



# SAR TEST REPORT

**Report No.:** 20230717G08151X-W1  
**Product Name:** Tracker  
**Model Name:** PT201B  
**Trade Name:** Prime  
**Brand Name:** Prime  
**FCC ID:** ZKQ-AHALO  
**Applicant:** Micron Electronics LLC.  
**Address:** 1001 Yamato Road, Suite 400, Boca Raton, FL 33431, USA  
**Test Date:** 2023/07/29~2023/08/02  
**Issued by:** CCIC Southern Testing Co., Ltd.  
**Lab Location:** Electronic Testing Building, No. 43 Shahe Road Xili Street, Nanshan District, Shenzhen, Guangdong 518055, China  
**Tel:** 86 755 26627338      **Fax:** 86 755 26627238  
**Mail:** manager@ccic-set.com      **Website** <http://www.ccic-set.com>

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## Test Report

**Applicant:** Micron Electronics LLC.

**Applicant Address:** 1001 Yamato Road, Suite 400, Boca Raton, FL 33431, USA

**Manufacturer:** Micron Electronics LLC.

**Manufacturer Address:** 1001 Yamato Road, Suite 400, Boca Raton, FL 33431, USA

**47CFR §2.1093-** Radiofrequency Radiation Exposure Evaluation:  
Portable Devices;

**ANSI C95.1-1992:** Safety Levels with Respect to Human Exposure to  
Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.( IEEE Std  
C95.1-1991)

**Test Standards:** **IEEE 1528-2013:** IEEE Recommended Practice for Determining the  
Peak Spatial-Average Specific Absorption Rate (SAR) in the Human  
Head from Wireless Communications Devices: Measurement  
Techniques

**Test Result:** Pass

**Tested by:** Carl Wei 2023-08-21

Carl Wei, Test Engineer

**Reviewed by:** Chris You 2023-08-21

Chris You, Senior Engineer

**Approved by:** Yang Fan 2023-08-21

Yang Fan, Manager



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# 1. Administrative Data

## 1.1 Testing Laboratory

<b>Test Site:</b>	CCIC Southern Testing Co., Ltd.
<b>Address:</b>	Electronic Testing Building, No. 43 Shahe Road Xili Street, Nanshan District, Shenzhen, Guangdong 518055, China
<b>A2LA Lab Code:</b>	CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025:2017. The accreditation certificate number is 5721.01
<b>FCC Registration:</b>	CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Designation Number: CN1283, valid time is until Sep 30th, 2023.
<b>ISED Registration:</b>	CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until Sep 30th, 2023.
<b>Test Environment Condition:</b>	Temperature ( °C): 18 °C ~25 °C Relative Humidity (%): 35%~75% RH Atmospheric Pressure (kPa): 86KPa-106KPa



## 2. Equipment Under Test (EUT)

### Identification of the Equipment under Test

Device type :	portable device	
Exposure category:	uncontrolled environment / general population	
Product Name:	Tracker	
Brand Name:	Prime	
Model Name:	PT201B	
Operating Band(s):	LTE Band 2,4,12,14,66,	
Test Band(s):	LTE Band 2,4,12,14,66,	
Test modulation:	LTE(QPSK/16QAM),	
Tested frequency range(s)	transmitter frequency range	receiver frequency range
LTE Band 2:	1850-1910 MHz	1930-1990 MHz
LTE Band 4:	1710-1755 MHz	2110-2155 MHz
LTE Band 12:	698-716 MHz	728-746 MHz
LTE Band 14:	788-798 MHz	758-768 MHz
LTE Band 66:	1710-1780 MHz	2110-2200 MHz
Antenna type :	Internal antenna	
Battery options :	Model No.: 833338G Capacitance: 1000mAh Rated Voltage: 3.8V Charge Limit: 4.35V	
MAX. SAR Value:	Body: 1.396 W/Kg(Limit:1.6W/Kg, 5mm distance) Limb:1.277 W/Kg(Limit:4.0W/Kg, 0mm distance)	

#### Note:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. The LTE power of this report is provided by the 18C0042R-HPUUSP35V00 report



### 3. SAR Summary

#### Highest Standalone SAR Summary

Exposure Position	Frequency Band	1g-SAR Limit value(W/kg)	Scaled 1g-SAR(W/kg)	Highest Scaled 1g-SAR(W/kg)
Body (5mm Gap)	LTE Band 2	1.6	1.087	1.396
	LTE Band 4		1.314	
	LTE Band 12		0.547	
	LTE Band 14		0.267	
	LTE Band 66		1.396	

Exposure Position	Frequency Band	1g-SAR Limit value(W/kg)	Scaled 1g-SAR(W/kg)	Highest Scaled 1g-SAR(W/kg)
Limb (0mm Gap)	LTE Band 4	4.0	1.087	1.277
	LTE Band 66		1.277	

## 4. Specific Absorption Rate (SAR)

### 4.1 Introduction

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 ( $\rho$ ). The equation description is as below:

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

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by

$$\text{SAR} = C \frac{\delta T}{\delta t}$$

where C is the specific heat capacity,  $\delta T$  is the temperature rise and  $\delta t$  the exposure duration, or related to the electrical field in the tissue by

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

where  $\sigma$  is the conductivity of the tissue,  $\rho$  is the mass density of the tissue and E is the rms electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.



## 4.2 Applicable Standards and Limits

### 4.2.1 Applicable Standards

47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
ANSI C95.1-1992	Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.( IEEE Std C95.1-1991)
IEEE 1528-2013	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB 248227 D01	v02r02 802.11 Wi-Fi SAR
KDB 447498 D01	v06 General RF Exposure Guidance
KDB 616217 D04	v01r02 SAR for laptop and tablets
KDB 648474 D04	v01r03 Handset SAR
KDB 865664 D01	v01r04 SAR Measurement 100MHz to 6GHz
KDB 865664 D02	v01r02 SAR Exposure Reporting
KDB 941225 D01	v03r01 3G SAR Procedures
KDB 941225 D05	v02r05 SAR for LTE Devices
KDB 941225 D05A	v01r02 LTE Rel.10 KDB Inquiry Sheet
KDB 941225 D06	v02r01 Hotspot Mode

### 4.2.2 RF exposure Limits

<b>Human Exposure</b>	<b>Uncontrolled Environment General Population</b>
<b>Spatial Peak SAR*</b> (Brain/Body)	1.60 mW/g
<b>Spatial Average SAR**</b> (Whole Body)	0.08 mW/g
<b>Spatial Peak SAR***</b> (Limbs)	4.00 mW/g

The limit applied in this test report is shown in bold letters.

Notes:

\* The Spatial Peak value of the SAR averaged over any 1 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time

\*\* The Spatial Average value of the SAR averaged over the whole body.

\*\*\* The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.



### 4.3 Phantoms

The phantom used for all tests i.e. for both system checks and device testing, was the twin-headed "SAM Phantom", manufactured by SATIMO. The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region, where shell thickness increases to 6mm).

System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles.



SAM Twin Phantom

### 4.4 Device Holder

The device was placed in the device holder (illustrated below) that is supplied by SATIMO as an integral part of the COMOSAR test system.

The device holder is designed to cope with the different positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.



Device holder

## 4.5 Probe Specification

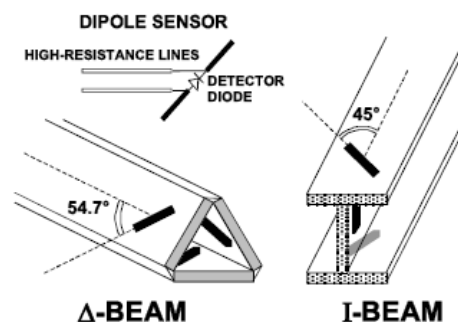


Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	700 MHz to 3 GHz; Linearity: $\pm 0.5$ dB (700 MHz to 3 GHz)
Directivity	$\pm 0.25$ dB in HSL (rotation around probe axis) $\pm 0.5$ dB in tissue material (rotation normal to probe axis)
Dynamic Range	1.5 $\mu$ W/g to 100 mW/g; Linearity: $\pm 0.5$ dB
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 5 mm Distance from probe tip to dipole centers: $< 2.7$ mm
Application	General dosimetry up to 3 GHz Dosimetry in strong gradient fields Compliance tests of mobile phones
Compatibility	COMOSAR

### Isotropic E-Field Probe

The isotropic E-Field probe has been fully calibrated and assessed for isotropicity, and boundary effect within a controlled environment. Depending on the frequency for which the probe is calibrated the method utilized for calibration will change.

