SAR TEST REPORT

Product Name: Smart Phone

Model Name: CP12t

FCC ID: R38YLCP12T

Issued For	:	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd Floor 21, Block A, Coolpad Building, Intersection of Keyuan Avenue and Baoshen Road, North High-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, China
Issued By	:	Shenzhen LGT Test Service Co., Ltd. Room 205, Building 13, Zone B, Chen Hsong Industrial Park, No.177 Renmin West Road, Jinsha Community, Kengzi Street, Pingshan New District, Shenzhen, China

Report Number:	LGT23B071HA01
Sample Received Date:	Mar. 01, 2023
Date of Test:	Mar. 01, 2023~Mar. 19, 2023
Date of Issue:	Mar. 22, 2023
Max. SAR (1g):	Head: 1.165 W/kg Body: 0.338 W/kg

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Revision History

Rev.	Issue Date	Contents
00	Mar. 22, 2023	Initial Issue

TEST REPORT CERTIFICATION

Applicant	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address	Floor 21, Block A, Coolpad Building, Intersection of Keyuan Avenue and Baoshen Road, North High-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, China
Manufacture	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address	Floor 21, Block A, Coolpad Building, Intersection of Keyuan Avenue and Baoshen Road, North High-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, China
Product Name	Smart Phone
Trademark	coolpad
Model Name	CP12t
Sample number	LGT2303052

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
ANSI/IEEE Std. C95.1-1992 FCC 47 CFR Part 2 (2.1093) IEEE 1528: 2013	PASS

Prepared by:

Zane Shan

Zane Shan
Engineer

Approved by:

Vita Li
Manager

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	Smart Phone		
Trademark	coolpad		
Model Name	CP12t		
Series Model	N/A		
Model Difference	N/A		
Device Category	Portable		
Product stage	Production unit		
RF Exposure Environment	General Population/Uncontrolled		
IMEI	IMEI 1: 865997063385349 IMEI 2: 865997067242686		
Hardware Version	P2		
Software Version	CP12t.230321.0S.AL		
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 ~1910MHz LTE Band 4:1710 ~1755MHz LTE Band 5:824 ~ 849MHz LTE Band 7:2500 ~ 2570MHz LTE Band 12:699~716MHz LTE Band 13:777~787MHz LTE Band 17:704 ~ 716MHz LTE Band 66:1710~1780MHz WLAN 802.11b/g/n20: 2412 MHz ~ 2462 MHz WLAN 802.11n40: 2422 MHz ~ 2452 MHz WLAN 802.11a/n20/n40/ac20/ac40/ac80: 5150 ~ 5250 MHz WLAN 802.11a/n20/n40/ac20/ac40/ac80: 5250 ~ 5350 MHz WLAN 802.11a/n20/n40/ac20/ac40/ac80: 5470 ~ 5725 MHz WLAN 802.11a/n20/n40/ac20/ac40/ac80: 5725 ~ 5850 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	0.047	0.058
	PCS 1900	0.047	0.051
	WCDMA Band II	0.062	0.163
	WCDMA Band IV	0.219	0.118
	WCDMA Band V	0.037	0.036
	LTE Band 2	0.144	0.338
	LTE Band 4	0.062	0.151
	LTE Band 5	0.056	0.041
	LTE Band 7	0.041	0.105
	LTE Band 12	0.034	0.059

	LTE Band 13	0.033	0.036
	LTE Band 17	0.047	0.033
	LTE Band 66	0.126	0.223
	2.4G WLAN	0.19	0.037
	5.2G WLAN	0.026	0.034
	5.3G WLAN	0.994	0.166
	5.6G WLAN	1.165	0.143
	5.8G WLAN	0.576	0.055
	Bluetooth	0.150	0.110
1-g Sum SAR		1.384	0.504

Battery	Rated Voltage:3.8V Capacity:4000mAh
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 5G WLAN: 802.11a(OFDM): BPSK, QPSK,16-QAM,64-QAM 802.11n(OFDM): BPSK, QPSK,16-QAM,64-QAM 802.11ac (OFDM): BPSK, QPSK,16-QAM,64-QAM,256-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

1.2 Test Environment

Ambient conditions in the SAR laboratory:

Items	Required
Temperature (℃)	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, Chen Hsong Industrial Park, No.177 Renmin West Road, Jinsha Community, Kengzi Street, Pingshan New District, Shenzhen, 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. C95.1-1992	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).

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:

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

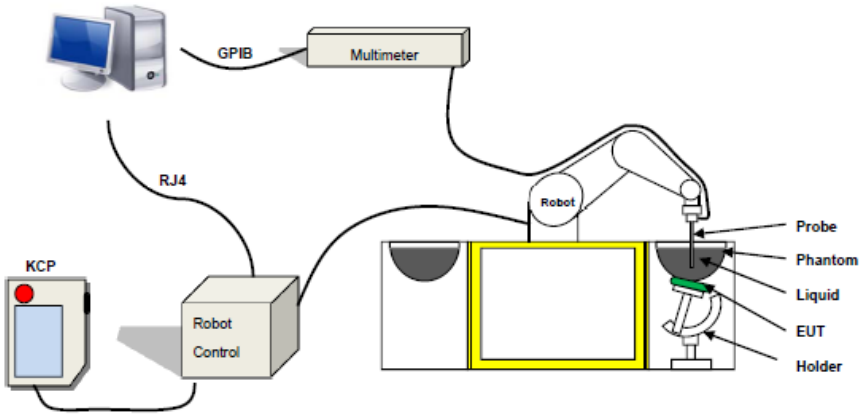
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

