FCC SAR Test Report
(Class II Permissive Change)

Product Name ： Single Modular

Model No. ： MC7354

Applicant ： unitech Electronics Co, Ltd.

Address ： 5F.,NO.136,Ln.235, Baoqiao Rd., Xindian Dist., New Taipei City 231,Taiwan

Date of Receipt ： 2016/01/25

Issued Date ： 2017/07/18

Report No. ： 1770193R-SAUSP13V00

Report Version ： V1.0

Testing Laboratory
3023

Test Report

Issued Date: 2017/07/18
Report No.: 1770193R-SAUSP13V00

Product Name	:	Single Modular
Applicant	:	unitech Electronics Co, Ltd.
Address	:	5F.,NO.136,Ln.235, Baoqiao Rd., Xindian Dist., New Taipei City 231,Taiwan
Manufacturer	:	unitech Electronics Co, Ltd.
Model No.	:	MC7354
Trade Name	:	unitech
FCC ID	:	HLEMC7354
Applicable Standard	:	47CFR § 2.1093 KDB 447498 D01 v06
Measurement procedures	:	KDB 248227 D01 v02r02 KDB 616217 D04 v01r02 KDB 865664 D01 v01r04 KDB 941225 D01 v03r01 KDB 941225 D05 v02r05
Test Result	:	Max. SAR Measurement (1g) **1.19** W/Kg
Application Type	:	Certification

The above equipment has been tested by QuieTek-a DEKRA, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's SAR characteristics under the conditions specified in this report.

Documented By : Jinn Chen
(Senior Adm. Specialist / Jinn Chen)

Tested By : Vorana Chen
(Senior Engineer / Vorana Chen)

Approved By :
(Director / Vincent Lin)

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1. General Information

1.1 EUT Description

Product Name	Single Modular		
Trade Name	unitech		
Model No.	MC7354		
FCC ID	HLEMC7354		
TX Frequency	GSM 850/WCDMA Band 5/CDMA BC 0/LTE Band 5：824 ~ 849MHz PCS 1900/WCDMA Band 2/CDMA BC 1/LTE Band 2：1850 ~ 1910MHz CDMA BC 10: 816~824MHz WCDMA Band 5: 1710 ~ 1755MHz LTE Band 17: 704 ~716 MHz; LTE Band 13: 777~787 MHz, LTE Band 26: 814~849MHz; LTE Band 25: 1850~1915 MHz		
Type of Modulation	2G: GMSK/8PSK; 3G: WCDMA/CDMA:QPSK; 4G-LTE: QPSK/16-QAM		
Antenna Type	PIFA		
Device Category	Portable		
RF Exposure Environment	Uncontrolled		
Summary of test result –Reported 1g SAR (W/Kg)			
Test configuration	WWAN	WLAN	DSS(BT)
Body-Standalone	1.19	0.44	0.31
Body-Simultaneous	1.58		

* Note: (1) This is to request a Class II permissive change for FCC ID: HLEMC7354 originally granted on 08/18/2017
The major change filed under this application is:
Change #1: Implementation in new tablet
Model number: TB160
Product name: TABLET PC
(2) The WLAN/BT SAR measurement results from the original filling can be found in SAR test report 1770193R-SAUSP01V00, FCC ID: HLETB160BTNFL, Granted date: 08/24/2017

1.2 Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	Jiengtai	21-93096-04 (Main) 21-93087-04 (Aux)	814~849MHz : 0.69 dBi 1850~1915MHz : -0.05 dBi 1710~1755MHz : 2 dBi 704~716MHz : -0.44 dBi 777~787MHz : 0.33 dBi

1.3 SAR Test Exclusion Calculation

According to KDB Publication 447498 D01, section 4.3.1, per the calculations of item 1 (Power(mW)/separation (mm)*sqrt(f(GHz)≤3.0), SAR is required as shown in the table below where calculated values are greater than 3.0 :

SAR exclusion calculations for antenna < 50mm from the user:

Antenna	Frequency (MHz)	Output Power		Separation distances (mm)					Calculated Threshold Value (≦3.0 SAR is not required)				
		dBm	mW	Back	Right	Left	Top	Bottom	Back	Right	Left	Top	Bottom
GSM 850	848.8	33.00	1995	5	30	180	5	180	367.6	61.3	>50mm	367.6	>50mm
GSM 1900	1909.9	30.00	1000	5	30	180	5	180	276.4	46.1	>50mm	276.4	>50mm
WCDMA 2	1907.6	24.00	251	5	30	180	5	180	69.4	11.6	>50mm	69.4	>50mm
WCDMA 4	1752.6	24.00	251	5	30	180	5	180	66.5	11.1	>50mm	66.5	>50mm
WCDMA 5	846.6	24.00	251	5	30	180	5	180	46.2	7.7	>50mm	46.2	>50mm
CDMA 800	822.75	24.50	282	5	30	180	5	180	51.1	8.5	>50mm	51.1	>50mm
CDMA 835	848.31	24.50	282	5	30	180	5	180	51.9	8.7	>50mm	51.9	>50mm
CDMA 1900	1908.75	24.50	282	5	30	180	5	180	77.9	13.0	>50mm	77.9	>50mm
LTE Band 2	1900	24.00	251	5	30	180	5	180	69.2	11.5	>50mm	69.2	>50mm
LTE Band 4	1745	24.00	251	5	30	180	5	180	66.4	11.1	>50mm	66.4	>50mm
LTE Band 5	844	24.00	251	5	30	180	5	180	46.2	7.7	>50mm	46.2	>50mm
LTE Band 13	782	24.00	251	5	30	180	5	180	44.4	7.4	>50mm	44.4	>50mm
LTE Band 17	711	24.00	251	5	30	180	5	180	42.4	7.1	>50mm	42.4	>50mm
LTE Band 25	1905	24.00	251	5	30	180	5	180	69.3	11.6	>50mm	69.3	>50mm

Note: .Where separation distance is less than 3 mm, 5 mm is used for the SAR Test Exclusion Threshold calculations.

SAR exclusion calculations for antenna > 50mm from the user:

Antenna	Frequency (MHz)	Output Power		Separation distances (mm)					Calculated Threshold Value (SAR test exclusion power,mW)				
		dBm	mW	Back	Right	Left	Top	Bottom	Back	Right	Left	Top	Bottom
GSM 850	848.8	33.00	1995	5	30	180	5	180	<50mm	<50mm	898.4	<50mm	898.4
GSM 1900	1909.9	30.00	1000	5	30	180	5	180	<50mm	<50mm	1408.5	<50mm	1408.5
WCDMA 2	1907.6	24.00	251	5	30	180	5	180	<50mm	<50mm	1408.6	<50mm	1408.6
WCDMA 4	1752.6	24.00	251	5	30	180	5	180	<50mm	<50mm	1413.3	<50mm	1413.3
WCDMA 5	846.6	24.00	251	5	30	180	5	180	<50mm	<50mm	896.7	<50mm	896.7
CDMA 800	822.75	24.50	282	5	30	180	5	180	<50mm	<50mm	878.4	<50mm	878.4
CDMA 835	848.31	24.50	282	5	30	180	5	180	<50mm	<50mm	898.1	<50mm	898.1
CDMA 1900	1908.75	24.50	282	5	30	180	5	180	<50mm	<50mm	1408.6	<50mm	1408.6
LTE Band 2	1900	24.00	251	5	30	180	5	180	<50mm	<50mm	1408.8	<50mm	1408.8
LTE Band 4	1745	24.00	251	5	30	180	5	180	<50mm	<50mm	1413.6	<50mm	1413.6
LTE Band 5	844	24.00	251	5	30	180	5	180	<50mm	<50mm	894.7	<50mm	894.7
LTE Band 13	782	24.00	251	5	30	180	5	180	<50mm	<50mm	847.4	<50mm	847.4
LTE Band 17	711	24.00	251	5	30	180	5	180	<50mm	<50mm	794.1	<50mm	794.1
LTE Band 25	1905	24.00	251	5	30	180	5	180	<50mm	<50mm	1408.7	<50mm	1408.7

Note : .Where separation distance is less than 3 mm, 5 mm is used for the SAR Test Exclusion Threshold calculations.

