FCC SAR TEST REPORT

Report No.:	SET2021-17097
Product:	RCP-P1
Model No.:	HSA-20NP-PB, HSA-20NP-PA
FCC ID:	2AHPN-HSA-20NP-PB
IC:	6434C-HSA20NPPB
Applicant:	Harman International Industries Incorporated
Address:	30001 , Cabot Drive, Novi, MI 48377, USA
Issued by:	CCIC Southern Testing Co., Ltd.
Lab Location:	Electronic Testing Building, No. 43 Shahe Road Xili Street, Nanshan District，Shenzhen, Guangdong 518055，China
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Test Report

Product. ……..…..:	RCP-P1
Model No. ……..…..:	HSA-20NP-PB, HSA-20NP-PA
Brand Name……...…..:	Ride Command Plus
FCC ID……...…..:	2AHPN-HSA-20NP-PB
IC……..……:	6434C-HSA20NPPB
Applicant……..:	Harman International Industries Incorporated
Applicant Address……...:	30001 , Cabot Drive, Novi, MI 48377, USA
Manufacturer……..…:	Harman International Industries Incorporated
Manufacturer Address…:	30001 , Cabot Drive, Novi, MI 48377, USA
Test 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) **RSS-102:** Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)(Issue 5 of March 2015) **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 **IEC/IEEE 62209-1528:2020** Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices –Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)
Test Result……:	Pass
Test Date……:	2021.11.20-2021.11.24

Tested by ……..: Xinyuan Fang 2021-12-16

Xinyuan Fang, Test Engineer

Reviewed by……: Chris You 2021-12-16

Chris You, Senior Engineer

Approved by……: Shuangwen Zhang 2021-12-16

Shuangwen Zhang, Manager

Contents

1. Administrative Data

1.1 Testing Laboratory

Test Site:	CCIC Southern Testing Co., Ltd.
Address:	Electronic Testing Building, No. 43 Shahe Road Xili Street, Nanshan District，Shenzhen, Guangdong 518055，China
CNAS Lab Code:	CCIC-SET is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.
A2LA Lab Code:	CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025:2017. The accreditation certificate number is 5721.01.
FCC Registration:	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: CN5031, valid time is until April 19, 2023.
ISED Registration:	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 June 30, 2023.
Test Environment:	Temperature (℃): 22℃
Condition:	Relative Humidity (%): 58%
	Atmospheric Pressure (kPa): 86KPa-106KPa

2. Equipment Under Test (EUT)

Identification of the Equipment under Test

Device Type:	Portable	
Exposure Category:	Population/Uncontrolled	
Sample Name:	RCP-P1	
Brand Name:	Ride Command Plus	
Model Name:	HSA-20NP-PB, HSA-20NP-PA	
General description:	Support Band	WCDMA 850/1700/1900MHz LTE Band 2/4/5/7/12/13/66,WIFI 2.4G
	Test Band	W WCDMA 850/1700/1900MHz LTE Band 2/4/5/7/12/13/66,WIFI 2.4G
	Device Class	Class B
	Development Stage	Identical Prototype
	Accessories	Power Supply
	Antenna type	Internal Antenna
	Operation mode	WCDMA / LTE /WIFI
	Modulation mode	UMTS(QPSK),LTE(QPSK,16QAM,64QAM), WIFI(DSSS,OFDM)
	DTM mode	Not support
	Hardware Version	V1.0
	Software Version	N75NA_POPLS_R6.2.4
	Max. SAR Value	Body: 1.014 W/Kg(Limit:1.6W/Kg, 15mm distance)

NOTE:

a. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description. the device not for typical body use.

EUT testing configuration

Tested frequency range(s)	Transmitter Frequency Range	Receiver Frequency Range
UMTS Band II:	1850-1910 MHz	1930-1990 MHz
UMTS Band IV:	1710-1755 MHz	2110-2155 MHz
UMTS Band V:	824-849 MHz	869-894 MHz
LTE Band2:	1850-1910 MHz	1930-1990 MHz
LTE Band4:	1710-1755 MHz	2110-2155 MHz
LTE Band5:	824-849 MHz	869-894 MHz
LTE Band7:	2500-2570 MHz	2620-2690 MHz
LTE Band12:	699-716 MHz	729-746 MHz
LTE Band13:	777-787 MHz	746-756 MHz
LTE Band66:	1710-1780 MHz	2110-2200 MHz
WIFI:	2412-2462 MHz	
Test channels(low-mid-high):	9262-9400-9538(UMTS Band II)	
	1312-1412-1513(UMTS Band IV)	
	4132-4183-4233(UMTS Band V)	
	18700-18900-19100(LTE Band 2 Bandwidth 20M)	
	20050-20175-20300(LTE Band 4 Bandwidth 20M)	
	20450-20525-20600(LTE Band 5 Bandwidth 10M)	
	20850-21100-21350(LTE Band 7 Bandwidth 20M)	
	23060-23095-23130(LTE Band 12 Bandwidth 10M)	
	23230-23230-23230(LTE Band 13 Bandwidth 10M)	
	132072-132322-132572(LTE Band 66 Bandwidth 20M)	
	1-6-11(Wi-Fi 2.4G 802.11b)	

3. SAR Summary

Highest Standalone SAR Summary

Exposure Position	Frequency Band	Scaled 1g-SAR(W/kg)	Highest Scaled 1g-SAR(W/kg)
Body-Support (15mm Gap)	WCDMA Band II	0.724	1.014
	WCDMA Band IV	0.751	
	WCDMA Band V	0.628	
	LTE Band 2	0.676	
	LTE Band 4	0.832	
	LTE Band 5	0.418	
	LTE Band 7	0.879	
	LTE Band 12	0.867	
	LTE Band 13	1.014	
	LTE Band 66	0.550	
	WIFI2.4G	0.096	

Highest Simultaneous SAR Summary

Exposure Position	Frequency Band	Highest Scaled 1g-SAR(W/kg)
Body-Support (15mmGap)	WWAN(LTE Band13)&WIFI 2.4G	1.059

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 (). The equation description is as below:

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

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

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

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

where C is the specific head capacity, δT is the temperature rise and δt the exposure duration, or related to the electrical field in the tissue by

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

where σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the rms electrical field strength.

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 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

Human Exposure	**Uncontrolled Environment General Population**
Spatial Peak SAR* (Brain/Body)	**1.60 mW/g**
Spatial Average SAR** (Whole Body)	0.08 mW/g
Spatial Peak SAR*** (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 10 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).

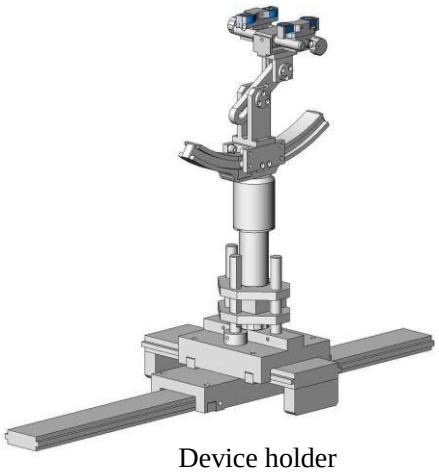
System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles.

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

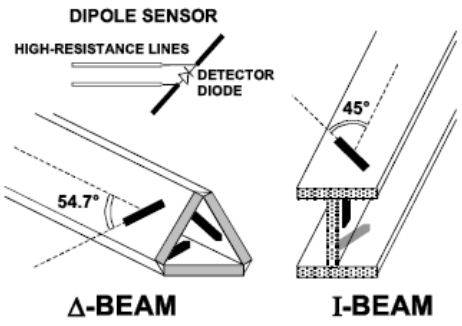
4.5 Probe Specification

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: ±0.5 dB (700 MHz to 3 GHz)
Directivity	±0.25 dB in HSL (rotation around probe axis) ±0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	1.5 μW/g to 100 mW/g; Linearity: ±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 beenincorporated in the following table. These head parameters are derived from planar layer modelssimulating the highest expected SAR for the dielectric properties and tissue thickness Power drifts in ahuman head. Other head and body tissue parameters that have not been specified in P1528 are derivedfrom the tissue dielectric parameters computed from the 4-Cole-Cole equations described inReference [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%			
Sucrese	Sugar, white, refined, 40-60%			
NaCl	Sodium Chloride, 0-6%			
Hydroxyethel-cellulsoe	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-methyyl-3(2H)-isothiazolone, 0.1-0.7%			
Frequency (MHz)	Head εr	Head σ(S/m)	Body εr	Bodyσ(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)	ε_r	ζ(S/m)
150	52.3	0.76
300	45.3	0.87
450	43.5	0.87
835	41.5	0.90
900	41.5	0.97
915	41.5	0.98
1450	40.5	1.20
1610	40.3	1.29
1800-2000	40.0	1.40
2450	39.2	1.80
3000	38.5	2.40
5800	35.3	5.27

5.2 Simulate liquid

Liquid check results:

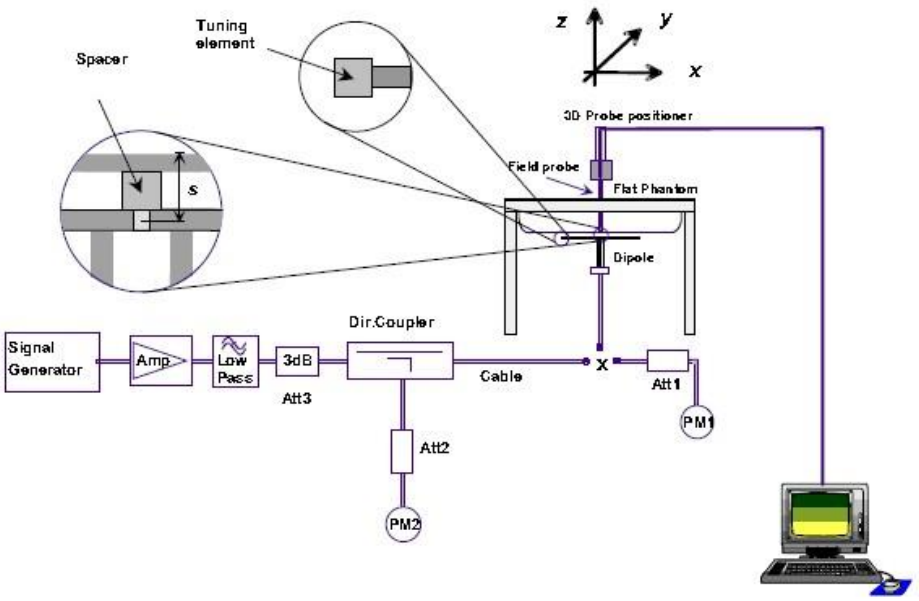
Table 3: Dielectric Performance of Tissue Simulating Liquid

/	Frequency	Permittivity ε	Conductivity σ (S/m)	Liquid Temp. (℃)	Test Date
Target value	750MHz	41.9±5% (39.805~43.995)	0.89±5% (0.8455~0.9345)	22.9	2021/11/20
Validation value		42.90	0.90		
Target value	835MHz	41.5±5% (39.425~43.575)	0.90±5% (0.855~0.945)	23.1	2021/11/21
Validation value		42.04	0.92		
Target value	1800MHz	40.0±5% (38.0~42.0)	1.40±5% (1.33~1.47)	22.7	2021/11/22
Validation value		39.62	1.40		
Target value	1900MHz	40.0±5% (38.0~42.0)	1.40±5% (1.33~1.47)	22.9	2021/11/23
Validation value		39.04	1.43		
Target value	2450MHz	39.2±5% (37.24~41.16)	1.80±5% (1.71~1.89)	22.6	2021/11/24
Validation value		38.73	1.81		
Target value	2600MHz	39.0±5% (37.05~40.95)	1.96±5% (1.862~2.058)	22.6	2021/11/24
Validation value		38.02	1.94		

SAR System validation

Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of ±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 humidity and ambient temperature of test facility were 64% and 23.2℃ respectively. 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: Head SAR system validation (1g)

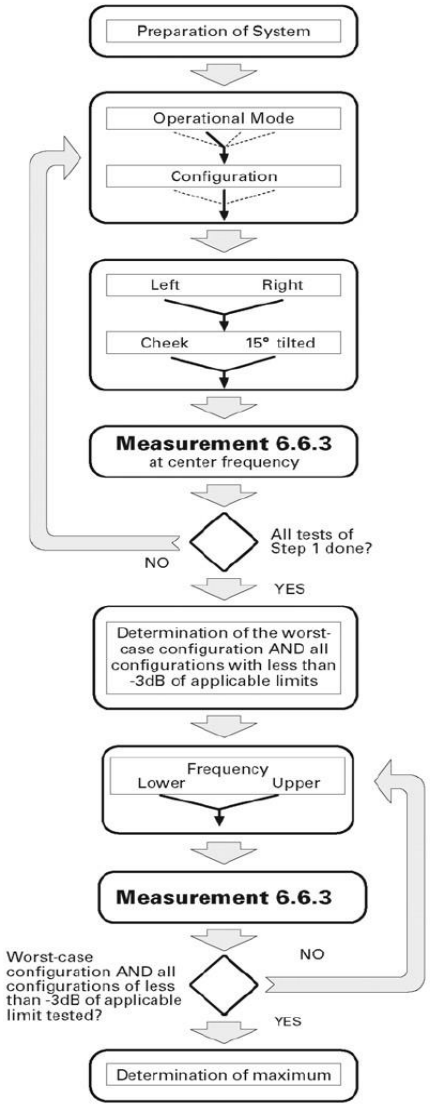
Frequency	Duty cycle	Target value（1-g）(W/Kg)	Test value（1-g）(W/Kg)	Test SAR Normalized to 1W(w/Kg)	Test Date
750MHz	1:1	8.73 W/kg±10% (7.857~9.603)	0.0861	8.61	2021/11/20
835MHz	1:1	9.69 W/kg±10% (8.721~10.659)	0.0985	9.85	2021/11/21
1800MHz	1:1	37.25 W/kg±10% (33.525~40.975)	0.3795	37.95	2021/11/22
1900MHz	1:1	39.71 W/kg±10% (35.739~43.681)	0.4061	40.61	2021/11/23
2450MHz	1:1	53.71 W/kg±10% (48.339~59.081)	0.5392	53.92	2021/11/24
2600MHz	1:1	56.47 W/kg±10% (51.823~62.117)	0.5716	57.16	2021/11/24

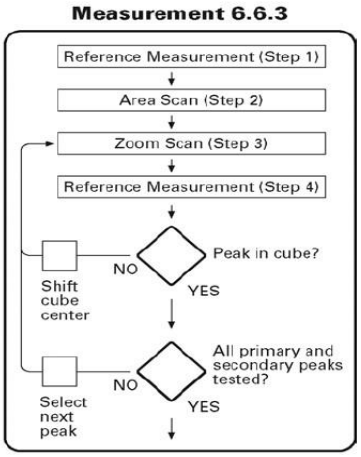
* Note: Target value was referring to the measured value in the calibration certificate of reference dipole.

Note: 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 IEEEp1528 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 WCDMA Conducted output Power

UMTS1900 (Band II)		Average Power (dBm)		
		9262CH	9400CH	9538cH
WCDMA	12.2kbps RMC	22.31	22.11	22.23
HSDPA	Subtest 1	21.27	21.38	21.32
	Subtest 2	21.26	21.38	21.27
	Subtest 3	20.84	20.89	20.84
	Subtest 4	20.83	20.88	20.84
HSUPA	Subtest 1	21.22	21.44	21.11
	Subtest 2	20.26	20.07	20.29
	Subtest 3	20.55	20.17	20.51
	Subtest 4	20.41	20.82	20.77
	Subtest 5	21.40	21.50	21.50
UMTS1700 (Band IV)		Average Power (dBm)		
		1313CH	1413CH	1513CH
WCDMA	12.2kbps RMC	21.80	21.70	21.95
HSDPA	Subtest 1	20.76	20.87	20.93
	Subtest 2	20.91	20.89	20.94
	Subtest 3	20.45	20.42	20.48
	Subtest 4	20.45	20.42	20.48
HSUPA	Subtest 1	20.56	20.63	20.61
	Subtest 2	20.14	20.17	19.85
	Subtest 3	19.72	19.78	19.59
	Subtest 4	19.98	20.34	19.85
	Subtest 5	21.10	21.20	20.90
UMTS850 (Band V)		Average Power (dBm)		
		4132CH	4183CH	4233CH
WCDMA	12.2kbps RMC	21.76	21.87	21.75
HSDPA	Subtest 1	20.66	20.84	20.78
	Subtest 2	20.75	20.86	20.49
	Subtest 3	20.31	20.39	20.31
	Subtest 4	20.32	20.39	20.32
HSUPA	Subtest 1	20.30	20.81	20.38
	Subtest 2	19.29	19.84	19.80
	Subtest 3	19.37	19.38	19.43
	Subtest 4	19.89	20.04	19.71
	Subtest 5	20.60	20.80	20.80

Note:

1. WCDMA SAR was tested under RMC 12.2kbps with HSPA Inactive per KDB Publication 941225 D01v03r01.HSPA SAR was not requires since the average output power of the HSPA subtests was not more than 0.25dB higher than the RMC level and SAR was less than 1.2W/kg.
2. It is expected by the manufacturer that MPR for some HSPA subtests may be up to 2dB more than specified by 3GPP, but also as low as 0dB according to the chipset implementation in this model

7.2 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 bandwidthstandalone SARtestrequirements

i)QPSK with 1RBallocation

StartwiththelargestchannelbandwidthandmeasureSARfor QPSKwith1RBallocation,usingtheRBoffsetandrequiredtestchannelcombinationwiththehighestmaximumoutputpowerforRB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8W/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.

