



SAR TEST REPORT

Product Name: Mobile Phone

Model Number: WATER

FCC ID: 2BH83-WATER

Issued For : Full Technology Trade Limited

RM 13,UNIT A1,2/F.,PHASE 1,KAISER ESTATE,NO.41
MAN YUE STREET,HUNGHOM,KLN HONG KONG,China

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park,
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Report Number: LGT25J010HA01

Sample Received Date: Oct. 13, 2025

Date of Test Oct. 13, 2025 ~ Nov. 04, 2025

Date of Issue Nov. 04, 2025

Head:1.176 W/kg

Max. SAR (1g)

Body:0.687 W/kg

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Rev.	Issue Date	Contents
00	Nov. 04, 2025	Initial Issue



TEST REPORT CERTIFICATION

Applicant Full Technology Trade Limited
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MAN YUE STREET,HUNGHOM,KLN HONG KONG,China
Manufacture Full Technology Trade Limited
Address RM 13,UNIT A1,2/F.,PHASE 1,KAISER ESTATE,NO.41
MAN YUE STREET,HUNGHOM,KLN HONG KONG,China
Product Name Mobile Phone
Trademark Lifephone
Model Number WATER
Sample number LGT2510020

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
ANSI/IEEE Std. C95.1-2019 FCC 47 CFR Part 2 (2.1093) IEEE 1528: 2013	PASS

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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	Mobile Phone		
Test Model Number	WATER		
Series Number	N/A		
Model Difference	N/A		
Device Category	Portable		
Product stage	Production unit		
RF Exposure Environment	General Population / Uncontrolled		
Hardware Version	9586-MB-V0.1		
Software Version	LIFEPHONE_WATER_A15_9863_V01.06_2025-10-11_1022		
Frequency Range	GSM 850: 824 ~ 849 MHz PCS 1900: 1850 ~ 1910 MHz WCDMA Band II: 1850 ~ 1910 MHz WCDMA Band IV: 1710 ~ 1755 MHz WCDMA Band V: 824 ~ 849 MHz LTE Band 2: 1850 ~ 1910 MHz LTE Band 4: 1710 ~ 1755 MHz LTE Band 5: 824 ~ 849 MHz LTE Band 7: 2500 ~ 2570 MHz LTE Band 12: 699 ~ 716 MHz LTE Band 13: 777 ~ 787 MHz LTE Band 17: 704 ~ 716 MHz LTE Band 38: 2570 ~ 2620 MHz LTE Band 40: 2305 ~ 2315 MHz / 2350 ~ 2360 MHz LTE Band 66: 1710 ~ 1780 MHz WLAN 802.11b/g/n20: 2412 MHz ~ 2462 MHz Bluetooth: 2402 ~ 2480 MHz		
Max. Reported SAR(1g): (Limit: 1.6W/kg) Test distance: Head: 0mm Body: 10mm	Mode	Head (W/ kg)	Body Worn and Hotspot (W/ kg)
	GSM 850	0.406	0.466
	PCS 1900	0.463	0.028
	WCDMA Band II	1.012	0.346
	WCDMA Band IV	1.025	0.687
	WCDMA Band V	0.076	0.209
	LTE Band 2	1.176	0.313
	LTE Band 4	0.738	0.223
	LTE Band 5	0.306	0.392
	LTE Band 7	0.914	0.236
	LTE Band 12	0.348	0.588
	LTE Band 13	0.226	0.367
	LTE Band 17	0.363	0.591
	LTE Band 38	0.584	0.196
	LTE Band 40	0.181	0.346
	LTE Band 66	0.741	0.261
	2.4G WLAN	0.409	0.117
	Bluetooth ^{Note}	0.167	0.167



1-g Sum SAR		1.585	0.854
Battery	Rated Voltage:3.87V Capacity: 4900mAh		
Description test modes	SIM 1 and SIM 2 is a chipset unit and tested as single chipset, SIM 1 is used to tested		
Operating Mode:	GSM: GSM Voice; GPRS/EGPRS Class 12 WCDMA: RMC, HSDPA, HSUPA Release 6 LTE: QPSK, 16QAM 2.4G WLAN: 802.11b(DSSS): CCK, DQPSK, DBPSK 802.11g(OFDM): BPSK, QPSK,16-QAM,64-QAM 802.11n(OFDM): BPSK, QPSK,16-QAM,64-QAM Bluetooth: GFSK + π /4DQPSK+8DPSK BLE: GFSK		
Antenna Specification	GSM/WCDMA/LTE: PIFA Antenna Bluetooth: PIFA Antenna WLAN: PIFA Antenna		
Operating Mode	Maximum continuous output		
SIM Card	Support dual-SIM, dual standby, the multiple SIM card with two lines cannot trans mitting at the same time		
Hotspot Mode	Support		
DTM Mode	Not Support		
Note 1: The BT value was Estimated.			



1.2 Test Environment

Ambient conditions in the SAR laboratory:

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

1.3 Test Factory

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate	FCC Registration No.: 746540
	A2LA Certificate No.: 6727.01
	IC Registration No.: CN0136



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. C95.1-2019	IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz 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 D01 v06	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
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).

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



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

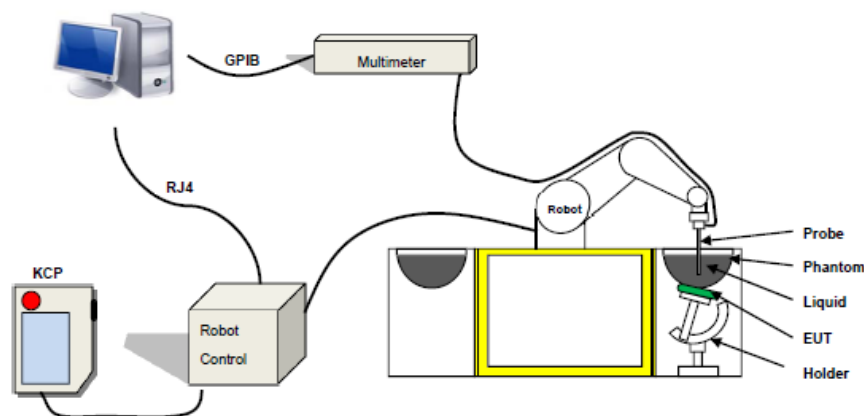
$$SAR = \frac{\sigma E^2}{\rho}$$

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 OpenSAR software computes the results to give a SAR value in a 1g or 1g mass.

3.2.1 Probe

For the measurements the Specific Dosimetric E-Field Probe 2225-EPGO-450 with following specifications is used

- Probe Length: 330 mm
- Length of Individual Dipoles: 2mm
- 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: 0.15 GHz to 7.5 GHz for head simulating liquid.
- Angle between probe axis (evaluation axis) and surface normal line: less than 30°



Figure 1-MVG COMOSAR Dosimetric E field Probe



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.

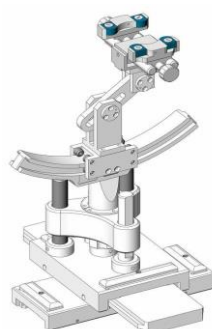


Figure-SN 06/22 SAM 148



Figure-SN 06/22 ELLI 51

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

4.1 Simulating Liquids Parameter Check

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine if the dielectric parameters are within the tolerances of the specified target values

The uncertainty due to the liquid conductivity and permittivity arises from two different sources. The first source of error is the deviation of the liquid conductivity from its target value (max _ 5 %) and the second source of error arises from the measurement procedures used to assess conductivity. The uncertainty shall be assessed using a rectangular probability For 1 g averaging, the maximum weighting coefficient for SAR is 0,5.

IEEE SCC-34/SC-2 RECOMMENDED TISSUE DIELECTRIC PARAMETERS

The head and body tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 have been incorporated in the following table.

Frequency	ϵ_r	σ 10g S/m
300	45.3	0.87
450	43.5	0.87
750	41.9	0.89
835	41.5	0.90
900	41.5	0.97
1450	40.5	1.20
1800 to 2000	40.0	1.40
2100	39.8	1.49
2450	39.2	1.80
2600	39.0	1.96
3000	38.5	2.40
3500	37.9	2.91
4000	37.4	3.43
4500	36.8	3.94
5000	36.2	4.45
5200	36.0	4.66
5400	35.8	4.86
5600	35.5	5.07
5800	35.3	5.27



LIQUID MEASUREMENT RESULTS

Date	Ambient		Simulating Liquid		Parameters	Target	Measured	Deviation %	Limited %
	Temp. [°C]	Humidity %	Frequency (MHz)	Temp. [°C]					
2025-10-17	20.8	46	750	20.6	Permittivity	41.90	42.82	2.20	±5
					Conductivity	0.89	0.86	-3.37	±5
2025-10-19	20.2	40	835	20	Permittivity	41.50	42.57	2.58	±5
					Conductivity	0.90	0.87	-3.33	±5
2025-10-14	23.5	40	1800	23.2	Permittivity	40.00	40.25	0.63	±5
					Conductivity	1.40	1.38	-1.43	±5
2025-10-18	22	51	1900	21.8	Permittivity	40.00	40.26	0.65	±5
					Conductivity	1.40	1.36	-2.86	±5
2025-10-21	22.2	44	1900	21.9	Permittivity	40.00	39.98	-0.05	±5
					Conductivity	1.40	1.45	3.57	±5
2025-10-21	22.2	44	2300	21.9	Permittivity	39.47	40.22	1.91	±5
					Conductivity	1.67	1.71	2.60	±5
2025-10-22	23.3	54	2450	23	Permittivity	39.20	39.77	1.45	±5
					Conductivity	1.80	1.84	2.22	±5
2025-10-22	23.4	54	2600	23	Permittivity	39.00	40.08	2.77	±5
					Conductivity	1.96	1.97	0.51	±5

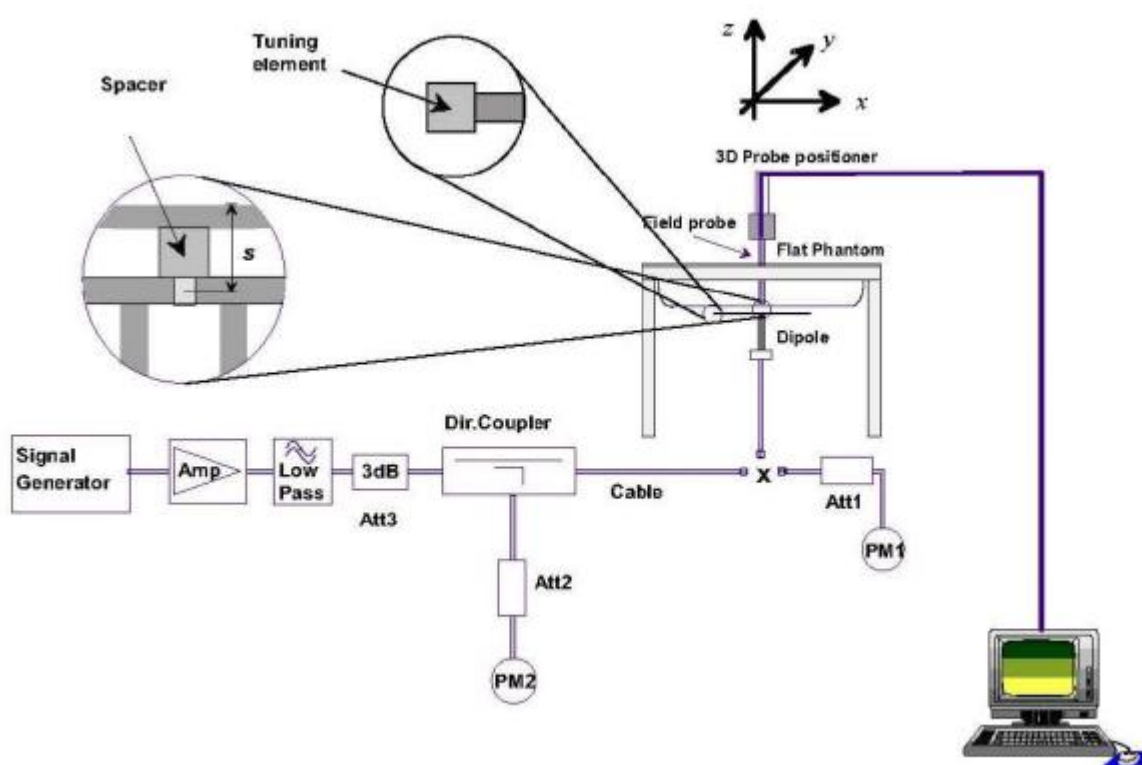


5. SAR System Validation

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 $\pm 10\%$.