1.4 Test Environment

Ambient conditions in the laboratory:

Test Date: Mar. 23, 2016

Items	Required	Actual
Temperature (°C)	18-25	21.9± 2
Humidity (%RH)	30-70	54

Test Date: Mar. 24, 2016

Items	Required	Actual
Temperature (°C)	18-25	22.4± 2
Humidity (%RH)	30-70	53

Test Date: Mar. 25, 2016

Items	Required	Actual
Temperature (°C)	18-25	21.5± 2
Humidity (%RH)	30-70	52

Test Date: Mar. 26, 2016

Items	Required	Actual
Temperature (°C)	18-25	21.8± 2
Humidity (%RH)	30-70	55

Site Description:

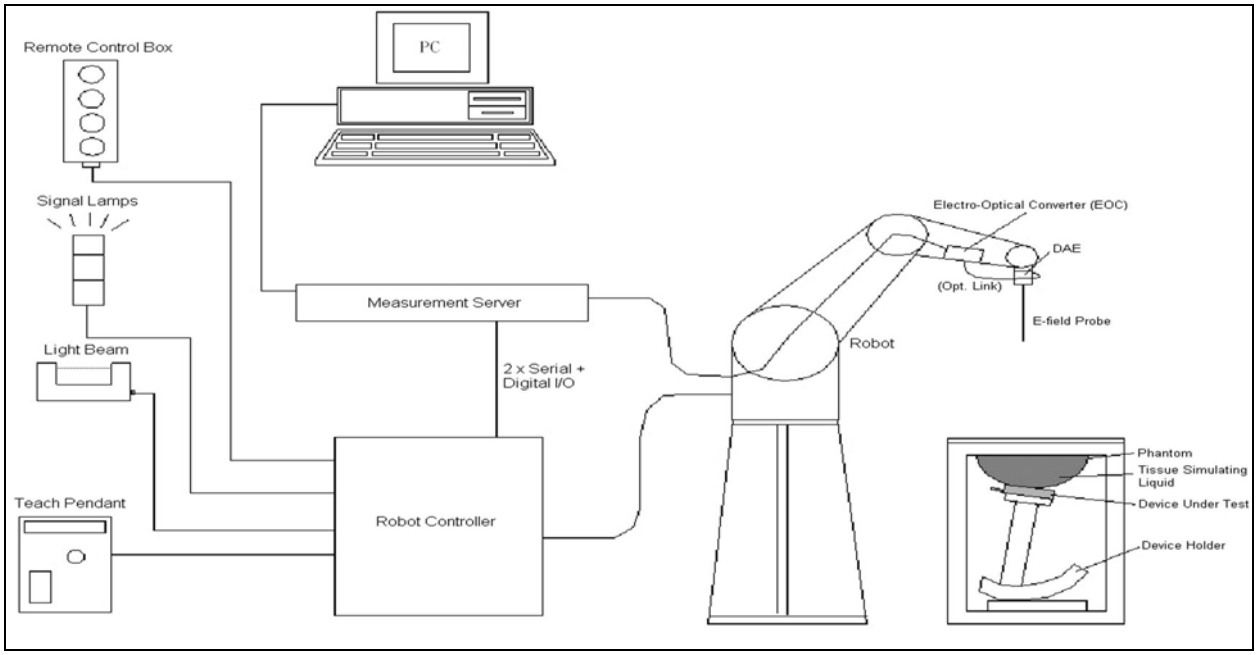
Accredited by TAF
Accredited Number: 3023
Effective through: December 12, 2017

Site Name: DEKRA Testing and Certification Co., Ltd

Site Address: No.5-22, Ruishukeng, Linkou Dist.,
New Taipei City 24451,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX: 886-2-8601-3789
E-Mail: info.tw@dekra.com

2. SAR Measurement System

2.1 DASY5 System Description



The DASY5 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

2.1.1 Applications

Predefined procedures and evaluations for automated compliance testing with all worldwide standards, e.g., IEEE 1528, OET 65, IEC 62209-1, IEC 62209-2, EN 50360, EN 50383 and others.

2.1.2 Area Scans

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a $10mm^2$ step integral, with 1mm interpolation used to locate the peak SAR area used for zoom scan assessments.

When an Area Scan has measured all reachable points, it computes the field maxima found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE 1528-2013, EN 50361 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan).

2.1.3 Zoom Scan (Cube Scan Averaging)

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. A density of 1000 kg/m^3 is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1 g cube is 10mm, with the side length of the 10 g cube 21,5mm.

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications (including FCC) utilize a physical step of 5x5x7 (8mmx8mmx5mm) providing a volume of 32mm in the X & Y axis, and 30mm in the Z axis.

2.1.4 Uncertainty of Inter-/Extrapolation and Averaging

In order to evaluate the uncertainty of the interpolation, extrapolation and averaged SAR calculation algorithms of the Postprocessor, DASY5 allows the generation of measurement grids which are artificially predefined by analytically based test functions. Therefore, the grids of area scans and zoom scans can be filled with uncertainty test data, according to the SAR benchmark functions of IEEE 1528.The three analytical functions shown in equations as below are used to describe the possible range of the expected SAR distributions for the tested handsets. The field gradients are covered by the spatially flat

distribution f1, the spatially steep distribution f3 and f2 accounts for H-field cancellation on the phantom/tissue surface.

$$f_1(x,y,z) = Ae^{-\frac{z}{2a}}\cos^2\left(\frac{\pi}{2}\frac{\sqrt{x'^2+y'^2}}{5a}\right)$$

$$f_2(x,y,z) = Ae^{-\frac{z}{a}}\frac{a^2}{a^2+x'^2}\left(3-e^{-\frac{2z}{a}}\right)\cos^2\left(\frac{\pi}{2}\frac{y'}{3a}\right)$$

$$f_3(x,y,z) = A\frac{a^2}{\frac{a^2}{4}+x'^2+y'^2}\left(e^{-\frac{2z}{a}}+\frac{a^2}{2(a+2z)^2}\right)$$

2.2 DASY5 E-Field Probe

The SAR measurement is conducted with the dosimetric probe manufactured by SPEAG. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.

SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528, EN 62209-1, IEC 62209, etc.) under ISO 17025. The calibration data are in Appendix D**.**

2.2.1 Isotropic E-Field Probe Specification

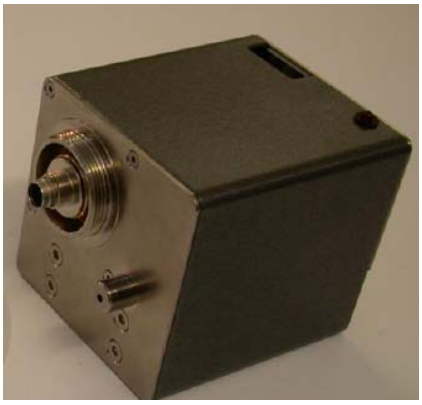
Model	Ex3DV4	
Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	

2.3 Boundary Detection Unit and Probe Mounting Device

The DASY probes use a precise connector and an additional holder for the probe, consisting of a plastic tube and a flexible silicon ring to center the probe. The connector at the DAE is flexibly mounted and held in the default position with magnets and springs. Two switching systems in the connector mount detect frontal and lateral probe collisions and trigger the necessary software response.

2.4 DATA Acquisition Electronics (DAE) and Measurement Server

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit.
Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.
The input impedance of the DAE4 is 200M Ohm; the inputs are symmetrical and floating. Common mode rejection is above 80dB.



The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz intel ULV Celeron, 128MB chipdisk and 128MB RAM. The necessary circuits for communication with the DAE electronics box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.

2.5 Robot

The DASY5 system uses the high precision robots TX90 XL type out of the newer series from Stäubli SA (France). For the 6-axis controller DASY5 system, the CS8C robot controller version from Stäubli is used.
The XL robot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)
- 6-axis controller

2.6 Light Beam Unit

The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.
The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

2.7 Device Holder

The DASY5 device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR).

Thus the device needs no repositioning when changing the angles.

The DASY5 device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity εr =3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

2.8 SAM Twin Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas:

- Left head
- Right head
- Flat phantom

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

3. Tissue Simulating Liquid

3.1 The composition of the tissue simulating liquid

INGREDIENT (% Weight)	750MHz Body	835MHz Body	1800MHz Body	1900MHz Body
Water	52.4	52.4	40.5	40.5
Salt	1.40	1.40	0.50	0.50
Sugar	45.0	45.0	58.0	58.0
HEC	1.00	1.00	0.50	0.50
Preventol	0.20	0.20	0.50	0.50
DGBE	0.00	0.00	0.00	0.00

3.2 Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using APREL Dielectric Probe Kit and Agilent E5071C Vector Network Analyzer.