The E-Field probe utilizes a triangular sensor arrangement as detailed in the diagram below:





## 5. Tissue check and recommend Dielectric Parameters

### 5.1 Tissue Dielectric Parameters for Head and Body Phantoms

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

Table 1: Recommended Dielectric Performance of Tissue

Ingredients (% by weight )	Frequency (MHz)											
	450		835		915		1900		2450		2600	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.46	52.4	41.05	56.0	54.9	40.4	62.7	73.2	55.24	64.49
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04	0.5	0.024
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0	0.0	0.0
Triton x-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0	44.45	32.25
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7	0.0	26.7
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.2	52.5	39.0	52.5
Conductivity (s/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.80	1.78	1.96	2.16

MSL/HSL750 (Body and Head liquid for 650 – 850 MHz)

Item	Head Tissue Simulation Liquid HSL750 Muscle(body)Tissue Simulation Liquid MSL750			
H2O	Water, 35 – 58%			
Sucrose	Sugar, white, refined, 40-60%			
NaCl	Sodium Chloride, 0-6%			
Hydroxyethyl-cellulose	Medium Viscosity (CAS# 9004-62-0), <0.3%			
Preventol-D7	Preservative: aqueous preparation, (CAS# 55965-84-9), containing 5-chloro-2-methyl-3(2H)-isothiazolone and 2-methyl-3(2H)-isothiazolone, 0.1-0.7%			
Frequency (MHz)	Head $\epsilon_r$	Head $\sigma$ (S/m)	Body $\epsilon_r$	Body $\sigma$ (S/m)
750	41.9	0.89	55.2	0.97

Note: The liquid of 700MHz&2600MHz typical liquid composition is provided by SATIMO.



Frequency:5200/5400/5600/5800MHz	
Ingredients	(% by weight)
Water	78
Mineral oil	11
Emulsifiers	9
Additives and Salt	2

Table 2 Recommended Tissue Dielectric Parameters

Frequency (MHz)	Head Tissue		Body Tissue	
	$\epsilon_r$	$\sigma(S/m)$	$\epsilon_r$	$\sigma(S/m)$
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800-2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00



## 5.2 Simulate liquid

Liquid check results:

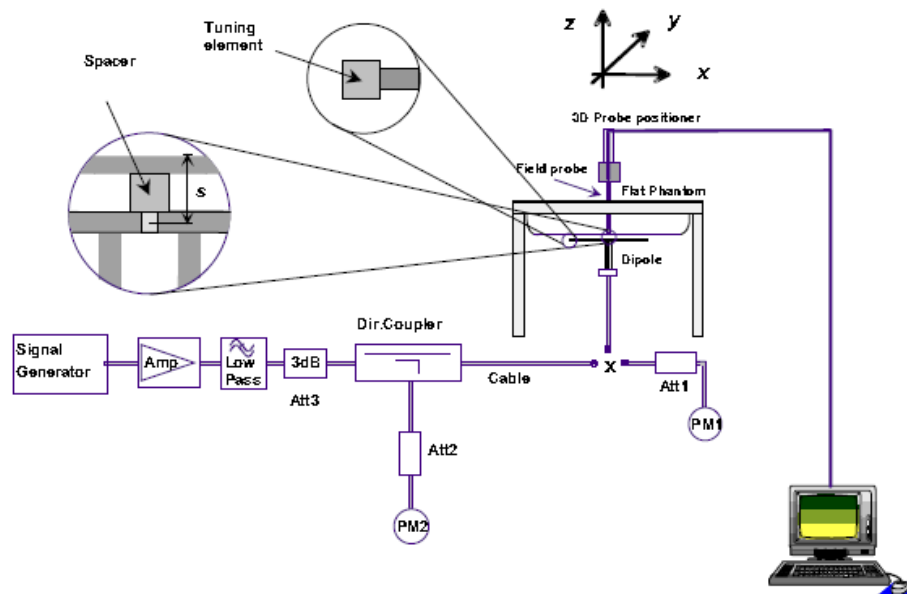
Table 3: Dielectric Performance of Tissue Simulating Liquid

/	Frequency	Permittivity $\epsilon$	Conductivity $\sigma$ (S/m)	Liquid Temp. ( $^{\circ}$ C)	Test Date
Target value	750MHz	41.9 $\pm$ 5% (39.805~43.995)	0.89 $\pm$ 5% (0.8455~0.9345)	22.3	2023/07/30
Validation value		41.74	0.88		
Target value	1800MHz	40.0 $\pm$ 5% (38.0~42.0)	1.40 $\pm$ 5% (1.33~1.47)	22.1	2023/08/02
Validation value		40.34	1.40		
Target value	1900MHz	40.0 $\pm$ 5% (38.0~42.0)	1.40 $\pm$ 5% (1.33~1.47)	21.9	2023/07/29
Validation value		38.91	1.42		

## SAR System validation

Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of  $\pm 10\%$ . The validation results are tabulated below. And also the corresponding SAR plot is attached as well in the SAR plots files.

The following procedure, recommended for performing validation tests using box phantoms is based on the procedures described in the IEEE standard P1528. Setup according to the setup diagram below:



With the SG and Amp and with directional coupler in place, set up the source signal at the relevant frequency and use a power meter to measure the power at the end of the SMA cable that you intend to connect to the balanced dipole. Adjust the SG to make this, say, 0.01W (10 dBm). If this level is too high to read directly with the power meter sensor, insert a calibrated attenuator (e.g. 10 or 20 dB) and make a suitable correction to the power meter reading.

Note 1: In this method, the directional coupler is used for monitoring rather than setting the exact feed power level.

If, however, the directional coupler is used for power measurement, you should check the frequency range and power rating of the coupler and measure the coupling factor (referred to output) at the test frequency using a VNA.

Note 2: Remember that the use of a 3dB attenuator (as shown in Figure 8.1 of P1528) means that you need an RF amplifier of 2 times greater power for the same feed power. The other issue is the cable length. You might get up to 1dB of loss per meter of cable, so the cable length after the coupler needs to be quite short.

Note 3: For the validation testing done using CW signals, most power meters are suitable. However, if you are measuring the output of a modulated signal from either a signal generator or a handset, you must ensure that the power meter correctly reads the modulated signals.

The measured 1-gram averaged SAR values of the device against the phantom are provided in Tables 5 and Table 6. The body phantom were full of the body tissue simulating liquid. The EUT was supplied with full-charged battery for each measurement.

The distance between the back of the EUT and the bottom of the flat phantom is 10 mm (taking into account of the IEEE 1528 and the place of the antenna).