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

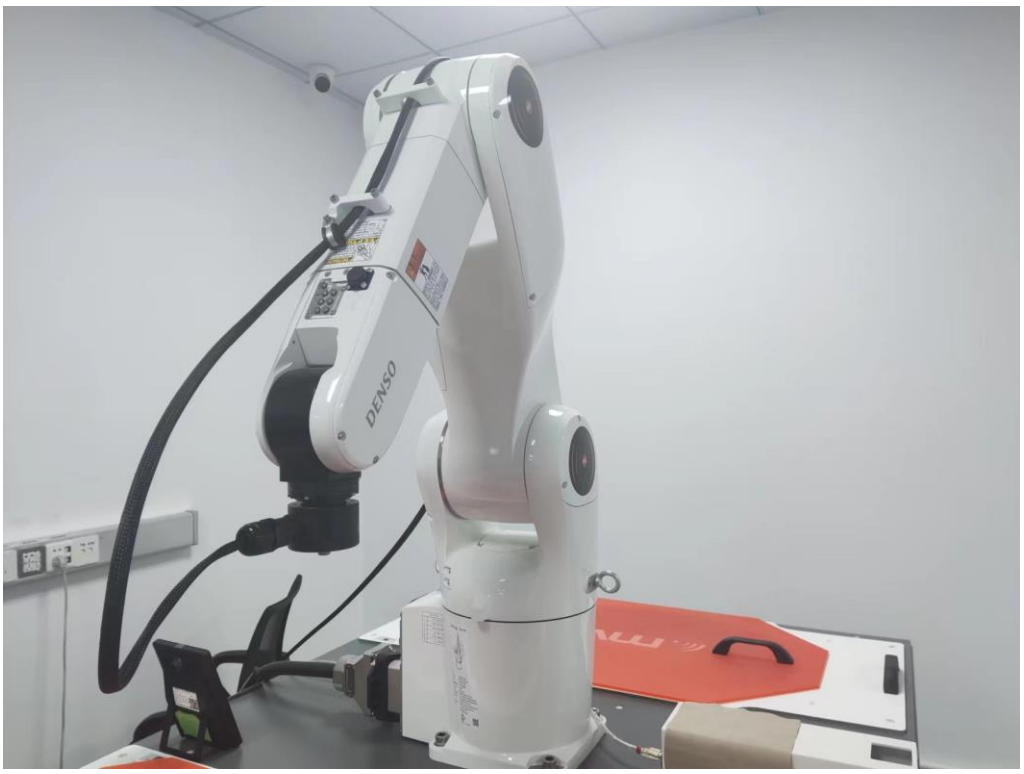
3.2 SAR System

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 SN 04/22 EPGO364 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: 600 MHz to 6 GHz for head & body simulating liquid.
-Angle between probe axis (evaluation axis) and surface normal line: less than 30°

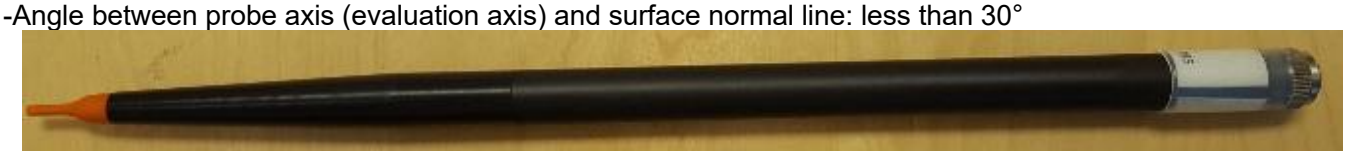


Figure 1-MVG COMOSAR Dosimetric E field Probe

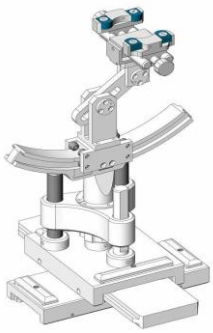
3.2.2 Phantom

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 of 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	εr		σ 1g S/m	
	Head	Body	Head	Body
300	45.3	45.3	0.87	0.87
450	43.5	43.5	0.87	0.87
900	41.5	41.5	0.97	0.97
1450	40.5	40.5	1.20	1.20
1800	40.0	40.0	1.40	1.40
2450	39.2	39.2	1.80	1.80
3000	38.5	38.5	2.40	2.40
5200	36.0	36.0	4.70	4.70