Body Tissue Simulate Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
750 MHz	Reference result ± 5% window	55.53 52.75 to 58.21	0.96 0.912 to 1.008	N/A
	24-Feb-16	57.18	0.95	21.1
711 MHz	Low channel	57.18	0.95	21.1
782 MHz	High channel	57.56	0.92	21.1

Body Tissue Simulate Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
835 MHz	Reference result ± 5% window	55.2 52.44 to 57.96	0.99 0.9405 to 1.0395	N/A
	23-Feb-16	56.38	1.02	20.8
824.2 MHz	Low channel	56.47	1.01	20.8
836.4 MHz	Mid channel	56.36	1.02	20.8
848.8 MHz	High channel	56.26	1.03	20.8

Body Tissue Simulate Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε r	σ [s/m]	
1800MHz	Reference result ± 5% window	53.3 50.635 to 55.965	1.52 1.444 to 1.596	N/A
	25-Feb-16	54.88	1.54	20.3
1712.4 MHz	Low channel	55.07	1.45	20.3
1732.6 MHz	Mid channel	55.04	1.48	20.3
1752.6 MHz	High channel	55.01	1.51	20.3

Body Tissue Simulate Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε r	σ [s/m]	
1900MHz	Reference result ± 5% window	53.3 50.635 to 55.965	1.52 1.444 to 1.596	N/A
	26-Feb-16	54.47	1.58	20.1
1850.2 MHz	Low channel	54.65	1.53	20.1
1880 MHz	Mid channel	54.53	1.56	20.1
1909.8 MHz	High channel	54.44	1.59	20.1

3.3 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 variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

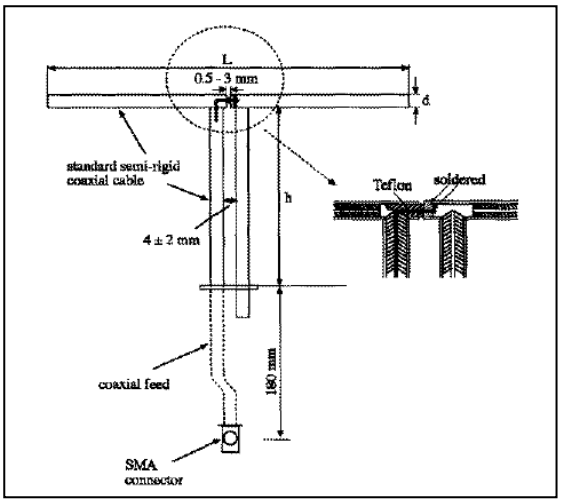
Target Frequency	Head		Body	
(MHz)	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7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

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

4. SAR Measurement Procedure

4.1 SAR System Check

4.1.1 Dipoles



The dipoles used is based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of both IEEE and FCC Supplement C. the table below provides details for the mechanical and electrical specifications for the dipoles.

Frequency	L (mm)	h (mm)	d (mm)
750MHz	178.0	100	6
835MHz	165.0	90.0	3.6
1800MHz	74.0	41.7	3.6
1900MHz	68.0	39.5	3.6

4.1.2 System Check Result

System Performance Check at 750MHz, 835MHz, 1800MHz and 1900MHz

Dipole Kit: D750V3

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
750 MHz	Reference result ± 10% window	8.61 7.75 to 9.47	5.68 5.11 to 6.25	N/A
	24-Feb-16	8.44	5.6	21.1

Dipole Kit: ALS-D-835

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
835 MHz	Reference result ± 10% window	9.49 8.54 to 10.44	6.23 5.61 to 6.85	N/A
	23-Feb-16	8.96	5.84	20.8

Dipole Kit: ALS-D1800

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
1800 MHz	Reference result ± 10% window	37.80 34.02 to 41.58	20.10 18.09 to 22.11	N/A
	25-Feb-16	39.36	20.92	20.3

Dipole Kit: ALS-D1900

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
1900 MHz	Reference result ± 10% window	41.00 36.9 to 45.1	21.70 19.53 to 23.87	N/A
	26-Feb-16	44.4	23.64	20.1

Note: (1) The power level is used 250mW
(2) All SAR values are normalized to 1W forward power.
(3) The reference result is from Appendix E.

4.2 SAR Measurement Procedure

The Dasy5 calculates SAR using the following equation,

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

σ: represents the simulated tissue conductivity

ρ: represents the tissue density

The EUT is set to transmit at the required power in line with product specification, at each frequency relating to the LOW, MID, and HIGH channel settings.

Pre-scans are made on the device to establish the location for the transmitting antenna, using a large area scan in either air or tissue simulation fluid.

The EUT is placed against the Universal Phantom where the maximum area scan dimensions are larger than the physical size of the resonating antenna. When the scan size is not large enough to cover the peak SAR distribution, it is modified by either extending the area scan size in both the X and Y directions, or the device is shifted within the predefined area.

The area scan is then run to establish the peak SAR location (interpolated resolution set at $1mm^2$)which is then used to orient the center of the zoom scan. The zoom scan is then executed and the 1g and 10g averages are derived from the zoom scan volume (interpolated resolution set at $1mm^3$).

5. SAR Exposure Limits

SAR assessments have been made in line with the requirements of IEEE-1528, FCC Supplement C, and comply with ANSI/IEEE C95.1-1992 “Uncontrolled Environments” limits. These limits apply to a location which is deemed as “Uncontrolled Environment” which can be described as a situation where the general public may be exposed to an RF source with no prior knowledge or control over their exposure.

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

Type Exposure	Uncontrolled Environment Limit
Spatial Peak SAR (1g cube tissue for brain or body)	**1.60 W/kg**
Spatial Average SAR (whole body)	**0.08 W/kg**
Spatial Peak SAR (10g for hands, feet, ankles and wrist)	**4.00 W/kg**

6. Test Equipment List

Instrument	Manufacturer	Model No.	Serial No.	Last Calibration	Next Calibration
Stäubli Robot TX60L	Stäubli	TX60L	F09/5BL1A1/A06	2009/05/18	only once
Controller	Speag	CS8c	N/A	2009/05/18	only once
Reference Dipole 750MHz	Speag	D750V3	1031	2015/05/28	2017/05/27
Reference Dipole 835Mhz	Speag	ALS-D-835	QTK-315	2014/05/16	2016/05/15
Reference Dipole 1800MHz	Speag	ALS-D1800	317	2014/05/19	2016/05/18
Reference Dipole 1900MHz	Speag	ALS-D1900	318	2014/05/19	2016/05/18
SAM Twin Phantom	Speag	QD000 P40 CA	Tp 1515	N/A	N/A
Device Holder	Speag	N/A	N/A	N/A	N/A
Data Acquisition Electronic	Speag	DAE4	1207	2015/11/20	2016/11/19
E-Field Probe	Speag	EX3DV4	3698	2015/11/24	2016/11/23
SAR Software	Speag	DASY52	V52.8 (8)	N/A	N/A
Aprel Dipole Spaccer	Aprel	ALS-DS-U	QTK-295	N/A	N/A
Power Amplifier	Mini-Circuit	ZHL-42	D051404-20	N/A	N/A
Directional Coupler	Agilent	778D-012	50550	N/A	N/A
Universal Radio Communication Tester	R&S	CMU200	104846	2015/06/11	2016/06/09
Universal Radio Communication Tester	Anritsu	MT8820C	6201091166	2015/02/10	2017/02/08
Vector Network	Agilent	E5071C	MY46108013	2015/12/02	2016/12/01
Signal Generator	Anritsu	MG3694A	041902	2015/08/14	2016/08/12
Power Meter	Anritsu	ML2487A	6K00001447	2015/09/17	2016/09/16
Wide Bandwidth Sensor	Anritsu	MA2411B	1339194	2015/09/17	2016/09/16