Date	Freq.	Power	Power drift	Tested Value	Normalized SAR	Target SAR	Tolerance
	(MHz)	(mW)	(%)	(W/Kg)	(W/kg)	1g(W/kg)	(%)
2025-10-17	750	100	0.867	8.67	8.51	1.88	10
2025-10-19	835	100	0.978	9.78	9.63	1.56	10
2025-10-14	1800	100	3.694	36.94	36.60	0.93	10
2025-10-18	1900	100	4.025	40.25	40.20	0.12	10
2025-10-21	1900	100	3.999	39.99	40.20	-0.52	10
2025-10-21	2300	100	4.934	49.34	49.29	0.10	10
2025-10-22	2450	100	5.283	52.83	52.98	-0.28	10
2025-10-22	2600	100	5.620	56.20	56.15	0.09	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.

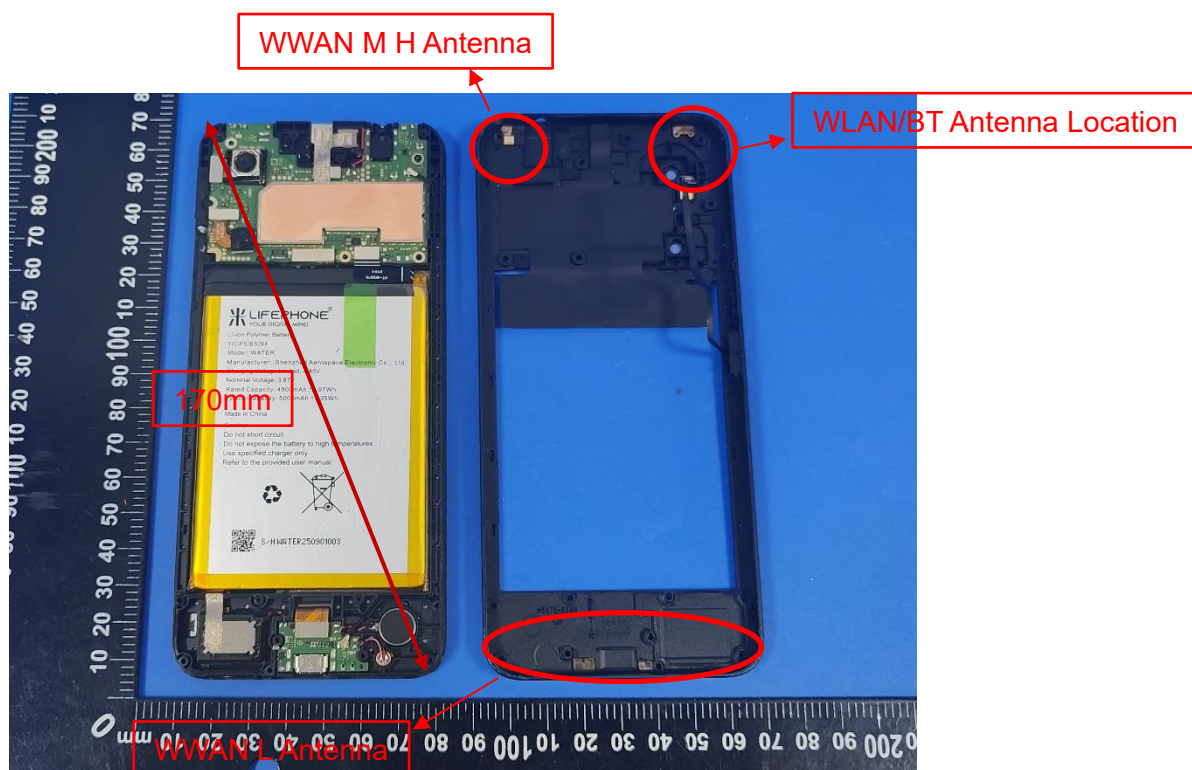
➤ Area Scan & Zoom Scan

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 Mobile Phone, support GSM/WCDMA/LTE/WLAN/BT mode.



Antenna Separation Distance(mm)						
ANT	Back Side	Front Side	Left Side	Right Side	Top Side	Bottom Side
WLAN/BT	≤0.5	≤0.5	3	≤0.5	≤0.5	147
WWAN MH ANT	≤0.5	≤0.5	≤0.5	60	≤0.5	147
WWAN L ANT	≤0.5	≤0.5	≤0.5	≤0.5	144	≤0.5

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 IV	WCDMA V
	Calculated Frequency (MHz)	824.2	1850.2	1880	1740	846.6
	Maximum Turn-up power (dBm)	34	31	21	19	24
	Maximum rated power(mW)	2511.89	1258.93	125.89	79.43	251.19
Back Side	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.52	11.03	10.94	11.37	16.30
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.52	11.03	10.94	11.37	16.30
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.52	11.03	10.94	11.37	16.30
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (mm)	5	60	60	60	5
	exclusion threshold(mW)	16.52	210.28	209.40	213.71	16.30
	Testing required?	YES	YES	NO	NO	YES
Top Edge	Separation distance (mm)	144	5	5	5	144
	exclusion threshold(mW)	681.72	11.03	10.94	11.37	693.56
	Testing required?	YES	YES	YES	YES	NO
Bottom Edge	Separation distance (mm)	5	144	144	144	5
	exclusion threshold(mW)	16.52	1050.28	1049.40	1053.71	16.30
	Testing required?	YES	YES	NO	NO	YES



Exposure Position	Wireless Interface	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12
	Calculated Frequency (MHz)	1880	1745	829	2535	704
	Maximum Turn-up power (dBm)	21.7	19.5	25.3	19.5	25.5
	Maximum rated power(mW)	147.91	89.13	338.84	89.13	354.81
Back Side	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	10.94	11.36	16.47	9.42	17.88
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	10.94	11.36	16.47	9.42	17.88
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	10.94	11.36	16.47	9.42	17.88
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (mm)	60	60	5	60	5
	exclusion threshold(mW)	209.40	213.55	16.47	194.21	17.88
	Testing required?	NO	NO	YES	NO	YES
Top Edge	Separation distance (mm)	5	5	144	5	144
	exclusion threshold(mW)	10.94	11.36	684.25	9.42	619.95
	Testing required?	YES	YES	NO	YES	NO
Bottom Edge	Separation distance (mm)	144	144	5	144	5
	exclusion threshold(mW)	1049.40	1053.55	16.47	1034.21	17.88
	Testing required?	NO	NO	YES	NO	YES



Exposure Position	Wireless Interface	LTE Band 13	LTE Band 17	LTE Band 38	LTE Band 40	LTE Band 66
	Calculated Frequency (MHz)	782	709	2595	2355	1745
	Maximum Turn-up power (dBm)	25.3	25.3	20.2	13.3	20.3
	Maximum rated power(mW)	338.84	338.84	104.71	21.38	107.15
Back Side	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.96	17.81	9.31	9.77	11.36
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.96	17.81	9.31	9.77	11.36
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.96	17.81	9.31	9.77	11.36
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (mm)	5	5	60	60	60
	exclusion threshold(mW)	16.96	17.81	193.12	197.75	213.55
	Testing required?	YES	YES	NO	NO	NO
Top Edge	Separation distance (mm)	144	144	5	5	5
	exclusion threshold(mW)	659.68	622.45	9.31	9.77	11.36
	Testing required?	NO	NO	YES	YES	YES
Bottom Edge	Separation distance (mm)	5	5	144	144	144
	exclusion threshold(mW)	16.96	17.81	1033.12	1037.75	1053.55
	Testing required?	YES	YES	NO	NO	NO



Exposure Position	Wireless Interface	BT	2.4G WLAN
	Calculated Frequency (MHz)	2480	2412
	Maximum Turn-up power (dBm)	6	17
	Maximum rated power(mW)	3.98	50.12
Back Side	Separation distance (mm)	5	5
	exclusion threshold(mW)	9.53	9.66
	Testing required?	NO	YES
Front Side	Separation distance (mm)	5	5
	exclusion threshold(mW)	9.53	9.66
	Testing required?	NO	YES
Left Edge	Separation distance (mm)	54	54
	exclusion threshold(mW)	135.25	136.58
	Testing required?	NO	NO
Right Edge	Separation distance (mm)	5	5
	exclusion threshold(mW)	9.53	9.66
	Testing required?	NO	YES
Top Edge	Separation distance (mm)	5	5
	exclusion threshold(mW)	9.53	9.66
	Testing required?	NO	YES
Bottom Edge	Separation distance (mm)	147	147
	exclusion threshold(mW)	1065.25	1066.58
	Testing required?	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 D01, 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 D01, standalone SAR test exclusion threshold is applied; if the distance of the antenna to the user is <25mm, 25mm is user to determine SAR exclusion threshold
4. per KDB 447498 D01, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distance ≤ 50 mm are determined by:

$$[(\text{max.power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance,}$$



mm)]*[$\sqrt{f(\text{GHz})}$] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, $f(\text{GHz})$ is the RF channel transmit frequency in GHz. Power and distance are rounded to the nearest mW and mm before calculation.

The result is rounded to one decimal place for comparison

For <50mm distance, we just calculate mW of the exclusion threshold value(3.0)to do compare

5. per KDB 447498 D01, at 100 MHz to 6GHz and for test separation distances >50mm, the SAR test exclusion threshold is determined according to the following
 - a)[threshold at 50mm in step 1]+(test separation distance -50mm)*($f(\text{MHz})/150$)]mW, at 100 MHz to 1500 MHz
 - b) [threshold at 50mm in step1]+(test separation distance -50mm) *10]mW at > 1500MHz and $\leq 6\text{GHz}$
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.

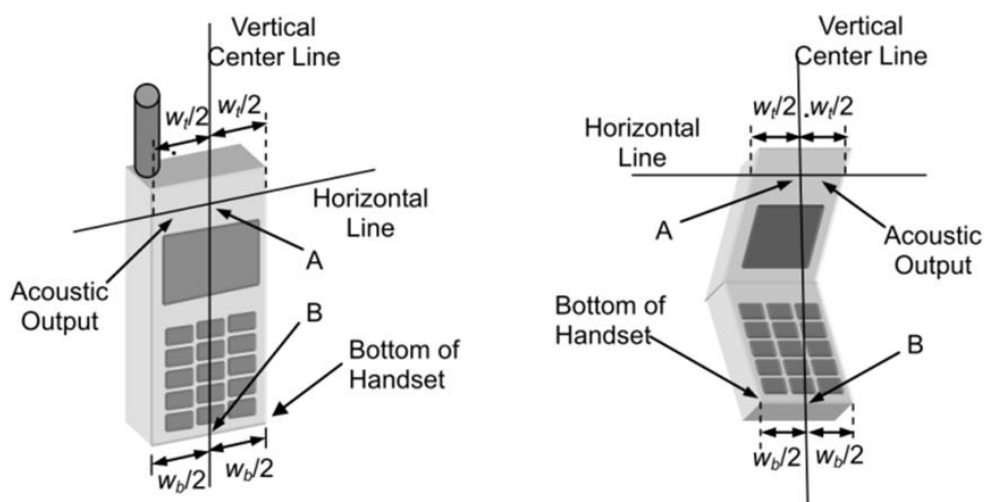


8. EUT Test Position

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

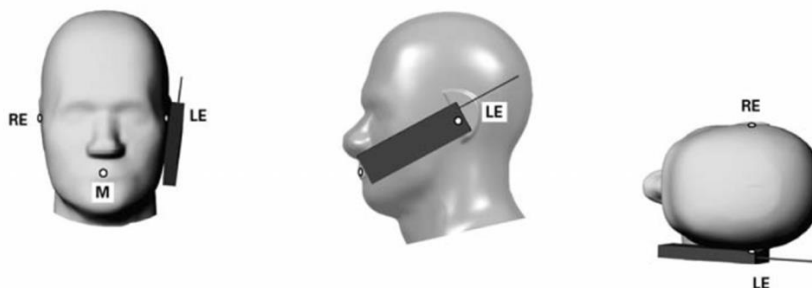
8.1 Define Two Imaginary Lines on the Handset

- (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





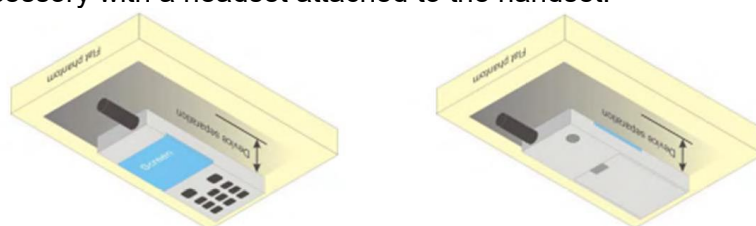
Title Position

- (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.