LIQUID MEASUREMENT RESULTS

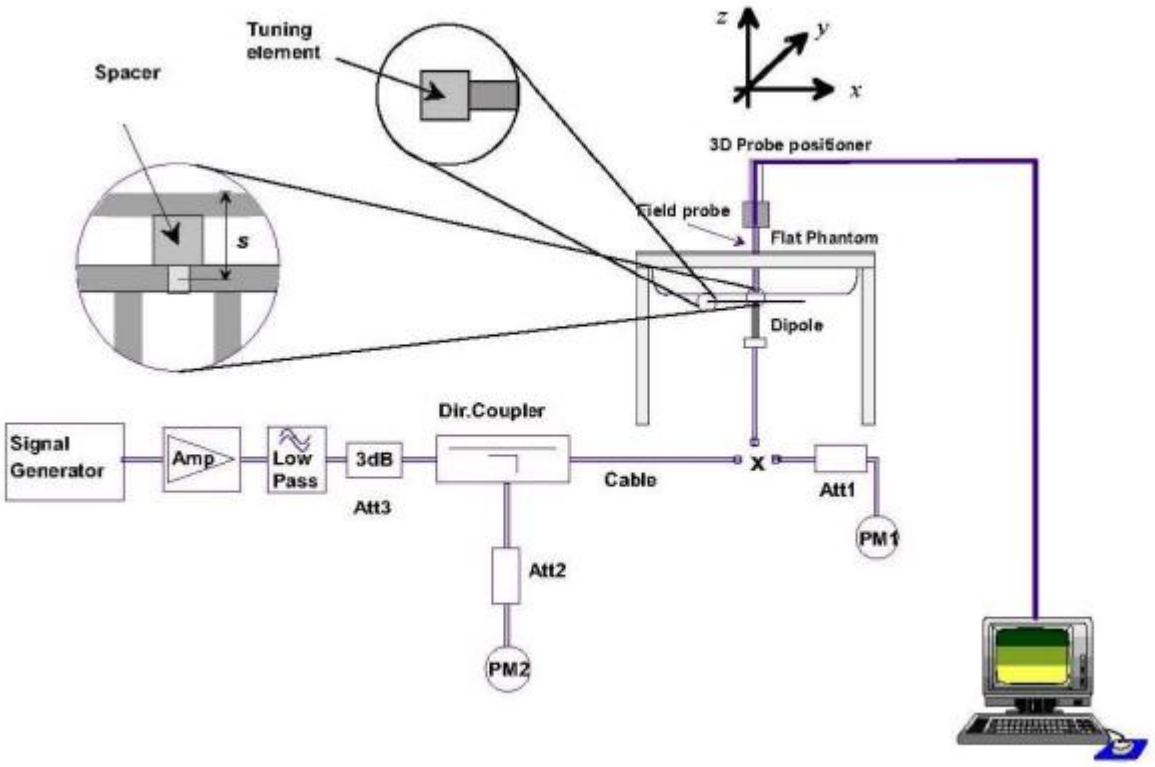
Date	Ambient		Simulating Liquid		Parameters	Target	Measured	Deviation %	Limited %
	Temp. [°C]	Humidity %	Frequency (MHz)	Temp. [°C]					
2023-03-15	23	45	750	22.7	Permittivity	41.90	42.36	1.10	±5
					Conductivity	0.89	0.87	-2.25	±5
2023-03-16	23.6	46	835	23.3	Permittivity	41.50	40.54	-2.31	±5
					Conductivity	0.90	0.86	-4.44	±5
2023-03-17	23.9	48	1800	23.5	Permittivity	40.00	40.82	2.05	±5
					Conductivity	1.40	1.38	-1.43	±5
2023-03-04	20.7	44	1900	20.4	Permittivity	40.00	41.24	3.10	±5
					Conductivity	1.40	1.42	1.43	±5
2023-03-02	23.6	57	2450	23.3	Permittivity	39.20	39.16	-0.10	±5
					Conductivity	1.80	1.84	2.22	±5
2023-03-01	20.1	52	2600	19.8	Permittivity	39.00	39.38	0.97	±5
					Conductivity	1.96	1.92	-2.04	±5
2023-03-18	23.7	52	5200	23.4	Permittivity	36.00	36.85	2.36	±5
					Conductivity	4.66	4.65	-0.21	±5
2023-03-19	23.6	54	5300	23.3	Permittivity	35.90	36.94	2.90	±5
					Conductivity	4.76	4.83	1.47	±5
2023-03-03	23.9	59	5600	23.6	Permittivity	35.55	36.51	2.70	±5
					Conductivity	5.07	5.06	-0.10	±5
2023-03-18	24	59	5800	23.7	Permittivity	35.30	36.04	2.10	±5
					Conductivity	5.27	5.22	-0.95	±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)	(%)	(%)
2023-03-15	750	100	0.894	8.94	8.27	8.10	10
2023-03-16	835	100	0.957	9.57	9.75	-1.85	10
2023-03-17	1800	100	3.652	36.52	39.06	-6.50	10
2023-03-04	1900	100	3.794	37.94	40.85	-7.12	10
2023-03-02	2450	100	5.161	51.61	54.28	-4.92	10
2023-03-01	2600	100	5.216	52.16	56.58	-7.81	10
2023-03-18	5200	100	7.836	78.36	77.64	0.93	10
2023-03-19	5300	100	8.633	86.33	80.27	7.55	10
2023-03-03	5600	100	8.153	81.53	78.35	4.06	10
2023-03-18	5800	100	8.137	81.37	74.92	8.61	10

Note:

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

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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 to16 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.

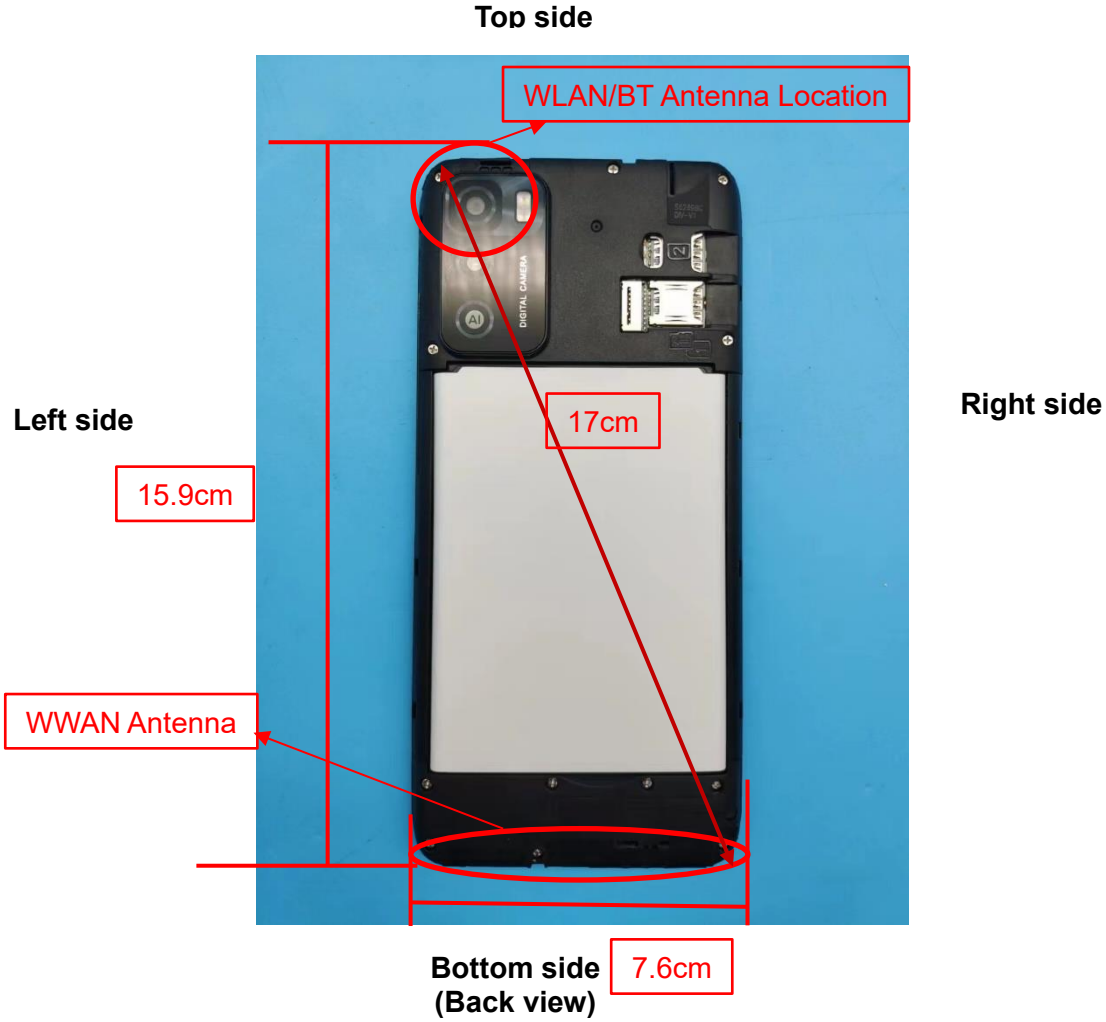
➢ Area Scan& Zoom Scan

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 Smart phone, support GSM/WCDMA/LTE/WLAN/BT mode.



