Co.,Ltd.

A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration No.: 625569

IC Registration No.: 12108A

A2LA Certificate No.: 4338.01





2. Test Standards and Limits

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	ANSI/IEEE Std. C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	IEEE Std. 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
4	FCC KDB 447498 D04 v01	RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices
5	FCC KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
6	FCC KDB 865664 D02 v01r02	RF Exposure Reporting
7	FCC KDB 941225 D01 v03r01	SAR Measurement Procedures for 3G Devices
8	FCC KDB 941225 D05 v02r05	SAR for LTE Devices
9	FCC KDB 941225 D06 v02r01	Hotspot Mode SAR
10	FCC KDB 648474 D04 v01r03	SAR Evaluation Considerations for Wireless Handsets
11	FCC KDB 248227 D01 Wi-Fi SAR v02r02	SAR Considerations for 802.11 Devices

(A). Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

(B). Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

NOTE: Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1 gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

Population/Uncontrolled Environments:

Are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Occupational/Controlled Environments:

Are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

<p>NOTE</p> <p>GENERAL POPULATION/UNCONTROLLED EXPOSURE</p> <p>PARTIAL BODY LIMIT</p> <p>1.6 W/kg</p>

3. SAR Measurement System

3.1 Definition of Specific Absorption Rate (SAR)

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt} \left(\frac{dW}{dm} \right) = \frac{d}{dt} \left(\frac{dW}{\rho dv} \right)$$

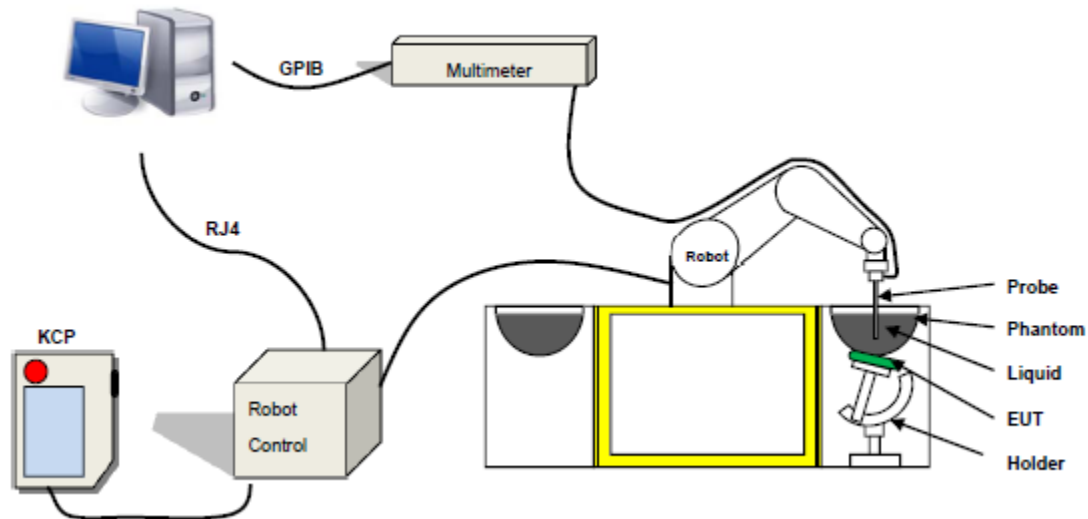
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

$$SAR = \frac{\sigma E^2}{\rho}$$

Where: σ is the conductivity of the tissue,
ρ is the mass density of the tissue and E is the RMS electrical field strength.

3.2 SAR System

MVG SAR System Diagram:



COMOSAR is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The COMOSAR system consists of the following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.



The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The Open SAR software computes the results to give a SAR value in a 1g or 10g mass.

3.2.1 Probe

For the measurements the Specific Dosimetric E-Field Probe SN 07/21 EPGO352 with following specifications is used

- Probe Length: 330 mm
- Length of Individual Dipoles: 2 mm
- Maximum external diameter: 8 mm
- Probe Tip External Diameter: 2.5 mm
- Distance between dipole/probe extremity: 1 mm
- Dynamic range: 0.01-100 W/kg
- Probe linearity: 3%
- Axial Isotropy: < 0.10 dB
- Spherical Isotropy: < 0.10 dB
- Calibration range: 150 MHz to 6 GHz for head & body simulating liquid.
- Angle between probe axis (evaluation axis) and surface normal line: less than 30°



Figure 1-MVG COMOSAR Dosimetric E field Dipole

3.2.2 Phantom

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The phantom is a polyurethane shell integrated in a wooden table. The thickness of the phantom amounts to 2mm +/- 0.2mm. It enables the dosimetric evaluation of left and right phone usage and includes an additional flat phantom part for the simplified performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.