Table 4: system validation (1g)  
System Check Results

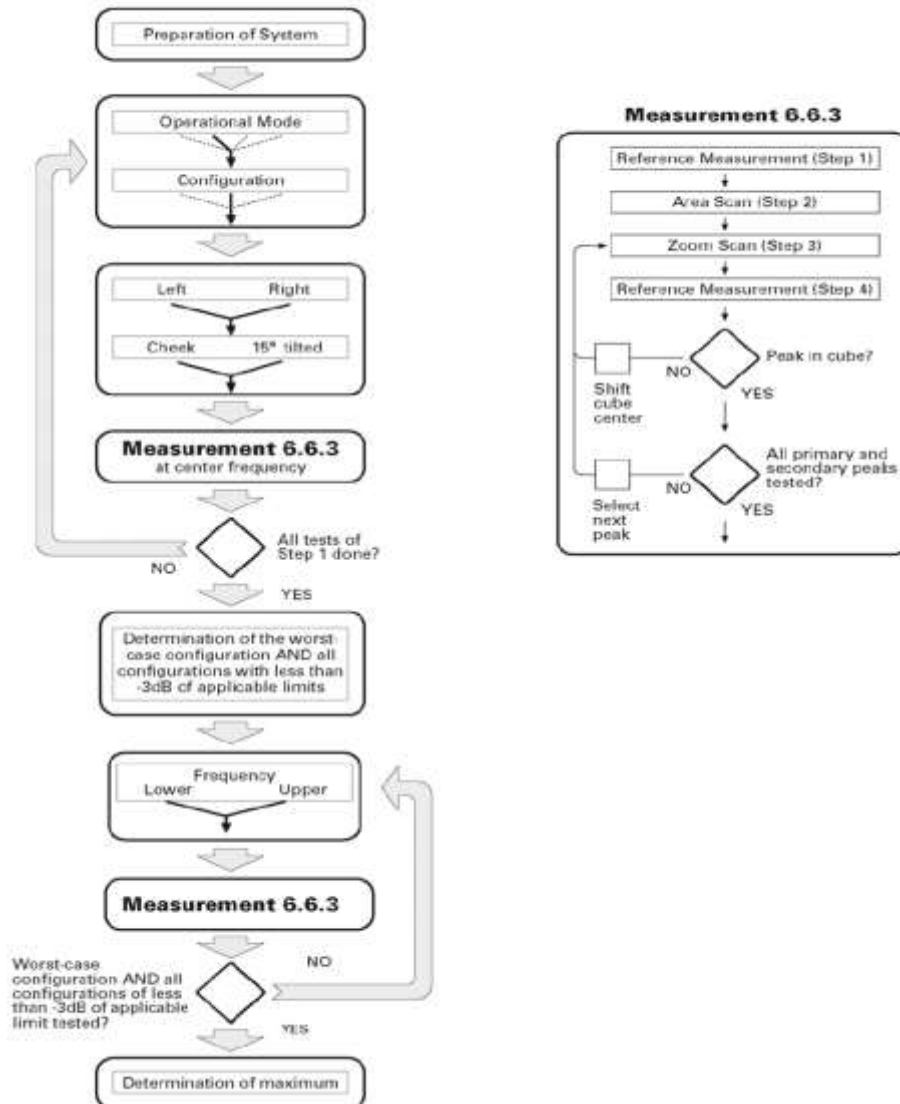
Frequency	Duty cycle	Target value (1-g) (W/Kg)	10mW Test value (1-g) (W/Kg)	Test SAR Normalized to 1W(w/Kg)	Test Date
750MHz	1:1	8.65 W/kg ±10% (7.785~9.515)	0.0883	8.83	2023/07/30
1800MHz	1:1	37.81 W/kg ±10% (34.029~41.591)	0.3692	36.92	2023/08/02
1900MHz	1:1	41.50 W/kg ±10% (37.350~45.650)	0.4281	42.81	2023/07/29

**Note:**

1. Target value was referring to the measured value in the calibration certificate of reference dipole.
2. All SAR values are normalized to 1W forward power.

## 6. SAR measurement procedure

The SAR test against the head phantom was carried out as follow:



Establish a call with the maximum output power with a base station simulator, the connection between the EUT and the base station simulator is established via air interface.

After an area scan has been done at a fixed distance of 2mm from the surface of the phantom on the source side, a 3D scan is set up around the location of the maximum spot SAR. First, a point within the scan area is visited by the probe and a SAR reading taken at the start of testing. At the end of testing, the probe is returned to the same point and a second reading is taken. Comparison between these start and end readings enables the power drift during measurement to be assessed.

Above is the scanning procedure flow chart and table from the IEEE p1528 standard. This is the procedure for which all compliant testing should be carried out to ensure that all variations of the device position and transmission behavior are tested.





## 7. Conducted RF Output Power

### 7.1 LTE Conducted peak output Power

#### LTE Test Configurations

The CMW500 Wide Band Radio Communication Tester was used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR test were performed with the same number of RB and RB offsets transmitting on all frames.

#### 1) Spectrum Plots for RB configurations

A properly configured base station simulator was used for LTE output power measurements and SAR testing. Therefore, spectrum plots for RB configurations were not required to be included in this report.

#### 2) MPR

When MPR is implemented permanently within the UE, regardless of network requirements, only those RB configurations allowed by 3GPP for the channel bandwidth and modulation combinations may be tested with MPR active. Configurations with RB allocations less than the RB thresholds required by 3GPP must be tested without MPR.

The allowed Maximum Power Reduction(MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101:

**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3**

Modulation	Channel bandwidth / Transmission bandwidth configuration [RB]						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

#### 3) A-MPR LTE procedures for SAR testing

A-MPR(Additional MPR) has been disabled for all SAR tests by using Network Signaling Value of “NS\_01” on the base station simulator.

#### 4) LTE procedures for SAR testing

##### A) Largest channel bandwidth standalone SAR test

requirements i) QPSK with 1 RB allocation

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. When the reported SAR is  $\leq 0.8$ W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is  $> 1.45$  W/kg, SAR is required for all three RB offset configurations for that required test channel.



1. LTE Band 2 Conducted Power Test Verdict:

LTE FDD Band 2				Conducted Power(dBm)			Tune up
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			
				18607/1850.7	18900/1880.0	19193/1909.3	
1.4MHz	QPSK	1	0	24.52	24.85	24.51	23.0±2.0
		1	3	24.39	24.82	24.43	
		1	5	24.41	24.83	24.40	
		3	0	23.51	23.80	23.58	22.0±2.0
		3	2	23.52	23.78	23.58	
		3	3	23.65	23.79	23.60	
		6	0	23.49	23.78	23.42	22.0±2.0
	16QAM	1	0	23.51	24.19	23.18	23.0±2.0
		1	3	23.48	24.10	23.14	
		1	5	23.48	24.10	23.06	
		3	0	22.24	22.64	22.65	22.0±2.0
		3	2	22.15	22.61	22.64	
		3	3	22.14	22.56	22.66	
		6	0	22.10	22.48	22.54	22.0±2.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18615/1851.5	18900/1880.0	19185/1908.5	
3MHz	QPSK	1	0	24.40	24.52	24.38	23.0±2.0
		1	7	24.36	24.50	24.34	
		1	14	24.36	24.42	24.32	
		8	0	23.45	23.58	23.36	22.0±2.0
		8	4	23.42	23.55	23.37	
		8	7	23.36	23.51	23.46	
		15	0	23.37	23.41	23.34	22.0±2.0
	16QAM	1	0	23.98	23.56	23.51	23.0±2.0
		1	7	23.95	23.42	23.48	
		1	14	23.88	23.44	23.40	
		8	0	22.70	22.72	22.47	22.0±2.0
		8	4	22.68	22.56	22.43	
		8	7	22.68	22.58	22.44	
		15	0	22.60	22.56	22.42	22.0±2.0



LTE FDD Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18625/1852.5	18900/1880.0	19175/1907.5	
5MHz	QPSK	1	0	24.35	24.68	24.36	23.0±2.0
		1	13	24.31	24.65	24.34	
		1	24	24.27	24.64	24.30	
		12	0	23.36	23.62	23.15	22.0±2.0
		12	6	23.40	23.57	23.17	
		12	13	23.49	23.57	23.20	
	16QAM	25	0	23.32	23.57	23.17	22.0±2.0
		1	0	23.05	23.16	23.21	23.0±2.0
		1	13	22.99	23.12	23.16	
		1	24	23.01	23.10	23.13	
		12	0	22.33	22.73	22.60	22.0±2.0
		12	6	22.33	22.66	22.55	
		12	13	22.36	22.63	22.56	
		25	0	22.22	22.60	22.43	22.0±2.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18650/1855	18900/1880.0	19150/1905	
10MHz	QPSK	1	0	24.30	24.57	24.53	23.0±2.0
		1	25	24.20	24.51	24.49	
		1	49	24.21	24.50	24.42	
		25	0	23.28	23.47	23.40	22.0±2.0
		25	13	23.24	23.38	23.38	
		25	25	23.20	23.37	23.49	
	16QAM	50	0	23.20	23.37	23.36	22.0±2.0
		1	0	23.60	23.58	23.37	23.0±2.0
		1	25	23.52	23.54	23.34	
		1	49	23.54	23.53	23.34	
		25	0	22.43	22.81	22.54	22.0±2.0
		25	13	22.43	22.87	22.55	
		25	25	22.61	22.95	22.65	