Antenna Separation Distance(cm)						
ANT	Back Side	Front Side	Left Side	Right Side	Top Side	Bottom Side
WLAN/BT	≤0.5	≤0.5	≤0.5	5.4	≤0.5	15
WWAN	≤0.5	≤0.5	≤0.5	≤0.5	14.2	≤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 (GHz)	0.8366	1.9098	1.88	1.7524	0.8264
	Maximum Turn-up power (dBm)	33.5	30	22.5	22.5	22.5
	Maximum rated power(mW)	2238.72	1000.00	177.83	177.83	177.83
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.22	3.35	3.39	3.59	9.38
	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)	9.22	3.35	3.39	3.59	9.38
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.22	3.35	3.39	3.59	9.38
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.22	3.35	3.39	3.59	9.38
	Testing required?	YES	YES	YES	YES	YES
Top Edge	Separation distance (cm)	14.2	14.2	14.2	14.2	14.2
	exclusion threshold(mW)	1051.09	1624.94	1626.84	1635.37	1041.12
	Testing required?	YES	NO	NO	NO	NO
Bottom Edge	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.22	3.35	3.39	3.59	9.38
	Testing required?	YES	YES	YES	YES	YES

Exposure Position	Wireless Interface	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12
	Calculated Frequency (GHz)	1.88	1.7325	0.8365	2.535	0.7075
	Maximum Turn-up power (dBm)	24.5	23.5	24	23	24
	Maximum rated power(mW)	281.84	223.87	251.19	199.53	251.19
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	3.39	3.62	9.22	2.67	11.67
	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)	3.39	3.62	9.22	2.67	11.67
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	3.39	3.62	9.22	2.67	11.67
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	3.39	3.62	9.22	2.67	11.67
	Testing required?	YES	YES	YES	YES	YES
Top Edge	Separation distance (cm)	14.2	14.2	14.2	14.2	14.2
	exclusion threshold(mW)	1626.84	1636.76	1050.99	1591.07	922.76
	Testing required?	NO	NO	NO	NO	NO
Bottom Edge	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	3.39	3.62	9.22	2.67	11.67
	Testing required?	YES	YES	YES	YES	YES

Exposure Position	Wireless Interface	LTE Band 13	LTE Band 17	LTE Band 66	BT	2.4G WLAN
	Calculated Frequency (GHz)	0.782	0.71	1.745	2.402	2.462
	Maximum Turn-up power (dBm)	20	24	24.5	9.5	19
	Maximum rated power(mW)	100.00	251.19	281.84	8.91	79.43
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	10.14	11.61	3.60	2.79	2.73
	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)	10.14	11.61	3.60	2.79	2.73
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	0.5	0.5	0.5	5.4	5.4
	exclusion threshold(mW)	10.14	11.61	3.60	254.99	253.21
	Testing required?	YES	YES	YES	NO	NO
Right Edge	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	10.14	11.61	3.60	2.79	2.73
	Testing required?	YES	YES	YES	YES	YES
Top Edge	Separation distance (cm)	14.2	14.2	14.2	0.5	0.5
	exclusion threshold(mW)	997.40	925.29	1635.88	2.79	2.73
	Testing required?	NO	NO	NO	YES	YES
Bottom Edge	Separation distance (cm)	0.5	0.5	0.5	15	15
	exclusion threshold(mW)	10.14	11.61	3.60	1772.58	1769.85
	Testing required?	YES	YES	YES	NO	NO

Exposure Position	Wireless Interface	5.2G WLAN	5.3G WLAN	5.6G WLAN	5.8G WLAN
	Calculated Frequency (GHz)	5.24	5.32	5.5	5.745
	Maximum Turn-up power (dBm)	14.5	15	15.5	15
	Maximum rated power(mW)	28.18	31.62	35.48	31.62
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	1.49	1.47	1.44	1.39
	Testing required?	YES	YES	YES	YES
Front Side	Separation distance (cm)	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	1.49	1.47	1.44	1.39
	Testing required?	YES	YES	YES	YES
Left Edge	Separation distance (cm)	5.4	5.4	5.4	5.4
	exclusion threshold(mW)	204.28	203.40	201.48	199.00
	Testing required?	NO	NO	NO	NO
Right Edge	Separation distance (cm)	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	1.49	1.47	1.44	1.39
	Testing required?	YES	YES	YES	YES
Top Edge	Separation distance (cm)	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	1.49	1.47	1.44	1.39
	Testing required?	YES	YES	YES	YES
Bottom Edge	Separation distance (cm)	15	15	15	15
	exclusion threshold(mW)	1688.28	1686.68	1683.18	1678.60
	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 Pth (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). Pth is given by:

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

Where

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

and

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

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 λ/2π, 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 λ/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^2f.
1,500-100,000	19.2R^2.

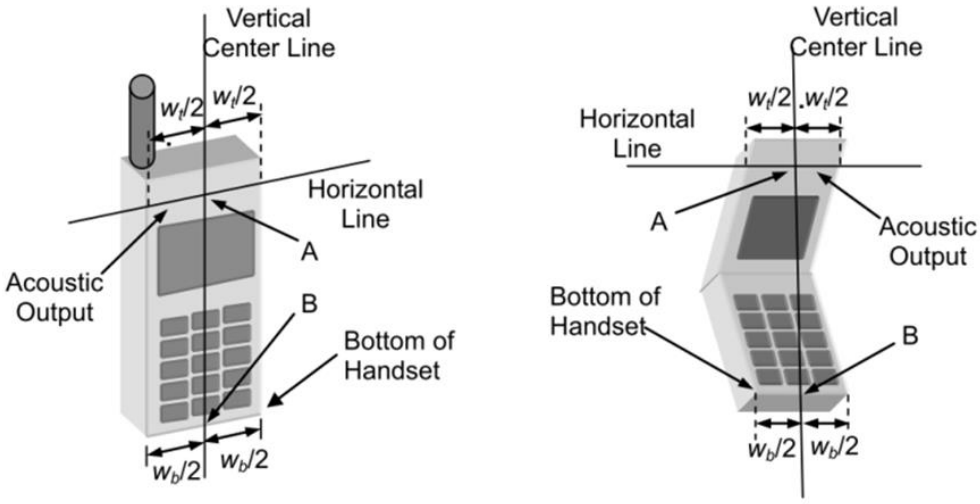
6. Per KDB 248227 D01, choose the highest output power channel to test SAR and determine further SAR exclusion 8.for each frequency band ,testing at higher data rates and higher order modulations is not required when the maximum average output power for each of each of these configurations is less than 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. Per KDB 248227, as maximum rated power for U-NII-2A＞U-NII-1, U-NII-2A was chosen for SAR evaluation. Based on the measurements obtained, SAR measurements on U-NII-1 are not required as highest reported SAR from U-NII-2A band is≤1.2W/Kg.