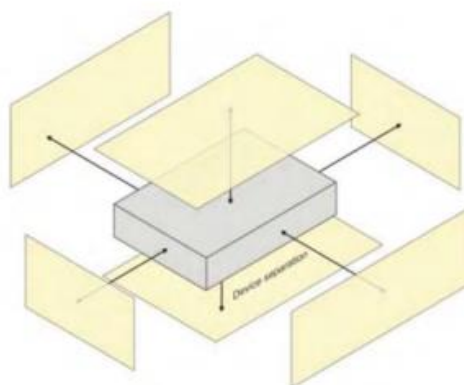
Body-worn Position Conditions:

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 D01 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 $> 1.2 \text{ W/kg}$, 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).





9. Uncertainty

9.1 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in IEEE 1528: 2013. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Uncertainty Component	Tol (+/- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+/-%)	10g Ui (+/-%)	vi
Measurement System								
Probe calibration	5.8	N	1	1	1	5.8	5.8	∞
Axial Isotropy	3.5	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	1.43	1.43	∞
Hemispherical Isotropy	5.9	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	2.41	2.41	∞
Boundary effect	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	4.7	R	$\sqrt{3}$	1	1	2.71	2.71	∞
System detection limits	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Readout Electronics	0.5	N	1	1	1	0.50	0.50	∞
Response Time	0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Integration Time	1.4	R	$\sqrt{3}$	1	1	1.81	1.81	∞
RF ambient conditions-Noise	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient conditions-reflections	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation, Interpolation and Integration Algorithms for Max, SAR	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
Test sample Related								
Test sample positioning	2.6	N	1	1	1	2.60	2.60	11
Device holder uncertainty	3	N	1	1	1	3.00	3.00	7
Output Power Variation - SAR Drift Measurement	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
SAR scaling	2	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and tissue parameters								
Phantom uncertainty (shape and thickness uncertainty)	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	2	N	1	1	0.84	2.00	1.68	∞
Liquid Conductivity - Measurement Uncertainty)	4	N	1	0.78	0.71	3.12	2.84	5
Liquid Permittivity - Measurement Uncertainty	5	N	1	0.23	0.26	1.15	1.30	5
Liquid Conductivity (Temperature Uncertainty)	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid Permittivity (Temperature Uncertainty)	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Combined Standard Uncertainty		RSS				10.47	10.34	
Expanded Uncertainty (95% Confidence interval)		K				20.95	20.69	



9.2 System validation Uncertainty

Uncertainty Component	Tol (+-%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	vi
Measurement System								
Probe calibration	5.8	N	1	1	1	5.8	5.8	∞
Axial Isotropy	3.5	R	$\sqrt{3}$	1	1	2.02	2.02	∞
Hemispherical Isotropy	5.9	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Boundary effect	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	4.7	R	$\sqrt{3}$	1	1	0.71	0.71	∞
System detection limits	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	0	N	$\sqrt{3}$	0	0	0.00	0.00	∞
Readout Electronics	0.5	N	1	1	1	0.50	0.50	∞
Response Time	0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Integration Time	1.4	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient conditions-Noise	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient conditions- reflections	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation, Interpolation and Integration Algorithms for Max, SAR	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
Dipole								
Deviation of Experimental Source from Numerical Source	5	N	1	1	1	5.00	5.00	∞
Input Power and SAR Drift Measurement	0.5	R	$\sqrt{3}$	1	1	0.29	0.29	∞
Dipole Axis to Liquid Distance	2	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and Tissue Parameters								
Phantom uncertainty (shape and thickness uncertainty)	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	2	N	1	1	0.84	2.00	1.68	∞
Liquid Conductivity - Measurement Uncertainty)	4	N	1	0.78	0.71	3.12	2.84	5
Liquid Permittivity - Measurement Uncertainty	5	N	1	0.23	0.26	1.15	1.30	5
Liquid Conductivity (Temperature Uncertainty)	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid Permittivity (Temperature Uncertainty)	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Combined Standard Uncertainty		RSS				10.16	10.03	
Expanded Uncertainty (95% Confidence interval)		K				20.32	20.06	



10. Conducted Power Measurement

There are two sets of normal power and Receiver on power

Summary of power detection mechanism

Band	Scenario	Receiver on Power reduction amount(dB)
WCDMA B2	Head	-1.5
WCDMA B4	Head	-3.5
LTE B2	Head	-3
LTE B4	Head	-7
LTE B7	Head	-8
LTE B38	Head	-5
LTE B66	Head	-6
Note: When the phone is in talking mode, the receiver will be in operation and the power will be reduced in the above frequency band at this time.		



10.1 Test Result

Normal Power:

Burst Average Power (dBm)						
Band	GSM 850			PCS 1900		
Channel	128	190	251	512	661	810
Frequency (MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
GSM (GMSK, 1-Slot)	33.70	33.64	33.47	30.86	30.81	30.33
GPRS (GMSK, 1-Slot)	33.76	33.74	33.61	30.79	30.75	30.30
GPRS (GMSK, 2-Slot)	31.63	31.50	31.25	27.87	27.43	26.81
GPRS (GMSK, 3-Slot)	29.60	29.49	29.17	26.15	25.78	25.05
GPRS (GMSK, 4-Slot)	27.26	27.22	26.85	24.03	23.56	22.89
EGPRS (8PSK, 1-Slot)	26.76	26.48	26.93	27.01	26.38	26.05
EGPRS (8PSK, 2-Slot)	25.49	25.08	25.53	24.94	24.73	24.86
EGPRS (8PSK, 3-Slot)	22.53	22.48	22.37	22.91	23.06	22.62
EGPRS (8PSK, 4-Slot)	20.01	20.19	20.27	20.40	20.42	20.00
Remark: GPRS, CS4 coding scheme. EGPRS, MCS5 coding scheme. Multi-Slot Class 8, Support Max 4 downlink, 1 uplink, 5 working link Multi-Slot Class 10, Support Max 4 downlink, 2 uplink, 5 working link Multi-Slot Class 12, Support Max 4 downlink, 4 uplink, 5 working link						

Frame- Average Power(dBm)						
Band	GSM 850			PCS 1900		
Channel	128	190	251	512	661	810
Frequency (MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
GSM (GMSK, 1-Slot)	24.67	24.61	24.44	21.83	21.78	21.30
GPRS (GMSK, 1-Slot)	24.73	24.71	24.58	21.76	21.72	21.27
GPRS (GMSK, 2-Slot)	25.61	25.48	25.23	21.85	21.41	20.79
GPRS (GMSK, 3-Slot)	25.34	25.23	24.91	21.89	21.52	20.79
GPRS (GMSK, 4-Slot)	24.25	24.21	23.84	21.02	20.55	19.88
EGPRS (8PSK, 1-Slot)	17.73	17.45	17.90	17.98	17.35	17.02
EGPRS (8PSK, 2-Slot)	19.47	19.06	19.51	18.92	18.71	18.84
EGPRS (8PSK, 3-Slot)	18.27	18.22	18.11	18.65	18.80	18.36
EGPRS (8PSK, 4-Slot)	17.00	17.18	17.26	17.39	17.41	16.99
Remark: 1. SAR testing was performed on the maximum frame-averaged power mode. 2. The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum Burst - averaged power based on time slots. The calculated method is shown as below: Frame-averaged power = Burst averaged power (1 TX Slot) – 9.03 dB Frame-averaged power = Burst averaged power (2 TX Slots) – 6.02 dB Frame-averaged power = Burst averaged power (3 TX Slots) - 4.26 dB Frame-averaged power = Burst averaged power (4 TX Slots) – 3.01 dB						



WCDMA

Band	WCDMA Band 2			WCDMA Band 4			WCDMA Band 5		
Channel	9262	9400	9538	1312	1450	1513	4132	4182	4233
Frequency (MHz)	1852.4	1880	1907.6	1712.6	1740	1752.4	826.4	836.4	846.6
RMC 12.2Kbps	23.64	23.59	23.77	23.55	23.7	23.72	23.27	23.6	23.92
HSDPA Subtest-1	23.58	23.53	23.36	23.47	23.2	22.81	23.76	23.68	23.58
HSDPA Subtest-2	23.26	23.19	23.03	23.11	22.96	22.49	23.46	23.53	23.32
HSDPA Subtest-3	22.88	23.03	22.77	22.76	22.49	22.42	23.2	23.04	23.11
HSDPA Subtest-4	22.52	22.73	22.88	22.53	22.56	22.02	23.06	23.13	22.83
HSUPA Subtest-1	23.38	23.13	23.23	23.43	23.04	22.73	23.59	23.48	23.49
HSUPA Subtest-2	23.39	23.38	23.18	23.32	23.1	22.9	23.63	23.62	23.48
HSUPA Subtest-3	23.02	22.97	22.93	22.69	22.82	22.64	23.32	23.25	23.23
HSUPA Subtest-4	23.17	23.25	23.32	23.32	23.18	22.7	23.61	23.51	23.53
HSUPA Subtest-5	23.12	23.06	23.05	22.82	22.79	22.7	23.45	23.33	23.22

According to 3GPP 25.101 sub-clause 6.2.2, the maximum output power is allowed to be reduced by following the table.

Table 6.1A: UE maximum output power with HS-DPCCH and E-DCH

UE Transmit Channel Configuration	CM (db)	MPR (db)
For all combinations of ,DPDCH,DPCCH HS-DPDCH,E-DPDCH and E-DPCCH	$0 \leq CM \leq 3.5$	$MAX(CM-1,0)$
Note: CM=1 for $\beta_c/\beta_d=12/15$, $\beta_{hs}/\beta_c=24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.		

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the HSUPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (a function of the combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH).

When E-DPDCH channels are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

The SW currently recalculates the cubic metric every time the beta gains on the E-DPDCH are reduced. The cubic metric will likely get lower each time this is done .However, there is no reported reduction of maximum output power in the HSUPA mode since the device also provides a compensation for the power back-off by increasing the gain of TX_AGC in the transceiver (PA) device.

The end effect is that the DUT output power is identical to the case where there is no MPR in the device.



2.4G WLAN

2.4GWIFI				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11b	1	2412	16.71	46.88
	6	2437	15.85	38.46
	11	2462	16.15	41.21
802.11g	1	2412	14.38	27.42
	6	2437	14.13	25.88
	11	2462	14.56	28.58
802.11 n-HT20	1	2412	14.95	31.26
	6	2437	14.66	29.24
	11	2462	15	31.62

Bluetooth

BT				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
GFSK(1Mbps)	0	2402	1.02	1.26
	39	2441	3.11	2.05
	78	2480	3.57	2.28
$\pi/4$ -QPSK(2Mbps)	0	2402	2.84	1.92
	39	2441	4.96	3.13
	78	2480	5.41	3.48
8DPSK(3Mbps)	0	2402	3.32	2.15
	39	2441	5.45	3.51
	78	2480	5.88	3.87

BLE

BLE				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
GFSK(1Mbps)	0	2402	-0.4	0.91
	19	2440	-0.77	0.84
	39	2480	-1.06	0.78



LTE Conducted Power

General Note:

1. CMW500 base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05, 16QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05, Smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05, smaller bandwidth SAR testing is not required.