LTE FDD Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18675/1857.5	18900/1880.0	19125/1902.5	
15MHz	QPSK	1	0	24.42	24.69	24.74	23.0±2.0
		1	38	24.40	24.67	24.69	
		1	74	24.39	24.67	24.67	
		36	0	23.50	23.67	23.81	22.0±2.0
		36	18	23.46	23.63	23.81	
		36	39	23.39	23.61	23.83	
	16QAM	75	0	23.39	23.55	23.70	22.0±2.0
		1	0	23.73	23.68	23.18	23.0±2.0
		1	38	23.64	23.63	23.12	
		1	74	23.62	23.62	23.10	
		36	0	22.36	22.77	22.53	22.0±2.0
		36	18	22.34	22.81	22.51	
36	39	22.35	22.86	22.52			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18700/1860	18900/1880.0	19100/1900	
20MHz	QPSK	1	0	24.21	24.60	24.69	23.0±2.0
		1	50	24.17	24.53	24.58	
		1	99	24.11	24.49	24.57	
		50	0	23.08	23.55	23.59	22.0±2.0
		50	25	23.09	23.52	23.63	
		50	50	23.26	23.52	23.66	
	16QAM	100	0	23.09	23.49	23.56	22.0±2.0
		1	0	23.93	24.24	24.19	23.0±2.0
		1	50	23.88	24.21	24.11	
		1	99	23.87	24.20	24.07	
		50	0	22.27	22.52	22.55	22.0±2.0
		50	25	22.26	22.61	22.54	
50	50	22.28	22.68	22.59			



2. LTE Band 4 Conducted Power Test Verdict:

LTE FDD Band 4				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				19957/1710.7	20175/1732.5	20393/1754.3	
1.4MHz	QPSK	1	0	23.35	23.40	23.67	23.0±2.0
		1	3	23.28	23.33	23.64	
		1	5	23.26	23.29	23.64	
		3	0	22.28	22.36	22.66	22.0±2.0
		3	2	22.27	22.36	22.66	
		3	3	22.30	22.39	22.82	
		6	0	22.16	22.30	22.65	22.0±2.0
	16QAM	1	0	22.53	22.57	23.03	23.0±2.0
		1	3	22.50	22.50	23.00	
		1	5	22.46	22.45	22.99	
		3	0	21.70	21.70	21.65	22.0±2.0
		3	2	21.63	21.68	21.63	
		3	3	21.63	21.67	21.66	
		6	0	21.60	21.61	21.51	22.0±2.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				19965/1711.5	20175/1732.5	20385/1753.5	
3MHz	QPSK	1	0	23.39	23.31	23.68	23.0±2.0
		1	7	23.33	23.28	23.61	
		1	14	23.28	23.27	23.61	
		8	0	22.34	22.28	22.81	22.0±2.0
		8	4	22.34	22.26	22.75	
		8	7	22.37	22.25	22.64	
		15	0	22.22	22.18	22.65	22.0±2.0
	16QAM	1	0	22.56	22.81	23.10	23.0±2.0
		1	7	22.53	22.74	23.06	
		1	14	22.47	22.75	23.02	
		8	0	21.43	21.52	21.72	22.0±2.0
		8	4	21.41	21.64	21.73	
		8	7	21.41	21.66	21.75	
		15	0	21.43	21.49	21.73	22.0±2.0



LTE FDD Band 4				Conducted Power(dBm)			Tune up
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			
				19975/1712.5	20175/1732.5	20375/1752.5	
5MHz	QPSK	1	0	23.27	23.41	23.71	23.0±2.0
		1	13	23.23	23.37	23.68	
		1	24	23.24	23.34	23.68	
		12	0	22.44	22.46	22.73	22.0±2.0
		12	6	22.41	22.33	22.66	
		12	13	22.43	22.30	22.63	
		25	0	22.26	22.30	22.62	22.0±2.0
	16QAM	1	0	22.83	22.12	22.56	23.0±2.0
		1	13	22.78	22.06	22.50	
		1	24	22.78	22.07	22.50	
		12	0	21.65	21.52	22.02	22.0±2.0
		12	6	21.62	21.49	22.00	
		12	13	21.64	21.51	22.02	
		25	0	21.51	21.47	21.89	22.0±2.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
10MHz	QPSK	1	0	23.43	23.36	23.64	23.0±2.0
		1	25	23.38	23.30	23.59	
		1	49	23.33	23.32	23.59	
		25	0	22.40	22.17	22.66	22.0±2.0
		25	13	22.40	22.25	22.64	
		25	25	22.44	22.35	22.66	
		50	0	22.36	22.19	22.59	22.0±2.0
	16QAM	1	0	22.37	22.35	23.08	23.0±2.0
		1	25	22.35	22.33	23.04	
		1	49	22.33	22.27	23.05	
		25	0	21.48	21.57	21.74	22.0±2.0
		25	13	21.33	21.50	21.75	
		25	25	21.34	21.51	21.80	



LTE FDD Band 4				Conducted Power(dBm)			Tune up
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			
				20025/1717.5	20175/1732.5	20325/1747.5	
15MHz	QPSK	1	0	23.31	23.27	23.63	23.0±2.0
		1	38	23.24	23.22	23.58	
		1	74	23.22	23.20	23.56	
		36	0	22.15	22.30	22.75	22.0±2.0
		36	18	22.20	22.27	22.65	
		36	39	22.22	22.16	22.64	
	16QAM	75	0	22.13	22.15	22.58	22.0±2.0
		1	0	22.22	22.34	23.33	23.0±2.0
		1	38	22.12	22.31	23.22	
		1	74	22.12	22.31	23.22	
		36	0	21.40	21.48	21.85	22.0±2.0
		36	18	21.34	21.40	21.73	
36	39	21.35	21.40	21.67			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
20MHz	QPSK	1	0	23.37	23.13	23.66	23.0±2.0
		1	50	23.29	23.04	23.63	
		1	99	23.27	23.03	23.64	
		50	0	22.37	22.19	22.49	22.0±2.0
		50	25	22.35	22.21	22.52	
		50	50	22.39	22.25	22.54	
	16QAM	100	0	22.34	22.12	22.48	22.0±2.0
		1	0	22.59	22.71	23.18	23.0±2.0
		1	50	22.55	22.64	23.15	
		1	99	22.52	22.66	23.15	
		50	0	21.45	21.59	21.66	22.0±2.0
		50	25	21.42	21.55	21.64	
	50	50	21.42	21.56	21.66		



3. LTE Band 12 Conducted Power Test Verdict:

LTE FDD Band 12				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				23017/699.7	23095/707.5	23173/715.3	
1.4MHz	QPSK	1	0	24.98	24.16	24.67	23.0±2.0
		1	3	24.95	24.10	24.63	
		1	5	24.93	24.06	24.62	
		3	0	24.01	23.15	23.52	22.0±2.0
		3	2	23.97	23.14	23.52	
		3	3	23.98	23.17	23.56	
	16QAM	6	0	23.88	23.13	23.49	22.0±2.0
		1	0	23.80	22.92	23.56	23.0±2.0
		1	3	23.70	22.87	23.47	
		1	5	23.72	22.87	23.48	
		3	0	22.79	21.89	22.33	22.0±2.0
		3	2	22.78	21.87	22.40	
		3	3	22.83	21.87	22.50	
		6	0	22.65	21.80	22.35	22.0±2.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				23025/700.5	23095/707.5	23165/714.5	
3MHz	QPSK	1	0	24.82	24.10	24.02	23.0±2.0
		1	7	24.79	24.03	23.96	
		1	14	24.78	24.03	23.94	
		8	0	23.84	23.02	23.00	22.0±2.0
		8	4	23.80	23.00	23.09	
		8	7	23.82	23.01	23.12	
		15	0	23.66	22.92	22.99	
	16QAM	1	0	23.70	22.84	22.74	23.0±2.0
		1	7	23.58	22.77	22.70	
		1	14	23.59	22.76	22.70	
		8	0	22.78	21.89	21.59	22.0±2.0
		8	4	22.78	21.87	21.70	
		8	7	22.83	21.90	21.72	
		15	0	22.68	21.77	21.58	22.0±2.0