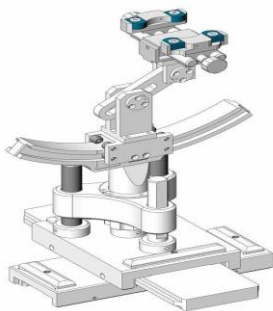


Figure-SN 32/14 SAM115



Figure-SN 21/21 ELLI48

3.2.3 Device Holder



The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ± 0.5 mm would produce a SAR uncertainty of ± 20 %. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

4. Tissue Simulating Liquids



4. Tissue Simulating Liquids

4.1 Simulating Liquids Parameter Check

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

Head Tissue

Frequency (MHz)	cellulose	DGBE	HEC	NaCl	Preventol	Sugar	X100	Water	Conductivity	Permittivity
	%	%	%	%	%	%	%	%	σ	ϵ_r
750	0.2	/	/	1.4	0.2	57.0	/	41.1	0.89	41.9
835	0.2	/	/	1.4	0.2	57.9	/	40.3	0.90	41.5
900	0.2	/	/	1.4	0.2	57.9	/	40.3	0.97	41.5
1800	/	44.5	/	0.3	/	/	30.45	55.2	1.4	40.0
1900	/	44.5	/	0.3	/	/	30.45	55.2	1.4	40.0
2000	/	44.5	/	0.3	/	/	/	55.2	1.4	40.0
2450	/	44.9	/	0.1	/	/	/	55.0	1.80	39.2
2600	/	45.0	/	0.1	/	/	/	54.9	1.96	39.0

Body Tissue

Frequency (MHz)	cellulose	DGBE	HEC	NaCl	Preventol	Sugar	X100	Water	Conductivity	Permittivity
	%	%	%	%	%	%	%	%	σ	ϵ_r
750	0.2	/	/	0.9	0.1	47.2	/	51.7	0.96	55.5
835	0.2	/	/	0.9	0.1	48.2	/	50.8	0.97	55.2
900	0.2	/	/	0.9	0.1	48.2	/	50.8	1.05	55.0
1800	/	29.4	/	0.4	/	/	30.45	70.2	1.52	53.3
1900	/	29.4	/	0.4	/	/	30.45	70.2	1.52	53.3
2000	/	29.4	/	0.4	/	/	/	70.2	1.52	53.3
2450	/	31.3	/	0.1	/	/	/	68.6	1.95	52.7
2600	/	31.7	/	0.1	/	/	/	68.2	2.16	52.3

Tissue dielectric parameters for head and body phantoms				
Frequency	ϵ_r		σ S/m	
	Head	Body	Head	Body
	300	45.3	58.2	0.87
450	43.5	56.7	0.87	0.94
900	41.5	55.0	0.97	1.05
1450	40.5	54.0	1.20	1.30
1800	40.0	53.3	1.40	1.52
2450	39.2	52.7	1.80	1.95
3000	38.5	52.0	2.40	2.73
5800	35.3	48.2	5.27	6.00



LIQUID MEASUREMENT RESULTS

Date	Ambient		Simulating Liquid		Parameters	Target	Measured	Deviation %	Limited %
	Temp. [°C]	Humidity %	Frequency (MHz)	Temp. [°C]					
2023-01-10	23.4	51	673.0	23.1	Permittivity	42.31	42.64	0.78	±5
					Conductivity	0.88	0.88	-0.55	±5
2023-01-10	23.4	51	680.5	23.1	Permittivity	42.27	42.24	-0.07	±5
					Conductivity	0.89	0.89	0.52	±5
2023-01-10	23.5	52	688.0	23.1	Permittivity	42.23	43.01	1.85	±5
					Conductivity	0.89	0.92	3.85	±5
2023-01-10	23.5	51	704.0	23.3	Permittivity	42.15	42.54	0.94	±5
					Conductivity	0.89	0.88	-0.78	±5
2023-01-10	23.5	51	707.5	23.2	Permittivity	42.13	43.06	2.22	±5
					Conductivity	0.89	0.86	-3.06	±5
2023-01-10	23.6	52	709.0	23.3	Permittivity	42.12	42.28	0.38	±5
					Conductivity	0.89	0.88	-0.82	±5
2023-01-10	23.6	51	750.0	23.4	Permittivity	41.90	42.48	1.38	±5
					Conductivity	0.89	0.86	-3.37	±5
2023-01-11	21.9	53	782.0	20.7	Permittivity	41.73	42.15	1.01	±5
					Conductivity	0.89	0.87	-2.48	±5
2023-01-11	20.9	47	821.5	20.6	Permittivity	41.56	41.28	-0.68	±5
					Conductivity	0.90	0.92	2.40	±5
2023-01-11	21.0	47	822.35	20.7	Permittivity	41.56	41.91	0.84	±5
					Conductivity	0.90	0.93	3.50	±5
2023-01-11	21.0	47	824.2	20.7	Permittivity	41.55	41.17	-0.92	±5
					Conductivity	0.90	0.90	0.14	±5
2023-01-11	21.1	48	824.7	20.7	Permittivity	41.55	41.53	-0.04	±5
					Conductivity	0.90	0.89	-0.98	±5
2023-01-11	21.1	48	835.0	20.7	Permittivity	41.50	41.60	0.24	±5
					Conductivity	0.90	0.92	2.22	±5
2023-01-12	21.0	47	829.0	20.7	Permittivity	41.53	40.90	-1.51	±5
					Conductivity	0.90	0.88	-2.15	±5
2023-01-12	21.1	48	835.0	20.7	Permittivity	41.50	41.63	0.31	±5
					Conductivity	0.90	0.89	-1.11	±5
2023-01-12	21.0	48	836.6	20.7	Permittivity	41.49	41.38	-0.27	±5
					Conductivity	0.90	0.93	3.31	±5