7. Measurement Uncertainty

DASY5 Uncertainty(According to IEEE 1528-2013) Measurement uncertainty for 30 MHz to 3 GHz								
Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) Veff
Measurement System								
Probe Calibration	±6%	N	1	1	1	±6.0%	±6.0%	∞
Axial Isotropy	±4.7%	R	√3	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	√3	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Modulation Response	±2.4%	R	√3	1	1	±1.4%	±1.4%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	√3	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	√3	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	√3	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±4.0%	R	√3	1	1	±1.2%	±1.2%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	√3	1	1	±2.9%	±2.9%	∞
Power Scaling	±0%	R	√3	1	1	±0.0%	±0.0%	
Phantom and Setup								
Phantom Uncertainty	±6.1%	R	√3	1	1	±3.5%	±3.5%	∞
SAR correction	±1.9%	R	√3	1	0.84	±1.1%	±0.9%	∞
Liquid Conductivity (meas.)	±2.5%	R	√3	0.78	0.71	±1.1%	±1.0%	∞
Liquid Permittivity (meas.)	±2.5%	R	√3	0.26	0.26	±0.3%	±0.4%	∞
Temp. unc. - Conductivity	±3.4%	R	√3	0.78	0.71	±1.5%	±1.4%	∞
Temp. unc. - Permittivity	±0.4%	R	√3	0.23	0.26	±0.1%	±0.1%	∞
Combined Std. Uncertainty						±11.2%	±11.1%	361
Expanded STD Uncertainty						±22.3%	±22.2%	

DASY5 Uncertainty(According to IEEE 1528-2013) Measurement uncertainty for 3GHz to 6 GHz								
Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±6.55%	N	1	1	1	±6.55%	±6.55%	∞
Axial Isotropy	±4.7%	R	√3	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	√3	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±2.0%	R	√3	1	1	±1.2%	±1.2%	∞
Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Modulation Response	±2.4%	R	√3	1	1	±1.4%	±1.4%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	√3	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Probe Positioning	±6.7%	R	√3	1	1	±3.9%	±3.9%	∞
Post-processing	±4.0%	R	√3	1	1	±2.3%	±2.3%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	√3	1	1	±2.9%	±2.9%	∞
Power Scaling	±0%	R	√3	1	1	±0.0%	±0.0%	
Phantom and Setup								
Phantom Uncertainty	±6.6%	R	√3	1	1	±3.8%	±3.8%	∞
SAR correction	±1.9%	R	√3	1	1	±1.1%	±0.9%	∞
Liquid Conductivity (meas.)	±2.5%	R	√3	1	0.84	±1.1%	±1.0%	∞
Liquid Permittivity (meas.)	±2.5%	R	√3	0.26	0.26	±0.3%	±0.4%	∞
Temp. unc. - Conductivity	±3.4%	R	√3	0.78	0.71	±1.5%	±1.4%	∞
Temp. unc. - Permittivity	±0.4%	R	√3	0.23	0.26	±0.1%	±0.1%	∞
Combined Std. Uncertainty						±12.3%	±12.2%	748
Expanded STD Uncertainty						±24.6%	±24.5%	

8. Conducted Power Measurement (Including tolerance allowed for production unit)

Mode		Sensor "ON" Power (Including tolerance)	Sensor "OFF " Reduce Power (Including tolerance)
GSM 850	GPRS 1 slot	33	33
	GPRS 2 slot	33	31.5
	EGPRS 1	28	28
	EGPRS 2	28	28
	EGPRS 3	28	28
	EGPRS 4	28	28
GSM 1900	GPRS 1 slot	30	30
	GPRS 2 slot	30	29
	EGPRS 1	27	27
	EGPRS 2	27	27
	EGPRS 3	27	26.5
	EGPRS 4	27	25.5
WCDMA BAND 2	RMC	24	23
	HSDPA	24	23
	HSUPA	24	23
WCDMA BAND 4	RMC	24	23
	HSDPA	24	23
	HSUPA	24	23
WCDMA BAND 5	RMC	24	24
	HSDPA	24	24
	HSUPA	24	24
LTE Band 2	QPSK	24	23
LTE Band 4	QPSK	24	23
LTE Band 5	QPSK	24	24
LTE Band 13	QPSK	24	24
LTE Band 17	QPSK	24	24
LTE Band 25	QPSK	24	23
CDMA BC0	QPSK	24.5	24.5
CDMA BC1	QPSK	24.5	23.5
CDMA BC10	QPSK	24.5	24.5
1EVDO BC0	QPSK	24.5	24.5
1EVDO BC1	QPSK	24.5	23.5
1EVDO BC10	QPSK	24.5	24.5

GSM/PCS							
CHANNEL	128	189	251	Duty cycle	Frame Average (dBm)		
Frequency	824.2	836.4	848.8				
Maximum Power (Sensor Off)							
GPRS 850 (1 Slot)	31.87	31.96	31.98	0.125	22.84	22.93	22.95
GPRS 850 (2 Slot)	31.82	31.86	31.84	0.250	25.8	**25.84**	25.82
Reduce Power (Sensor ON)							
GPRS 850 (2 Slot)	29.52	29.52	29.82	0.250	23.5	**23.5**	23.8
Maximum Power (Sensor On=Off)							
EGPRS 850 (1 Slot)	25.91	25.89	25.94	0.125	16.88	16.86	16.91
EGPRS 850 (2 Slot)	25.78	25.81	25.85	0.250	19.76	19.79	19.83
EGPRS 850 (3 Slot)	25.70	25.70	25.73	0.375	21.45	21.45	21.48
EGPRS 850 (4 Slot)	25.55	25.52	25.47	0.500	22.54	22.51	22.46
CHANNEL	512	661	810	Duty cycle	Frame Average (dBm)		
Frequency	1850.2	1880	1909.8				
Maximum Power (Sensor Off)							
GPRS 1900 (1 Slot)	29.35	29.31	29.51	0.125	20.32	20.28	20.48
GPRS 1900 (2 Slot)	29.35	29.29	29.43	0.250	23.33	**23.27**	23.41
Reduce Power (Sensor ON)							
GPRS 1900 (2 Slot)	27.56	27.75	27.53	0.250	21.54	**21.73**	21.51
Maximum Power (Sensor Off)							
EGPRS 1900 (1 Slot)	24.71	24.88	25.08	0.125	15.68	15.85	16.05
EGPRS 1900 (2 Slot)	24.65	24.83	24.95	0.250	18.63	18.81	18.93
EGPRS 1900 (3 Slot)	24.47	24.64	24.81	0.375	20.22	20.39	20.56
EGPRS 1900 (4 Slot)	24.39	24.54	24.72	0.500	21.38	21.53	21.71
Reduce Power (Sensor ON)							
EGPRS 1900 (3 Slot)	24.05	24.11	24.26	0.375	19.8	19.86	20.01
EGPRS 1900 (4 Slot)	23.98	24.03	24.09	0.500	20.97	21.02	21.08
Note: When sensor “ON”, only GPRS 850(2 Slot)/GPRS 1900(2Slot) are reduce the power, other remain the same.							

Band	WCDMA Band II			WCDMA Band IV			WCDMA Band V		
CHANNEL	9262	9400	9538	1312	1413	1513	4132	4183	4233
Maximum Power (Sensor Off)									
RMC	23.43	23.33	**23.52**	**23.55**	22.9	23.02	22.92	**23.11**	23.04
HSDPA Set 1	22.51	22.53	23.1	22.98	22.58	22.9	22.14	22.33	22.25
HSDPA Set 2	22.27	22.23	22.66	22.89	23.05	23.27	21.63	21.67	21.83
HSDPA Set 3	22.26	22.39	22.75	22.83	23.11	22.98	21.74	21.85	21.92
HSDPA Set 4	22.28	22.39	22.38	22.88	23.2	22.92	21.5	21.73	21.72
HSUPA Set 1	22.28	22.03	21.9	21.65	22.21	21.58	21.91	21.5	21.69
HSUPA Set 2	20.84	20.75	20.86	21.01	20.51	21.02	20.26	19.91	20.15
HSUPA Set 3	21.24	20.82	21.11	20.9	20.55	20.82	20.71	20.69	20.5
HSUPA Set 4	21.16	20.9	21.41	20.71	21.24	20.56	20.32	20.81	20.21
HSUPA Set 5	22.29	22.32	22.38	22.55	22.32	22.43	21.91	21.98	21.8
Reduce Power (Sensor ON)									
RMC	21.22	21.43	**21.52**	21.5	21.47	**21.51**	N/A	N/A	N/A
HSDPA Set 1	20.82	20.96	21.17	21.04	21.1	21.27	N/A	N/A	N/A
HSDPA Set 2	20.59	20.76	20.96	20.95	21.42	21.44	N/A	N/A	N/A
HSDPA Set 3	20.57	20.59	20.85	21.08	21.42	21.43	N/A	N/A	N/A
HSDPA Set 4	20.39	20.56	20.8	20.92	21.41	21.49	N/A	N/A	N/A
HSUPA Set 1	20.26	20.02	20.47	21.06	20.46	19.89	N/A	N/A	N/A
HSUPA Set 2	19.1	19.26	19.52	19.69	19.34	19.3	N/A	N/A	N/A
HSUPA Set 3	19.35	19.86	19.75	20.04	19.85	19.95	N/A	N/A	N/A
HSUPA Set 4	19.57	19.87	20.8	19.93	20.3	20.19	N/A	N/A	N/A
HSUPA Set 5	20.48	20.81	20.66	20.69	20.22	21.09	N/A	N/A	N/A
Note: When sensor “ON”, only WCDMA Band II and WCDMA Band IV are reduce the power, other remain the same.									