LTE FDD Band 12				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				23035/701.5	23095/707.5	23155/713.5	
5MHz	QPSK	1	0	24.95	24.07	23.99	23.0±2.0
		1	13	24.91	24.02	23.90	
		1	24	24.83	24.03	23.87	
		12	0	23.91	22.98	22.81	22.0±2.0
		12	6	23.89	23.01	22.80	
		12	13	23.94	23.07	22.83	
		25	0	23.78	22.93	22.79	22.0±2.0
	16QAM	1	0	23.72	22.77	22.70	23.0±2.0
		1	13	23.69	22.70	22.67	
		1	24	23.68	22.72	22.60	
		12	0	22.74	21.65	21.64	22.0±2.0
		12	6	22.72	21.63	21.65	
		12	13	22.76	21.65	21.67	
		25	0	22.68	21.61	21.58	22.0±2.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
10MHz	QPSK	1	0	24.59	24.29	24.03	23.0±2.0
		1	25	24.52	24.17	23.94	
		1	49	24.48	24.17	23.96	
		25	0	23.49	22.86	23.12	22.0±2.0
		25	13	23.45	22.86	23.08	
		25	25	23.40	22.91	23.00	
		50	0	23.34	22.81	23.01	22.0±2.0
	16QAM	1	0	24.05	23.54	23.31	23.0±2.0
		1	25	23.99	23.51	23.28	
		1	49	23.98	23.46	23.23	
		25	0	22.61	22.13	22.08	22.0±2.0
		25	13	22.59	22.14	22.14	
		25	25	22.63	22.23	22.17	



4. LTE Band 14 Conducted Power Test Verdict:

LTE FDD Band 14				Conducted Power(dBm)			Tune up
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			
				23305/790.5	23330/793.0	23355/795.5	
5MHz	QPSK	1	0	24.51	24.51	24.33	23.0±2.0
		1	13	24.37	24.37	24.31	
		1	24	24.39	24.39	24.31	
		12	0	23.74	23.74	23.79	22.0±2.0
		12	6	23.65	23.65	23.73	
		12	13	23.61	23.61	23.62	
	16QAM	25	0	23.59	23.59	23.61	22.0±2.0
		1	0	23.24	23.24	22.95	23.0±2.0
		1	13	23.15	23.15	22.91	
		1	24	23.16	23.16	22.88	
		12	0	22.86	22.86	22.61	22.0±2.0
		12	6	22.80	22.80	22.56	
12	13	22.80	22.80	22.56			
		25	0	22.72	22.72	22.54	22.0±2.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
10MHz	QPSK						
		1	0	/	24.42	/	23.0±2.0
		1	25	/	24.30	/	
		1	49	/	24.31	/	
		25	0	/	23.63	/	22.0±2.0
		25	13	/	23.63	/	
	25	25	/	23.68	/		
	16QAM	50	0	/	23.52	/	22.0±2.0
		1	0	/	23.20	/	23.0±2.0
		1	25	/	23.18	/	
		1	49	/	23.13	/	
		25	0	/	22.72	/	22.0±2.0
25		13	/	22.74	/		
25	25	/	22.81	/			



5. LTE Band 66 Conducted Power Test Verdict:

LTE FDD Band 66				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				131979/1710.7	132322/1745.0	132665/1779.3	
1.4MHz	QPSK	1	0	23.09	23.87	23.93	23.0±2.0
		1	3	23.04	23.74	23.90	
		1	5	23.02	23.75	23.91	
		3	0	22.13	22.03	23.13	22.0±2.0
		3	2	22.09	22.03	23.03	
		3	3	22.08	22.11	23.03	
		6	0	22.05	22.00	22.96	22.0±2.0
	16QAM	1	0	22.00	22.86	23.23	23.0±2.0
		1	3	21.91	22.77	23.10	
		1	5	21.89	22.76	23.12	
		3	0	21.28	21.87	22.03	22.0±2.0
		3	2	21.19	21.86	21.97	
		3	3	21.21	21.89	21.96	
		6	0	21.22	21.83	21.93	22.0±2.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				131987/1711.5	12322/1745.0	132657/1778.5	
3MHz	QPSK	1	0	23.07	23.78	23.78	23.0±2.0
		1	7	23.05	23.74	23.76	
		1	14	22.97	23.72	23.75	
		8	0	22.29	22.90	23.08	22.0±2.0
		8	4	22.26	22.86	23.04	
		8	7	22.24	22.80	23.05	
		15	0	22.21	22.81	22.92	22.0±2.0
	16QAM	1	0	22.42	22.95	23.20	23.0±2.0
		1	7	22.36	22.90	23.18	
		1	14	22.36	22.89	23.18	
		8	0	21.22	22.08	22.16	22.0±2.0
		8	4	21.23	22.06	22.10	
		8	7	21.28	22.05	22.07	
		15	0	21.20	21.90	22.06	22.0±2.0



LTE FDD Band 66				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				131997/1712.5	132322/1745.0	132647/1777.5	
5MHz	QPSK	1	0	23.06	23.70	23.88	23.0±2.0
		1	13	23.03	23.65	23.80	
		1	24	23.03	23.66	23.77	
		12	0	22.24	22.87	23.08	22.0±2.0
		12	6	22.18	22.90	23.03	
		12	13	22.17	22.93	23.00	
		25	0	22.08	22.80	22.98	22.0±2.0
	16QAM	1	0	21.79	23.15	22.74	23.0±2.0
		1	13	21.74	23.12	22.68	
		1	24	21.76	23.11	22.67	
		12	0	21.39	21.89	22.00	22.0±2.0
		12	6	21.38	21.86	22.04	
		12	13	21.41	21.88	22.06	
		25	0	21.29	21.87	21.94	22.0±2.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				132022/1715.0	132322/1745.0	132622/1775.0	
10MHz	QPSK	1	0	23.11	23.55	23.78	23.0±2.0
		1	25	23.03	23.50	23.72	
		1	49	23.00	23.50	23.66	
		25	0	22.12	22.52	22.92	22.0±2.0
		25	13	22.11	22.58	22.87	
		25	25	22.13	22.61	22.75	
		50	0	22.03	22.45	22.76	22.0±2.0
	16QAM	1	0	22.58	22.61	23.08	23.0±2.0
		1	25	22.55	22.58	23.05	
		1	49	22.52	22.58	23.00	
		25	0	21.15	21.56	22.02	22.0±2.0
		25	13	21.26	21.53	22.01	
		25	25	21.30	21.55	22.05	



LTE FDD Band 66				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				132047/1717.5	132322/1745.0	132597/1772.5	
15MHz	QPSK	1	0	23.03	23.47	23.56	23.0±2.0
		1	38	22.89	23.45	23.53	
		1	74	22.91	23.43	23.52	
		36	0	22.08	22.46	22.47	22.0±2.0
		36	18	22.06	22.42	22.41	
		36	39	22.08	22.37	22.35	
	75	0	21.93	22.33	22.36	22.0±2.0	
	16QAM	1	0	22.32	22.38	23.02	23.0±2.0
		1	38	22.28	22.33	22.98	
		1	74	22.29	22.32	22.97	
		36	0	21.09	21.55	21.71	22.0±2.0
		36	18	21.10	21.63	21.78	
36		39	21.22	21.67	21.83		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				132072/1720.0	132322/1745.0	132572/1770.0	
20MHz	QPSK	1	0	23.17	23.49	23.75	23.0±2.0
		1	50	23.07	23.40	23.70	
		1	99	23.09	23.41	23.72	
		50	0	22.08	22.52	22.69	22.0±2.0
		50	25	22.20	22.48	22.71	
		50	50	22.26	22.38	22.74	
	100	0	22.09	22.37	22.61	22.0±2.0	
	16QAM	1	0	22.79	22.71	22.87	23.0±2.0
		1	50	22.76	22.62	22.84	
		1	99	22.72	22.62	22.82	
		50	0	21.02	21.59	21.54	22.0±2.0
		50	25	21.11	21.65	21.56	
50		50	21.20	21.86	21.58		

**Antenna Location:**





Antenna-to-User (Edge Side) distance (mm):

Antenna	Front	Back	Left	Right	Top	Bottom
LTE ANT	<25	<25	<25	<25	133	<25

The Body SAR measurement positions of each band are as below:

Antenna	Front	Back	Left	Right	Top	Bottom
LTE ANT	Yes	Yes	Yes	Yes	No	Yes

Note:

1. According to KDB 941225 D06 v02r01, when antenna-to-edge>2.5cm, SAR is not required..
2. The other Frequencies were measured at the worst position

**8. Scaling Factor calculation**

Operation Mode	Channel /Frequency	Output Power(dBm)	Tune up Power in tolerance (dBm)	Max. Tune up(dBm)	Scaling Factor
LTE B2 20MHz 1RB#0	18700/1860.0	24.21	23.0 ±2.0	25.00	1.199
	18900/1880.0	24.60	23.0 ±2.0	25.00	1.096
	19100/1900.0	24.69	23.0 ±2.0	25.00	1.074
LTE B2 20MHz 50%RB#50	18700/1860.0	23.26	22.0 ±2.0	24.00	1.186
	18900/1880.0	23.52	22.0 ±2.0	24.00	1.117
	19100/1900.0	23.56	22.0 ±2.0	24.00	1.107
LTE B2 20MHz 100%RB#0	18700/1860.0	23.09	22.0 ±2.0	24.00	1.233
	18900/1880.0	23.49	22.0 ±2.0	24.00	1.125
	19100/1900.0	23.56	22.0 ±2.0	24.00	1.107
LTE B4 20MHz 1RB#0	20050/1720.0	23.37	23.0 ±2.0	25.00	1.455
	20175/1732.5	23.13	23.0 ±2.0	25.00	1.538
	20300/1745.0	23.66	23.0 ±2.0	25.00	1.361
LTE B4 20MHz 50%RB#50	20050/1720.0	22.39	22.0 ±2.0	24.00	1.449
	20175/1732.5	22.25	22.0 ±2.0	24.00	1.496
	20300/1745.0	22.54	22.0 ±2.0	24.00	1.400
LTE B4 20MHz 100%RB#0	20050/1720.0	22.34	22.0 ±2.0	24.00	1.466
	20175/1732.5	22.12	22.0 ±2.0	24.00	1.542
	20300/1745.0	22.48	22.0 ±2.0	24.00	1.419
LTE B12 10MHz 1RB#0	23060/704.0	24.59	23.0 ±2.0	25.00	1.099
	23095/707.5	24.29	23.0 ±2.0	25.00	1.178
	23130/711.0	24.03	23.0 ±2.0	25.00	1.250
LTE B12 10MHz 50%RB#0	23060/704.0	23.49	22.0 ±2.0	24.00	1.125
	23095/707.5	22.86	22.0 ±2.0	24.00	1.300
	23130/711.0	23.08	22.0 ±2.0	24.00	1.236
LTE B14 10MHz 1RB#0	23330/793.0	24.42	23.0 ±2.0	25.00	1.143
LTE B14 10MHz 50%RB#25	23330/793.0	23.68	22.0 ±2.0	24.00	1.076
LTE B66 20MHz 1RB#0	132072/1720.0	23.17	23.0 ±2.0	25.00	1.524
	132322/1745.0	23.49	23.0 ±2.0	25.00	1.416
	132572/1770.0	23.75	23.0 ±2.0	25.00	1.334





LTE B66 20MHz 50%RB#50	132072/1720.0	22.26	22.0 ± 2.0	24.00	1.493
	132322/1745.0	22.38	22.0 ± 2.0	24.00	1.452
	132572/1770.0	22.74	22.0 ± 2.0	24.00	1.337
LTE B66 20MHz 100%RB#0	132072/1720.0	22.09	22.0 ± 2.0	24.00	1.552
	132322/1745.0	22.37	22.0 ± 2.0	24.00	1.455
	132572/1770.0	22.61	22.0 ± 2.0	24.00	1.377

Note: for LTE power tolerance, only QPSK modulation mode was provide here.



## 9. Test Results

### Results overview of FDD LTE Band 2, QPSK, 20MHz Bandwidth

Body(5mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	Limit (W/kg)	SAR Plot.
1RB#0								
Front Upward	19100/1900.0	QPSK	0.500	-0.74	1.074	0.537	1.6	/
Back Upward	19100/1900.0	QPSK	0.782	1.85	1.074	0.840	1.6	/
Left	19100/1900.0	QPSK	0.288	-0.22	1.074	0.309	1.6	/
Right	19100/1900.0	QPSK	0.471	-2.79	1.074	0.506	1.6	/
Bottom	19100/1900.0	QPSK	0.693	-3.02	1.074	0.744	1.6	/
Back Upward	18700/1860.0	QPSK	<b>0.907</b>	0.19	1.199	<b>1.087</b>	1.6	1
<b>Back Upward Repeat</b>	<b>18700/1860.0</b>	<b>QPSK</b>	<b>0.896</b>	<b>0.25</b>	<b>1.199</b>	<b>1.074</b>	<b>1.6</b>	/
Back Upward	18900/1880.0	QPSK	0.837	-0.33	1.096	0.917	1.6	/
50%RB#50								
Front Upward	19100/1900.0	QPSK	0.432	0.25	1.107	0.478	1.6	/
Back Upward	19100/1900.0	QPSK	0.725	-1.41	1.107	0.803	1.6	/
Left	19100/1900.0	QPSK	0.230	-0.98	1.107	0.252	1.6	/
Right	19100/1900.0	QPSK	0.411	-0.79	1.107	0.234	1.6	/
Bottom	19100/1900.0	QPSK	0.602	-2.42	1.107	0.445	1.6	/
Back Upward	18700/1860.0	QPSK	0.756	0.14	1.186	0.897	1.6	/
Back Upward	18900/1880.0	QPSK	0.685	-1.22	1.117	0.765	1.6	/
100%RB#0								
Front Upward	19100/1900.0	QPSK	0.402	0.26	1.107	0.444	1.6	/
Back Upward	19100/1900.0	QPSK	0.699	-0.77	1.107	0.774	1.6	/
Left	19100/1900.0	QPSK	0.211	-2.06	1.107	0.234	1.6	/
Right	19100/1900.0	QPSK	0.392	-2.41	1.107	0.434	1.6	/
Bottom	19100/1900.0	QPSK	0.578	1.30	1.107	0.640	1.6	/



**Results overview of FDD LTE Band 4, QPSK, 20MHz Bandwidth**

Body(5mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	Limit (W/kg)	SAR Plot.
1RB#0								
Front Upward	20300/1745.0	QPSK	0.423	-0.98	1.361	0.576	1.6	/
Back Upward	20300/1745.0	QPSK	<b>0.921</b>	2.03	1.361	1.253	1.6	/
<b>Back Upward Repeat</b>	<b>20300/1745.0</b>	<b>QPSK</b>	<b>0.927</b>	<b>1.20</b>	<b>1.361</b>	<b>1.262</b>	<b>1.6</b>	<b>2</b>
Left	20300/1745.0	QPSK	0.253	-0.31	1.361	0.344	1.6	/
Right	20300/1745.0	QPSK	0.402	0.50	1.361	0.547	1.6	/
Bottom	20300/1745.0	QPSK	0.578	2.20	1.361	0.787	1.6	/
Back Upward	20050/1720.0	QPSK	0.903	-1.64	1.455	<b>1.314</b>	1.6	/
Back Upward	20175/1732.5	QPSK	0.841	0.29	1.538	1.293	1.6	/
50%RB#50								
Front Upward	20300/1745.0	QPSK	0.410	-0.21	1.400	0.574	1.6	/
Back Upward	20300/1745.0	QPSK	0.861	1.99	1.400	1.205	1.6	/
Left	20300/1745.0	QPSK	0.229	-2.16	1.400	0.321	1.6	/
Right	20300/1745.0	QPSK	0.375	-0.73	1.400	0.525	1.6	/
Bottom	20300/1745.0	QPSK	0.512	0.80	1.400	0.717	1.6	/
Back Upward	20050/1720.0	QPSK	0.891	0.37	1.455	1.296	1.6	/
<b>Back Upward Repeat</b>	<b>20050/1720.0</b>	<b>QPSK</b>	<b>0.882</b>	<b>1.20</b>	<b>1.455</b>	<b>1.283</b>	<b>1.6</b>	<b>/</b>
Back Upward	20175/1732.5	QPSK	0.787	-0.88	1.538	1.210	1.6	/
100%RB#0								
Front Upward	20300/1745.0	QPSK	0.404	1.70	1.419	0.573	1.6	/
Back Upward	20300/1745.0	QPSK	0.865	-1.25	1.419	1.227	1.6	/
<b>Back Upward Repeat</b>	<b>20300/1745.0</b>	<b>QPSK</b>	<b>0.865</b>	<b>-2.01</b>	<b>1.419</b>	<b>1.227</b>	<b>1.6</b>	<b>/</b>
Left	20300/1745.0	QPSK	0.234	1.52	1.419	0.332	1.6	/
Right	20300/1745.0	QPSK	0.369	-0.17	1.419	0.524	1.6	/
Bottom	20300/1745.0	QPSK	0.515	-3.09	1.419	0.731	1.6	/
Back Upward	20050/1720.0	QPSK	0.756	0.38	1.466	1.108	1.6	/
Back Upward	20175/1732.5	QPSK	0.828	-1.24	1.542	1.277	1.6	/
Limb(0mm)	Channel /Frequency	Mode	SAR Value (W/kg)10-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)10-g	Limit (W/kg)	SAR Plot.
1RB#0								
Back Upward	20300/1745.0	QPSK	<b>0.993</b>	-3.55	1.361	<b>1.351</b>	4.0	3
50%RB#50								
Back Upward	20300/1745.0	QPSK	0.910	2.33	1.400	1.274	4.0	/