2023-01-12	21.0	47	846.6	20.7	Permittivity	41.45	41.59	0.35	±5
					Conductivity	0.90	0.92	2.07	±5
2023-01-12	21.1	48	848.8	20.8	Permittivity	41.44	41.46	0.06	±5
					Conductivity	0.90	0.86	-4.62	±5
2023-01-13	22.7	56	1712.6	22.5	Permittivity	40.12	40.98	2.13	±5
					Conductivity	1.35	1.31	-2.97	±5
2023-01-13	22.3	49	1720.0	22.0	Permittivity	40.11	41.41	3.23	±5
					Conductivity	1.35	1.38	1.90	±5
2023-01-13	22.3	50	1800.0	22.0	Permittivity	40.00	41.32	3.30	±5
					Conductivity	1.40	1.44	2.86	±5
2023-02-01	21.4	49	1732.5	21.0	Permittivity	40.10	40.11	0.03	±5
					Conductivity	1.36	1.36	-0.10	±5
2023-02-01	21.5	49	1745.0	21.2	Permittivity	40.08	40.39	0.78	±5
					Conductivity	1.37	1.38	0.84	±5
2023-02-01	21.7	56	1800.0	21.3	Permittivity	40.00	41.26	3.15	±5
					Conductivity	1.40	1.42	1.43	±5
2023-02-01	21.3	41	1852.4	22.0	Permittivity	40.00	41.33	3.33	±5
					Conductivity	1.40	1.42	1.43	±5
2023-02-01	21.1	48	1860.0	20.8	Permittivity	40.00	41.23	3.07	±5
					Conductivity	1.40	1.44	2.86	±5
2023-02-02	21.2	49	1880.0	20.9	Permittivity	40.00	40.90	2.25	±5
					Conductivity	1.40	1.42	1.43	±5
2023-02-02	21.4	49	1882.5	21.1	Permittivity	40.00	41.13	2.83	±5
					Conductivity	1.40	1.39	-0.71	±5
2023-02-02	21.5	49	1900.0	21.2	Permittivity	40.00	40.80	2.00	±5
					Conductivity	1.40	1.43	2.14	±5
2023-02-02	21.5	49	1908.75	21.2	Permittivity	40.00	39.96	-0.10	±5
					Conductivity	1.40	1.38	-1.43	±5
2023-02-03	21.2	43	2310.0	20.8	Permittivity	39.45	39.83	0.97	±5
					Conductivity	1.68	1.70	1.46	±5
2023-02-03	21.5	49	2402.0	21.2	Permittivity	39.29	40.51	3.12	±5
					Conductivity	1.76	1.77	0.72	±5
2023-02-03	21.6	49	2412.0	21.3	Permittivity	39.27	40.25	2.50	±5
					Conductivity	1.77	1.76	-0.35	±5
2023-02-03	21.7	50	2437.0	21.4	Permittivity	39.22	40.23	2.57	±5
					Conductivity	1.79	1.82	1.76	±5
2023-02-03	21.3	43	2441.0	21.0	Permittivity	39.22	40.09	2.23	±5
					Conductivity	1.79	1.85	3.24	±5



2023-02-03	21.4	44	2450.0	21.1	Permittivity	39.20	39.73	1.35	±5
					Conductivity	1.80	1.75	-2.78	±5
2023-02-06	21.3	60	2560.0	21.0	Permittivity	39.05	40.09	2.65	±5
					Conductivity	1.92	1.86	-2.99	±5
2023-02-06	21.7	50	2580.0	21.5	Permittivity	39.03	39.51	1.24	±5
					Conductivity	1.94	1.96	1.10	±5
2023-02-06	21.7	50	2592.99	21.4	Permittivity	39.01	40.09	2.77	±5
					Conductivity	1.95	1.95	-0.13	±5
2023-02-06	21.8	50	2600.0	21.5	Permittivity	39.00	40.18	3.03	±5
					Conductivity	1.96	1.97	0.51	±5
2023-02-07	21.5	50	2600.0	21.3	Permittivity	39.00	40.18	3.03	±5
					Conductivity	1.96	1.97	0.51	±5
2023-02-07	21.4	60	2680.0	21.1	Permittivity	38.89	39.22	0.84	±5
					Conductivity	2.05	2.09	2.18	±5
2023-02-07	21.8	55	3500.0	21.6	Permittivity	37.90	38.37	1.24	±5
					Conductivity	2.91	2.83	-2.75	±5
2023-02-07	21.8	55	3900.0	21.4	Permittivity	37.42	38.10	1.82	±5
					Conductivity	3.32	3.39	2.17	±5
2023-02-07	21.8	55	3930.0	21.4	Permittivity	37.38	38.17	2.10	±5
					Conductivity	3.35	3.28	-2.05	±5
2023-02-14	20.8	57	5180.0	20.5	Permittivity	36.02	35.87	-0.42	±5
					Conductivity	4.64	4.64	0.02	±5
2023-02-14	20.9	57	5200.0	20.6	Permittivity	36.00	36.75	2.08	±5
					Conductivity	4.66	4.63	-0.64	±5
2023-02-14	20.8	57	5240.0	20.5	Permittivity	35.96	36.55	1.64	±5
					Conductivity	4.70	4.66	-0.89	±5
2023-02-19	22.8	54	5260.0	22.5	Permittivity	35.94	36.72	2.17	±5
					Conductivity	4.72	4.71	-0.21	±5
2023-02-19	22.9	54	5300.0	22.6	Permittivity	35.90	36.56	1.84	±5
					Conductivity	4.76	4.74	-0.42	±5
2023-02-21	20.8	49	5500.0	20.5	Permittivity	35.68	36.43	2.12	±5
					Conductivity	4.96	4.98	0.35	±5
2023-02-21	20.8	49	5600.0	20.5	Permittivity	35.55	36.25	1.97	±5
					Conductivity	5.07	5.08	0.30	±5
2023-02-22	21.9	53	5745.0	21.6	Permittivity	35.36	36.06	1.99	±5
					Conductivity	5.21	5.21	-0.04	±5
2023-02-22	21.9	49	5800.0	21.6	Permittivity	35.30	36.65	3.82	±5
					Conductivity	5.27	5.24	-0.57	±5