Band		BC0			BC1			BC10		
FWD	REV	1013	384	777	25	600	1175	467	580	670
Maximum Power (Sensor Off)										
CDMA										
RC1	SO2	23.78	23.84	23.56	24.12	23.63	23.88	23.72	23.56	23.60
RC1	SO55	23.77	23.82	23.72	24.04	23.73	24.03	23.70	23.55	23.61
RC2	SO9	23.79	23.81	23.80	24.08	24.06	24.01	23.65	23.46	23.68
RC2	SO55	23.77	23.83	23.81	23.97	24.09	24.03	23.64	23.62	24.66
RC3	SO55	23.73	23.84	23.77	24.04	24.01	23.93	23.63	23.57	23.54
RC3	SO32	23.72	23.77	23.78	23.98	23.87	23.93	23.62	23.68	23.57
1xEVDO Rel 0										
FTAP rate= 307kbps (2 slot)	Rtap rate=9.6kbps	23.80	23.87	23.54	24.06	23.63	23.81	23.73	23.54	23.62
	Rtap rate=19.2kbps	23.54	23.58	23.34	23.82	23.82	24.01	23.61	23.67	23.64
	Rtap rate=38.4kbps	23.59	23.47	23.45	23.67	23.64	23.77	23.43	23.59	23.57
	Rtap rate=76.8kbps	23.61	23.46	23.62	23.92	23.64	23.84	23.62	23.46	23.53
	Rtap rate=153.6kbps	23.75	23.52	23.46	23.64	23.70	23.86	23.68	23.39	23.41
1xEVDO Rev A										
FETAP rate= 307kbps (2 slot)	RETAP size=128	23.41	23.63	23.46	23.95	23.81	24.00	23.49	23.35	23.28
	RETAP size=256	23.39	23.43	23.36	23.64	23.77	23.76	23.56	23.61	23.26
	RETAP size=512	23.55	23.22	23.54	23.67	23.59	23.60	23.46	23.57	23.47
	RETAP size=768	23.47	23.34	23.27	23.75	23.76	23.81	23.37	23.59	23.43
	RETAP size=1024	23.41	23.36	23.29	23.80	23.55	23.69	23.35	23.49	23.53
	RETAP size=1536	23.62	23.19	23.31	23.91	23.46	23.22	23.41	23.43	23.58
	RETAP size=2048	23.34	23.37	23.31	23.99	23.73	23.24	23.61	23.37	23.27
	RETAP size=3072	23.61	23.35	23.2	24.04	23.92	23.41	23.55	23.18	23.21
	RETAP size=4096	23.54	23.42	23.51	23.97	23.48	23.55	23.38	23.14	23.09
	RETAP size=6144	23.35	23.38	23.53	23.55	23.71	23.62	23.21	23.10	23.11
	RETAP size=8192	23.43	23.18	23.27	23.47	23.39	23.15	23.18	23.32	23.08
	RETAP size=12288	23.4	23.17	23.48	23.45	23.31	23.37	23.40	23.33	23.13

Band		BC0			BC1			BC10		
FWD	REV	1013	384	777	25	600	1175	467	580	670
Reduce Power (Sensor ON)										
CDMA										
RC1	SO2	N/A	N/A	N/A	22.14	22.28	22.25	N/A	N/A	N/A
RC1	SO55	N/A	N/A	N/A	22.13	22.22	22.24	N/A	N/A	N/A
RC2	SO9	N/A	N/A	N/A	22.13	22.24	22.19	N/A	N/A	N/A
RC2	SO55	N/A	N/A	N/A	22.13	22.15	22.26	N/A	N/A	N/A
RC3	SO55	N/A	N/A	N/A	22.05	22.23	22.20	N/A	N/A	N/A
RC3	SO32	N/A	N/A	N/A	22.10	22.21	22.25	N/A	N/A	N/A
1xEVDO Rel 0										
FTAP rate= 307kbps (2 slot)	**Rtap rate=9.6kbps**	N/A	N/A	N/A	22.12	22.24	22.23	N/A	N/A	N/A
	Rtap rate=19.2kbps	N/A	N/A	N/A	21.94	22.16	22.11	N/A	N/A	N/A
	Rtap rate=38.4kbps	N/A	N/A	N/A	22.15	22.19	22.09	N/A	N/A	N/A
	Rtap rate=76.8kbps	N/A	N/A	N/A	21.95	22.07	22.01	N/A	N/A	N/A
	Rtap rate=153.6kbps	N/A	N/A	N/A	22.07	21.98	21.88	N/A	N/A	N/A
1xEVDO Rev A										
FETAP rate= 307kbps (2 slot)	**RETAP size=128**	N/A	N/A	N/A	22.11	22.03	22.15	N/A	N/A	N/A
	RETAP size=256	N/A	N/A	N/A	22.13	22.12	21.98	N/A	N/A	N/A
	RETAP size=512	N/A	N/A	N/A	21.91	22.24	21.67	N/A	N/A	N/A
	RETAP size=768	N/A	N/A	N/A	22.20	22.19	21.76	N/A	N/A	N/A
	RETAP size=1024	N/A	N/A	N/A	22.17	22.08	21.55	N/A	N/A	N/A
	RETAP size=1536	N/A	N/A	N/A	21.99	21.92	21.46	N/A	N/A	N/A
	RETAP size=2048	N/A	N/A	N/A	22.06	21.64	22.01	N/A	N/A	N/A
	RETAP size=3072	N/A	N/A	N/A	22.03	21.72	21.59	N/A	N/A	N/A
	RETAP size=4096	N/A	N/A	N/A	21.98	22.03	21.77	N/A	N/A	N/A
	RETAP size=6144	N/A	N/A	N/A	22.14	21.92	22.02	N/A	N/A	N/A
	RETAP size=8192	N/A	N/A	N/A	21.97	21.88	21.73	N/A	N/A	N/A
	RETAP size=12288	N/A	N/A	N/A	21.89	22.00	21.72	N/A	N/A	N/A
Note: When sensor “ON”, only BC1 is reduce the power, other remain the same.										