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	21.18	21.45	21.03
1.4	1	2		21.29	21.50	21.11
1.4	1	5		21.16	21.42	21.07
1.4	3	0		21.33	21.26	21.03
1.4	3	1		21.33	21.30	21.04
1.4	3	2		21.29	21.21	20.97
1.4	6	0		20.37	20.32	20.26
1.4	1	0	16-QAM	20.24	20.41	20.59
1.4	1	2		20.49	20.55	20.69
1.4	1	5		20.39	20.34	20.34
1.4	3	0		20.66	20.53	20.73
1.4	3	1		20.76	20.58	20.75
1.4	3	2		20.76	20.49	20.59
1.4	6	0		20.24	20.50	20.02
3	1	0	QPSK	21.31	21.36	21.11
3	1	7		21.38	21.32	21.14
3	1	14		21.09	21.33	21.09
3	8	0		20.31	20.52	20.81
3	8	4		20.41	20.51	20.79
3	8	7		20.40	20.41	20.62
3	15	0		20.34	20.49	20.74
3	1	0	16-QAM	20.70	20.50	20.16
3	1	7		21.02	20.53	20.18
3	1	14		20.87	20.25	19.73
3	8	0		20.18	20.51	20.11
3	8	4		20.28	20.50	20.08
3	8	7		20.27	20.39	19.93
3	15	0		20.23	20.43	20.11



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.25	21.19	21.22
5	1	12		20.97	21.13	20.80
5	1	24		21.32	21.23	20.93
5	12	0		21.19	21.12	21.02
5	12	6		21.34	21.16	21.10
5	12	11		21.13	20.90	20.81
5	25	0		21.18	21.05	20.94
5	1	0	16-QAM	20.71	20.54	20.71
5	1	12		21.29	20.78	21.15
5	1	24		20.68	20.11	20.31
5	12	0		20.10	20.43	20.16
5	12	6		20.27	20.46	20.23
5	12	11		20.06	20.20	19.93
5	25	0		20.06	20.38	20.00
10	1	0	QPSK	21.34	21.40	21.39
10	1	24		21.41	21.40	21.41
10	1	49		21.54	21.16	21.08
10	25	0		20.51	20.53	20.67
10	25	12		20.48	20.42	20.60
10	25	24		20.63	20.30	20.57
10	50	0		20.56	20.42	20.63
10	1	0	16-QAM	20.57	20.62	20.54
10	1	24		20.65	20.47	20.33
10	1	49		21.01	20.25	20.27
10	25	0		20.21	20.64	20.53
10	25	12		20.16	20.51	20.39
10	25	24		20.33	20.40	20.39
10	50	0		20.24	20.55	20.44



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.23	21.34	21.32
15	1	37		21.29	21.37	20.96
15	1	74		20.91	21.51	21.03
15	36	0		20.16	21.47	21.15
15	36	18		19.99	21.14	21.08
15	36	39		20.17	20.84	20.91
15	75	0		20.15	21.17	21.05
15	1	0	16-QAM	20.69	20.68	20.86
15	1	38		20.61	20.27	20.95
15	1	75		20.89	19.76	20.41
15	36	0		20.20	20.82	20.37
15	36	18		20.04	20.47	20.27
15	36	39		20.23	20.17	20.13
15	75	0		20.16	20.43	20.31
20	1	0	QPSK	20.69	20.75	20.90
20	1	49		20.38	20.03	20.75
20	1	99		21.80	20.31	20.90
20	50	0		20.05	20.77	20.28
20	50	24		20.12	20.40	20.38
20	50	49		20.69	20.37	20.54
20	100	0		20.32	20.56	20.36
20	1	0	16-QAM	21.16	21.38	21.37
20	1	49		21.24	21.39	21.41
20	1	99		21.26	21.54	21.16
20	50	0		19.22	20.63	20.26
20	50	24		19.28	20.28	20.38
20	50	49		19.84	20.26	20.55
20	100	0		19.52	20.44	20.40



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	24.84	24.90	24.87
1.4	1	2		24.80	24.85	25.01
1.4	1	5		24.78	24.81	24.89
1.4	3	0		24.67	24.71	24.72
1.4	3	1		24.72	24.77	24.76
1.4	3	2		24.69	24.67	24.80
1.4	6	0		23.71	23.77	23.76
1.4	1	0	16-QAM	25.07	24.29	23.74
1.4	1	2		25.18	24.34	23.70
1.4	1	5		25.16	24.35	23.81
1.4	3	0		23.93	23.79	23.65
1.4	3	1		23.96	23.77	23.56
1.4	3	2		23.94	23.77	23.60
1.4	6	0		22.97	23.25	22.66
3	1	0	QPSK	24.83	24.88	24.85
3	1	7		24.75	24.98	24.93
3	1	14		24.81	25.13	24.93
3	8	0		23.59	23.66	23.91
3	8	4		23.66	23.78	23.70
3	8	7		23.71	23.76	23.82
3	15	0		23.60	23.75	23.67
3	1	0	16-QAM	24.36	24.37	24.34
3	1	7		24.17	24.38	24.36
3	1	14		24.31	24.57	24.42
3	8	0		22.66	22.65	22.83
3	8	4		22.77	23.14	22.76
3	8	7		22.86	22.84	22.79
3	15	0		22.65	23.06	22.78



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	24.67	24.87	24.56
5	1	12		24.63	24.80	24.53
5	1	24		24.59	24.91	24.61
5	12	0		23.82	23.85	23.74
5	12	6		23.62	23.80	23.81
5	12	11		23.67	23.79	23.84
5	25	0		23.64	23.86	23.81
5	1	0	16-QAM	24.33	24.36	24.78
5	1	12		24.26	24.39	24.77
5	1	24		24.25	24.31	24.82
5	12	0		22.69	22.55	22.66
5	12	6		22.56	22.89	22.70
5	12	11		22.59	22.89	22.74
5	25	0		22.78	23.12	22.89
10	1	0	QPSK	25.25	24.83	25.06
10	1	24		25.11	24.91	25.17
10	1	49		25.10	24.96	25.07
10	25	0		23.60	23.82	23.82
10	25	12		23.51	23.80	23.85
10	25	24		23.62	23.80	23.73
10	50	0		23.70	23.75	23.76
10	1	0	16-QAM	24.68	24.66	24.85
10	1	24		24.56	24.68	24.92
10	1	49		24.72	24.73	24.98
10	25	0		22.66	22.70	22.80
10	25	12		22.57	23.11	22.81
10	25	24		22.75	22.87	22.74
10	50	0		22.64	23.14	22.75



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	25.25	24.89	25.20
15	1	37		25.06	24.91	25.19
15	1	74		25.21	24.88	25.11
15	36	0		22.66	22.72	22.65
15	36	18		22.70	23.20	22.73
15	36	39		22.70	22.87	22.61
15	75	0		22.69	23.05	22.72
15	1	0	16-QAM	24.68	24.71	24.81
15	1	38		24.60	24.73	24.81
15	1	75		24.63	24.76	24.94
15	36	0		23.60	23.83	23.78
15	36	18		23.64	23.70	23.92
15	36	39		23.70	23.84	23.71
15	75	0		23.64	23.72	23.81
20	1	0	QPSK	25.31	24.36	23.80
20	1	49		25.33	24.30	23.78
20	1	99		25.20	24.33	23.86
20	50	0		22.64	22.83	22.83
20	50	24		22.65	23.12	22.83
20	50	49		22.52	23.17	22.89
20	100	0		22.84	23.03	22.71
20	1	0	16-QAM	24.69	24.87	24.92
20	1	49		24.72	24.85	24.89
20	1	99		24.68	24.82	25.00
20	50	0		23.77	23.75	23.69
20	50	24		23.68	23.80	23.70
20	50	49		23.55	23.72	23.77
20	100	0		23.79	23.75	23.82



LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	25.01	24.84	24.74
1.4	1	2		25.05	24.94	24.77
1.4	1	5		25.11	25.03	24.73
1.4	3	0		22.57	22.61	22.95
1.4	3	1		23.03	23.24	23.47
1.4	3	2		22.72	22.80	23.47
1.4	6	0		23.02	23.30	23.39
1.4	1	0	16-QAM	24.58	24.59	24.88
1.4	1	2		24.49	24.77	25.02
1.4	1	5		24.66	24.92	25.02
1.4	3	0		23.54	23.74	23.92
1.4	3	1		23.60	23.87	24.00
1.4	3	2		23.73	23.98	24.13
1.4	6	0		23.63	23.86	23.95
3	1	0	QPSK	25.14	24.36	24.51
3	1	7		25.06	24.40	24.60
3	1	14		25.06	24.41	24.55
3	8	0		22.90	22.75	23.39
3	8	4		22.85	23.20	23.44
3	8	7		22.44	23.26	23.51
3	15	0		23.08	23.15	23.42
3	1	0	16-QAM	24.62	24.75	25.01
3	1	7		24.51	24.95	24.94
3	1	14		24.51	25.00	25.07
3	8	0		23.63	23.89	24.03
3	8	4		23.51	23.81	23.88
3	8	7		23.63	23.86	23.94
3	15	0		23.62	23.82	24.06



LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	24.16	24.32	25.09
5	1	12		24.14	24.37	25.01
5	1	24		24.12	24.42	25.00
5	12	0		22.94	22.56	22.90
5	12	6		22.49	23.03	23.35
5	12	11		22.42	23.06	23.37
5	25	0		22.63	23.24	23.61
5	1	0	16-QAM	24.46	24.64	24.81
5	1	12		24.39	24.83	24.72
5	1	24		24.39	24.94	24.78
5	12	0		23.55	23.80	24.06
5	12	6		23.51	23.80	24.12
5	12	11		23.52	23.88	23.95
5	25	0		23.45	23.86	24.02
10	1	0	QPSK	25.14	24.39	24.47
10	1	24		25.13	24.30	24.49
10	1	49		25.18	24.34	24.44
10	25	0		23.92	23.81	23.88
10	25	12		23.91	23.82	23.88
10	25	24		23.86	23.84	23.79
10	50	0		23.19	23.43	23.40
10	1	0	16-QAM	24.66	24.78	24.99
10	1	24		24.68	24.86	25.01
10	1	49		24.68	24.94	25.01
10	25	0		24.61	24.84	24.89
10	25	12		24.67	24.93	25.01
10	25	24		24.62	24.86	24.88
10	50	0		23.68	23.90	23.93



LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	24.65	23.84	23.71
5	1	12		24.63	23.81	23.82
5	1	24		24.61	23.93	23.84
5	12	0		23.66	23.11	22.99
5	12	6		23.59	23.13	22.93
5	12	11		23.52	23.10	22.93
5	25	0		23.74	23.12	22.97
5	1	0	16-QAM	23.86	24.22	23.69
5	1	12		23.85	24.19	23.69
5	1	24		23.82	24.13	23.79
5	12	0		22.72	22.03	21.88
5	12	6		22.67	21.99	21.85
5	12	11		22.61	22.15	21.85
5	25	0		22.86	22.23	22.00
10	1	0	QPSK	24.65	24.42	24.02
10	1	24		24.43	24.60	23.94
10	1	49		24.44	24.63	24.03
10	25	0		23.61	23.00	22.93
10	25	12		23.52	23.04	22.84
10	25	24		23.41	23.00	22.98
10	50	0		23.46	23.12	22.82
10	1	0	16-QAM	24.60	24.06	23.87
10	1	24		24.51	24.01	23.98
10	1	49		24.41	24.05	23.98
10	25	0		23.57	23.11	22.85
10	25	12		23.55	23.16	22.83
10	25	24		23.49	23.09	23.05
10	50	0		23.52	23.22	22.89



LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	25.23	24.31	24.48
15	1	37		25.11	24.33	24.43
15	1	74		25.07	24.38	24.57
15	36	0		23.64	23.02	22.80
15	36	18		23.50	23.10	22.99
15	36	39		23.47	23.19	23.03
15	75	0		23.43	23.15	22.87
15	1	0	16-QAM	24.63	23.99	23.82
15	1	38		24.42	23.99	23.79
15	1	75		24.36	24.05	23.83
15	36	0		22.63	22.28	21.77
15	36	18		22.56	22.23	21.85
15	36	39		22.66	22.24	21.86
15	75	0		22.43	22.11	21.91
20	1	0	QPSK	25.26	24.39	23.90
20	1	49		25.17	24.38	23.81
20	1	99		25.16	24.29	23.93
20	50	0		22.70	22.23	21.96
20	50	24		22.69	22.13	21.96
20	50	49		22.51	22.26	21.97
20	100	0		22.74	22.19	21.92
20	1	0	16-QAM	24.33	23.60	23.88
20	1	49		24.29	23.72	23.75
20	1	99		24.26	23.70	23.90
20	50	0		22.67	22.22	22.00
20	50	24		22.56	22.12	21.98
20	50	49		22.62	22.13	21.92
20	100	0		22.47	22.14	22.01



LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	24.75	24.18	23.96
1.4	1	2		24.89	24.31	24.16
1.4	1	5		24.71	24.28	24.16
1.4	3	0		24.79	24.78	24.48
1.4	3	1		24.75	24.83	24.56
1.4	3	2		24.78	24.85	24.61
1.4	6	0		23.67	23.71	23.94
1.4	1	0	16-QAM	24.84	24.60	24.39
1.4	1	2		24.79	24.80	24.62
1.4	1	5		24.82	24.79	24.61
1.4	3	0		23.83	23.72	24.23
1.4	3	1		23.82	23.62	24.30
1.4	3	2		23.83	23.68	24.24
1.4	6	0		23.10	22.90	23.09
3	1	0	QPSK	24.92	24.16	23.93
3	1	7		25.04	24.20	24.07
3	1	14		24.92	24.18	24.18
3	8	0		23.62	23.63	23.84
3	8	4		23.65	23.78	23.92
3	8	7		23.73	23.66	24.02
3	15	0		23.61	23.73	23.95
3	1	0	16-QAM	24.72	24.58	24.30
3	1	7		24.63	24.75	24.49
3	1	14		24.58	24.73	24.65
3	8	0		22.86	22.56	22.72
3	8	4		22.88	22.85	22.81
3	8	7		22.56	22.77	23.05
3	15	0		23.01	22.78	22.83



LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	24.45	24.76	24.28
5	1	12		24.70	24.82	24.31
5	1	24		24.78	24.83	24.19
5	12	0		23.64	23.65	23.88
5	12	6		23.71	23.79	23.92
5	12	11		23.65	23.81	24.00
5	25	0		23.70	23.80	24.00
5	1	0	16-QAM	24.23	24.25	24.45
5	1	12		24.25	24.25	24.44
5	1	24		24.27	24.40	24.31
5	12	0		22.95	22.45	22.77
5	12	6		22.59	22.62	22.75
5	12	11		22.59	22.57	22.84
5	25	0		22.77	22.86	22.99
10	1	0	QPSK	24.75	24.15	24.04
10	1	24		25.12	24.20	24.15
10	1	49		25.07	24.37	24.29
10	25	0		23.72	23.78	23.81
10	25	12		23.72	23.77	23.80
10	25	24		23.72	23.76	23.97
10	50	0		23.74	23.89	23.81
10	1	0	16-QAM	24.52	24.61	24.70
10	1	24		24.68	24.84	24.82
10	1	49		24.76	24.63	24.75
10	25	0		22.76	22.68	22.79
10	25	12		22.79	22.88	22.80
10	25	24		22.70	22.85	22.88
10	50	0		22.88	22.86	22.75



LTE Band 13 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	24.58	24.30	24.36
5	1	12		24.57	24.31	24.28
5	1	24		24.57	24.27	24.42
5	12	0		23.52	23.45	23.41
5	12	6		23.58	23.54	23.46
5	12	11		23.55	23.44	23.52
5	25	0		23.60	23.46	23.48
5	1	0	16-QAM	23.73	24.54	24.08
5	1	12		23.71	24.51	23.99
5	1	24		23.69	24.53	24.14
5	12	0		22.30	22.48	22.23
5	12	6		22.44	22.80	22.23
5	12	11		22.38	22.45	22.30
5	25	0		22.64	22.93	22.44
10	1	0	QPSK	/	24.92	/
10	1	24		/	24.86	/
10	1	49		/	25.01	/
10	25	0		/	23.54	/
10	25	12		/	23.55	/
10	25	24		/	23.46	/
10	50	0		/	23.51	/
10	1	0	16-QAM	/	24.52	/
10	1	24		/	24.43	/
10	1	49		/	24.44	/
10	25	0		/	22.54	/
10	25	12		/	22.91	/
10	25	24		/	22.47	/
10	50	0		/	22.96	/



LTE Band 17 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.80	24.76	24.46
5	1	12		23.82	24.79	24.57
5	1	24		23.90	24.14	24.43
5	12	0		23.66	23.76	23.84
5	12	6		23.59	23.82	23.92
5	12	11		23.73	23.88	24.03
5	25	0		23.68	23.83	24.01
5	1	0	16-QAM	24.70	24.60	24.27
5	1	12		24.54	24.53	24.31
5	1	24		24.71	23.96	24.19
5	12	0		22.64	22.73	22.84
5	12	6		22.61	22.74	22.80
5	12	11		22.74	22.86	22.89
5	25	0		22.75	22.78	22.93
10	1	0	QPSK	25.00	24.76	24.45
10	1	24		25.01	24.85	24.45
10	1	49		24.53	24.33	24.22
10	25	0		23.63	23.73	23.74
10	25	12		23.72	23.84	23.81
10	25	24		23.82	23.93	24.03
10	50	0		23.72	23.84	23.89
10	1	0	16-QAM	24.64	24.65	24.69
10	1	24		24.66	24.69	24.82
10	1	49		24.36	24.36	24.69
10	25	0		22.65	22.80	22.81
10	25	12		22.72	22.73	22.80
10	25	24		22.88	22.94	22.97
10	50	0		22.77	22.76	22.78



LTE Band 38 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.18	23.39	24.51
5	1	12		23.16	23.32	24.45
5	1	24		23.26	23.34	24.46
5	12	0		22.79	23.18	23.67
5	12	6		22.81	23.17	23.61
5	12	11		22.76	23.15	23.63
5	25	0		22.80	23.19	23.66
5	1	0	16-QAM	23.92	24.26	24.34
5	1	12		23.92	24.31	24.43
5	1	24		23.87	24.19	24.38
5	12	0		21.99	22.14	22.60
5	12	6		21.85	21.95	22.65
5	12	11		21.82	22.12	22.64
5	25	0		21.97	22.30	22.75
10	1	0	QPSK	24.55	23.42	24.30
10	1	24		24.53	23.49	24.38
10	1	49		24.53	23.54	24.39
10	25	0		22.81	23.23	23.44
10	25	12		22.85	23.10	23.49
10	25	24		23.01	23.27	23.64
10	50	0		22.90	23.17	23.54
10	1	0	16-QAM	23.95	24.23	24.39
10	1	24		23.89	24.29	24.39
10	1	49		23.97	24.28	24.51
10	25	0		22.05	22.40	22.60
10	25	12		22.01	22.31	22.65
10	25	24		22.15	22.31	22.74
10	50	0		21.84	22.26	22.58



LTE Band 38 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.94	24.34	24.43
15	1	37		23.90	24.18	24.53
15	1	74		23.95	24.35	24.65
15	36	0		22.85	23.18	23.50
15	36	18		22.94	23.09	23.46
15	36	39		22.96	23.11	23.52
15	75	0		22.92	23.13	23.53
15	1	0	16-QAM	24.55	23.52	23.98
15	1	38		24.59	23.48	24.19
15	1	75		24.53	23.48	24.24
15	36	0		21.92	22.22	22.52
15	36	18		21.82	22.23	22.54
15	36	39		21.84	22.15	22.60
15	75	0		22.03	22.26	22.57
20	1	0	QPSK	24.01	24.20	24.43
20	1	49		23.93	24.12	24.51
20	1	99		23.99	24.36	24.77
20	50	0		23.04	23.13	23.38
20	50	24		22.98	23.16	23.51
20	50	49		23.05	23.23	23.56
20	100	0		22.96	23.08	23.37
20	1	0	16-QAM	23.44	23.46	23.42
20	1	49		23.43	23.24	23.23
20	1	99		23.38	23.47	23.72
20	50	0		22.19	22.12	22.52
20	50	24		22.15	22.07	22.58
20	50	49		22.25	22.10	22.57
20	100	0		22.11	22.25	22.53



LTE Band 40 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	12.55	12.58	12.50
5	1	12		13.02	13.07	13.01
5	1	24		12.46	12.54	12.48
5	12	0		11.77	11.81	11.79
5	12	6		11.89	11.94	11.93
5	12	11		11.72	11.78	11.78
5	25	0		11.76	11.82	11.80
5	1	0	16-QAM	12.09	11.79	11.79
5	1	12		12.56	12.27	12.30
5	1	24		12.01	11.74	11.76
5	12	0		10.89	10.89	10.93
5	12	6		11.02	11.02	11.07
5	12	11		10.85	10.85	10.91
5	25	0		10.81	10.90	10.85
10	1	0	QPSK	/	12.73	/
10	1	24		/	13.02	/
10	1	49		/	13.13	/
10	25	0		/	11.91	/
10	25	12		/	11.98	/
10	25	24		/	12.11	/
10	50	0		/	12.01	/
10	1	0	16-QAM	/	12.14	/
10	1	24		/	12.40	/
10	1	49		/	12.54	/
10	25	0		/	11.03	/
10	25	12		/	11.11	/
10	25	24		/	11.23	/
10	50	0		/	11.09	/



LTE Band 40 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	12.68	12.72	12.66
5	1	12		13.13	13.19	13.16
5	1	24		12.57	12.67	12.51
5	12	0		11.96	11.99	12.00
5	12	6		12.07	12.21	12.12
5	12	11		11.87	12.02	11.90
5	25	0		11.92	12.00	11.95
5	1	0	16-QAM	12.24	11.98	12.01
5	1	12		12.72	12.48	12.49
5	1	24		12.14	11.95	11.87
5	12	0		10.97	11.02	11.09
5	12	6		11.08	11.21	11.22
5	12	11		10.90	11.04	11.00
5	25	0		10.91	11.14	11.00
10	1	0	QPSK	/	12.94	/
10	1	24		/	13.19	/
10	1	49		/	13.21	/
10	25	0		/	12.16	/
10	25	12		/	12.22	/
10	25	24		/	12.30	/
10	50	0		/	12.24	/
10	1	0	16-QAM	/	12.33	/
10	1	24		/	12.65	/
10	1	49		/	12.62	/
10	25	0		/	11.19	/
10	25	12		/	11.25	/
10	25	24		/	11.34	/
10	50	0		/	11.24	/



LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	21.17	21.24	20.92
1.4	1	2		21.13	21.23	21.00
1.4	1	5		21.26	21.25	20.95
1.4	3	0		21.06	21.26	20.89
1.4	3	1		21.10	21.29	20.90
1.4	3	2		21.18	21.30	21.00
1.4	6	0		20.59	20.54	20.45
1.4	1	0	16-QAM	20.63	20.65	20.29
1.4	1	2		20.81	20.80	20.40
1.4	1	5		20.62	20.61	20.09
1.4	3	0		20.76	20.80	20.67
1.4	3	1		20.81	20.86	20.69
1.4	3	2		20.74	20.78	20.55
1.4	6	0		19.56	19.58	19.45
3	1	0	QPSK	21.22	20.93	21.04
3	1	7		21.25	21.34	20.93
3	1	14		21.20	21.23	21.02
3	8	0		20.61	20.69	20.83
3	8	4		20.67	20.69	20.77
3	8	7		20.68	20.61	20.55
3	15	0		20.64	20.66	20.77
3	1	0	16-QAM	20.82	20.10	20.15
3	1	7		21.02	20.14	20.13
3	1	14		20.92	19.88	19.64
3	8	0		19.36	19.50	19.60
3	8	4		19.42	19.49	19.55
3	8	7		19.42	19.39	19.35
3	15	0		19.42	19.40	19.55



LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	20.88	20.39	20.59
5	1	12		21.42	20.54	20.68
5	1	24		21.07	19.95	19.77
5	12	0		20.66	21.10	21.15
5	12	6		20.85	21.14	21.12
5	12	11		20.76	20.89	20.76
5	25	0		20.73	21.02	20.96
5	1	0	16-QAM	21.10	20.97	20.96
5	1	12		21.11	21.28	20.98
5	1	24		21.03	21.25	20.82
5	12	0		19.25	19.46	19.80
5	12	6		19.44	19.45	19.76
5	12	11		19.35	19.19	19.39
5	25	0		19.28	19.38	19.54
10	1	0	QPSK	20.93	20.56	20.84
10	1	24		21.39	20.07	21.05
10	1	49		22.03	20.10	20.58
10	25	0		19.62	21.09	20.80
10	25	12		19.80	20.88	20.79
10	25	24		20.16	20.88	20.66
10	50	0		19.90	20.98	20.73
10	1	0	16-QAM	21.05	21.40	21.42
10	1	24		21.07	21.41	21.14
10	1	49		21.13	21.43	21.07
10	25	0		19.31	19.89	20.28
10	25	12		19.46	19.67	20.27
10	25	24		19.83	19.65	20.13
10	50	0		19.55	19.80	20.18



LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	20.79	20.58	20.56
15	1	37		21.15	19.55	21.47
15	1	74		21.92	19.12	20.69
15	36	0		19.54	21.62	21.00
15	36	18		19.67	21.14	21.28
15	36	39		20.15	20.93	21.18
15	75	0		19.87	21.29	21.10
15	1	0	16-QAM	21.05	21.41	20.85
15	1	38		20.67	21.43	21.39
15	1	75		21.17	21.38	20.95
15	36	0		19.47	20.21	19.88
15	36	18		19.61	19.68	20.18
15	36	39		20.02	19.43	20.10
15	75	0		19.71	19.75	20.05
20	1	0	QPSK	20.73	21.07	21.03
20	1	49		21.16	19.47	22.21
20	1	99		22.63	19.81	22.14
20	50	0		18.59	21.15	19.52
20	50	24		19.08	20.57	20.27
20	50	49		19.86	20.51	20.73
20	100	0		19.30	20.83	20.16
20	1	0	16-QAM	21.01	21.45	21.36
20	1	49		21.07	21.49	21.48
20	1	99		21.23	21.56	21.10
20	50	0		19.00	20.25	19.25
20	50	24		19.45	19.64	19.98
20	50	49		20.21	19.57	20.44
20	100	0		19.59	19.91	19.85



Receiver on Power

Band	WCDMA Band 2			WCDMA Band 4		
Channel	9262	9400	9538	1312	1450	1513
Frequency (MHz)	1852.4	1880	1907.6	1712.6	1740	1752.4
RMC 12.2Kbps	20.91	20.91	20.86	18.6	18.75	18.12
HSDPA Subtest-1	20.67	20.61	20.9	18.51	18.66	17.89
HSDPA Subtest-2	20.26	20.38	20.45	18.29	18.33	17.72
HSDPA Subtest-3	20.03	20.3	20.47	17.98	18.23	17.45
HSDPA Subtest-4	19.9	19.95	19.99	17.81	18.13	17.35
HSUPA Subtest-1	20.61	20.23	20.8	18.44	18.21	17.75
HSUPA Subtest-2	20.54	20.53	20.74	18.42	18.65	17.9
HSUPA Subtest-3	20.16	20.18	20.16	18.29	18.18	17.27
HSUPA Subtest-4	20.45	20.52	20.7	18.36	18.61	17.84
HSUPA Subtest-5	20.17	20.39	20.08	18.11	18.38	17.58

According to 3GPP 25.101 sub-clause 6.2.2, the maximum output power is allowed to be reduced by following the table.

Table 6.1A: UE maximum output power with HS-DPCCH and E-DCH

UE Transmit Channel Configuration	CM (db)	MPR (db)
For all combinations of ,DPDCH,DPCCH HS-DPDCH,E-DPDCH and E-DPCCH	$0 \leq CM \leq 3.5$	$MAX(CM-1,0)$
Note: CM=1 for $\beta_c/\beta_d=12/15$, $\beta_{hs}/\beta_c=24/15$.For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.		

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the HSUPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (a function of the combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH).

When E-DPDCH channels are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

The SW currently recalculates the cubic metric every time the beta gains on the E-DPDCH are reduced. The cubic metric will likely get lower each time this is done .However, there is no reported reduction of maximum output power in the HSUPA mode since the device also provides a compensation for the power back-off by increasing the gain of TX_AGC in the transceiver (PA) device.

The end effect is that the DUT output power is identical to the case where there is no MPR in the device.



LTE Conducted Power

General Note:

1. CMW500 base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05, 16QAM output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05, Smaller bandwidth output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05, smaller bandwidth SAR testing is not required.



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	20.02	20.46	20.32
1.4	1	2		20.15	20.57	20.43
1.4	1	5		20.05	20.33	20.11
1.4	3	0		19.94	20.54	20.34
1.4	3	1		20.00	20.57	20.45
1.4	3	2		19.99	20.46	20.30
1.4	6	0		19.96	20.45	20.38
1.4	1	0	16-QAM	19.49	19.94	19.64
1.4	1	2		19.62	20.05	19.73
1.4	1	5		19.52	19.83	19.44
1.4	3	0		19.57	20.06	19.99
1.4	3	1		19.65	20.10	20.01
1.4	3	2		19.63	20.00	20.04
1.4	6	0		19.58	19.94	20.09
3	1	0	QPSK	19.67	21.33	20.27
3	1	7		20.04	21.33	20.41
3	1	14		19.96	20.05	19.99
3	8	0		19.40	19.86	19.82
3	8	4		19.50	19.83	19.82
3	8	7		19.55	19.72	19.67
3	15	0		19.45	19.79	19.76
3	1	0	16-QAM	19.68	20.06	19.73
3	1	7		20.06	20.07	19.92
3	1	14		19.98	19.81	19.41
3	8	0		19.50	19.94	19.93
3	8	4		19.63	19.91	19.93
3	8	7		19.67	19.80	19.78
3	15	0		19.60	19.84	19.95



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	19.38	20.04	19.87
5	1	12		20.10	20.27	20.36
5	1	24		19.49	19.59	19.61
5	12	0		19.35	19.77	19.71
5	12	6		19.58	19.78	19.91
5	12	11		19.42	19.52	19.70
5	25	0		19.40	19.66	19.73
5	1	0	16-QAM	19.48	19.92	19.90
5	1	12		20.18	20.12	20.35
5	1	24		19.60	19.49	19.60
5	12	0		19.36	19.80	19.88
5	12	6		19.58	19.81	20.05
5	12	11		19.45	19.56	19.83
5	25	0		19.37	19.74	19.80
10	1	0	QPSK	19.72	20.48	20.57
10	1	24		19.97	20.26	20.50
10	1	49		20.35	20.01	20.50
10	25	0		19.57	20.00	20.14
10	25	12		19.57	19.86	19.97
10	25	24		19.72	19.77	20.00
10	50	0		19.63	19.88	20.06
10	1	0	16-QAM	19.72	20.17	19.97
10	1	24		20.03	19.98	20.00
10	1	49		20.42	19.71	19.95
10	25	0		19.69	20.04	20.37
10	25	12		19.71	19.91	20.23
10	25	24		19.88	19.81	20.20
10	50	0		19.75	19.95	20.26



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	19.86	20.56	20.39
15	1	37		19.83	20.20	20.44
15	1	74		20.06	19.65	20.04
15	36	0		19.57	20.12	20.08
15	36	18		19.44	19.79	20.00
15	36	39		19.58	19.47	19.84
15	75	0		19.55	19.79	19.99
15	1	0	16-QAM	19.86	20.25	20.15
15	1	38		19.91	19.93	20.18
15	1	75		20.17	19.37	19.75
15	36	0		19.70	20.22	20.15
15	36	18		19.60	19.90	20.06
15	36	39		19.76	19.58	19.90
15	75	0		19.67	19.83	20.07
20	1	0	QPSK	20.34	21.47	21.09
20	1	49		20.25	20.67	20.87
20	1	99		20.43	20.95	21.23
20	50	0		19.44	20.13	19.96
20	50	24		19.48	19.81	20.07
20	50	49		19.96	19.75	20.22
20	100	0		19.67	19.92	20.07
20	1	0	16-QAM	19.95	20.76	20.49
20	1	49		19.83	19.98	20.35
20	1	99		21.07	20.24	20.61
20	50	0		19.60	20.16	20.07
20	50	24		19.67	19.85	20.17
20	50	49		20.15	19.77	20.32
20	100	0		19.80	19.95	20.13



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	17.21	17.42	16.81
1.4	1	2		17.43	17.60	16.97
1.4	1	5		17.23	17.43	16.73
1.4	3	0		17.19	17.51	16.84
1.4	3	1		17.26	17.57	16.89
1.4	3	2		17.21	17.52	16.79
1.4	6	0		16.15	16.48	15.85
1.4	1	0	16-QAM	16.29	16.61	15.74
1.4	1	2		16.49	16.78	15.90
1.4	1	5		16.31	16.63	15.67
1.4	3	0		16.38	16.77	16.09
1.4	3	1		16.45	16.83	16.14
1.4	3	2		16.39	16.78	16.06
1.4	6	0		15.52	15.85	15.15
3	1	0	QPSK	17.11	17.45	17.00
3	1	7		17.28	17.61	17.05
3	1	14		17.13	17.44	16.79
3	8	0		16.18	16.53	16.02
3	8	4		16.21	16.57	16.00
3	8	7		16.16	16.54	15.90
3	15	0		16.15	16.54	15.96
3	1	0	16-QAM	16.51	16.66	15.93
3	1	7		16.71	16.79	15.99
3	1	14		16.55	16.66	15.72
3	8	0		15.38	15.74	15.14
3	8	4		15.42	15.77	15.13
3	8	7		15.37	15.74	15.04
3	15	0		15.38	15.70	15.16



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	16.83	17.08	16.86
5	1	12		17.31	17.58	17.10
5	1	24		16.90	17.07	16.43
5	12	0		16.07	16.45	16.11
5	12	6		16.23	16.60	16.14
5	12	11		16.13	16.44	15.88
5	25	0		16.10	16.46	16.00
5	1	0	16-QAM	16.36	16.44	16.27
5	1	12		16.88	16.94	16.53
5	1	24		16.46	16.45	15.87
5	12	0		15.26	15.60	15.27
5	12	6		15.42	15.75	15.30
5	12	11		15.33	15.60	15.03
5	25	0		15.25	15.66	15.10
10	1	0	QPSK	16.76	17.33	17.85
10	1	24		17.06	17.59	17.41
10	1	49		17.81	17.58	17.34
10	25	0		15.97	16.54	16.69
10	25	12		16.14	16.64	16.47
10	25	24		16.51	16.74	16.40
10	50	0		16.24	16.64	16.54
10	1	0	16-QAM	16.19	16.52	16.76
10	1	24		16.53	16.76	16.33
10	1	49		17.26	16.75	16.26
10	25	0		15.13	15.71	15.81
10	25	12		15.30	15.82	15.59
10	25	24		15.67	15.92	15.51
10	50	0		15.38	15.85	15.64



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	16.79	17.44	18.32
15	1	37		17.23	17.54	17.27
15	1	74		17.94	17.10	16.51
15	36	0		16.15	16.62	16.96
15	36	18		16.30	16.59	16.28
15	36	39		16.80	16.49	15.95
15	75	0		16.47	16.55	16.45
15	1	0	16-QAM	16.47	16.59	17.58
15	1	38		16.70	16.73	16.32
15	1	75		17.64	16.28	15.80
15	36	0		15.29	15.85	16.12
15	36	18		15.45	15.83	15.47
15	36	39		15.95	15.74	15.12
15	75	0		15.59	15.72	15.68
20	1	0	QPSK	16.72	17.33	19.19
20	1	49		17.00	17.58	17.61
20	1	99		18.88	17.52	17.41
20	50	0		15.70	16.42	17.52
20	50	24		16.16	16.56	16.75
20	50	49		17.04	16.58	16.49
20	100	0		16.41	16.48	17.01
20	1	0	16-QAM	16.06	16.53	18.75
20	1	49		16.39	16.82	16.85
20	1	99		18.19	16.72	16.98
20	50	0		14.80	15.57	16.75
20	50	24		15.28	15.73	15.99
20	50	49		16.15	15.73	15.72
20	100	0		15.47	15.66	16.22



LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	17.75	17.92	17.87
5	1	12		18.38	18.42	18.32
5	1	24		17.97	17.82	17.69
5	12	0		16.96	16.95	17.00
5	12	6		17.17	17.11	17.12
5	12	11		17.08	16.93	16.91
5	25	0		17.05	16.96	16.97
5	1	0	16-QAM	17.03	17.05	17.38
5	1	12		17.64	17.59	17.84
5	1	24		17.37	16.98	17.21
5	12	0		16.16	16.24	16.16
5	12	6		16.36	16.40	16.28
5	12	11		16.30	16.20	16.09
5	25	0		16.25	16.15	16.05
10	1	0	QPSK	17.70	18.23	18.33
10	1	24		18.28	18.42	18.44
10	1	49		18.94	18.60	18.53
10	25	0		16.97	17.06	17.25
10	25	12		17.21	17.14	17.26
10	25	24		17.58	17.26	17.34
10	50	0		17.29	17.15	17.29
10	1	0	16-QAM	17.13	17.12	17.08
10	1	24		17.71	17.38	17.19
10	1	49		18.29	17.51	17.27
10	25	0		16.13	16.31	16.39
10	25	12		16.40	16.39	16.41
10	25	24		16.75	16.50	16.48
10	50	0		16.43	16.43	16.42



LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	17.97	18.56	18.40
15	1	37		18.38	18.35	18.20
15	1	74		18.88	18.29	17.98
15	36	0		17.20	17.23	17.16
15	36	18		17.36	17.10	16.98
15	36	39		17.68	17.11	16.92
15	75	0		17.42	17.16	17.03
15	1	0	16-QAM	17.42	17.48	17.29
15	1	38		17.83	17.33	17.12
15	1	75		18.27	17.23	16.90
15	36	0		16.35	16.55	16.45
15	36	18		16.53	16.41	16.28
15	36	39		16.84	16.42	16.22
15	75	0		16.56	16.40	16.36
20	1	0	QPSK	17.30	18.91	18.43
20	1	49		17.79	18.38	18.24
20	1	99		19.05	19.18	18.73
20	50	0		16.42	17.15	17.05
20	50	24		16.80	17.10	17.06
20	50	49		17.38	17.36	17.23
20	100	0		16.86	17.24	17.12
20	1	0	16-QAM	16.74	17.87	17.52
20	1	49		17.16	17.41	17.37
20	1	99		18.40	18.15	17.85
20	50	0		15.73	16.40	16.42
20	50	24		16.10	16.34	16.44
20	50	49		16.66	16.60	16.61
20	100	0		16.14	16.50	16.47



LTE Band 38 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	18.51	18.59	18.77
5	1	12		19.06	19.13	19.34
5	1	24		18.44	18.59	18.72
5	12	0		17.76	18.12	18.29
5	12	6		17.92	18.29	18.45
5	12	11		17.70	18.11	18.26
5	25	0		17.70	18.09	18.26
5	1	0	16-QAM	17.81	18.24	18.75
5	1	12		18.32	18.81	19.30
5	1	24		17.79	18.21	18.69
5	12	0		16.84	17.21	17.29
5	12	6		17.01	17.37	17.45
5	12	11		16.82	17.19	17.27
5	25	0		16.89	17.12	17.25
10	1	0	QPSK	18.76	18.99	19.08
10	1	24		19.01	19.20	19.36
10	1	49		19.25	19.51	19.57
10	25	0		17.87	18.30	18.48
10	25	12		17.96	18.39	18.56
10	25	24		18.14	18.57	18.73
10	50	0		17.98	18.40	18.59
10	1	0	16-QAM	18.28	18.34	18.29
10	1	24		18.57	18.60	18.62
10	1	49		18.80	18.86	18.79
10	25	0		17.04	17.33	17.43
10	25	12		17.14	17.43	17.52
10	25	24		17.31	17.61	17.68
10	50	0		17.14	17.48	17.53



LTE Band 38 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	19.00	19.24	19.13
15	1	37		18.92	19.14	19.07
15	1	74		18.92	19.18	19.04
15	36	0		18.01	18.48	18.28
15	36	18		17.92	18.37	18.18
15	36	39		17.97	18.44	18.23
15	75	0		17.94	18.41	18.21
15	1	0	16-QAM	18.53	18.65	18.53
15	1	38		18.49	18.54	18.43
15	1	75		18.46	18.57	18.41
15	36	0		17.19	17.57	17.29
15	36	18		17.10	17.49	17.21
15	36	39		17.14	17.54	17.25
15	75	0		17.10	17.43	17.33
20	1	0	QPSK	19.26	19.39	19.28
20	1	49		18.98	19.15	19.10
20	1	99		19.82	19.99	19.87
20	50	0		17.99	18.34	18.17
20	50	24		18.06	18.39	18.22
20	50	49		18.35	18.72	18.52
20	100	0		18.12	18.50	18.30
20	1	0	16-QAM	18.54	18.92	18.64
20	1	49		18.40	18.67	18.46
20	1	99		19.10	19.50	19.21
20	50	0		17.18	17.34	17.25
20	50	24		17.26	17.41	17.32
20	50	49		17.54	17.71	17.60
20	100	0		17.28	17.51	17.38



LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	17.96	18.34	18.23
1.4	1	2		18.16	18.46	18.34
1.4	1	5		17.95	18.19	18.00
1.4	3	0		17.92	18.38	18.25
1.4	3	1		17.99	18.40	18.28
1.4	3	2		17.93	18.28	18.09
1.4	6	0		17.90	18.30	18.18
1.4	1	0	16-QAM	17.07	17.49	17.16
1.4	1	2		17.28	17.61	17.27
1.4	1	5		17.09	17.35	16.94
1.4	3	0		17.16	17.61	17.49
1.4	3	1		17.23	17.65	17.52
1.4	3	2		17.16	17.53	17.37
1.4	6	0		17.14	17.47	17.41
3	1	0	QPSK	17.84	18.40	18.43
3	1	7		18.00	18.35	18.46
3	1	14		17.89	18.01	17.98
3	8	0		17.95	18.36	18.41
3	8	4		17.99	18.31	18.36
3	8	7		17.96	18.17	18.16
3	15	0		17.94	18.25	18.29
3	1	0	16-QAM	17.33	17.56	17.38
3	1	7		17.51	17.51	17.40
3	1	14		17.36	17.19	16.91
3	8	0		17.02	17.35	17.47
3	8	4		17.05	17.30	17.43
3	8	7		17.02	17.16	17.24
3	15	0		17.03	17.22	17.43



LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	17.48	18.20	18.61
5	1	12		18.02	18.33	18.79
5	1	24		17.61	17.57	17.86
5	12	0		17.80	18.49	18.82
5	12	6		17.98	18.46	18.80
5	12	11		17.89	18.15	18.45
5	25	0		17.85	18.34	18.63
5	1	0	16-QAM	17.13	17.72	17.97
5	1	12		17.69	17.79	18.16
5	1	24		17.27	17.03	17.24
5	12	0		16.85	17.51	17.83
5	12	6		17.03	17.48	17.82
5	12	11		16.95	17.17	17.46
5	25	0		16.86	17.41	17.60
10	1	0	QPSK	17.54	19.07	18.59
10	1	24		17.96	18.43	19.13
10	1	49		18.89	18.23	18.77
10	25	0		17.90	18.81	18.98
10	25	12		18.09	18.50	19.09
10	25	24		18.52	18.36	19.04
10	50	0		18.22	18.57	18.99
10	1	0	16-QAM	17.17	18.30	17.51
10	1	24		17.52	17.67	18.00
10	1	49		18.38	17.46	17.64
10	25	0		16.97	17.87	17.92
10	25	12		17.17	17.56	18.05
10	25	24		17.60	17.42	18.01
10	50	0		17.27	17.67	17.96



LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	17.76	19.59	17.89
15	1	37		18.19	18.34	18.92
15	1	74		19.06	17.58	18.44
15	36	0		18.02	19.09	18.55
15	36	18		18.25	18.43	18.92
15	36	39		18.76	17.99	18.97
15	75	0		18.39	18.54	18.75
15	1	0	16-QAM	17.42	18.75	16.86
15	1	38		17.71	17.58	18.02
15	1	75		18.73	16.76	17.45
15	36	0		17.16	18.21	17.42
15	36	18		17.35	17.56	17.84
15	36	39		17.91	17.11	17.88
15	75	0		17.49	17.59	17.72
20	1	0	QPSK	17.36	20.18	17.30
20	1	49		18.09	18.37	18.55
20	1	99		19.58	18.38	19.16
20	50	0		17.58	19.17	17.78
20	50	24		18.17	18.42	18.56
20	50	49		18.99	18.16	19.16
20	100	0		18.33	18.68	18.50
20	1	0	16-QAM	17.10	19.36	16.38
20	1	49		17.47	17.67	17.81
20	1	99		19.31	17.59	18.26
20	50	0		16.79	18.18	16.73
20	50	24		17.30	17.46	17.56
20	50	49		18.23	17.16	18.10
20	100	0		17.51	17.68	17.43