2023-02-22	22.0	53	5825.0	21.7	Permittivity	35.28	35.43	0.44	±5
					Conductivity	5.30	5.36	1.20	±5

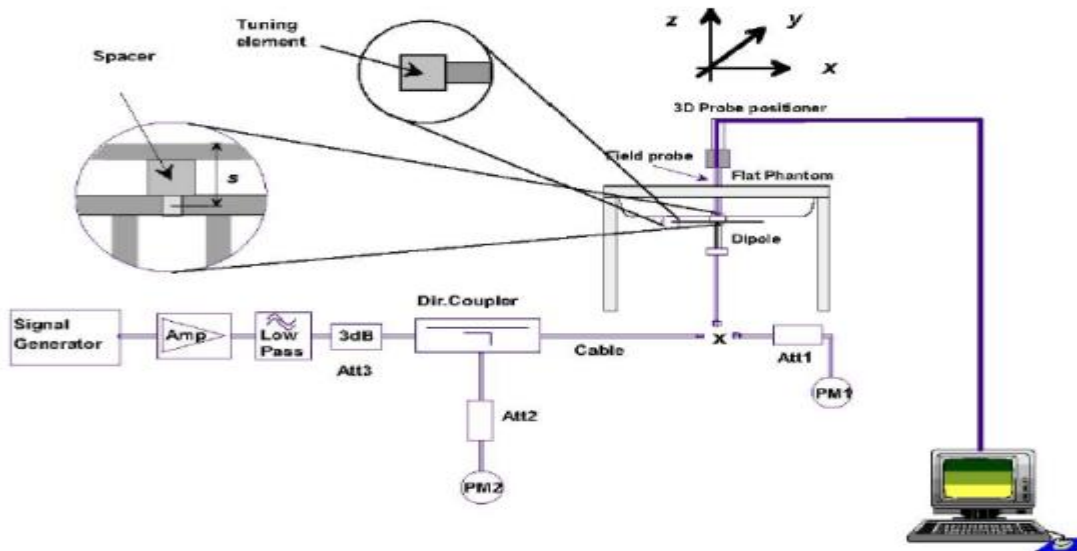


5. SAR System Validation

5.1 Validation System

Each MVG system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the MVG software, enable the user to conduct the system performance check and system validation. System kit includes a dipole, and dipole device holder.

The system check verifies that the system operates within its specifications. It's performed daily or before every SAR measurement. The system check uses normal SAR measurement in the flat section of the phantom with a matched dipole at a specified distance. The system validation setup is shown as below.





5.2 Validation Result

Comparing to the original SAR value provided by MVG, the validation data should be within its specification of 10 %.

Date	Freq.	Power	Tested Value	Normalized SAR	Target SAR	Tolerance	Limit
	(MHz)	(mW)	(W/Kg)	(W/kg)	1g(W/kg)	(%)	(%)
2023-01-10	750	100	0.871	8.71	8.49	2.59	10
2023-01-11	835	100	0.947	9.47	9.63	-1.66	10
2023-01-12	835	100	0.944	9.44	9.63	-1.97	10
2023-01-13	1800	100	3.793	37.93	38.31	-0.99	10
2023-02-01	1800	100	3.733	37.33	38.31	-2.56	10
2023-02-02	1900	100	3.995	39.95	39.84	0.28	10
2023-02-03	2450	100	5.492	54.92	54.70	0.40	10
2023-02-06	2600	100	5.572	55.72	56.19	-0.84	10
2023-02-07	2600	100	5.596	55.96	56.19	-0.41	10
2023-02-07	3500	100	6.937	69.37	68.37	1.46	10
2023-02-07	3900	100	6.583	65.83	68.01	-3.21	10
2023-02-14	5200	100	15.751	157.51	158.49	-0.62	10
2023-02-19	5300	100	16.516	165.16	167.20	-1.22	10
2023-02-21	5600	100	17.421	174.21	175.65	-0.82	10
2023-02-22	5800	100	18.503	185.03	183.06	1.08	10

Note:

1. The tolerance limit of System validation $\pm 10\%$.
2. The dipole input power (forward power) was 100 mW.
3. The results are normalized to 1 W input power.