LTE-Band 2									
Channel	Modulation	RB No.	RB Offset	1.4M	3M	5M	10M	15M	20M
Maximum Power (Sensor Off)									
Low	QPSK	1	#0	22.73	22.62	22.75	22.78	22.79	22.74
		1	#Mid	22.89	22.68	22.91	22.76	22.99	22.91
		1	#Max	22.88	22.78	22.73	22.95	22.97	22.91
		50%	#0	22.78	21.82	21.81	21.8	21.73	21.75
		50%	#Mid	22.85	21.86	21.86	21.83	21.79	21.72
		50%	#Max	22.74	21.89	21.9	21.73	21.88	21.75
		100%	--	21.87	21.86	21.8	21.7	21.71	21.7
	16QAM	1	#0	21.79	21.67	21.73	22.14	22.16	22.11
		1	#Mid	21.8	21.7	21.77	21.49	21.89	22.2
		1	#Max	21.79	21.67	21.89	21.89	22.11	21.73
		50%	#0	21.86	20.77	20.93	20.78	20.83	20.71
		50%	#Mid	21.93	20.76	20.78	20.79	20.74	20.74
		50%	#Max	21.96	20.88	20.91	20.72	20.78	20.6
		100%	--	20.88	20.82	20.76	20.63	20.64	20.68
Mid	QPSK	1	#0	22.69	22.69	22.79	22.94	22.96	22.86
		1	#Mid	22.79	22.65	22.84	22.72	22.81	22.73
		1	#Max	22.78	22.92	22.86	22.93	22.83	22.72
		50%	#0	22.72	21.89	21.91	21.81	21.82	21.65
		50%	#Mid	22.78	21.83	21.86	21.81	21.82	21.67
		50%	#Max	22.76	21.88	21.92	21.83	21.67	21.65
		100%	--	21.92	21.81	21.88	21.7	21.64	21.72
	16QAM	1	#0	21.69	21.76	21.77	21.65	21.68	21.78
		1	#Mid	21.66	21.72	21.68	21.99	22.12	22.07
		1	#Max	21.6	21.8	21.66	22.13	21.83	22.01
		50%	#0	21.88	20.75	20.85	20.85	20.77	20.59
		50%	#Mid	21.91	20.79	20.92	20.82	20.88	20.72
		50%	#Max	21.91	20.74	20.93	20.81	20.76	20.63
		100%	--	20.84	20.72	20.84	20.6	20.65	20.72
High	QPSK	1	#0	22.83	22.67	22.81	22.76	22.74	22.66
		1	#Mid	23.01	22.85	22.82	22.84	22.88	22.76
		1	#Max	22.89	22.93	22.95	22.87	23.01	22.81
		50%	#0	22.96	21.95	21.89	21.82	21.69	21.56
		50%	#Mid	22.97	21.96	21.89	21.81	21.74	21.54
		50%	#Max	23	21.96	21.92	21.79	21.76	21.57
		100%	--	22.02	21.99	21.82	21.61	21.69	21.67
	16QAM	1	#0	21.83	21.69	21.66	22.01	21.94	21.68
		1	#Mid	21.81	21.67	22.09	22.08	21.62	21.72
		1	#Max	21.88	21.8	22.2	21.89	21.82	21.85
		50%	#0	22.1	20.76	20.94	20.68	20.64	20.56
		50%	#Mid	21.98	20.85	20.94	20.69	20.68	20.5
		50%	#Max	22.02	20.93	21.02	20.84	20.73	20.53
		100%	--	21.07	20.91	20.76	20.58	20.62	20.6

LTE-Band 2									
Channel	Modulation	RB No.	RB Offset	1.4M	3M	5M	10M	15M	20M
Reduce Power (Sensor ON)									
Low	QPSK	1	#0	21.28	21.22	21.25	21.29	21.34	21.72
		1	#Mid	21.27	21.21	21.31	21.39	21.47	21.82
		1	#Max	21.23	21.27	21.37	21.41	21.45	21.76
		50%	#0	21.23	21.18	21.29	21.18	21.24	21.52
		50%	#Mid	21.17	21.2	21.29	21.32	21.3	21.54
		50%	#Max	21.18	21.21	21.34	21.33	21.22	21.52
		100%	--	21.2	21.18	21.31	21.09	21.16	21.54
	16QAM	1	#0	21.01	21.01	21.21	21.52	21.45	21.43
		1	#Mid	21.2	21.1	21.18	21.64	21.43	21.42
		1	#Max	21.18	21.02	21.14	21.47	21.58	21.31
		50%	#0	21.23	20.69	20.79	20.73	20.66	20.54
		50%	#Mid	21.2	20.63	20.83	20.76	20.73	20.57
		50%	#Max	21.26	20.68	20.86	20.79	20.71	20.55
		100%	--	20.76	20.67	20.67	20.63	20.59	20.57
Mid	QPSK	1	#0	21.18	21.25	21.3	21.47	21.49	21.89
		1	#Mid	21.2	21.18	21.29	21.22	21.27	21.78
		1	#Max	21.26	21.26	21.33	21.4	21.39	21.68
		50%	#0	21.24	21.21	21.38	21.28	21.21	21.45
		50%	#Mid	21.16	21.19	21.3	21.2	21.15	21.47
		50%	#Max	21.16	21.2	21.41	21.32	21.11	21.42
		100%	--	21.23	21.12	21.28	21.13	21.08	21.5
	16QAM	1	#0	21.04	21.05	21.37	21.58	21.45	21.36
		1	#Mid	21.2	20.98	21.39	21.16	21.38	21.43
		1	#Max	21.13	20.95	21.54	21.22	21.31	21.37
		50%	#0	21.25	20.65	20.89	20.73	20.65	20.52
		50%	#Mid	21.15	20.63	20.79	20.77	20.67	20.48
		50%	#Max	21.2	20.6	20.93	20.73	20.65	20.42
		100%	--	20.72	20.64	20.78	20.59	20.52	20.44
High	QPSK	1	#0	21.33	21.25	21.32	21.18	21.26	21.71
		1	#Mid	21.44	21.36	21.35	21.28	21.39	21.61
		1	#Max	21.41	21.41	21.44	21.51	21.51	21.88
		50%	#0	21.42	21.36	21.36	21.24	21.11	21.41
		50%	#Mid	21.41	21.36	21.39	21.18	21.09	21.39
		50%	#Max	21.38	21.4	21.44	21.35	21.21	21.51
		100%	--	21.43	21.35	21.34	21.09	21.07	21.55
	16QAM	1	#0	21.37	21.12	21.37	21.11	21.35	21.26
		1	#Mid	21.21	21.22	21.47	21.15	21.29	21.35
		1	#Max	21.38	21.26	21.57	21.29	21.64	21.22
		50%	#0	21.43	20.76	20.89	20.73	20.56	20.45
		50%	#Mid	21.43	20.82	20.92	20.69	20.56	20.41
		50%	#Max	21.42	20.82	20.96	20.78	20.58	20.51
		100%	--	20.93	20.77	20.72	20.57	20.55	20.54

LTE-Band 4									
Channel	Modulation	RB No.	RB Offset	1.4M	3M	5M	10M	15M	20M
Maximum Power (Sensor Off)									
Low	QPSK	1	#0	22.54	22.91	22.72	22.74	22.61	22.78
		1	#Mid	23.08	22.87	22.89	22.77	22.8	22.86
		1	#Max	22.79	22.89	22.77	22.72	22.84	22.81
		50%	#0	22.53	21.53	22.01	21.69	21.67	21.63
		50%	#Mid	22.65	21.81	21.84	21.71	21.56	21.66
		50%	#Max	22.66	21.87	21.78	21.55	21.56	21.73
		100%	--	21.89	21.66	21.69	21.52	21.65	21.67
	16QAM	1	#0	21.74	22.02	22.11	22.09	22.04	21.58
		1	#Mid	21.88	22.05	21.47	21.83	22.08	21.8
		1	#Max	21.97	21.96	21.65	21.69	21.5	21.82
		50%	#0	21.81	20.95	20.84	20.69	20.6	20.48
		50%	#Mid	21.95	20.64	20.83	20.66	20.47	20.64
		50%	#Max	21.47	20.7	20.79	20.79	20.86	20.62
		100%	--	20.94	21.05	20.63	20.45	20.59	20.64
Mid	QPSK	1	#0	23.05	22.95	22.91	22.95	22.94	22.9
		1	#Mid	22.93	22.9	22.98	22.86	22.77	22.74
		1	#Max	22.99	22.82	22.94	22.88	23.02	23.05
		50%	#0	22.97	21.96	21.88	21.87	21.81	21.73
		50%	#Mid	22.93	21.91	21.93	21.77	21.73	21.65
		50%	#Max	22.88	21.98	21.9	22.06	21.74	21.28
		100%	--	22.02	21.86	21.76	21.72	21.61	21.66
	16QAM	1	#0	21.94	21.56	21.98	21.37	22.28	21.82
		1	#Mid	21.92	22.07	21.84	21.96	21.79	21.83
		1	#Max	21.82	21.8	22.24	22.18	21.75	24.04
		50%	#0	21.99	21.01	20.98	20.85	20.75	20.64
		50%	#Mid	21.96	20.85	20.91	20.75	20.66	20.71
		50%	#Max	22.01	20.94	20.96	20.52	20.82	20.71
		100%	--	21.19	20.99	20.83	20.67	20.68	20.61
High	QPSK	1	#0	22.8	23.07	22.82	23.34	23	23.33
		1	#Mid	22.85	22.76	23.16	23.02	23.51	22.78
		1	#Max	22.78	22.76	22.91	22.68	22.73	22.8
		50%	#0	22.81	21.91	22.08	21.92	22.15	21.79
		50%	#Mid	22.87	21.89	21.75	21.75	21.79	21.65
		50%	#Max	22.85	21.88	21.72	21.88	21.65	21.52
		100%	--	21.93	21.91	21.64	21.68	21.7	21.69
	16QAM	1	#0	22	22.08	22.19	21.93	21.25	21.64
		1	#Mid	22.06	21.74	22.04	21.95	21.59	21.85
		1	#Max	22.07	21.71	21.53	21.77	21.65	21.45
		50%	#0	21.92	20.88	21.03	20.77	20.46	20.73
		50%	#Mid	21.98	20.84	21.21	20.73	20.78	20.55
		50%	#Max	21.95	20.86	21.19	20.73	20.69	20.59
		100%	--	21.06	20.93	21.02	20.62	20.67	20.68