**Results overview of FDD LTE Band 12, QPSK, 10MHz Bandwidth**

Body(5mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	Limit (W/kg)	SAR Plot.
1RB#0								
Front Upward	23060/704.0	QPSK	0.440	-0.74	1.099	0.484	1.6	/
Back Upward	23060/704.0	QPSK	<b>0.466</b>	1.85	1.099	0.512	1.6	4
Left	23060/704.0	QPSK	0.226	-1.82	1.099	0.248	1.6	/
Right	23060/704.0	QPSK	0.261	-0.79	1.099	0.287	1.6	/
Bottom	23060/704.0	QPSK	0.146	-2.42	1.099	0.160	1.6	/
Back Upward	23095/707.5	QPSK	0.464	2.49	1.178	<b>0.547</b>	1.6	/
Back Upward	23130/711.0	QPSK	0.396	-3.39	1.250	0.495	1.6	/
50%RB#0								
Front Upward	23060/704.0	QPSK	0.382	-0.74	1.125	0.430	1.6	/
Back Upward	23060/704.0	QPSK	0.402	-2.41	1.125	0.452	1.6	/
Left	23060/704.0	QPSK	0.185	-1.21	1.125	0.208	1.6	/
Right	23060/704.0	QPSK	0.201	-0.29	1.125	0.226	1.6	/
Bottom	23060/704.0	QPSK	0.112	-2.41	1.125	0.126	1.6	/

**Results overview of FDD LTE Band 14, QPSK, 10MHz Bandwidth**

Body(5mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	Limit (W/kg)	SAR Plot.
1RB#0								
Front Upward	23330/793.0	QPSK	0.224	1.05	1.143	0.256	1.6	/
Back Upward	23330/793.0	QPSK	<b>0.234</b>	-0.60	1.143	<b>0.267</b>	1.6	5
Left	23330/793.0	QPSK	0.198	1.34	1.143	0.226	1.6	/
Right	23330/793.0	QPSK	0.219	-0.25	1.143	0.250	1.6	/
Bottom	23330/793.0	QPSK	0.162	-2.02	1.143	0.185	1.6	/
50%RB#25								
Front Upward	23330/793.0	QPSK	0.200	-1.69	1.076	0.229	1.6	/
Back Upward	23330/793.0	QPSK	0.218	0.47	1.076	0.249	1.6	/
Left	23330/793.0	QPSK	0.164	-2.61	1.076	0.187	1.6	/
Right	23330/793.0	QPSK	0.185	-3.24	1.076	0.211	1.6	/
Bottom	23330/793.0	QPSK	0.141	-0.18	1.076	0.161	1.6	/



**Results overview of FDD LTE Band 66, QPSK, 20MHz Bandwidth**

Body(5mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	Limit (W/kg)	SAR Plot.
1RB#0								
Front Upward	132572/1770.0	QPSK	0.423	0.96	1.334	0.564	1.6	/
Back Upward	132572/1770.0	QPSK	0.905	-1.70	1.334	1.207	1.6	/
Left	132572/1770.0	QPSK	0.194	0.22	1.334	0.259	1.6	/
Right	132572/1770.0	QPSK	0.348	-2.07	1.334	0.464	1.6	/
Bottom	132572/1770.0	QPSK	0.488	-0.14	1.334	0.651	1.6	/
Back Upward	132072/1720.0	QPSK	0.822	0.82	1.524	1.253	1.6	/
Back Upward	132322/1745.0	QPSK	<b>0.986</b>	-1.11	1.416	1.396	1.6	6
<b>Back Upward Repeat</b>	<b>132322/1745.0</b>	<b>QPSK</b>	<b>0.974</b>	<b>-2.39</b>	<b>1.416</b>	<b>1.379</b>	<b>1.6</b>	/
50%RB#50								
Front Upward	132572/1770.0	QPSK	0.356	-0.94	1.337	0.476	1.6	/
Back Upward	132572/1770.0	QPSK	0.838	1.19	1.337	1.120	1.6	/
<b>Back Upward Repeat</b>	<b>132572/1770.0</b>	<b>QPSK</b>	<b>0.846</b>	<b>0.22</b>	<b>1.337</b>	<b>1.131</b>	<b>1.6</b>	/
Left	132572/1770.0	QPSK	0.151	-2.49	1.337	0.202	1.6	/
Right	132572/1770.0	QPSK	0.281	-0.43	1.337	0.376	1.6	/
Bottom	132572/1770.0	QPSK	0.402	1.46	1.337	0.537	1.6	/
Back Upward	132072/1720.0	QPSK	0.752	0.28	1.493	1.123	1.6	/
Back Upward	132322/1745.0	QPSK	0.801	-1.42	1.452	1.163	1.6	/
100%RB#0								
Front Upward	132572/1770.0	QPSK	0.386	-0.43	1.377	0.532	1.6	/
Back Upward	132572/1770.0	QPSK	0.877	2.45	1.377	1.208	1.6	/
<b>Back Upward Repeat</b>	<b>132572/1770.0</b>	<b>QPSK</b>	<b>0.859</b>	<b>-1.26</b>	<b>1.377</b>	<b>1.183</b>	<b>1.6</b>	/
Left	132572/1770.0	QPSK	0.145	0.48	1.377	0.200	1.6	/
Right	132572/1770.0	QPSK	0.240	-0.52	1.377	0.330	1.6	/
Bottom	132572/1770.0	QPSK	0.376	-2.23	1.377	0.518	1.6	/
Back Upward	132072/1720.0	QPSK	0.771	-3.62	1.552	1.197	1.6	/
Back Upward	132322/1745.0	QPSK	0.850	0.84	1.455	1.237	1.6	/
Limb(0mm)	Channel /Frequency	Mode	SAR Value (W/kg)10-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)10-g	Limit (W/kg)	SAR Plot.
1RB#0								
Back Upward	132572/1770.0	QPSK	<b>0.957</b>	1.92	1.334	<b>1.277</b>	4.0	7
50%RB#50								
Back Upward	132572/1770.0	QPSK	0.812	-2.37	1.337	1.086	4.0	/



Note:

Per KDB941225 D06 v02r01, When the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested. As the manufacture requirement the separation distance use 5mm for Hotspot mode.

Per KDB Publication 941225 D01v03r01. RMC 12.2kbps was as primary mode SAR, when the primary mode SAR less than 1.2W/kg, secondary SAR (HSPA) was not requires.