6. SAR Evaluation Procedures

The procedure for assessing the average SAR value consists of the following steps:

The following steps are used for each test position

- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to 16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
- Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

➤ Area Scan & Zoom Scan

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01 quoted below. When the 1-g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

7. EUT Antenna Location Sketch

It is a 5G Smart phone, support GSM/WCDMA/CDMA/LTE/WLAN/NR/BT mode.



- GSM/WCDMA/LTE/NR N41 Antenna
- NR N1/3/7/8/28 Antenna
- BT/WLAN Antenna 1
- WLAN Antenna 2
- 5G N77/78 Antenna

ANT	Transmitting antenna located(cm)					
	Back Side	Front Side	Top	Bottom	Left	Right
GSM/WCDMA/CDMA/LTE/NR N41 ANT	0.5	0.5	16	0.65	0.65	3.6
NR N2/5/7/66 ANT	0.5	0.5	0.65	12.3	0.65	6.4
BT/WLAN ANT 1	0.5	0.5	0.65	16	5	1
WLAN ANT 2	0.5	0.5	13	2.2	7.2	0.65
5G N77/78 ANT	0.5	0.5	9	5	0.5	7

Note 1: The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.



7.1 SAR test exclusion consider table

The WWAN/WLAN/BT SAR evaluation of Maximum power (dBm) summing tolerance.

Exposure Position	Wireless Interface	GSM850	PCS1900	WCDMA II	WCDMA V	WCDMA IV
	Calculated Frequency(GHz)	0.8242	1.88	1.8524	0.8466	0.17126
	Maximum Turn-up power (dBm)	33.5	30	25	25	23.5
	Maximum rated power(mW)	2238.72	1000.00	316.23	316.23	223.87
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.42	3.39	3.43	9.07	23.12
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.42	3.39	3.43	9.07	23.12
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	0.65	0.65	0.65	0.65	0.65
	exclusion threshold(mW)	13.62	5.50	5.56	13.17	32.72
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (cm)	3.6	3.6	3.6	3.6	3.6
	exclusion threshold(mW)	150.98	129.41	130.12	150.51	315.80
	Testing required?	YES	YES	YES	YES	NO
Top Edge	Separation distance (cm)	16	16	16	16	16
	exclusion threshold(mW)	1228.72	2027.48	2028.93	1257.20	2277.06
	Testing required?	YES	NO	NO	NO	NO
Bottom Edge	Separation distance (cm)	0.65	0.65	0.65	0.65	0.65
	exclusion threshold(mW)	13.62	5.50	5.56	13.17	32.72
	Testing required?	YES	YES	YES	YES	YES



Exposure Position	Wireless Interface	CDMA BC0	CDMA BC1	CDMA BC10	LTE Band 2	LTE Band 4
	Calculated Frequency(GHz)	0.8247	1.90875	0.82235	1.88	1.745
Maximum Turn-up power (dBm)	21	22	26	24	23.5	
Maximum rated power(mW)	125.89	158.49	398.11	251.19	223.87	
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.41	3.35	9.45	3.39	3.60
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.41	3.35	9.45	3.39	3.60
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	0.65	0.65	0.65	0.65	0.65
	exclusion threshold(mW)	13.61	5.44	13.65	5.50	5.82
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (cm)	3.6	3.6	3.6	3.6	3.6
	exclusion threshold(mW)	150.97	128.68	151.02	129.41	133.05
	Testing required?	NO	YES	YES	YES	YES
Top Edge	Separation distance (cm)	16	16	16	16	16
	exclusion threshold(mW)	1229.36	2025.99	1226.36	2027.48	2034.81
	Testing required?	NO	NO	NO	NO	NO
Bottom Edge	Separation distance (cm)	0.65	0.65	0.65	0.65	0.65
	exclusion threshold(mW)	13.61	5.44	13.65	5.50	5.82
	Testing required?	YES	YES	YES	YES	YES



Exposure Position	Wireless Interface	LTE Band 5	LTE Band 12	LTE Band 13	LTE Band 17	LTE Band 25
	Calculated Frequency(GHz)	0.829	0.7075	0.782	0.709	1.8825
	Maximum Turn-up power (dBm)	25	26	23	26	24
	Maximum rated power(mW)	316.23	398.11	199.53	398.11	251.19
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.34	11.67	10.14	11.63	3.39
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.34	11.67	10.14	11.63	3.39
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	0.65	0.65	0.65	0.65	0.65
	exclusion threshold(mW)	13.52	16.44	14.53	16.39	5.50
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (cm)	3.6	3.6	3.6	3.6	3.6
	exclusion threshold(mW)	150.88	153.71	151.91	153.67	129.34
	Testing required?	YES	YES	YES	YES	YES
Top Edge	Separation distance (cm)	16	16	16	16	16
	exclusion threshold(mW)	1234.83	1078.41	1174.75	1080.37	2027.35
	Testing required?	NO	NO	NO	NO	NO
Bottom Edge	Separation distance (cm)	0.65	0.65	0.65	0.65	0.65
	exclusion threshold(mW)	13.52	16.44	14.53	16.39	5.50
	Testing required?	YES	YES	YES	YES	YES