LTE-Band 4									
Channel	Modulation	RB No.	RB Offset	1.4M	3M	5M	10M	15M	20M
Maximum Power (Sensor ON)									
Low	QPSK	1	#0	21.04	21.04	21.06	21.14	21.09	21.78
		1	#Mid	21.08	21.04	21.01	21.07	21.15	21.84
		1	#Max	21.07	21.04	21.03	21.1	21.12	21.92
		50%	#0	21.05	21.16	20.99	20.98	20.92	21.56
		50%	#Mid	20.99	21	20.98	20.9	20.86	21.62
		50%	#Max	21.02	21.05	21.02	20.98	20.82	21.6
		100%	--	21.18	20.96	20.95	20.78	20.86	21.65
	16QAM	1	#0	20.98	21.1	20.73	21.07	21.2	21.06
		1	#Mid	20.99	21.16	20.86	20.95	21.15	21.12
		1	#Max	21.03	20.97	20.76	20.89	21.17	20.96
		50%	#0	21.13	20.48	20.55	20.41	20.34	20.57
		50%	#Mid	21.06	20.52	20.63	20.41	20.46	20.63
		50%	#Max	21.08	20.54	20.51	20.42	20.34	20.65
		100%	--	20.61	20.41	20.31	20.3	20.33	20.7
Mid	QPSK	1	#0	21.16	21.14	21.1	21.11	21.29	21.91
		1	#Mid	21.19	21.19	21.17	21.11	21.13	21.98
		1	#Max	21.18	21.22	21.2	21.15	21.22	22.01
		50%	#0	21.2	21.14	21.05	21.03	20.68	21.64
		50%	#Mid	21.13	21.18	21.1	21.04	20.97	21.59
		50%	#Max	21.17	21.06	21.05	21.07	21.03	21.62
		100%	--	21.19	21.09	21.02	20.88	20.88	21.65
	16QAM	1	#0	21.02	21.15	21.01	21	21.26	21.06
		1	#Mid	21.17	21.21	20.96	21.09	21.23	21.13
		1	#Max	21.12	21.16	21.12	21.3	22.85	21.21
		50%	#0	21.22	20.5	20.48	20.48	20.43	20.65
		50%	#Mid	21.17	20.57	20.71	20.44	20.57	20.73
		50%	#Max	21.19	20.65	20.71	20.53	20.78	20.56
		100%	--	20.83	20.6	20.67	20.33	20.38	20.7
High	QPSK	1	#0	21.16	21.02	21.11	21.23	21.27	21.98
		1	#Mid	21.12	21.11	21.02	21.09	21.13	22.09
		1	#Max	21.16	21.31	21.24	21.02	21.12	22.04
		50%	#0	21.1	20.97	21.28	20.98	20.81	21.82
		50%	#Mid	21.11	21.12	21.01	21.16	20.93	21.74
		50%	#Max	21.08	21.05	21.22	20.92	20.9	21.56
		100%	--	21.14	20.99	20.86	20.77	20.86	21.74
	16QAM	1	#0	21.08	21.35	21.08	21.07	21.21	22.01
		1	#Mid	21.03	21.29	21.04	20.99	21.08	22.07
		1	#Max	21.06	21.25	21.12	20.91	21.11	21.79
		50%	#0	21.05	20.59	20.89	20.37	20.49	20.75
		50%	#Mid	21.32	20.61	20.7	20.5	20.31	20.77
		50%	#Max	21.19	20.63	20.66	20.49	20.23	20.68
		100%	--	20.75	20.6	20.5	20.34	20.5	20.84

LTE-Band 5									
Channel	Modulation	RB No.	RB Offset	1.4M	3M	5M	10M	15M	20M
Maximum Power (Sensor On=Off)									
Low	QPSK	1	#0	22.47	22.32	22.4	22.43	N/A	N/A
		1	#Mid	22.36	22.35	22.23	22.24	N/A	N/A
		1	#Max	22.39	22.32	22.35	22.45	N/A	N/A
		50%	#0	22.44	21.49	21.33	21.26	N/A	N/A
		50%	#Mid	22.43	21.32	21.29	21.32	N/A	N/A
		50%	#Max	22.39	21.4	21.32	21.32	N/A	N/A
		100%	--	21.55	21.31	21.22	21.2	N/A	N/A
	16QAM	1	#0	21.7	21.27	21.21	21.44	N/A	N/A
		1	#Mid	21.67	21.32	21.27	21.28	N/A	N/A
		1	#Max	21.67	21.23	21.19	21.24	N/A	N/A
		50%	#0	21.37	20.46	20.34	20.31	N/A	N/A
		50%	#Mid	21.35	20.3	20.39	20.27	N/A	N/A
		50%	#Max	21.41	20.28	20.4	20.22	N/A	N/A
		100%	--	20.49	20.39	20.2	20.08	N/A	N/A
Mid	QPSK	1	#0	22.4	22.31	22.35	22.35	N/A	N/A
		1	#Mid	22.46	22.35	22.37	22.42	N/A	N/A
		1	#Max	22.41	22.4	22.43	22.41	N/A	N/A
		50%	#0	22.43	21.57	21.43	21.39	N/A	N/A
		50%	#Mid	22.46	21.44	21.48	21.41	N/A	N/A
		50%	#Max	22.42	21.54	21.48	21.39	N/A	N/A
		100%	--	21.57	21.43	21.42	21.21	N/A	N/A
	16QAM	1	#0	21.43	21.61	21.3	21.36	N/A	N/A
		1	#Mid	21.46	21.63	21.72	21.73	N/A	N/A
		1	#Max	21.44	21.6	21.73	21.33	N/A	N/A
		50%	#0	21.47	20.4	20.49	20.28	N/A	N/A
		50%	#Mid	21.49	20.44	20.51	20.4	N/A	N/A
		50%	#Max	21.53	20.46	20.63	20.46	N/A	N/A
		100%	--	20.51	20.38	20.3	20.27	N/A	N/A
High	QPSK	1	#0	22.5	22.25	22.27	22.41	N/A	N/A
		1	#Mid	22.45	22.25	22.38	22.35	N/A	N/A
		1	#Max	22.59	22.31	22.29	22.35	N/A	N/A
		50%	#0	22.45	21.45	21.54	21.3	N/A	N/A
		50%	#Mid	22.39	21.43	21.45	21.38	N/A	N/A
		50%	#Max	22.4	21.43	21.52	21.36	N/A	N/A
		100%	--	21.57	21.43	21.32	21.28	N/A	N/A
	16QAM	1	#0	21.43	21.55	21.68	21.32	N/A	N/A
		1	#Mid	21.38	21.5	21.13	21.33	N/A	N/A
		1	#Max	21.35	21.48	21.35	21.38	N/A	N/A
		50%	#0	21.52	20.46	20.48	20.49	N/A	N/A
		50%	#Mid	21.45	20.47	20.4	20.31	N/A	N/A
		50%	#Max	21.57	20.52	20.42	20.26	N/A	N/A
		100%	--	20.47	20.45	20.47	20.21	N/A	N/A
Note: When sensor “ON”, power remain the same.									