When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy the following conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- $\leq 0.8$  W/kg, when the transmission band is  $\leq 100$  MHz
- $\leq 0.6$  W/kg, when the transmission band is between 100 MHz and 200 MHz
- $\leq 0.4$  W/kg, when the transmission band is  $\geq 200$  MHz

## 10. Measurement Uncertainty

No.	Uncertainty Component	Type	Uncertainty Value (%)	Probability Distribution	k	ci	Standard Uncertainty (%) $u_i(\%)$	Degree of freedom $\nu_{eff}$ or $\nu_i$
<b>Measurement System</b>								
1	- Probe Calibration	B	5.8	N	1	1	5.8	$\infty$
2	- Axial isotropy	B	3.5	R	$\sqrt{3}$	0.5	1.43	$\infty$
3	- Hemispherical Isotropy	B	5.9	R	$\sqrt{3}$	0.5	2.41	$\infty$
4	- Boundary Effect	B	1	R	$\sqrt{3}$	1	0.58	$\infty$
5	- Linearity	B	4.7	R	$\sqrt{3}$	1	2.71	$\infty$
6	- System Detection Limits	B	1.0	R	$\sqrt{3}$	1	0.58	$\infty$
7	Modulation response	B	3	N	1	1	3.00	
8	- Readout Electronics	B	0.5	N	1	1	0.50	$\infty$
9	- Response Time	B	1.4	R	$\sqrt{3}$	1	0.81	$\infty$
10	- Integration Time	B	3.0	R	$\sqrt{3}$	1	1.73	$\infty$
11	- RF Ambient Conditions	B	3.0	R	$\sqrt{3}$	1	1.73	$\infty$
12	- Probe Position Mechanical tolerance	B	1.4	R	$\sqrt{3}$	1	0.81	$\infty$
13	- Probe Position with respect to Phantom Shell	B	1.4	R	$\sqrt{3}$	1	0.81	$\infty$
14	- Extrapolation, Interpolation and Integration Algorithms for Max. SAR evaluation	B	2.3	R	$\sqrt{3}$	1	1.33	$\infty$
Uncertainties of the DUT								





15	- Position of the DUT	A	2.6	N	$\sqrt{3}$	1	2.6	5
16	- Holder of the DUT	A	3	N	$\sqrt{3}$	1	3.0	5
17	- Output Power Variation – SAR drift measurement	B	5.0	R	$\sqrt{3}$	1	2.89	$\infty$
<b>Phantom and Tissue Parameters</b>								
18	- Phantom Uncertainty(shape and thickness tolerances)	B	4	R	$\sqrt{3}$	1	2.31	$\infty$
19	Uncertainty in SAR correction for deviation(in permittivity and conductivity)	B	2	N	1	1	2.00	
20	- Liquid Conductivity Target – tolerance	B	2.5	R	$\sqrt{3}$	0.6	1.95	$\infty$
21	- Liquid Conductivity – measurement Uncertainty)	B	4	N	$\sqrt{3}$	1	0.92	9
22	- Liquid Permittivity Target tolerance	B	2.5	R	$\sqrt{3}$	0.6	1.95	$\infty$
23	- Liquid Permittivity – measurement uncertainty	B	5	N	$\sqrt{3}$	1	1.15	$\infty$
<b>Combined Standard Uncertainty</b>				RSS			10.63	
<b>Expanded uncertainty</b> (Confidence interval of 95 %)				K=2			21.26	

### System Check Uncertainty

No.	Uncertainty Component	Type	Uncertainty Value (%)	Probability Distribution	k	ci	Standard Uncertainty (%) $u_i(\%)$	Degree of freedom $V_{eff}$ or $v_i$
<b>Measurement System</b>								
1	- Probe Calibration	B	5.8	N	1	1	5.8	$\infty$
2	- Axial isotropy	B	3.5	R	$\sqrt{3}$	0.5	1.43	$\infty$



3	- Hemispherical Isotropy	B	5.9	R	$\sqrt{3}$	0.5	2.41	$\infty$
4	- Boundary Effect	B	1	R	$\sqrt{3}$	1	0.58	$\infty$
5	- Linearity	B	4.7	R	$\sqrt{3}$	1	2.71	$\infty$
6	- System Detection Limits	B	1	R	$\sqrt{3}$	1	0.58	$\infty$
7	Modulation response	B	0	N	1	1	0.00	
8	- Readout Electronics	B	0.5	N	1	1	0.50	$\infty$
9	- Response Time	B	0.00	R	$\sqrt{3}$	1	0.00	$\infty$
10	- Integration Time	B	1.4	R	$\sqrt{3}$	1	0.81	$\infty$
11	- RF Ambient Conditions	B	3.0	R	$\sqrt{3}$	1	1.73	$\infty$
12	- Probe Position Mechanical tolerance	B	1.4	R	$\sqrt{3}$	1	0.81	$\infty$
13	- Probe Position with respect to Phantom Shell	B	1.4	R	$\sqrt{3}$	1	0.81	$\infty$
14	- Extrapolation, Interpolation and Integration Algorithms for Max. SAR evaluation	B	2.3	R	$\sqrt{3}$	1	1.33	$\infty$
<b>Uncertainties of the DUT</b>								
15	Deviation of experimental source from numerical source	A	4	N	1	1	4.00	5
16	Input Power and SAR drift measurement	A	5	R	$\sqrt{3}$	1	2.89	5
17	Dipole Axis to Liquid Distance	B	2	R	$\sqrt{3}$	1	1.2	$\infty$
<b>Phantom and Tissue Parameters</b>								
18	- Phantom Uncertainty(shape	B	4	R	$\sqrt{3}$	1	2.31	$\infty$



	and thickness tolerances)							
19	Uncertainty in SAR correction for deviation(in permittivity and conductivity)	B	2	N	1	1	2.00	
20	- Liquid Conductivity Target – tolerance	B	2.5	R	$\sqrt{3}$	0.6	1.95	$\infty$
21	- Liquid Conductivity – measurement Uncertainty)	B	4	N	$\sqrt{3}$	1	0.92	9
22	- Liquid Permittivity Target tolerance	B	2.5	R	$\sqrt{3}$	0.6	1.95	$\infty$
23	- Liquid Permittivity – measurement uncertainty	B	5	N	$\sqrt{3}$	1	1.15	$\infty$
<b>Combined Standard Uncertainty</b>				RSS			10.15	
<b>Expanded uncertainty</b> (Confidence interval of 95 %)				K=2			20.29	



## 11. Equipment List

This table is a complete overview of the SAR measurement equipment. Devices used during the test described are marked .

	EQUIPMENT	Model	Serial number	Calibration Date	Due Date
<input checked="" type="checkbox"/>	SAR Probe	SSE2	0523-EPGO-403	2023/02/14	2024/02/13
<input checked="" type="checkbox"/>	Dipole	SID750	SN 23/15 DIP0G750-378	2023/05/24	2026/05/23
<input checked="" type="checkbox"/>	Dipole	SID1800	SN 09/13 DIP1G800-216	2023/05/24	2026/05/23
<input checked="" type="checkbox"/>	Dipole	SID1900	SN 09/13 DIP1G900-218	2023/05/24	2026/05/23
<input checked="" type="checkbox"/>	Multimeter	Keithley-2000	4014020	2023/02/20	2024/02/19
<input checked="" type="checkbox"/>	System Simulator(R&S)	CMW500	149332	2022/12/13	2023/12/12
<input checked="" type="checkbox"/>	KEYSIGHT	E7515A	MY56040357	2023/02/20	2024/02/19
<input checked="" type="checkbox"/>	Vector Network Analyzer(R&S)	ZVB8	100343	2023/02/20	2024/02/19
<input checked="" type="checkbox"/>	PC 3.5 Fixed Match Calibration Kit	ZV-Z32	100571	2023/02/20	2024/02/19
<input checked="" type="checkbox"/>	Dielectric Probe Kit	SCLMP	SN 09/13 OCPG51	2023/02/20	2024/02/19
<input checked="" type="checkbox"/>	Signal Generator	SMU100A	177649	2023/02/20	2024/02/19
<input checked="" type="checkbox"/>	Amplifier	Nucletudes	143060	2023/02/20	2024/02/19
<input checked="" type="checkbox"/>	Directional Coupler	DC6180A	305827	2023/06/15	2024/06/14
<input checked="" type="checkbox"/>	Power Meter	NRP2	103434	2023/02/20	2024/02/19



## ANNEX A: Appendix A: SAR System performance Check Plots

(Please See Appendix A)

## ANNEX B: Appendix B: SAR Measurement results Plots

(Please See Appendix B)

## ANNEX C: Appendix C: Calibration reports

(Please See Appendix C)

## ANNEX D: Appendix D: SAR Test Setup

(Please See Appendix D)

—End of the Report—