Exposure Position	Wireless Interface	LTE Band 26	LTE Band 38	LTE Band 40	LTE Band 41	LTE Band 66
	Calculated Frequency(GHz)	0.8215	2.58	2.31	2.68	1.72
Maximum Turn-up power (dBm)	25	23.5	24	24	23	
Maximum rated power(mW)	316.23	223.87	251.19	251.19	199.53	
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.46	2.63	2.88	2.55	3.64
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.46	2.63	2.88	2.55	3.64
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	0.65	0.65	0.65	0.65	0.65
	exclusion threshold(mW)	13.67	4.35	4.72	4.23	5.88
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (cm)	3.6	3.6	3.6	3.6	3.6
	exclusion threshold(mW)	151.04	212.62	119.85	113.40	133.77
	Testing required?	YES	YES	YES	YES	YES
Top Edge	Separation distance (cm)	16	16	16	16	16
	exclusion threshold(mW)	5233.26	1996.62	2007.34	1992.95	2036.24
	Testing required?	NO	NO	NO	NO	NO
Bottom Edge	Separation distance (cm)	0.65	0.65	0.65	0.65	0.65
	exclusion threshold(mW)	13.67	4.35	4.72	4.23	5.88
	Testing required?	YES	YES	YES	YES	YES



Exposure Position	Wireless Interface	LTE Band 71	NR N2	NR N5	NR N7	NR N41
	Calculated Frequency(GHz)	0.688	1.86	0.839	2.56	2.59299
Maximum Turn-up power (dBm)	25	23	22.5	23	26	
Maximum rated power(mW)	316.23	199.53	177.83	199.53	398.11	
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	12.13	3.42	9.18	2.65	2.62
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	12.13	3.42	9.18	2.65	2.62
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	0.65	0.65	0.65	0.65	0.65
	exclusion threshold(mW)	17.01	5.55	13.32	4.37	4.33
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (cm)	3.6	6.4	6.4	6.4	3.6
	exclusion threshold(mW)	154.21	375.01	340.51	346.51	114.81
	Testing required?	YES	NO	NO	NO	YES
Top Edge	Separation distance (cm)	16	0.65	0.65	0.65	0.65
	exclusion threshold(mW)	5718.54	5.55	13.32	4.37	4.33
	Testing required?	NO	YES	YES	YES	YES
Bottom Edge	Separation distance (cm)	0.65	12.3	12.3	12.3	12.3
	exclusion threshold(mW)	17.01	1249.57	859.41	1208.14	1206.50
	Testing required?	YES	NO	NO	NO	NO



Exposure Position	Wireless Interface	NR N66	NR N77	NR N78	BT	2.4G WLAN ANT 1
	Calculated Frequency(GHz)	1.72	3.93	3.5	2.441	2.437
	Maximum Turn-up power (dBm)	23.5	24.5	20.5	7	14.5
	Maximum rated power(mW)	223.87	281.84	112.20	5.01	28.18
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	3.64	1.88	2.06	2.75	2.76
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	3.64	1.88	2.06	2.75	2.76
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	0.65	0.5	0.5	5	5
	exclusion threshold(mW)	5.88	1.88	2.06	219.28	219.38
	Testing required?	YES	YES	YES	NO	NO
Right Edge	Separation distance (cm)	6.4	7	7	1	1
	exclusion threshold(mW)	382.34	372.98	382.96	10.28	10.29
	Testing required?	NO	NO	NO	NO	YES
Top Edge	Separation distance (cm)	0.65	9	9	0.65	0.65
	exclusion threshold(mW)	5.88	617.30	629.82	4.53	4.54
	Testing required?	YES	NO	NO	YES	YES
Bottom Edge	Separation distance (cm)	12.3	5	5	16	16
	exclusion threshold(mW)	1259.93	189.99	196.73	2001.99	2002.15
	Testing required?	NO	YES	NO	NO	NO



Exposure Position	Wireless Interface	2.4G WLAN ANT 2	2.4G WLAN N20 ANT 1	2.4G WLAN N20 ANT 2	5.2G WLAN ANT 1	5.2G WLAN ANT 2
	Calculated Frequency(GHz)	2.412	2.437	2.437	5.24	5.18
	Maximum Turn-up power (dBm)	14.5	15.5	15.5	14.5	12.5
	Maximum rated power(mW)	28.18	35.48	35.48	28.18	17.78
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	2.78	2.76	2.76	1.49	1.51
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	2.78	2.76	2.76	1.49	1.51
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	7.2	5	7.2	5	7.2
	exclusion threshold(mW)	439.79	219.38	438.79	174.23	371.20
	Testing required?	NO	NO	NO	NO	NO
Right Edge	Separation distance (cm)	0.65	1	0.65	1	0.65
	exclusion threshold(mW)	4.57	10.29	4.54	6.25	2.59
	Testing required?	YES	YES	YES	YES	YES
Top Edge	Separation distance (cm)	13	0.65	13	0.65	13
	exclusion threshold(mW)	1350.48	4.54	1349.18	2.57	1257.29
	Testing required?	NO	YES	NO	YES	NO
Bottom Edge	Separation distance (cm)	2.2	16	2.2	16	2.2
	exclusion threshold(mW)	46.30	2002.15	46.07	1929.24	32.10
	Testing required?	NO	NO	NO	NO	NO