11. EUT and Test Setup Photo

11.1 EUT Photos

Front side

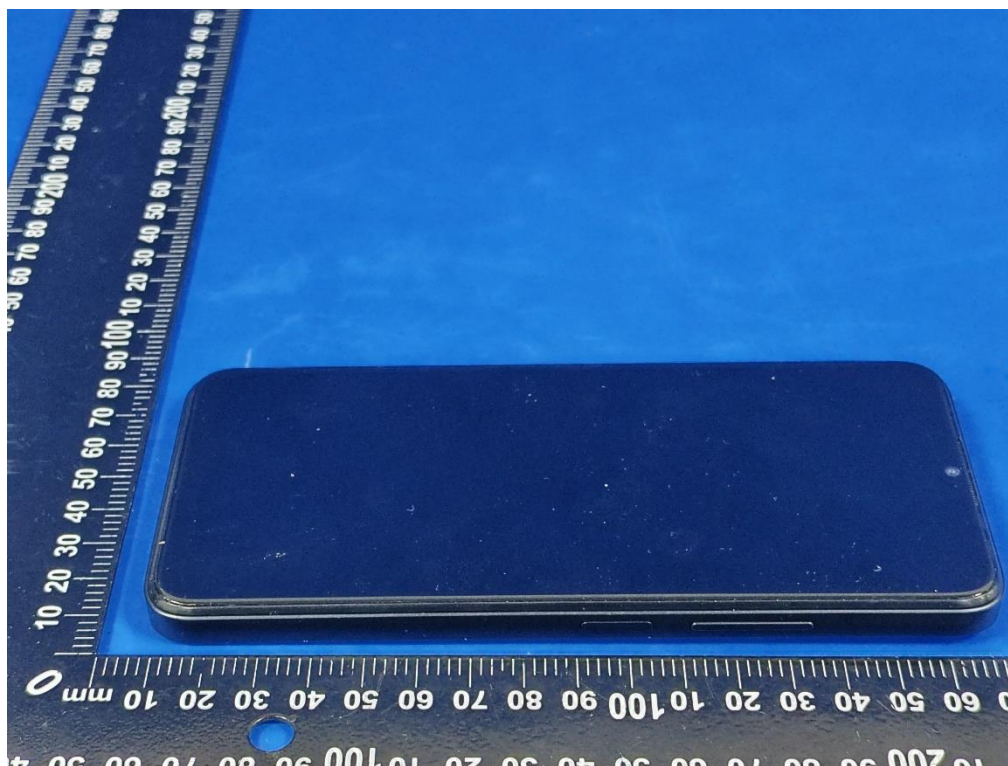


Back side

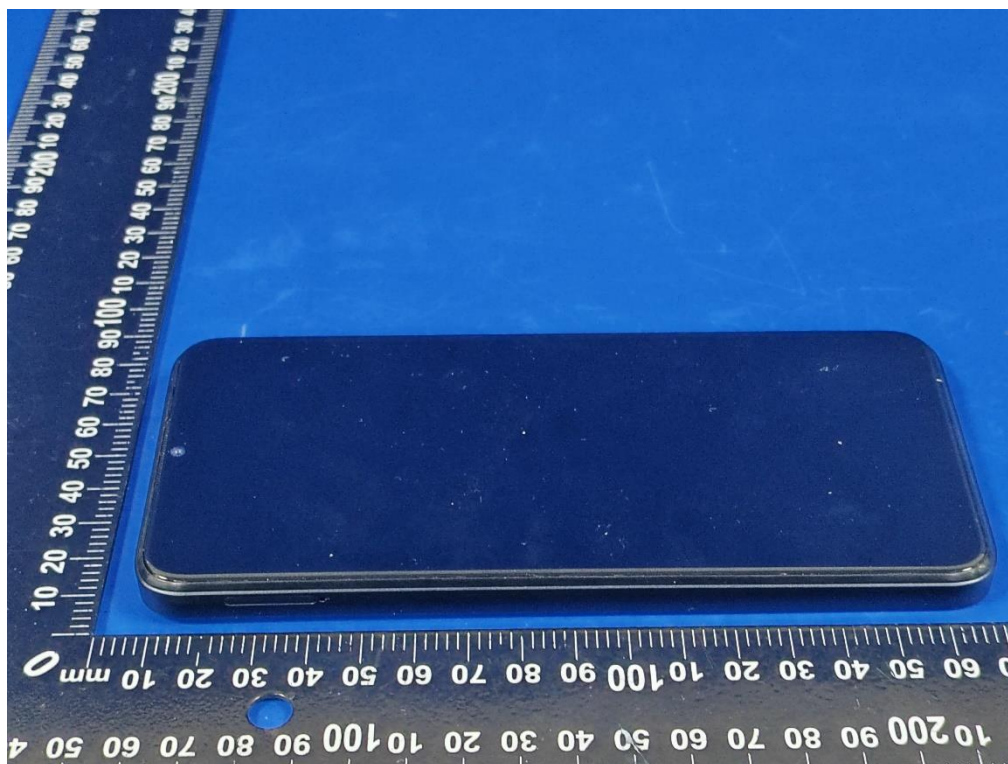




Right Edge

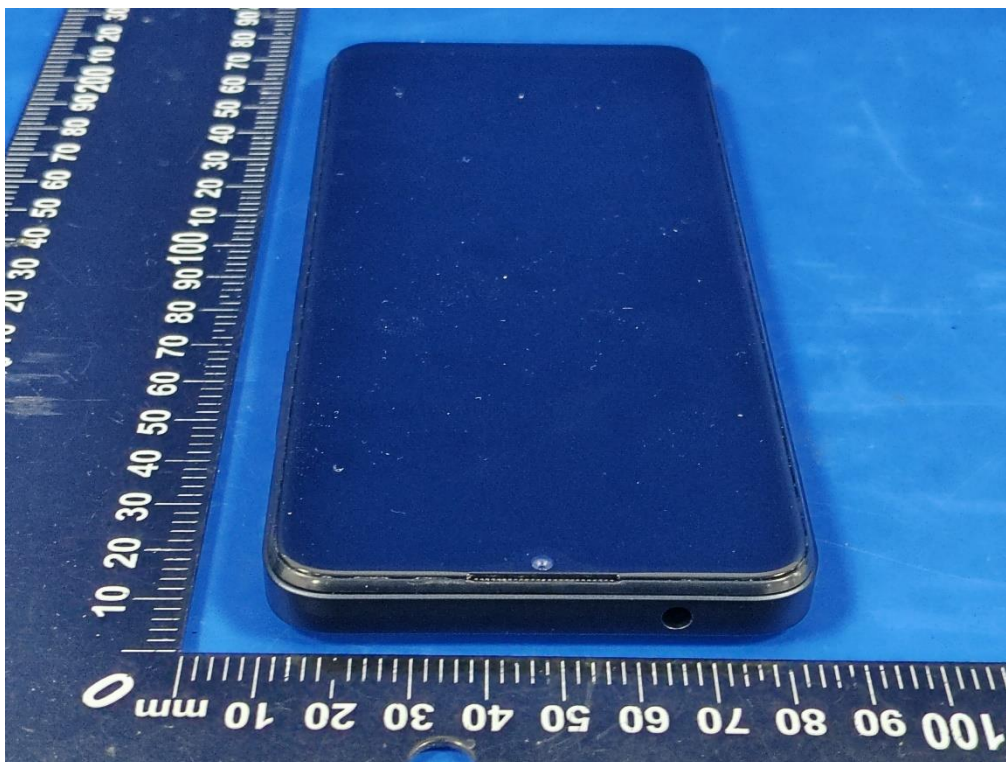


Left Edge





Top Edge



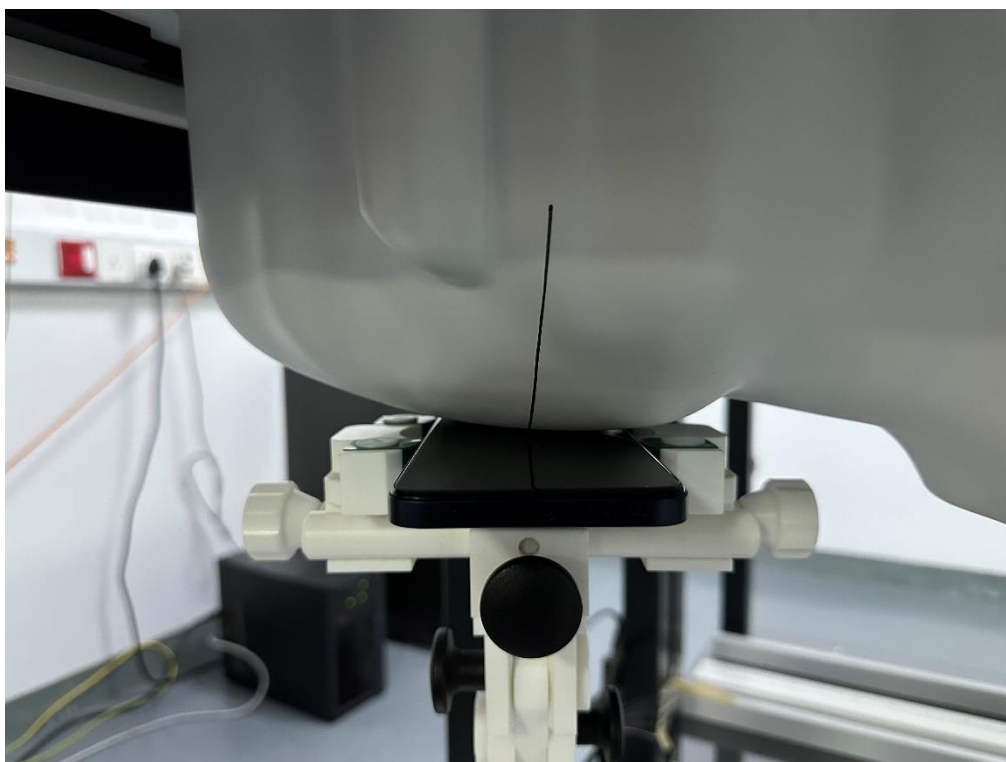
Bottom Edge



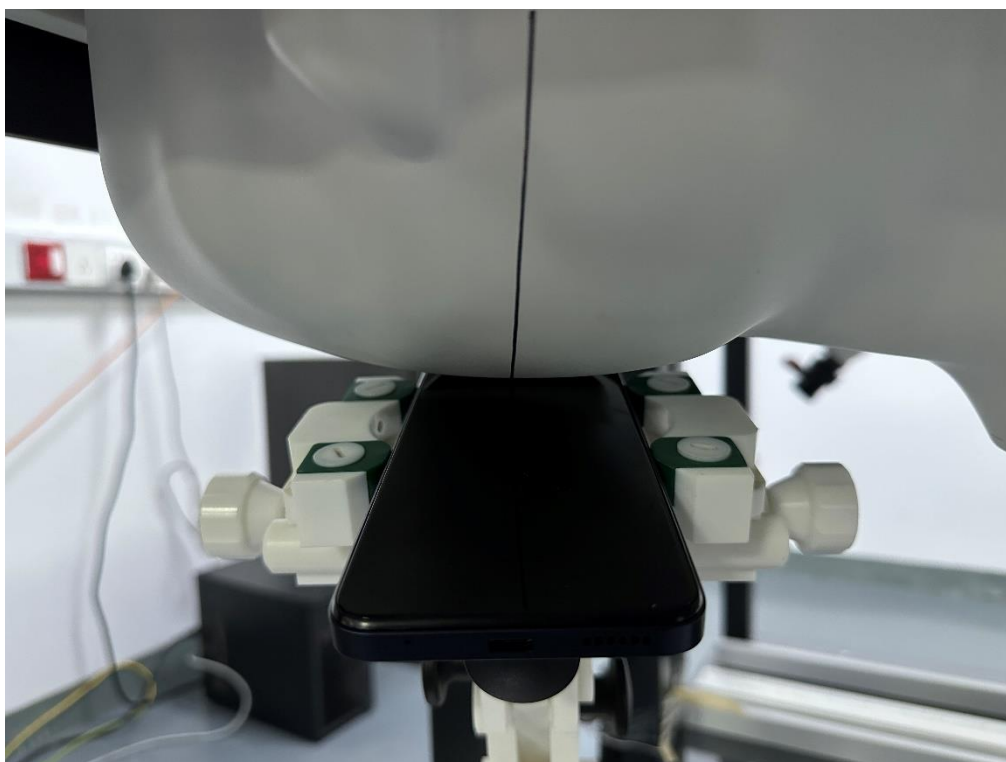


11.2 Setup Photos

Right Touch

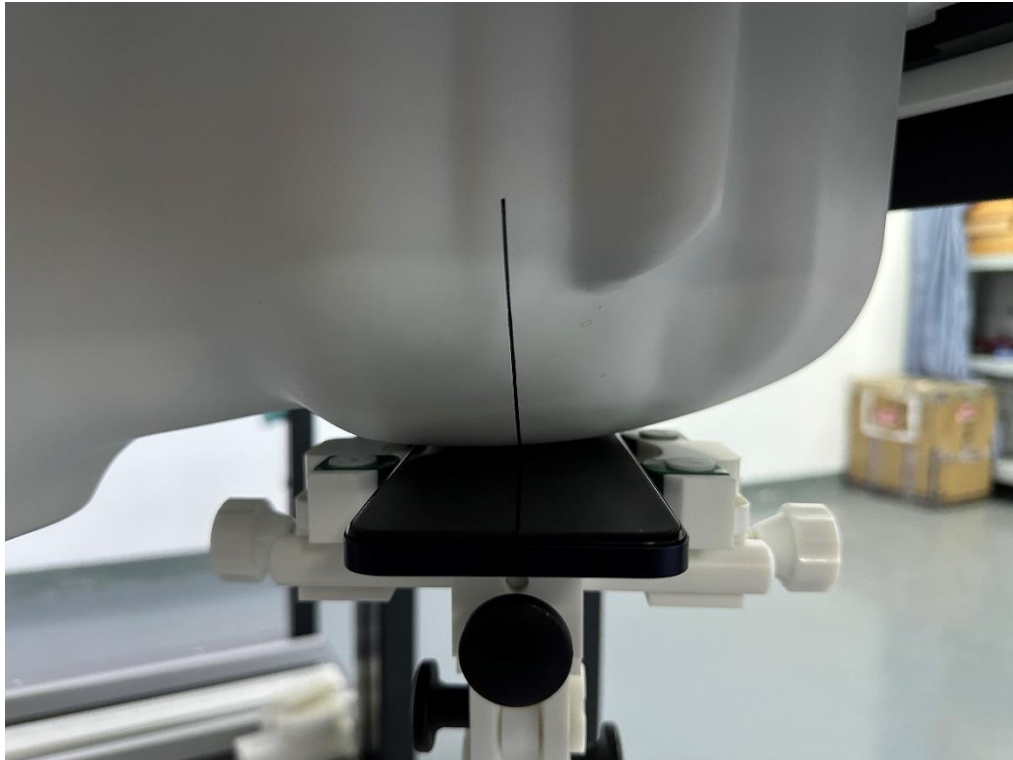


Right Tilt





Left Touch



Left Tilt