LTE Band 2 Conducted Power Test Verdict:

LTE FDD Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18607/1850.7	18900/1880	19193/1909.3	
1.4MHz	QPSK	1	0	21.62	21.81	21.78	21.0±1.0
		1	3	21.71	21.87	21.82	
		1	5	21.72	21.67	21.79	
		3	0	21.75	21.83	21.76	21.0±1.0
		3	2	21.83	21.85	21.74	
		3	3	21.84	21.79	21.90	
		6	0	20.76	20.71	20.78	20.0±1.0
	16QAM	1	0	20.62	20.39	20.89	20.5±1.0
		1	3	20.65	21.02	20.76	
		1	5	20.42	20.53	20.67	
		3	0	20.73	20.76	20.68	20.0±1.0
		3	2	20.71	20.91	20.91	
		3	3	20.89	20.77	20.76	
		6	0	19.73	19.82	19.92	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18615/1851.5	18900/1880	19185/1908.5	
3MHz	QPSK	1	0	21.53	21.53	21.82	21.0±1.0
		1	7	21.67	21.70	21.87	
		1	14	21.87	21.77	21.73	
		8	0	20.78	20.77	20.86	20.0±1.0
		8	4	20.79	20.88	20.85	
		8	7	20.80	20.82	20.91	
		15	0	20.75	20.89	20.80	20.0±1.0
	16QAM	1	0	20.59	20.85	21.04	20.5±1.0
		1	7	20.71	21.26	21.14	
		1	14	20.60	21.15	20.50	
		8	0	19.71	20.01	19.88	19.5±1.0
		8	4	19.88	19.83	20.06	
		8	7	19.84	20.03	19.88	
		15	0	19.83	19.76	19.74	19.0±1.0

LTE FDD Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18625/1852.5	18900/1880	19175/1907.5	
5MHz	QPSK	1	0	21.66	21.49	21.66	21.0±1.0
		1	13	21.86	21.86	21.87	
		1	24	21.87	21.89	21.65	
		12	0	20.83	20.87	20.89	20.0±1.0
		12	6	20.89	20.85	20.93	
		12	13	20.82	20.83	20.82	
		25	0	20.81	20.82	20.85	20.0±1.0
	16QAM	1	0	20.82	20.88	20.62	20.5±1.0
		1	13	21.03	21.45	20.79	
		1	24	20.42	21.03	20.62	
		12	0	19.73	19.76	19.88	19.0±1.0
		12	6	19.68	19.76	19.77	
		12	13	19.82	19.87	19.92	
		25	0	19.87	19.78	19.87	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18650/1855	18900/1880	19150/1905	
10MHz	QPSK	1	0	21.41	21.48	21.56	21.5±1.0
		1	25	21.91	21.85	22.19	
		1	49	21.56	21.47	21.48	
		25	0	20.59	20.66	20.79	20.0±1.0
		25	13	20.58	20.69	20.73	
		25	25	20.57	20.79	20.68	
		50	0	20.59	20.65	20.73	20.0±1.0
	16QAM	1	0	20.38	20.82	20.96	20.0±1.0
		1	25	20.54	20.61	20.73	
		1	49	20.89	20.94	20.61	
		25	0	19.80	19.76	19.97	19.0±1.0
		25	13	19.60	19.75	19.98	
		25	25	19.48	19.78	19.91	
		50	0	19.61	19.79	19.88	19.0±1.0

LTE FDD Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18675/1857.5	18900/1880	19125/1902.5	
15MHz	QPSK	1	0	21.79	21.66	21.64	21.5±1.0
		1	38	22.10	22.13	22.14	
		1	74	21.82	21.95	21.77	
		36	0	20.79	20.87	21.06	20.5±1.0
		36	18	20.85	20.95	20.97	
		36	39	20.79	20.97	21.00	
		75	0	20.78	20.91	20.96	20.0±1.0
	16QAM	1	0	20.71	20.66	20.95	21.0±1.0
		1	38	21.65	21.43	20.82	
		1	74	20.49	20.69	20.66	
		36	0	19.86	19.87	20.10	19.5±1.0
		36	18	19.96	19.86	19.98	
		36	39	19.82	19.99	19.87	
		75	0	19.79	19.93	19.88	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				18700/1860	18900/1880	19100/1900	
20MHz	QPSK	1	0	21.60	21.58	21.78	21.5±1.0
		1	50	21.89	22.27	21.98	
		1	99	21.37	21.88	21.60	
		50	0	20.78	20.89	20.83	20.0±1.0
		50	25	20.69	20.88	20.98	
		50	50	20.79	20.90	20.84	
		100	0	20.83	20.87	20.98	21.0±1.0
	16QAM	1	0	20.68	20.83	20.83	20.0±1.0
		1	50	20.81	20.84	20.90	
		1	99	20.55	20.72	20.69	
		50	0	19.83	20.01	20.03	19.5±1.0
		50	25	19.93	19.80	20.10	
		50	50	19.82	20.01	19.97	
		100	0	19.82	19.88	20.01	19.5±1.0

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	21.56	21.45	21.62	21.0±1.0
		1	3	21.65	21.66	21.67	
		1	5	21.42	21.67	21.67	
		3	0	21.02	21.12	21.15	20.5±1.0
		3	2	21.08	21.04	21.26	
		3	3	21.04	21.04	21.23	
		6	0	21.05	21.00	21.12	20.5±1.0
	16QAM	1	0	21.08	20.70	21.20	20.5±1.0
		1	3	21.21	21.10	21.13	
		1	5	21.02	20.66	20.78	
		3	0	20.12	20.11	20.07	19.5±1.0
		3	2	20.21	20.31	20.16	
		3	3	20.11	20.29	20.18	
		6	0	20.14	20.05	20.24	19.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				19965/1711.5	20175/1732.5	20385/1753.5	
3MHz	QPSK	1	0	21.66	21.56	21.65	21.0±1.0
		1	7	21.65	21.68	21.69	
		1	14	21.63	21.51	21.60	
		8	0	20.71	20.68	20.71	20.0±1.0
		8	4	20.72	20.71	20.74	
		8	7	20.64	20.70	20.61	
		15	0	20.66	20.69	20.71	20.0±1.0
	16QAM	1	0	20.86	21.05	20.79	20.5±1.0
		1	7	20.87	20.78	20.51	
		1	14	20.68	20.67	20.50	
		8	0	19.78	19.67	19.67	19.0±1.0
		8	4	19.54	19.71	19.71	
		8	7	19.74	19.72	19.85	
		15	0	19.42	19.52	19.62	19.0±1.0

LTE FDD Band 4				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				19975/1712.5	20175/1732.5	20375/1752.5	
5MHz	QPSK	1	0	21.52	21.41	21.68	21.0±1.0
		1	13	21.61	21.62	21.63	
		1	24	21.38	21.63	21.63	
		12	0	20.67	20.64	20.80	20.0±1.0
		12	6	20.73	20.69	20.91	
		12	13	20.69	20.69	20.88	
		25	0	20.70	20.65	20.77	20.0±1.0
	16QAM	1	0	20.73	20.35	20.85	20.0±1.0
		1	13	20.86	20.75	20.78	
		1	24	20.67	20.31	20.43	
		12	0	19.60	19.76	19.72	19.0±1.0
		12	6	19.63	19.96	19.81	
		12	13	19.63	19.94	19.83	
		25	0	19.79	19.70	19.89	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20000/1715	20175/1732.5	20350/1750	
10MHz	QPSK	1	0	21.58	21.38	21.62	21.0±1.0
		1	25	21.63	21.68	21.63	
		1	49	21.34	21.55	21.58	
		25	0	20.80	20.72	20.85	20.0±1.0
		25	13	20.69	20.67	20.92	
		25	25	20.65	20.64	20.78	
		50	0	20.78	20.73	20.87	20.0±1.0
	16QAM	1	0	20.48	20.53	20.77	20.0±1.0
		1	25	20.34	20.74	20.71	
		1	49	20.78	20.31	20.53	
		25	0	19.80	19.69	20.06	19.5±1.0
		25	13	19.71	19.66	20.17	
		25	25	19.62	19.98	19.92	
		50	0	19.66	19.79	19.91	19.0±1.0

LTE FDD Band 4				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20025/1717.5	20175/1732.5	20325/1747.5	
15MHz	QPSK	1	0	21.69	21.49	21.67	21.0±1.0
		1	38	21.67	21.61	21.69	
		1	74	21.60	21.45	21.69	
		36	0	20.71	20.79	20.83	20.0±1.0
		36	18	20.79	20.72	20.86	
		36	39	20.68	20.58	20.81	
		75	0	20.72	20.69	20.84	20.0±1.0
	16QAM	1	0	20.54	20.33	20.51	20.0±1.0
		1	38	20.79	20.26	20.65	
		1	74	20.39	20.47	20.22	
		36	0	19.83	19.63	19.88	19.0±1.0
		36	18	19.78	19.71	19.93	
		36	39	19.69	19.59	19.90	
		75	0	19.74	19.73	19.82	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20050/1720	20175/1732.5	20300/1745	
20MHz	QPSK	1	0	21.64	21.66	21.64	21.0±1.0
		1	50	21.62	21.73	21.62	
		1	99	21.63	21.65	21.47	
		50	0	21.03	20.91	21.07	20.5±1.0
		50	25	20.95	20.90	21.00	
		50	50	20.91	20.74	21.02	
		100	0	20.98	20.93	21.05	20.5±1.0
	16QAM	1	0	20.78	20.80	20.84	20.0±1.0
		1	50	20.76	20.70	20.83	
		1	99	20.60	20.56	20.69	
		50	0	20.05	20.04	20.09	19.5±1.0
		50	25	20.07	20.01	19.96	
		50	50	20.03	20.01	20.09	
		100	0	20.00	19.95	19.90	19.5±1.0