8. EUT Test Position

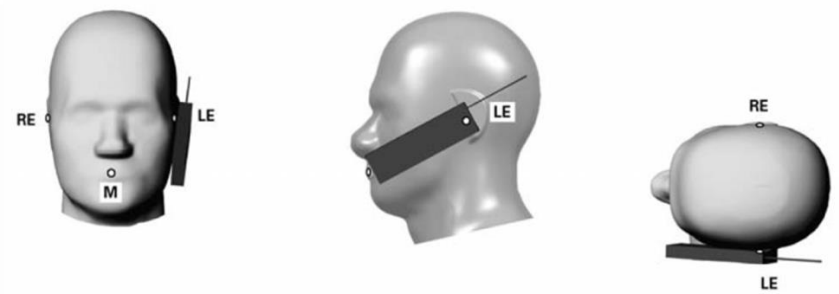
This EUT was tested in Right Cheek, Right Titled, Left Cheek, Left Titled, Front Face and Rear Face.

8.1 Define Two Imaginary Lines on the Handset

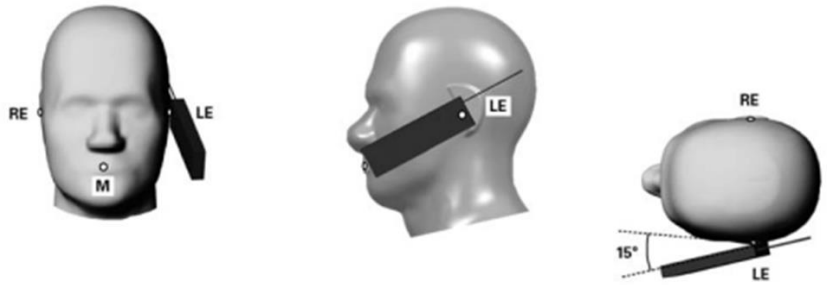
(1) The vertical centerline passes through two points on the front side of the handset the midpoint of the width wt of the handset at the level of the acoustic output, and the midpoint of the width wb of the handset.
(2) The horizontal line is perpendicular to the vertical centerline and passes through 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.



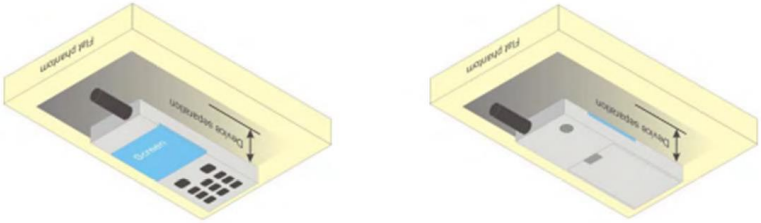
Cheek Position
1) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane 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.

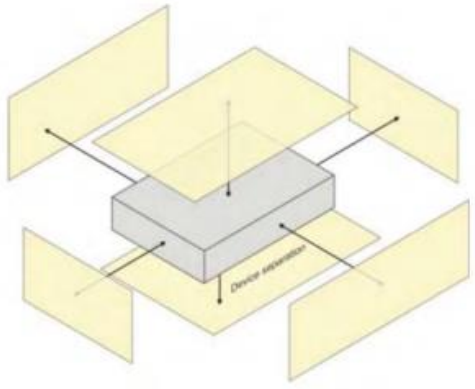


Body-worn Position Conditions:
Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset 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 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 form 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	√3	√0.5	√0.5	1.43	1.43	∞
Hemispherical Isotropy	5.9	R	√3	√0.5	√0.5	2.41	2.41	∞
Boundary effect	1	R	√3	1	1	0.58	0.58	∞
Linearity	4.7	R	√3	1	1	2.71	2.71	∞
System detection limits	1	R	√3	1	1	0.58	0.58	∞
Modulation response	3	R	√3	1	1	1.73	1.73	∞
Readout Electronics	0.5	N	1	1	1	0.50	0.50	∞
Response Time	0	R	√3	1	1	0.00	0.00	∞
Integration Time	1.4	R	√3	1	1	1.81	1.81	∞
RF ambient conditions-Noise	3	R	√3	1	1	1.73	1.73	∞
RF ambient conditions-reflections	3	R	√3	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	1.4	R	√3	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	1.4	R	√3	1	1	0.81	0.81	∞
Extrapolation, Interpolation and Integration Algoritms for Max, SAR	2.3	R	√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	√3	1	1	2.89	2.89	∞
SAR scaling	2	R	√3	1	1	1.15	1.15	∞
Phantom and tissue parameters								
Phantom uncertainty (shape and thickness uncertainty)	4	R	√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	√3	0.78	0.71	1.13	1.02	∞
Liquid Permittivity (Temperature Uncertainty)	2.5	R	√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 Algoritms 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