Exposure Position	Wireless Interface	5.2G WLAN N20 ANT 1	5.2G WLAN N20 ANT 2	5.3G WLAN ANT 1	5.3G WLAN ANT 2	5.3G WLAN N20 ANT 1
	Calculated Frequency(GHz)	5.18	5.18	5.26	5.26	5.26
	Maximum Turn-up power (dBm)	16	16	12	12	14.5
	Maximum rated power(mW)	39.81	39.81	15.85	15.85	28.18
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	1.51	1.51	1.49	1.49	1.49
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	1.51	1.51	1.49	1.49	1.49
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	5	7.2	5	7.2	5
	exclusion threshold(mW)	174.83	371.20	174.03	369.94	174.03
	Testing required?	NO	NO	NO	NO	NO
Right Edge	Separation distance (cm)	1	0.65	1	0.65	1
	exclusion threshold(mW)	6.30	2.59	6.24	2.56	6.24
	Testing required?	YES	YES	YES	YES	YES
Top Edge	Separation distance (cm)	0.65	13	0.65	13	0.65
	exclusion threshold(mW)	2.59	1257.29	2.56	1255.49	2.56
	Testing required?	YES	NO	YES	NO	YES
Bottom Edge	Separation distance (cm)	16	2.2	16	2.2	16
	exclusion threshold(mW)	1930.31	32.10	1928.88	31.86	1928.88
	Testing required?	NO	YES	NO	NO	NO



Exposure Position	Wireless Interface	5.3G WLAN N20 ANT 2	5.6G WLAN ANT 1	5.6G WLAN ANT 2	5.6G WLAN N20 ANT 1	5.6G WLAN N20 ANT 2
	Calculated Frequency(GHz)	5.26	5.55	5.55	5.55	5.55
	Maximum Turn-up power (dBm)	14.5	12.5	12.5	14.5	14.5
	Maximum rated power(mW)	28.18	17.78	17.78	28.18	28.18
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	1.49	1.43	1.43	1.43	1.43
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	1.49	1.43	1.43	1.43	1.43
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	7.2	5	7.2	5	7.2
	exclusion threshold(mW)	369.94	171.24	365.56	171.24	365.56
	Testing required?	NO	NO	NO	NO	NO
Right Edge	Separation distance (cm)	0.65	1	0.65	1	0.65
	exclusion threshold(mW)	2.56	6.02	2.46	6.02	2.46
	Testing required?	YES	YES	YES	YES	YES
Top Edge	Separation distance (cm)	13	0.65	13	0.65	13
	exclusion threshold(mW)	1255.49	2.46	1249.21	2.46	1249.21
	Testing required?	NO	YES	NO	YES	NO
Bottom Edge	Separation distance (cm)	2.2	16	2.2	16	2.2
	exclusion threshold(mW)	31.86	1923.87	31.05	1923.87	31.05
	Testing required?	NO	NO	NO	NO	NO



Exposure Position	Wireless Interface	5.8G WLAN ANT 1	5.8G WLAN ANT 2	5.8G WLAN N20 ANT 1	5.8G WLAN N20 ANT 2
	Calculated Frequency(GHz)	5.745	5.825	5.745	5.745
	Maximum Turn-up power (dBm)	11	11.5	14	14
	Maximum rated power(mW)	12.59	14.13	25.12	25.12
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	1.39	1.37	1.39	1.39
	Testing required?	YES	YES	YES	YES
Front Side	Separation distance (cm)	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	1.39	1.37	1.39	1.39
	Testing required?	YES	YES	YES	YES
Left Edge	Separation distance (cm)	5	7.2	5	7.2
	exclusion threshold(mW)	169.47	361.66	169.47	362.77
	Testing required?	NO	NO	NO	NO
Right Edge	Separation distance (cm)	1	0.65	1	0.65
	exclusion threshold(mW)	5.89	2.37	5.89	2.40
	Testing required?	YES	YES	YES	YES
Top Edge	Separation distance (cm)	0.65	13	0.65	13
	exclusion threshold(mW)	2.40	1243.57	2.40	1245.18
	Testing required?	YES	NO	YES	NO
Bottom Edge	Separation distance (cm)	16	2.2	16	2.2
	exclusion threshold(mW)	1920.66	30.34	1920.66	30.54
	Testing required?	NO	NO	NO	NO

Note:

1. maximum power is the source-based time-average power and represents the maximum RF output power among production units.
2. Per KDB 447498 D04, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
3. Per KDB 447498 D04, if the maximum time-averaged power available does not exceed 1 mW. This stand-alone SAR exemption test.



4. Per KDB 447498 D04, the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

5. Per KDB 447498 D04, An alternative to the SAR-based exemption is using below table and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in below table to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

RF Source frequency (MHz)	Threshold ERP(watts)
0.3-1.34	1,920 R ² .
1.34-30	3,450 R ² /f ² .
30-300	3.83 R ² .
300-1,500	0.0128 R ² f.
1,500-100,000	19.2R ² .



6. Per KDB 248227 D01, choose the highest output power channel to test SAR and determine further SAR exclusion 8. for each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of each of these configurations is less than 1/4db higher than those measured at the lower data rate than 11b mode, thus the SAR can be excluded.
7. Per KDB 616217 D04, SAR evaluation for the front surface of tablet display screens are generally not necessary.