LTE Band 5 Conducted Power Test Verdict:

LTE FDD Band 5				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20407/824.7	20525/836.5	20643/848.3	
1.4MHz	QPSK	1	0	21.55	21.97	21.75	21.0±1.0
		1	3	21.57	21.85	21.82	
		1	5	21.51	21.60	21.40	
		3	0	20.78	20.89	20.70	20.0±1.0
		3	2	20.73	20.86	20.74	
		3	3	20.75	20.66	20.58	
		6	0	20.68	20.68	20.63	20.0±1.0
	16QAM	1	0	20.58	20.76	20.31	20.5±1.0
		1	3	21.11	20.49	20.99	
		1	5	20.87	20.41	20.55	
		3	0	19.50	19.77	19.81	19.0±1.0
		3	2	19.60	19.50	19.77	
		3	3	19.53	19.68	19.70	
		6	0	19.53	19.65	19.69	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20415/825.5	20525/836.5	20635/847.5	
3MHz	QPSK	1	0	21.60	22.02	21.80	21.5±1.0
		1	7	21.62	21.90	21.87	
		1	14	21.56	21.65	21.45	
		8	0	20.83	20.94	20.75	20.0±1.0
		8	4	20.78	20.91	20.79	
		8	7	20.80	20.71	20.63	
		15	0	20.73	20.73	20.68	20.0±1.0
	16QAM	1	0	20.63	20.81	20.36	20.5±1.0
		1	7	21.16	20.54	21.04	
		1	14	20.92	20.46	20.60	
		8	0	19.55	19.82	19.86	19.0±1.0
		8	4	19.65	19.54	19.82	
		8	7	19.58	19.73	19.75	
		15	0	19.58	19.70	19.74	19.0±1.0

LTE FDD Band 5				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20425/826.5	20525/836.5	20625/846.5	
5MHz	QPSK	1	0	21.44	21.69	21.54	21.0±1.0
		1	13	21.75	21.84	21.97	
		1	24	21.43	21.23	21.42	
		12	0	20.73	20.70	20.74	20.0±1.0
		12	6	20.78	20.70	20.77	
		12	13	20.79	20.65	20.76	
		25	0	20.74	20.73	20.72	20.0±1.0
	16QAM	1	0	20.53	20.52	20.44	20.0±1.0
		1	13	20.58	20.58	20.51	
		1	24	20.51	20.55	20.19	
		12	0	19.43	19.62	19.55	19.0±1.0
		12	6	19.77	19.56	19.77	
		12	13	19.75	19.85	19.73	
		25	0	19.58	19.78	19.72	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20450/829.0	20525/836.5	20600/844.0	
10MHz	QPSK	1	0	21.44	21.21	21.43	21.0±1.0
		1	25	21.81	22.03	21.91	
		1	49	21.89	21.42	21.45	
		25	0	20.69	20.73	20.66	20.0±1.0
		25	13	20.69	20.68	20.69	
		25	25	20.74	20.68	20.72	
		50	0	20.73	20.68	20.70	20.0±1.0
	16QAM	1	0	20.44	20.44	20.63	20.0±1.0
		1	25	20.68	20.70	20.68	
		1	49	20.58	20.32	20.64	
		25	0	19.55	19.88	20.00	19.5±1.0
		25	13	19.85	19.79	19.77	
		25	25	19.79	19.62	19.76	
		50	0	19.61	19.72	19.59	19.0±1.0

LTE Band 7 Conducted Power Test Verdict:

LTE FDD Band 7				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	21.41	21.55	21.46	21.0±1.0
		1	13	21.80	21.67	21.92	
		1	24	21.51	21.49	21.52	
		12	0	20.75	20.74	20.99	20.0±1.0
		12	6	20.80	20.73	20.99	
		12	13	20.69	20.71	20.87	
		25	0	20.58	20.75	20.87	20.0±1.0
	16QAM	1	0	20.64	20.65	20.60	20.0±1.0
		1	13	20.25	20.28	20.93	
		1	24	20.00	20.80	20.96	
		12	0	19.65	19.71	19.89	19.5±1.0
		12	6	19.66	19.64	20.04	
		12	13	19.55	19.71	20.13	
		25	0	19.55	19.65	19.62	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	21.40	21.50	21.40	21.5±1.0
		1	25	21.51	21.90	22.14	
		1	49	21.24	21.24	21.45	
		25	0	20.70	20.73	20.87	20.0±1.0
		25	13	20.45	20.77	20.84	
		25	25	20.53	20.65	20.84	
		50	0	20.57	20.71	20.96	20.0±1.0
	16QAM	1	0	20.16	20.72	20.62	20.0±1.0
		1	25	20.58	20.91	20.78	
		1	49	20.34	20.31	20.45	
		25	0	19.58	19.53	19.97	19.5±1.0
		25	13	19.71	19.57	20.14	
		25	25	19.60	19.61	20.10	
		50	0	19.64	19.47	19.84	19.0±1.0

LTE FDD Band 7				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20825/2507.5	21100/2535	21375/2562.5	
15MHz	QPSK	1	0	21.29	21.59	21.55	21.5±1.0
		1	38	21.67	22.11	22.14	
		1	74	21.58	21.41	21.78	
		36	0	20.66	20.66	20.86	20.0±1.0
		36	18	20.66	20.66	20.82	
		36	39	20.65	20.69	20.91	
		75	0	20.70	20.68	20.79	20.0±1.0
	16QAM	1	0	20.60	20.41	20.41	20.5±1.0
		1	38	20.33	21.27	21.39	
		1	74	20.67	20.32	20.37	
		36	0	19.58	19.48	19.81	19.0±1.0
		36	18	19.72	19.53	19.81	
		36	39	19.48	19.56	19.75	
		75	0	19.63	19.68	19.79	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				20850/2510	21100/2535	21350/2560	
20MHz	QPSK	1	0	21.24	21.22	21.23	21.5±1.0
		1	50	21.59	21.87	22.18	
		1	99	21.26	21.22	21.74	
		50	0	20.64	20.66	20.75	20.0±1.0
		50	25	20.64	20.70	20.84	
		50	50	20.54	20.68	20.85	
		100	0	20.51	20.71	20.90	20.0±1.0
	16QAM	1	0	20.27	20.18	20.00	20.0±1.0
		1	50	20.51	20.46	20.73	
		1	99	20.36	20.29	20.61	
		50	0	19.59	19.55	19.74	19.0±1.0
		50	25	19.59	19.68	19.92	
		50	50	19.49	19.66	19.85	
		100	0	19.46	19.55	19.78	19.0±1.0

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	21.14	21.60	21.29	21.0±1.0
		1	3	21.85	21.74	21.94	
		1	5	21.78	21.21	21.40	
		3	0	20.41	20.52	20.46	20.0±1.0
		3	2	20.55	20.41	20.51	
		3	3	20.56	20.44	20.48	
		6	0	20.53	20.43	20.40	20.0±1.0
	16QAM	1	0	20.13	20.19	20.43	19.5±1.0
		1	3	20.10	19.80	20.26	
		1	5	20.08	20.11	20.40	
		3	0	19.56	19.40	19.67	19.0±1.0
		3	2	19.70	19.52	19.60	
		3	3	19.76	19.46	19.65	
		6	0	19.66	19.53	19.50	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				23025/700.5	23095/707.5	23165/714.5	
3MHz	QPSK	1	0	21.21	21.48	21.31	21.0±1.0
		1	7	21.96	21.68	21.30	
		1	14	21.63	21.08	21.42	
		8	0	20.41	20.46	20.32	20.0±1.0
		8	4	20.55	20.48	20.26	
		8	7	20.44	20.37	20.29	
		15	0	20.45	20.48	20.31	19.5±1.0
	16QAM	1	0	20.11	20.67	20.66	20.0±1.0
		1	7	20.37	20.32	20.81	
		1	14	20.68	20.28	20.17	
		8	0	19.37	19.52	19.28	19.0±1.0
		8	4	19.73	19.24	19.47	
		8	7	19.66	19.17	19.37	
		15	0	19.52	19.50	19.35	19.0±1.0

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	21.18	21.64	21.33	21.0±1.0
		1	13	21.89	21.78	21.98	
		1	24	21.82	21.25	21.44	
		12	0	20.45	20.56	20.50	20.0±1.0
		12	6	20.59	20.45	20.55	
		12	13	20.60	20.48	20.52	
		25	0	20.57	20.47	20.44	20.0±1.0
	16QAM	1	0	20.17	20.23	20.47	19.5±1.0
		1	13	20.14	19.84	20.30	
		1	24	20.12	20.15	20.44	
		12	0	19.60	19.44	19.71	19.0±1.0
		12	6	19.74	19.42	19.64	
		12	13	19.80	19.50	19.69	
		25	0	19.70	19.57	19.54	19.0±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				23060/704	23095/707.5	23130/711	
10MHz	QPSK	1	0	21.58	21.57	21.65	21.5±1.0
		1	25	22.06	21.30	21.57	
		1	49	21.18	21.44	21.44	
		25	0	20.56	20.52	20.46	20.0±1.0
		25	13	20.55	20.52	20.62	
		25	25	20.47	20.40	20.55	
		50	0	20.65	20.55	20.64	20.0±1.0
	16QAM	1	0	20.33	20.39	20.82	20.0±1.0
		1	25	20.52	20.41	20.84	
		1	49	20.28	20.35	20.35	
		25	0	19.56	19.65	19.55	19.0±1.0
		25	13	19.86	19.71	19.71	
		25	25	19.56	19.58	19.56	
		50	0	19.77	19.54	19.81	19.0±1.0