10.1 Test Result:

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)	32.74	33.07	32.94	29.49	29.62	29.69
GPRS (GMSK, 1-Slot)	32.79	33.1	32.97	29.51	29.69	29.73
GPRS (GMSK, 2-Slot)	30.89	31.18	31.1	27.22	27.39	27.48
GPRS (GMSK, 3-Slot)	29.12	29.38	29.3	25.66	25.82	25.92
GPRS (GMSK, 4-Slot)	27.1	27.35	27.29	23.44	23.58	23.65
EGPRS (8PSK, 1-Slot)	25.09	25.48	25.47	25.41	26.11	24.86
EGPRS (8PSK, 2-Slot)	23.86	24.54	24.35	23.24	23.69	22.34
EGPRS (8PSK, 3-Slot)	21.92	22.45	22.36	20.87	20.28	20.16
EGPRS (8PSK, 4-Slot)	20.16	20.17	20.45	18.46	19.05	17.98
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)	23.71	24.04	23.91	20.46	20.59	20.66
GPRS (GMSK, 1-Slot)	23.76	24.07	23.94	20.48	20.66	20.70
GPRS (GMSK, 2-Slot)	24.87	25.16	25.08	21.20	21.37	21.46
GPRS (GMSK, 3-Slot)	24.86	25.12	25.04	21.40	21.56	21.66
GPRS (GMSK, 4-Slot)	24.09	24.34	24.28	20.43	20.57	20.64
EGPRS (8PSK, 1-Slot)	16.06	16.45	16.44	16.38	17.08	15.83
EGPRS (8PSK, 2-Slot)	17.84	18.52	18.33	17.22	17.67	16.32
EGPRS (8PSK, 3-Slot)	17.66	18.19	18.10	16.61	16.02	15.90
EGPRS (8PSK, 4-Slot)	17.15	17.16	17.44	15.45	16.04	14.97
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	9262	9400	9538	9262	9400	9538
Frequency (MHz)	1852.4	1880	1907.6	1852.4	1880	1907.6	1852.4	1880	1907.6
RMC 12.2Kbps	22.23	22.3	22.29	22.06	22.1	22.11	23.16	23.1	22.94
HSDPA Subtest-1	19.77	19.3	19.34	19.39	18.73	19.03	22.57	22.39	22.09
HSDPA Subtest-2	19.33	19.01	19.14	19.11	18.53	18.8	22.24	22.29	21.67
HSDPA Subtest-3	19.14	18.7	18.93	18.71	17.96	18.53	21.98	22.03	21.55
HSDPA Subtest-4	18.96	18.7	18.55	18.12	18.12	18.08	21.78	21.74	21.5
HSUPA Subtest-1	19.64	19.28	19.06	19.2	18.71	19	22.43	22.23	22.14
HSUPA Subtest-2	19.66	19.28	19.28	19.29	18.7	19.03	22.45	22.3	22.15
HSUPA Subtest-3	18.95	19.26	18.52	19.01	18.55	18.61	21.99	21.93	21.49
HSUPA Subtest-4	19.62	19.26	19.26	19.14	18.65	18.96	22.33	22.35	22.1
HSUPA Subtest-5	19.64	19.15	18.94	18.57	18.25	18.82	21.96	22.05	21.89

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≤ CM≤3.5	MAX(CM-1,0)
Note: CM=1 for βc/βd=12/15, βhs/ βc=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	15.62	36.48
	6	2437	15.58	36.14
	11	2462	18.87	77.09
802.11g	1	2412	15.48	35.32
	6	2437	15.37	34.43
	11	2462	18.36	68.55
802.11 n-HT20	1	2412	15.46	35.16
	6	2437	15.43	34.91
	11	2462	18.36	68.55
802.11 n-HT40	3	2422	13.75	23.71
	6	2437	15.61	36.39
	9	2452	16.05	40.27

Bluetooth

BT				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
GFSK(1Mbps)	0	2402	8.13	6.50
	39	2441	5.55	3.59
	78	2480	6.61	4.58
π/4-QPSK(2Mbps)	0	2402	8.85	7.67
	39	2441	5.91	3.90
	78	2480	7.38	5.47
8DPSK(3Mbps)	0	2402	9.11	8.15
	39	2441	6.14	4.11
	78	2480	7.67	5.85

BLE

BLE				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
GFSK(1Mbps)	0	2402	0.06	1.01
	19	2440	-2.45	0.57
	39	2480	-1.14	0.77
GFSK(2Mbps)	0	2402	-0.13	0.97
	19	2440	-2.69	0.54
	39	2480	-1.41	0.72

WLAN (5.2Gband)

5.2G WLAN				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11a20	36	5180	13.66	23.23
	40	5200	13.67	23.28
	48	5240	13.85	24.27
802.11n-HT20	36	5180	13.72	23.55
	40	5200	13.59	22.86
	48	5240	14.06	25.47
802.11n-HT40	38	5190	13.02	20.04
	46	5230	13.03	20.09
802.11ac-VHT80	42	5210	12.48	17.70

WLAN (5.3G band)5.3G WLAN				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11a20	52	5260	13.80	23.99
	60	5300	13.71	23.50
	64	5320	14.55	28.51
802.11n-HT20	52	5260	13.89	24.49
	60	5300	13.86	24.32
	64	5320	14.61	28.91
802.11n-HT40	54	5270	12.62	18.28
	62	5310	13.11	20.46
802.11ac-VHT80	58	5290	12.50	17.78

WLAN (5.6G band)

5.6G WLAN				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11a20	100	5500	15.32	34.04
	116	5580	14.92	31.05
	140	5700	14.83	30.41
802.11n-HT20	100	5500	15.37	34.43
	116	5580	15.08	32.21
	140	5700	14.72	29.65
802.11n-HT40	102	5510	14.46	27.93
	110	5550	14.17	26.12
	134	5670	13.81	24.04
802.11ac-VHT80	106	5530	14.24	26.55
	122	5610	13.56	22.70

WLAN (5.8G band)

5.8G WLAN				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11a20	149	5745	14.28	26.79
	157	5785	13.89	24.49
	165	5825	13.94	24.77
802.11n-HT20	149	5745	14.54	28.44
	157	5785	14.24	26.55
	165	5825	14.53	28.38
802.11n-HT40	151	5755	13.30	21.38
	159	5795	13.30	21.38
802.11ac-VHT80	155	5775	12.89	19.45

LTE Conducted Power

General Note:

1. Anritsu 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 $\leqslant$ 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 ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is $\leqslant$ 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 ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is $\leqslant$ 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	23.91	23.67	23.80
1.4	1	2		23.85	23.78	23.79
1.4	1	5		23.87	23.69	23.88
1.4	3	0		23.71	23.82	23.74
1.4	3	1		23.76	23.79	23.81
1.4	3	2		23.82	23.85	23.75
1.4	6	0		22.72	22.77	22.90
1.4	1	0	16-QAM	23.98	22.20	23.31
1.4	1	2		23.97	22.22	23.27
1.4	1	5		23.81	22.29	23.17
1.4	3	0		23.10	22.74	23.42
1.4	3	1		23.18	22.75	23.33
1.4	3	2		23.12	22.70	23.42
1.4	6	0		22.16	22.05	22.14
3	1	0	QPSK	23.71	23.69	23.76
3	1	7		23.77	23.60	23.80
3	1	14		23.75	23.77	23.78
3	8	0		22.77	22.68	22.79
3	8	4		22.82	22.68	22.80
3	8	7		22.81	22.72	22.85
3	15	0		22.77	22.77	22.85
3	1	0	16-QAM	23.64	22.55	24.09
3	1	7		23.57	22.55	24.08
3	1	14		23.72	22.52	24.16
3	8	0		22.18	21.75	21.91
3	8	4		22.16	21.70	21.83
3	8	7		22.18	21.73	21.89
3	15	0		21.93	21.98	22.06

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.79	23.73	23.73
5	1	12		23.76	23.70	23.68
5	1	24		23.74	23.76	23.65
5	12	0		22.81	22.72	22.86
5	12	6		22.76	22.81	22.89
5	12	11		22.79	22.85	22.85
5	25	0		22.73	22.69	22.96
5	1	0	16-QAM	22.92	22.49	23.72
5	1	12		22.91	22.49	23.69
5	1	24		22.96	22.58	23.69
5	12	0		21.85	21.71	21.92
5	12	6		21.85	21.74	21.95
5	12	11		21.89	21.76	21.96
5	25	0		22.11	21.89	22.17
10	1	0	QPSK	23.75	23.66	23.88
10	1	24		23.70	23.76	23.90
10	1	49		23.75	23.83	23.89
10	25	0		22.75	22.72	22.86
10	25	12		22.77	22.78	22.90
10	25	24		22.85	22.80	22.88
10	50	0		22.72	22.75	22.86
10	1	0	16-QAM	23.98	23.53	23.29
10	1	24		23.93	23.55	23.35
10	1	49		23.95	23.75	23.38
10	25	0		21.89	21.89	22.04
10	25	12		21.90	21.98	21.95
10	25	24		21.95	21.97	22.01
10	50	0		21.99	21.96	22.02

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.69	23.70	23.85
15	1	37		23.66	23.73	23.85
15	1	74		23.71	23.84	23.85
15	36	0		22.70	22.73	22.83
15	36	18		22.72	22.75	22.81
15	36	39		22.80	22.79	22.92
15	75	0		22.79	22.74	22.82
15	1	0	16-QAM	24.07	23.57	23.51
15	1	38		24.07	23.55	23.61
15	1	75		24.08	23.76	23.62
15	36	0		22.01	21.97	22.00
15	36	18		22.01	21.99	22.03
15	36	39		21.97	22.05	22.04
15	75	0		21.84	21.89	22.06
20	1	0	QPSK	23.80	23.91	23.87
20	1	49		23.83	23.92	23.85
20	1	99		23.84	24.22	24.00
20	50	0		22.76	22.73	22.85
20	50	24		22.73	22.76	22.93
20	50	49		22.71	22.90	22.98
20	100	0		22.81	22.76	22.81
20	1	0	16-QAM	22.56	22.37	23.27
20	1	49		22.46	22.39	23.25
20	1	99		22.58	22.66	23.35
20	50	0		21.95	21.90	22.04
20	50	24		21.93	21.90	22.01
20	50	49		21.99	21.94	22.07
20	100	0		21.94	21.88	21.95

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.25	23.27	23.24
1.4	1	2		23.23	23.19	23.20
1.4	1	5		23.22	23.20	23.29
1.4	3	0		23.08	23.10	23.17
1.4	3	1		23.11	23.15	23.18
1.4	3	2		23.03	23.08	23.07
1.4	6	0		22.14	22.12	22.12
1.4	1	0	16-QAM	23.20	22.24	21.86
1.4	1	2		23.23	22.25	21.89
1.4	1	5		23.27	22.26	21.91
1.4	3	0		22.37	22.15	22.13
1.4	3	1		22.45	22.16	22.13
1.4	3	2		22.40	22.19	22.17
1.4	6	0		21.37	21.39	21.37
3	1	0	QPSK	23.14	23.23	23.19
3	1	7		23.12	23.34	23.21
3	1	14		23.08	23.22	23.23
3	8	0		22.07	22.07	22.14
3	8	4		22.11	22.11	22.12
3	8	7		22.07	22.04	22.13
3	15	0		22.06	22.08	22.19
3	1	0	16-QAM	23.32	22.36	21.88
3	1	7		23.25	22.19	21.89
3	1	14		23.25	22.22	21.90
3	8	0		21.15	21.31	21.36
3	8	4		21.13	21.34	21.41
3	8	7		21.08	21.33	21.42
3	15	0		21.29	21.27	21.26

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.93	23.17	22.88
5	1	12		22.96	23.16	22.84
5	1	24		22.98	23.15	22.98
5	12	0		22.11	22.20	22.10
5	12	6		22.09	22.22	22.10
5	12	11		22.13	22.18	22.19
5	25	0		22.12	22.12	22.18
5	1	0	16-QAM	22.32	22.27	22.78
5	1	12		22.25	22.22	22.76
5	1	24		22.38	22.31	22.74
5	12	0		21.13	21.13	21.22
5	12	6		21.12	21.09	21.26
5	12	11		21.14	21.09	21.16
5	25	0		21.26	21.25	21.45
10	1	0	QPSK	23.11	23.04	23.05
10	1	24		23.01	23.05	23.11
10	1	49		23.19	23.07	23.15
10	25	0		22.09	22.11	22.17
10	25	12		22.14	22.22	22.05
10	25	24		22.19	22.23	22.11
10	50	0		22.24	22.19	22.18
10	1	0	16-QAM	23.37	23.04	23.13
10	1	24		23.28	22.87	23.17
10	1	49		23.42	22.99	23.25
10	25	0		21.10	21.29	21.30
10	25	12		21.15	21.31	21.33
10	25	24		21.24	21.33	21.33
10	50	0		21.26	21.31	21.22