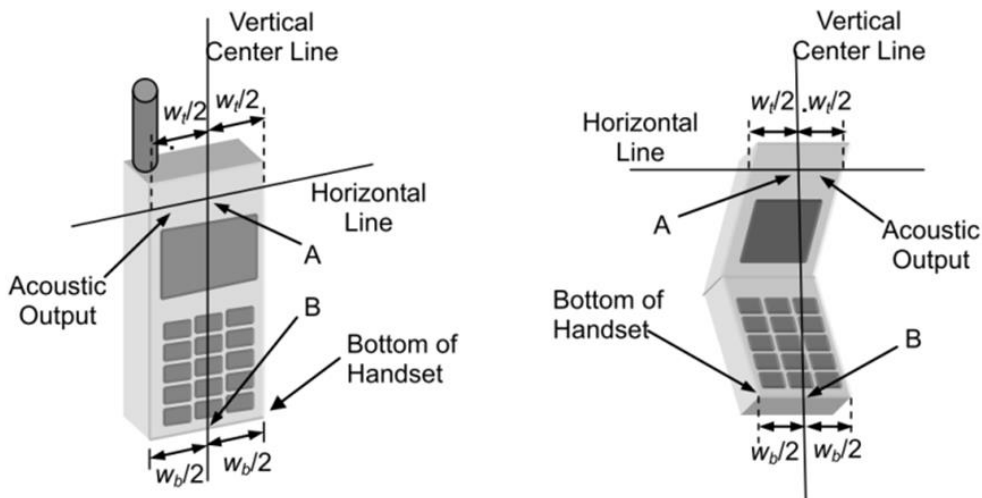


8. EUT Test Position

This EUT was tested in Right Cheek, Right Titled, Left Cheek, Left Titled, Front Face and Rear Face.

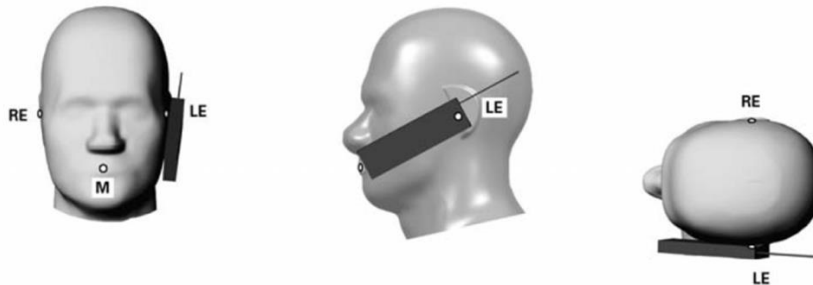
8.1 Define Two Imaginary Lines on the Handset

(1) The vertical centerline passes through two points on the front side of the handset: the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the handset.
 (2) The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.
 (3) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



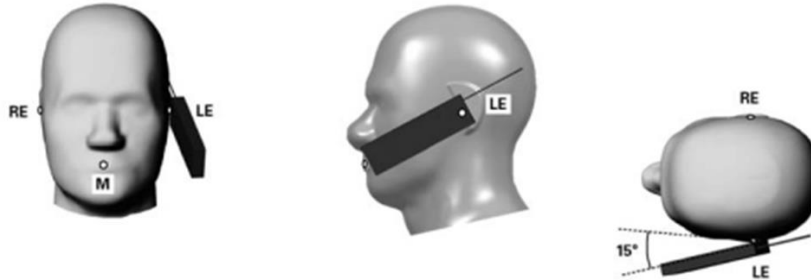
Cheek Position

- 1) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
- 2) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.



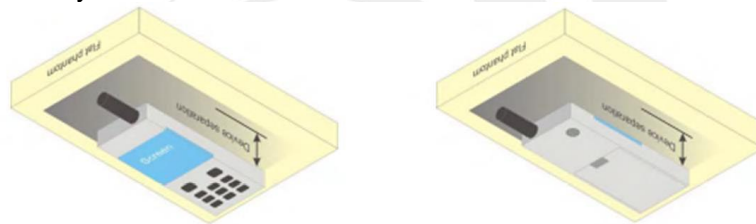
Title Position

- (1) To position the device in the “cheek” position described above.
- (2) While maintaining the device in the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until with the ear is lost.



Body-worn Position Conditions:

Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB Publication 447498 D04 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. When the same wireless transmission configuration is used for testing body-worn accessory and hotspot mode SAR, respectively, in voice and data mode, SAR results for the most conservative *test separation distance* configuration may be used to support both SAR conditions. When the *reported SAR* for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest *reported SAR* configuration for that wireless mode and frequency band should be repeated for the body-worn accessory with a headset attached to the handset.



8.2 Hotspot mode exposure position condition

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing function, the relevant hand and body exposure condition are tested according to the hotspot SAR procedures in KDB 941225. A test separation distance of 10 mm is required between the phantom and all surface and edges with a transmitting antenna located within 25 mm from that surface or edge. When form factor of a handset is smaller than 9cm x 5cm, a test separation distance of 5mm (instead of 10mm) is required for testing hotspot mode. When the separate distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, in the same wireless mode and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface).