LTE Band 13 Conducted Power Test Verdict:

LTE FDD Band 13				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				23205/779.5	23230/782.0	23255/784.5	
5MHz	QPSK	1	0	21.95	21.54	21.68	21.0±1.0
		1	12	21.92	21.91	21.94	
		1	24	21.72	21.75	21.66	
		12	0	21.11	21.04	21.19	20.5±1.0
		12	6	21.09	21.15	21.10	
		12	11	20.94	21.06	21.06	
		25	0	21.09	21.10	21.14	20.5±1.0
	16QAM	1	0	20.99	20.88	20.89	20.5±1.0
		1	12	20.87	21.22	21.08	
		1	24	20.87	20.83	20.81	
		12	0	19.95	19.96	20.24	19.5±1.0
		12	6	20.10	20.16	20.14	
		12	11	20.21	20.11	19.94	
		25	0	20.08	20.13	20.11	19.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				/	23230/782.0	/	
10MHz	QPSK	1	0	/	21.82	/	21.0±1.0
		1	24	/	21.97	/	
		1	49	/	21.77	/	
		25	0	/	21.04	/	20.5±1.0
		25	12	/	21.13	/	
		25	24	/	21.06	/	
		50	0	/	21.10	/	20.5±1.0
	16QAM	1	0	/	20.90	/	20.5±1.0
		1	24	/	21.11	/	
		1	49	/	20.77	/	
		25	0	/	20.06	/	19.5±1.0
		25	12	/	20.23	/	
		25	24	/	20.27	/	
		50	0	/	20.03	/	19.5±1.0

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	132665/1779.3	
1.4MHz	QPSK	1	0	20.86	21.11	20.98	20.5±1.0
		1	2	21.08	21.40	21.08	
		1	5	21.14	20.87	20.58	
		3	0	20.13	20.43	20.19	19.5±1.0
		3	1	20.13	20.30	20.18	
		3	2	20.08	20.18	20.13	
		6	0	20.12	20.35	20.13	19.5±1.0
	16QAM	1	0	20.20	20.14	20.34	19.5±1.0
		1	2	20.03	20.43	19.99	
		1	5	19.68	19.83	19.56	
		3	0	19.23	19.33	19.07	18.5±1.0
		3	1	19.24	19.40	19.00	
		3	2	19.11	19.18	19.08	
		6	0	19.03	19.40	19.22	18.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				131987/1711.5	132322/1745	132657/1778.5	
3MHz	QPSK	1	0	21.01	21.14	20.98	20.5±1.0
		1	7	20.88	21.20	21.23	
		1	14	20.93	20.93	20.83	
		8	0	20.07	20.16	20.09	19.5±1.0
		8	4	19.96	20.18	20.20	
		8	7	19.91	20.21	20.08	
		15	0	19.92	20.15	20.09	19.5±1.0
	16QAM	1	0	19.79	20.33	20.47	19.5±1.0
		1	7	19.93	20.39	19.63	
		1	14	19.67	20.10	19.92	
		8	0	19.12	19.07	19.08	18.5±1.0
		8	4	19.09	19.15	19.10	
		8	7	19.00	19.30	19.19	
		15	0	18.84	19.25	18.76	18.5±1.0

LTE FDD Band 66				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				131997/1712.5	132322/1745	132647/1777.5	
5MHz	QPSK	1	0	21.02	21.22	20.97	20.5±1.0
		1	12	21.04	21.17	21.08	
		1	24	20.56	20.90	20.58	
		12	0	20.00	20.25	20.20	19.5±1.0
		12	6	19.98	20.25	20.09	
		12	11	19.94	20.11	20.08	
		25	0	19.96	20.20	20.06	19.5±1.0
	16QAM	1	0	19.31	19.84	19.84	19.5±1.0
		1	12	19.65	20.02	19.78	
		1	24	19.29	20.24	19.75	
		12	0	19.02	19.17	19.07	18.5±1.0
		12	6	18.98	19.14	18.91	
		12	11	18.78	19.14	19.09	
		25	0	18.86	19.24	19.09	18.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				132022/1715	132322/1745	132622/1775	
10MHz	QPSK	1	0	20.80	21.05	20.92	20.5±1.0
		1	24	21.02	21.34	21.02	
		1	49	21.08	20.81	20.52	
		25	0	20.07	20.37	20.13	19.5±1.0
		25	12	20.07	20.24	20.12	
		25	24	20.02	20.12	20.07	
		50	0	20.06	20.29	20.07	19.5±1.0
	16QAM	1	0	20.14	20.08	20.28	19.5±1.0
		1	24	19.97	20.37	19.93	
		1	49	19.62	19.77	19.50	
		25	0	19.17	19.27	19.01	18.5±1.0
		25	12	19.18	19.34	18.94	
		25	24	19.05	19.12	19.02	
		50	0	18.97	19.34	19.16	18.5±1.0

LTE FDD Band 66				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				132047/1717.5	132322/1745	132597/1772.5	
15MHz	QPSK	1	0	20.80	21.12	20.97	20.5±1.0
		1	37	20.89	21.44	21.39	
		1	74	20.92	21.01	20.90	
		36	0	19.97	20.34	20.16	19.5±1.0
		36	16	19.90	20.26	20.17	
		36	35	19.89	20.12	20.03	
		75	0	20.01	20.12	20.13	19.5±1.0
	16QAM	1	0	19.48	20.34	19.79	19.5±1.0
		1	37	19.83	19.87	20.49	
		1	74	19.56	19.79	20.01	
		36	0	19.05	19.24	19.08	18.5±1.0
		36	16	19.01	19.19	19.09	
		36	35	18.88	19.15	19.02	
		75	0	19.04	19.13	19.02	18.5±1.0
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency			Tune up
				132072/1720	132322/1745	132572/1770	
20MHz	QPSK	1	0	20.88	21.28	20.87	21.0±1.0
		1	49	20.98	21.74	21.43	
		1	99	20.66	20.82	20.68	
		50	0	19.97	20.32	20.20	19.5±1.0
		50	24	20.10	20.32	20.08	
		50	49	20.04	20.14	20.07	
		100	0	20.08	20.31	20.07	19.5±1.0
	16QAM	1	0	19.81	20.09	19.89	19.5±1.0
		1	49	19.92	20.08	20.01	
		1	99	19.81	19.73	19.75	
		50	0	19.05	19.35	19.22	18.5±1.0
		50	24	19.12	19.25	19.07	
		50	49	19.03	19.28	19.10	
		100	0	19.09	19.26	19.03	18.5±1.0