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.06	23.11	22.99
15	1	37		23.02	23.07	23.01
15	1	74		23.09	23.07	23.06
15	36	0		22.12	22.18	22.11
15	36	18		22.21	22.26	22.06
15	36	39		22.19	22.19	22.22
15	75	0		22.10	22.11	22.16
15	1	0	16-QAM	23.29	22.86	23.16
15	1	38		23.30	23.00	23.16
15	1	75		23.40	23.03	23.26
15	36	0		21.30	21.37	21.17
15	36	18		21.35	21.33	21.17
15	36	39		21.41	21.36	21.29
15	75	0		21.23	21.26	21.36
20	1	0	QPSK	23.18	23.35	23.19
20	1	49		23.15	23.09	23.12
20	1	99		23.23	23.14	23.27
20	50	0		22.13	22.18	22.07
20	50	24		22.18	22.16	22.05
20	50	49		22.20	22.17	22.09
20	100	0		22.11	22.10	22.21
20	1	0	16-QAM	22.27	22.35	22.67
20	1	49		22.25	22.33	22.66
20	1	99		22.34	22.33	22.80
20	50	0		21.29	21.33	21.35
20	50	24		21.31	21.27	21.34
20	50	49		21.43	21.27	21.36
20	100	0		21.34	21.25	21.31

LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.47	23.38	23.22
1.4	1	2		23.50	23.49	23.21
1.4	1	5		23.51	23.52	23.26
1.4	3	0		23.40	23.50	23.12
1.4	3	1		23.48	23.37	23.20
1.4	3	2		23.36	23.42	23.19
1.4	6	0		22.36	22.37	21.93
1.4	1	0	16-QAM	23.48	23.08	22.29
1.4	1	2		23.68	23.10	22.39
1.4	1	5		23.50	23.10	22.32
1.4	3	0		22.67	22.39	22.03
1.4	3	1		22.58	22.44	22.10
1.4	3	2		22.73	22.43	22.11
1.4	6	0		21.49	21.38	21.23
3	1	0	QPSK	23.44	23.47	23.21
3	1	7		23.36	23.51	23.21
3	1	14		23.47	23.49	23.23
3	8	0		22.38	22.46	22.07
3	8	4		22.39	22.18	22.17
3	8	7		22.47	22.32	22.23
3	15	0		22.33	22.42	22.09
3	1	0	16-QAM	23.36	22.45	22.25
3	1	7		23.46	22.36	22.28
3	1	14		23.59	22.37	22.34
3	8	0		21.24	21.49	21.19
3	8	4		21.22	21.46	21.11
3	8	7		21.43	21.35	21.30
3	15	0		21.50	21.37	21.22

LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.37	23.39	23.02
5	1	12		23.37	23.39	22.95
5	1	24		23.38	23.34	23.02
5	12	0		22.38	22.43	22.23
5	12	6		22.45	22.40	22.09
5	12	11		22.44	22.35	22.09
5	25	0		22.55	22.34	22.22
5	1	0	16-QAM	22.55	22.56	22.83
5	1	12		22.63	22.45	22.70
5	1	24		22.63	22.29	22.91
5	12	0		21.33	21.32	20.99
5	12	6		21.46	21.26	21.14
5	12	11		21.50	21.16	21.10
5	25	0		21.58	21.38	21.30
10	1	0	QPSK	23.33	23.42	23.29
10	1	24		23.32	23.34	23.09
10	1	49		23.31	23.24	23.22
10	25	0		22.51	22.43	22.33
10	25	12		22.52	22.34	22.30
10	25	24		22.41	22.38	22.18
10	50	0		22.49	22.42	22.22
10	1	0	16-QAM	23.39	23.17	22.67
10	1	24		23.36	23.07	22.57
10	1	49		23.74	23.00	22.56
10	25	0		21.53	21.60	21.31
10	25	12		21.59	21.47	21.34
10	25	24		21.49	21.35	21.27
10	50	0		21.55	21.43	21.18

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.29	22.41	22.38
5	1	12		22.18	22.35	22.43
5	1	24		22.30	22.47	22.44
5	12	0		21.43	21.49	21.58
5	12	6		21.44	21.53	21.49
5	12	11		21.30	21.43	21.46
5	25	0		21.42	21.55	21.52
5	1	0	16-QAM	21.21	21.60	21.59
5	1	12		21.10	21.60	21.59
5	1	24		21.13	21.60	21.66
5	12	0		20.40	20.65	20.53
5	12	6		20.35	20.61	20.46
5	12	11		20.45	20.66	20.49
5	25	0		20.53	20.60	20.76
10	1	0	QPSK	22.29	22.55	22.33
10	1	24		22.30	22.58	22.43
10	1	49		22.31	22.56	22.54
10	25	0		21.39	21.56	21.37
10	25	12		21.35	21.44	21.39
10	25	24		21.43	21.56	21.50
10	50	0		21.39	21.48	21.42
10	1	0	16-QAM	22.66	21.56	21.63
10	1	24		22.62	21.59	21.56
10	1	49		22.60	21.62	21.64
10	25	0		20.40	20.63	20.62
10	25	12		20.49	20.73	20.66
10	25	24		20.45	20.68	20.71
10	50	0		20.37	20.75	20.54

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	22.29	22.42	22.37
15	1	37		22.21	22.48	22.35
15	1	74		22.25	22.53	22.54
15	36	0		21.51	21.48	21.53
15	36	18		21.27	21.52	21.47
15	36	39		21.29	21.59	21.47
15	75	0		21.31	21.48	21.56
15	1	0	16-QAM	22.55	21.52	22.29
15	1	38		22.59	21.63	22.36
15	1	75		22.61	21.65	22.42
15	36	0		20.64	20.82	20.59
15	36	18		20.67	20.82	20.57
15	36	39		20.59	20.76	20.69
15	75	0		20.55	20.64	20.69
20	1	0	QPSK	22.24	22.81	22.51
20	1	49		22.16	22.90	22.62
20	1	99		22.22	22.89	22.65
20	50	0		21.31	21.51	21.43
20	50	24		21.26	21.55	21.51
20	50	49		21.37	21.48	21.50
20	100	0		21.39	21.61	21.41
20	1	0	16-QAM	21.67	21.55	21.98
20	1	49		21.58	21.65	21.99
20	1	99		21.57	21.75	22.10
20	50	0		20.56	20.64	20.70
20	50	24		20.52	20.74	20.66
20	50	49		20.52	20.70	20.75
20	100	0		20.52	20.66	20.68