7.3 WIFI Conducted Power

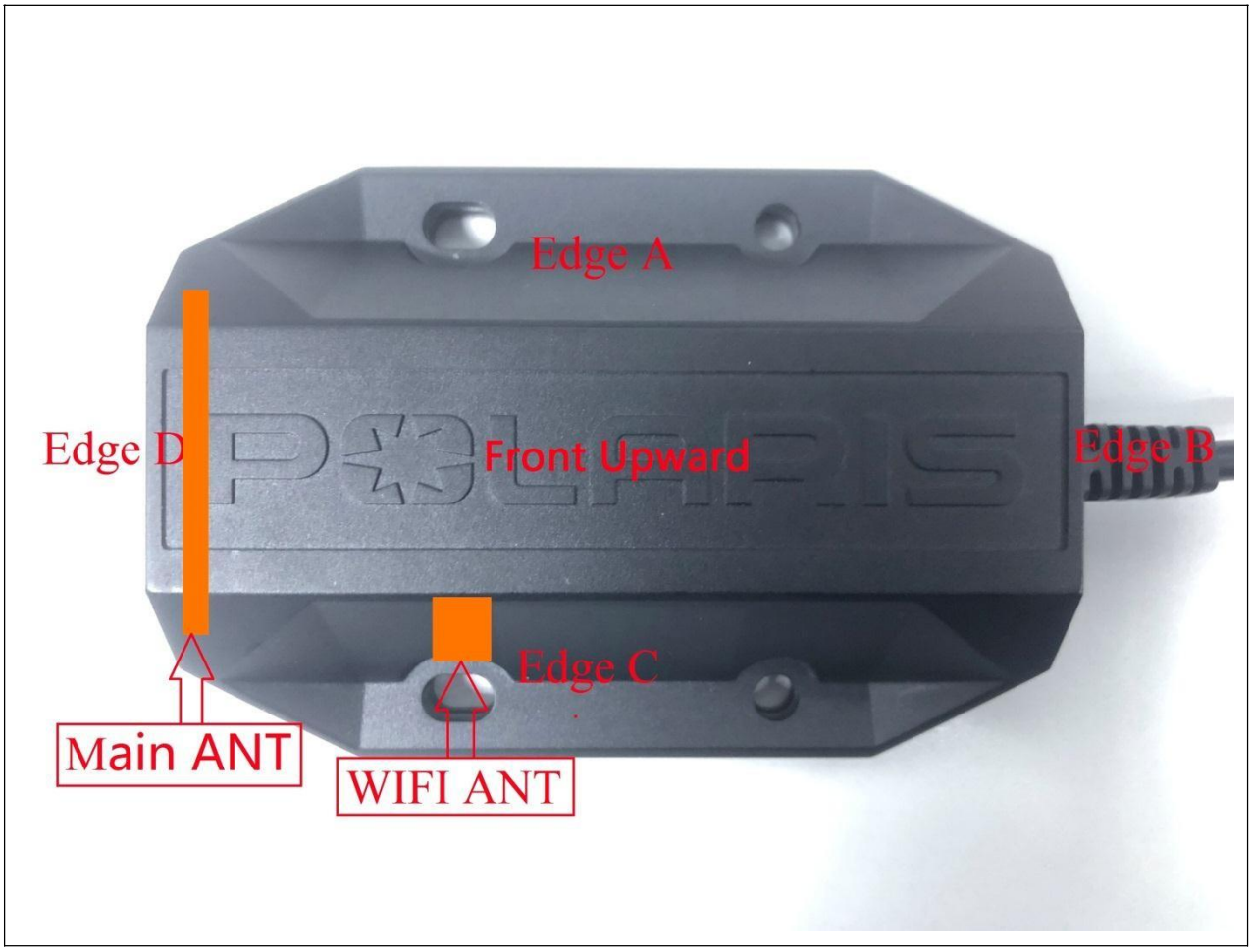
WLAN 2.4GHz Band Conducted Power

Channel/Freq.(MHz)	Maximum Conducted Out Power (dBm)		
	802.11b	802.11g	802.11n(HT20)
1(2412)	14.79	13.04	11.54
6(2437)	14.89	13.04	11.61
11(2462)	14.91	12.97	11.60

Note:

1. Per KDB248227 D01 v02r02, choose the highest output power channel to test SAR and determine further SAR exclusion
2. 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 these configurations is less than 1/4dB higher than those measured at lowest data rate
3. Per KDB248227 D01 v02r02, 802.11g /11n-HT20/11n-HT40 is not required.. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤1.2W/Kg. Thus the SAR can be excluded.

8. Antenna Location:



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

Antenna	Front	Back	Edge A	Edge B	Edge C	Edge D
WWAN Main Antenna	< 25	< 25	< 25	112	< 25	< 25
WIFI/BT	< 25	< 25	55	81	< 25	32

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

Antenna	Front	Back	Edge A	Edge B	Edge C	Edge D
WWAN Antenna Body-worn	Yes	Yes	Yes	No	Yes	Yes
WIFI Antenna Body-worn	Yes	Yes	No	No	Yes	No

Note: According to KDB 941225 D06 v02r01, when antenna-to-edge>2.5cm, SAR is not required.

9. Scaling Factor calculation

Operation Mode	Channel /Frequency	Output Power(dBm)	Tune up Power in tolerance (dBm)	Max. Tune up(dBm)	Scaling Factor
WCDMA850	4132/826.4	21.76	21.0 ±1.0	22.0	1.057
	4183/836.6	21.87	21.0 ±1.0	22.0	1.030
	4233/846.6	21.75	21.0 ±1.0	22.0	1.059
WCDMA1900	9262/1852.4	22.31	21.5 ±1.0	22.5	1.045
	9400/1880.0	22.11	21.5 ±1.0	22.5	1.094
	9538/1907.6	22.23	21.5 ±1.0	22.5	1.064
WCDMA1700	1312/1712.4	21.80	21.0 ±1.0	22.0	1.047
	1413/1732.6	21.70	21.0 ±1.0	22.0	1.072
	1513/1752.6	21.95	21.0 ±1.0	22.0	1.012
LTE B2 20MHz 1RB#0	18700/1860	21.60	21.0 ±1.0	22.0	1.096
	18900/1880	21.58	21.0 ±1.0	22.0	1.102
	19100/1900	21.78	21.0 ±1.0	22.0	1.052
LTE B2 20MHz 50RB#0	18700/1860	20.78	20.0 ±1.0	21.0	1.052
	18900/1880	20.89	20.0 ±1.0	21.0	1.026
	19100/1900	20.83	20.0 ±1.0	21.0	1.040
LTE B4 20MHz 1RB#0	20050/1720	21.64	21.0 ±1.0	22.0	1.086
	20175/1732.5	21.66	21.0 ±1.0	22.0	1.081
	20300/1745	21.64	21.0 ±1.0	22.0	1.086
LTE B4 20MHz 50RB#0	20050/1720	21.03	20.5 ±1.0	21.5	1.114
	20175/1732.5	20.91	20.5 ±1.0	21.5	1.146
	20300/1745	21.07	20.5 ±1.0	21.5	1.104
LTE B5 10MHz 1RB#0	20450/829.0	21.44	20.5 ±1.0	21.5	1.014
	20525/836.5	21.21	20.5 ±1.0	21.5	1.069
	20600/844.0	21.43	20.5 ±1.0	21.5	1.016
LTE B5 10MHz 25RB#0	20450/829.0	20.69	20.0 ±1.0	21.0	1.074
	20525/836.5	20.73	20.0 ±1.0	21.0	1.064
	20600/844.0	20.66	20.0 ±1.0	21.0	1.081
LTE B7 20MHz 1RB#0	20850/2510	21.24	20.5 ±1.0	21.5	1.062
	21100/2535	21.22	20.5 ±1.0	21.5	1.067
	21350/2560	21.23	20.5 ±1.0	21.5	1.064
LTE B7 20MHz 50RB#0	20850/2510	20.64	20.0 ±1.0	21.0	1.086
	21100/2535	20.66	20.0 ±1.0	21.0	1.081
	21350/2560	20.75	20.0 ±1.0	21.0	1.059

LTE B12 10MHz 1RB#0	23060/704.0	21.58	21.0 ±1.0	22.0	1.102
	23095/707.5	21.57	21.0 ±1.0	22.0	1.104
	23130/711.0	21.65	21.0 ±1.0	22.0	1.084
LTE B12 10MHz 25RB#0	23060/704.0	20.56	20.0 ±1.0	21.0	1.107
	23095/707.5	20.52	20.0 ±1.0	21.0	1.117
	23130/711.0	20.46	20.0 ±1.0	21.0	1.132
LTE B13 10MHz 1RB#0	23230/782.0	21.82	21.0 ±1.0	22.0	1.042
LTE B13 10MHz 25RB#0	23230/782.0	21.04	20.5 ±1.0	21.5	1.112
LTE B66 20MHz 1RB#0	132072/1720.0	20.88	20.5 ±1.0	21.5	1.153
	132322/1745.0	21.28	20.5 ±1.0	21.5	1.052
	132572/1770.0	20.87	20.5 ±1.0	21.5	1.156
LTE B66 20MHz 50RB#0	132072/1720.0	19.97	19.5 ±1.0	20.5	1.130
	132322/1745.0	20.32	19.5 ±1.0	20.5	1.042
	132572/1770.0	20.20	19.5 ±1.0	20.5	1.072
WIFI 2.4G 802.11b	1/2412	14.79	14.0 ±1.0	15.0	1.050
	6/2437	14.89	14.0 ±1.0	15.0	1.026
	11/2462	14.91	14.0 ±1.0	15.0	1.021

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

10. Test Results

Results overview of WCDMA850

Test Position of Body-worn (15mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	SAR Plot.
Face Upward	4183/836.6	RMC	0.373	-0.16	1.030	0.384	/
Back Upward	4132/826.4	RMC	0.457	-1.59	1.057	0.483	/
Back Upward	4183/836.6	RMC	**0.610**	-1.45	1.030	0.628	Yes
Back Upward	4233/846.6	RMC	0.563	-1.12	1.059	0.596	/
Edge A	4183/836.6	RMC	0.424	-0.57	1.030	0.437	/
Edge C	4183/836.6	RMC	0.357	-1.64	1.030	0.368	/
Edge D	4183/836.6	RMC	0.078	-4.44	1.030	0.080	/

Results overview of WCDMA1900

Test Position of Body-worn (15mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	SAR Plot.
Face Upward	9400/1880.0	RMC	0.231	-0.38	1.094	0.253	/
Back Upward	9400/1880.0	RMC	0.572	-0.14	1.094	0.626	/
Edge A	9400/1880.0	RMC	0.175	-0.84	1.094	0.191	/
Edge C	9400/1880.0	RMC	0.290	-1.44	1.094	0.317	/
Edge D	9262/1852.4	RMC	0.530	-1.09	1.045	0.554	/
Edge D	9400/1880.0	RMC	**0.662**	-1.83	1.094	0.724	Yes
Edge D	9538/1907.6	RMC	0.562	-0.70	1.064	0.598	/

Results overview of WCDMA1700

Test Position of Body-worn (15mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	SAR Plot.
Face Upward	1413/1732.6	RMC	0.368	0.59	1.072	0.394	/
Back Upward	1312/1712.4	RMC	0.717	-2.12	1.047	0.751	/
Back Upward	1413/1732.6	RMC	0.695	-2.04	1.072	0.745	/
Back Upward	1513/1752.6	RMC	**0.742**	-0.52	1.012	0.751	Yes
Edge A	1413/1732.6	RMC	0.326	1.83	1.072	0.349	/
Edge C	1413/1732.6	RMC	0.488	-0.43	1.072	0.523	/
Edge D	1413/1732.6	RMC	0.406	-0.83	1.072	0.435	/

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

Test Position of Body-worn (15mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	SAR Plot.
1RB#0							
Face Upward	18900/1880	Data	0.226	-1.75	1.102	0.249	/
Back Upward	18900/1880	Data	0.514	2.99	1.102	0.566	/
Edge A	18900/1880	Data	0.124	0.91	1.102	0.137	/
Edge C	18900/1880	Data	0.311	2.17	1.102	0.343	/
Edge D	18700/1860	Data	0.351	-1.83	1.096	0.385	/
Edge D	18900/1880	Data	0.613	-2.30	1.102	0.676	/
Edge D	19100/1900	Data	**0.632**	-0.23	1.052	0.665	Yes
50%RB#0							
Face Upward	18900/1880	Data	0.115	-0.56	1.026	0.118	/
Back Upward	18900/1880	Data	0.430	1.59	1.026	0.441	/
Edge A	18900/1880	Data	0.110	0.45	1.026	0.113	/
Edge C	18900/1880	Data	0.256	1.16	1.026	0.263	/
Edge D	18700/1860	Data	0.125	-0.83	1.052	0.132	/
Edge D	18900/1880	Data	0.583	-4.01	1.026	0.598	/
Edge D	19100/1900	Data	0.589	-0.11	1.040	0.613	/

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

Test Position of Body-worn (15mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	SAR Plot.
1RB#0							
Face Upward	20175/1732.5	Data	0.429	-1.16	1.081	0.464	/
Back Upward	20050/1720.0	Data	0.678	0.89	1.086	0.736	/
Back Upward	20175/1732.5	Data	**0.770**	3.31	1.081	0.832	Yes
Back Upward	20300/1745.0	Data	0.672	-1.74	1.086	0.730	/
Edge A	20175/1732.5	Data	0.334	2.34	1.081	0.361	/
Edge C	20175/1732.5	Data	0.573	-2.23	1.081	0.619	/
Edge D	20175/1732.5	Data	0.365	-2.60	1.081	0.395	/
50%RB#0							
Face Upward	20175/1732.5	Data	0.355	-1.11	1.146	0.407	/
Back Upward	20050/1720.0	Data	0.599	0.68	1.114	0.667	/
Back Upward	20175/1732.5	Data	0.712	2.45	1.146	0.816	/
Back Upward	20300/1745.0	Data	0.621	-1.34	1.104	0.686	/
Edge A	20175/1732.5	Data	0.286	1.45	1.146	0.328	/
Edge C	20175/1732.5	Data	0.490	-1.65	1.146	0.562	/
Edge D	20175/1732.5	Data	0.354	-1.11	1.146	0.406	/

Results overview of FDD LTE Band 5, QPSK, 10MHz Bandwidth

Test Position of Body-worn (15mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	SAR Plot.
1RB#0							
Face Upward	20525/836.5	Data	0.326	0.88	1.069	0.348	/
Back Upward	20525/836.5	Data	0.385	-0.60	1.069	0.412	/
Edge A	20450/829.0	Data	0.237	0.48	1.014	0.240	/
Edge A	20525/836.5	Data	**0.391**	0.06	1.069	0.418	Yes
Edge A	20600/844.0	Data	0.241	-0.20	1.016	0.245	/
Edge C	20525/836.5	Data	0.275	0.48	1.069	0.294	/
Edge D	20525/836.5	Data	0.071	-0.41	1.069	0.076	/
50%RB#0							
Face Upward	20525/836.5	Data	0.285	0.66	1.064	0.303	/
Back Upward	20525/836.5	Data	0.255	-0.41	1.064	0.271	/
Edge A	20450/829.0	Data	0.204	0.22	1.074	0.219	/
Edge A	20525/836.5	Data	0.347	-2.36	1.064	0.369	/
Edge A	20600/844.0	Data	0.201	-0.12	1.081	0.217	/
Edge C	20525/836.5	Data	0.221	0.15	1.064	0.235	/
Edge D	20525/836.5	Data	0.066	-0.14	1.064	0.070	/

Results overview of FDD LTE Band 7, QPSK, 20MHz Bandwidth

Test Position of Body-worn (15mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	SAR Plot.
1RB#0							
Face Upward	21100/2535.0	Data	0.427	0.26	1.067	0.456	/
Back Upward	21100/2535.0	Data	0.406	-3.30	1.067	0.433	/
Edge A	21100/2535.0	Data	0.617	0.48	1.067	0.658	/
Edge C	21100/2535.0	Data	0.410	-3.75	1.067	0.437	/
Edge D	20850/2510.0	Data	**0.828**	-1.65	1.062	0.879	Yes
Edge D (Retest)	20850/2510.0	Data	0.821	-2.37	1.062	0.872	/
Edge D	21100/2535.0	Data	0.775	1.92	1.067	0.827	/
Edge D	21350/2560.0	Data	0.826	-2.06	1.064	0.879	/
50%RB#0							
Face Upward	21100/2535.0	Data	0.402	0.22	1.081	0.435	/
Back Upward	21100/2535.0	Data	0.382	-2.36	1.081	0.413	/
Edge A	21100/2535.0	Data	0.555	1.11	1.081	0.600	/
Edge C	21100/2535.0	Data	0.355	-3.85	1.081	0.384	/
Edge D	20850/2510.0	Data	0.768	-3.65	1.086	0.834	/
Edge D	21100/2535.0	Data	0.603	2.65	1.081	0.652	/
Edge D	21350/2560.0	Data	0.594	2.55	1.059	0.629	/

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

Test Position of Body-worn (15mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	SAR Plot.
1RB#0							
Face Upward	23095/707.5	Data	0.395	-1.45	1.104	0.436	/
Back Upward	23060/704.0	Data	0.608	-2.19	1.102	0.670	/
Back Upward	23095/707.5	Data	**0.785**	-1.67	1.104	0.867	Yes
Back Upward	23130/711.0	Data	0.483	-3.38	1.084	0.524	/
Edge A	23095/707.5	Data	0.412	-2.75	1.104	0.455	/
Edge C	23095/707.5	Data	0.299	1.65	1.104	0.330	/
Edge D	23095/707.5	Data	0.077	1.12	1.104	0.085	/
50%RB#0							
Face Upward	23095/707.5	Data	0.295	-4.22	1.117	0.330	/
Back Upward	23060/704.0	Data	0.534	-4.23	1.107	0.591	/
Back Upward	23095/707.5	Data	0.622	3.66	1.117	0.695	/
Back Upward	23130/711.0	Data	0.412	2.36	1.132	0.466	/
Edge A	23095/707.5	Data	0.355	2.35	1.117	0.397	/
Edge C	23095/707.5	Data	0.221	-3.57	1.117	0.247	/
Edge D	23095/707.5	Data	0.061	2.69	1.117	0.068	/

Results overview of FDD LTE Band 13, QPSK, 10MHz Bandwidth

Test Position of Body-worn (15mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	SAR Plot.
1RB#0							
Face Upward	23230/782.0	Data	0.637	0.92	1.042	0.664	/
Back Upward	23230/782.0	Data	**0.973**	-3.10	1.042	1.014	Yes
Back Upward (Retest)	23230/782.0	Data	0.960	-0.45	1.042	1.000	/
Edge A	23230/782.0	Data	0.743	-0.30	1.042	0.774	/
Edge C	23230/782.0	Data	0.411	1.29	1.042	0.428	/
Edge D	23230/782.0	Data	0.139	-0.30	1.042	0.145	/
50%RB#0							
Face Upward	23230/782.0	Data	0.589	0.58	1.112	0.655	/
Back Upward	23230/782.0	Data	0.911	-1.23	1.112	1.013	/
Back Upward (Retest)	23230/782.0	Data	0.894	-1.69	1.112	0.994	/
Edge A	23230/782.0	Data	0.684	0.55	1.112	0.761	/
Edge C	23230/782.0	Data	0.392	1.66	1.112	0.436	/
Edge D	23230/782.0	Data	0.126	3.21	1.112	0.140	/

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

Test Position of Body-worn (15mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	SAR Plot.
1RB#0							
Face Upward	132322/1745	Data	0.264	-0.55	1.052	0.278	/
Back Upward	132072/1720	Data	0.437	-2.34	1.153	0.504	/
Back Upward	132322/1745	Data	**0.522**	0.48	1.052	0.549	Yes
Back Upward	132572/1770	Data	0.476	1.72	1.156	0.550	/
Edge A	132322/1745	Data	0.275	-1.33	1.052	0.289	/
Edge C	132322/1745	Data	0.464	3.08	1.052	0.488	/
Edge D	132322/1745	Data	0.310	-4.35	1.052	0.326	/
50%RB#0							
Face Upward	132322/1745	Data	0.221	-0.58	1.042	0.230	/
Back Upward	132072/1720	Data	0.384	0.69	1.130	0.434	/
Back Upward	132322/1745	Data	0.484	-0.04	1.042	0.504	/
Back Upward	132572/1770	Data	0.341	-3.10	1.072	0.366	/
Edge A	132322/1745	Data	0.241	-1.25	1.042	0.251	/
Edge C	132322/1745	Data	0.412	3.56	1.042	0.429	/
Edge D	132322/1745	Data	0.284	0.12	1.042	0.296	/

Results overview of WIFI2.4G 802.11b

Test Position of Body-worn (15mm)	Channel /Frequency	Mode	SAR Value (W/kg)1-g	Power drift(%)	Scaled Factor	Scaled SAR (W/Kg)1-g	SAR Plot.
Face Upward	6/2437	DSSS	0.043	-3.29	1.026	0.044	/
Back Upward	6/2437	DSSS	0.044	-1.29	1.026	0.045	/
Edge C	1/2412	DSSS	0.077	-2.46	1.050	0.081	/
Edge C	6/2437	DSSS	**0.094**	-2.20	1.026	0.096	Yes
Edge C	11/2462	DSSS	0.089	-0.11	1.021	0.091	/

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)
• ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
• ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
• ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

11. Simultaneous Transmissions Analysis

LocalizedSpecific Absorption Rate (SAR) of this portable wireless device has been measured in all cases requested by the relevant standards cited in Clause 6 of this report. Maximum localized SAR is **below** exposure limits specified in the relevant standards.

Simultaneous SAR

No.	Transmitter Combinations	Scenario Supported or not	Supported for Mobile Hotspot or not
1	WCDMA +WIFI 2.4G	Yes	Yes
2	LTE+WIFI 2.4G	Yes	Yes

Simultaneous Tx Combination of GSM/WCDMA/LTE and BT/WIFI (Body).

Test Position/Freq.		FACE	BACK	Edge A	Edge B	Edge C	Edge D
Body MAX 1-g SAR(W/Kg) 15mm distance	WCDMA 850	0.384	0.628	0.437	/	0.368	0.080
	WCDMA 1900	0.253	0.626	0.191	/	0.317	0.724
	WCDMA 1700	0.394	0.751	0.349	/	0.523	0.435
	LTE Band2	0.249	0.566	0.137	/	0.343	0.676
	LTE Band4	0.464	0.832	0.361	/	0.619	0.406
	LTE Band5	0.348	0.412	0.418	/	0.294	0.076
	LTE Band7	0.456	0.433	0.658	/	0.437	0.879
	LTE Band12	0.436	0.867	0.455	/	0.330	0.085
	LTE Band13	0.664	1.014	0.774	/	0.436	0.145
	LTE Band66	0.278	0.550	0.289	/	0.488	0.326
	WIFI 2.4G	0.044	0.045	/	/	0.096	/
WIFI 2.4G Simultaneous ∑1-g SAR(W/Kg)		0.708	1.059	/	/	0.715	/

The estimated SAR value with * Signal

12.Measurement Uncertainty

No.	Uncertainty Component	Type	Uncertainty Value (%)	Probability Distribution	k	ci	Standard Uncertainty (%) ui(%)	Degree of freedom Veff or vi
	Measurement System							
1	− Probe Calibration	B	5.8	N	1	1	5.8	∞
2	− Axial isotropy	B	3.5	R	$\sqrt{3}$	0.5	1.43	∞
3	−Hemispherical Isotropy	B	5.9	R	$\sqrt{3}$	0.5	2.41	∞
4	− Boundary Effect	B	1	R	$\sqrt{3}$	1	0.58	∞
5	− Linearity	B	4.7	R	$\sqrt{3}$	1	2.71	∞
6	− System Detection Limits	B	1.0	R	$\sqrt{3}$	1	0.58	∞
7	Modulation response	B	3	N	1	1	3.00	
8	− Readout Electronics	B	0.5	N	1	1	0.50	∞
9	− Response Time	B	1.4	R	$\sqrt{3}$	1	0.81	∞
10	− Integration Time	B	3.0	R	$\sqrt{3}$	1	1.73	∞
11	− RF Ambient Conditions	B	3.0	R	$\sqrt{3}$	1	1.73	∞
12	− Probe Position Mechanical tolerance	B	1.4	R	$\sqrt{3}$	1	0.81	∞
13	− Probe Position with respect to Phantom Shell	B	1.4	R	$\sqrt{3}$	1	0.81	∞
14	− Extrapolation, Interpolation and Integration Algorithms for Max. SAR evaluation	B	2.3	R	$\sqrt{3}$	1	1.33	∞
	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	∞
Phantom and Tissue Parameters								
18	− Phantom Uncertainty(shape and thickness tolerances)	B	4	R	$\sqrt{3}$	1	2.31	∞
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	∞
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	∞
23	− Liquid Permittivity –measurement uncertainty	B	5	N	$\sqrt{3}$	1	1.15	∞
Combined Standard Uncertainty				RSS			10.63	
Expanded uncertainty (Confidence interval of 95 %)				K=2			21.26	

System Check Uncertainty

No.	**Uncertainty Component**	**Type**	**Uncertainty Value (%)**	**Probability Distribution**	**k**	**ci**	**Standard Uncertainty (%) ui(%)**	**Degree of freedom Veff or vi**
	Measurement System							
1	− Probe Calibration	B	5.8	N	1	1	5.8	∞
2	− Axial isotropy	B	3.5	R	$\sqrt{3}$	0.5	1.43	∞

3	─Hemispherical Isotropy	B	5.9	R	$\sqrt{3}$	0.5	2.41	∞
4	─ Boundary Effect	B	1	R	$\sqrt{3}$	1	0.58	∞
5	─ Linearity	B	4.7	R	$\sqrt{3}$	1	2.71	∞
6	─ System Detection Limits	B	1	R	$\sqrt{3}$	1	0.58	∞
7	Modulation response	B	0	N	1	1	0.00	
8	─ Readout Electronics	B	0.5	N	1	1	0.50	∞
9	─ Response Time	B	0.00	R	$\sqrt{3}$	1	0.00	∞
10	─ Integration Time	B	1.4	R	$\sqrt{3}$	1	0.81	∞
11	─ RF Ambient Conditions	B	3.0	R	$\sqrt{3}$	1	1.73	∞
12	─ Probe Position Mechanical tolerance	B	1.4	R	$\sqrt{3}$	1	0.81	∞
13	─ Probe Position with respect to Phantom Shell	B	1.4	R	$\sqrt{3}$	1	0.81	∞
14	─ Extrapolation, Interpolation and Integration Algorithms for Max. SAR evaluation	B	2.3	R	$\sqrt{3}$	1	1.33	∞
	Uncertainties of the DUT							
15	Deviation of experimental source from numberical 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	∞
Phantom and Tissue Parameters								
18	─ Phantom Uncertainty(shape	B	4	R	$\sqrt{3}$	1	2.31	∞

	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	∞
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	∞
23	− Liquid Permittivity –measurement uncertainty	B	5	N	$\sqrt{3}$	1	1.15	∞
Combined Standard Uncertainty				RSS			10.15	
Expanded uncertainty (Confidence interval of 95 %)				K=2			20.29	

13.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
☒	SAR Probe	SSE2	SN36/20 EPGO348	2020/12/14	2021/12/13
☒	Dipole	SID750	SN23/15 DIP0G750-378	2020/06/25	2023/06/24
☒	Dipole	SID835	SN09/13DIP0G835-217	2020/06/25	2023/06/24
☒	Dipole	SID1800	SN09/13DIP1G800-216	2020/06/25	2023/06/24
☒	Dipole	SID1900	SN 09/13 DIP1G900-218	2020/06/25	2023/06/24
☒	Dipole	SID2450	SN_09/13_DIP2G450-220	2020/06/25	2023/06/24
☒	Dipole	SID2600	SN 32/14_DIP2G600-338	2020/06/25	2023/06/24
☒	Multimeter	Keithley-2000	4014020	2021/04/02	2022/04/01
☒	System Simulator(R&S)	CMW500	130805	2021/03/19	2022/03/18
☒	KEYSIGHT	E7515A	MY56040357	2021/04/02	2022/04/01
☒	Vector Network Analyzer(R&S)	ZVB8	A0802530	2021/04/26	2022/04/25
☒	PC 3.5 Fixed Match Calibration Kit	ZV-Z32	100571	2021/04/26	2022/04/25
☒	Dielectric Probe Kit	SCLMP	SN 09/13 OCPG51	2021/04/26	2022/04/25
☒	Signal Generator	SMU200A	A140801888	2021/03/12	2022/03/11
☒	Amplifier	Nucletudes	143060	2021/03/12	2022/03/11
☒	Directional Coupler	DC6180A	305827	2021/03/12	2022/03/11
☒	Power Meter	NRP2	A140401673	2021/03/12	2022/03/11
☒	Power Sensor	NPR-Z11	1138.3004.02-114072-nq	2021/03/12	2022/03/11
☒	Power Meter	NRVS	A0802531	2021/03/12	2022/03/11
☒	Power Sensor	NRV-Z4	100069	2021/03/12	2022/03/11

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—