LTE-Band 13									
Channel	Modulation	RB No.	RB Offset	1.4M	3M	5M	10M	15M	20M
Maximum Power (Sensor On=Off)									
Low	QPSK	1	#0	N/A	N/A	22.4	22.33	N/A	N/A
		1	#Mid	N/A	N/A	22.38	22.54	N/A	N/A
		1	#Max	N/A	N/A	22.52	22.55	N/A	N/A
		50%	#0	N/A	N/A	21.36	21.38	N/A	N/A
		50%	#Mid	N/A	N/A	21.33	21.55	N/A	N/A
		50%	#Max	N/A	N/A	21.52	21.55	N/A	N/A
		100%	--	N/A	N/A	21.26	21.41	N/A	N/A
	16QAM	1	#0	N/A	N/A	21.5	20.97	N/A	N/A
		1	#Mid	N/A	N/A	21.61	21.76	N/A	N/A
		1	#Max	N/A	N/A	21.8	21.6	N/A	N/A
		50%	#0	N/A	N/A	20.31	22.25	N/A	N/A
		50%	#Mid	N/A	N/A	20.31	20.55	N/A	N/A
		50%	#Max	N/A	N/A	20.6	20.56	N/A	N/A
		100%	--	N/A	N/A	20.38	20.38	N/A	N/A
Mid	QPSK	1	#0	N/A	N/A	22.37	22.09	N/A	N/A
		1	#Mid	N/A	N/A	22.53	22.54	N/A	N/A
		1	#Max	N/A	N/A	22.71	22.34	N/A	N/A
		50%	#0	N/A	N/A	21.46	21.25	N/A	N/A
		50%	#Mid	N/A	N/A	21.62	21.51	N/A	N/A
		50%	#Max	N/A	N/A	21.61	21.54	N/A	N/A
		100%	--	N/A	N/A	21.59	21.32	N/A	N/A
	16QAM	1	#0	N/A	N/A	21.38	21.27	N/A	N/A
		1	#Mid	N/A	N/A	21.51	21.91	N/A	N/A
		1	#Max	N/A	N/A	21.31	21.16	N/A	N/A
		50%	#0	N/A	N/A	20.45	22.09	N/A	N/A
		50%	#Mid	N/A	N/A	20.64	20.44	N/A	N/A
		50%	#Max	N/A	N/A	20.65	20.64	N/A	N/A
		100%	--	N/A	N/A	20.6	20.28	N/A	N/A
High	QPSK	1	#0	N/A	N/A	22.49	22.04	N/A	N/A
		1	#Mid	N/A	N/A	22.64	22.57	N/A	N/A
		1	#Max	N/A	N/A	22.25	22.4	N/A	N/A
		50%	#0	N/A	N/A	21.61	21.42	N/A	N/A
		50%	#Mid	N/A	N/A	21.66	21.53	N/A	N/A
		50%	#Max	N/A	N/A	21.38	21.54	N/A	N/A
		100%	--	N/A	N/A	21.44	21.45	N/A	N/A
	16QAM	1	#0	N/A	N/A	21.4	21.17	N/A	N/A
		1	#Mid	N/A	N/A	21.88	21.82	N/A	N/A
		1	#Max	N/A	N/A	21.29	21.14	N/A	N/A
		50%	#0	N/A	N/A	20.64	22.01	N/A	N/A
		50%	#Mid	N/A	N/A	20.64	20.47	N/A	N/A
		50%	#Max	N/A	N/A	20.54	20.54	N/A	N/A
		100%	--	N/A	N/A	20.47	20.44	N/A	N/A
Note: When sensor “ON”, power remain the same.									

LTE-Band 17									
Channel	Modulation	RB No.	RB Offset	1.4M	3M	5M	10M	15M	20M
Maximum Power (Sensor On=Off)									
Low	QPSK	1	#0	N/A	N/A	22.43	22.16	N/A	N/A
		1	#Mid	N/A	N/A	22.4	22.48	N/A	N/A
		1	#Max	N/A	N/A	22.61	22.43	N/A	N/A
		50%	#0	N/A	N/A	21.45	21.54	N/A	N/A
		50%	#Mid	N/A	N/A	21.69	21.58	N/A	N/A
		50%	#Max	N/A	N/A	21.71	21.62	N/A	N/A
		100%	--	N/A	N/A	21.44	21.42	N/A	N/A
	16QAM	1	#0	N/A	N/A	21.51	21.12	N/A	N/A
		1	#Mid	N/A	N/A	21.79	21.86	N/A	N/A
		1	#Max	N/A	N/A	21.82	21.29	N/A	N/A
		50%	#0	N/A	N/A	20.61	20.4	N/A	N/A
		50%	#Mid	N/A	N/A	20.62	20.44	N/A	N/A
		50%	#Max	N/A	N/A	20.71	20.54	N/A	N/A
		100%	--	N/A	N/A	20.42	20.4	N/A	N/A
Mid	QPSK	1	#0	N/A	N/A	22.55	22.43	N/A	N/A
		1	#Mid	N/A	N/A	22.48	22.54	N/A	N/A
		1	#Max	N/A	N/A	22.45	22.48	N/A	N/A
		50%	#0	N/A	N/A	21.72	21.48	N/A	N/A
		50%	#Mid	N/A	N/A	21.63	21.55	N/A	N/A
		50%	#Max	N/A	N/A	21.64	21.38	N/A	N/A
		100%	--	N/A	N/A	21.58	21.33	N/A	N/A
	16QAM	1	#0	N/A	N/A	21.82	21.67	N/A	N/A
		1	#Mid	N/A	N/A	21.29	21.28	N/A	N/A
		1	#Max	N/A	N/A	21.52	21.56	N/A	N/A
		50%	#0	N/A	N/A	20.66	20.47	N/A	N/A
		50%	#Mid	N/A	N/A	20.64	20.54	N/A	N/A
		50%	#Max	N/A	N/A	20.52	20.5	N/A	N/A
		100%	--	N/A	N/A	20.61	20.26	N/A	N/A
High	QPSK	1	#0	N/A	N/A	22.4	22.26	N/A	N/A
		1	#Mid	N/A	N/A	22.42	22.51	N/A	N/A
		1	#Max	N/A	N/A	22	22.1	N/A	N/A
		50%	#0	N/A	N/A	21.42	21.53	N/A	N/A
		50%	#Mid	N/A	N/A	21.48	21.48	N/A	N/A
		50%	#Max	N/A	N/A	21.34	21.32	N/A	N/A
		100%	--	N/A	N/A	21.41	21.17	N/A	N/A
	16QAM	1	#0	N/A	N/A	21.48	21.58	N/A	N/A
		1	#Mid	N/A	N/A	21.3	21.79	N/A	N/A
		1	#Max	N/A	N/A	21.42	20.95	N/A	N/A
		50%	#0	N/A	N/A	20.6	20.46	N/A	N/A
		50%	#Mid	N/A	N/A	20.44	20.38	N/A	N/A
		50%	#Max	N/A	N/A	20.38	20.26	N/A	N/A
		100%	--	N/A	N/A	20.37	20.46	N/A	N/A
Note: When sensor “ON”, power remain the same.									

LTE-Band 25									
Channel	Modulation	RB No.	RB Offset	1.4M	3M	5M	10M	15M	20M
Maximum Power (Sensor Off)									
Low	QPSK	1	#0	22.72	22.82	22.78	22.93	22.87	22.9
		1	#Mid	22.82	22.88	22.82	22.95	22.92	22.87
		1	#Max	22.85	22.86	22.89	22.91	22.99	22.83
		50%	#0	22.87	21.82	21.9	21.84	21.72	21.72
		50%	#Mid	22.84	21.87	21.81	21.81	21.8	21.71
		50%	#Max	22.84	21.89	21.86	21.92	21.67	21.73
		100%	--	21.96	21.84	21.76	21.68	21.71	21.81
	16QAM	1	#0	21.7	22.03	21.73	21.72	21.79	22.22
		1	#Mid	21.76	22.08	21.59	22.15	21.81	22.21
		1	#Max	21.67	21.97	21.78	22.03	22.2	21.76
		50%	#0	21.95	20.88	20.96	20.73	20.81	20.79
		50%	#Mid	21.92	20.77	20.84	20.86	20.82	20.66
		50%	#Max	21.91	20.75	20.89	20.89	20.74	20.66
		100%	--	20.9	20.87	20.77	20.73	20.69	20.68
Mid	QPSK	1	#0	22.82	22.89	22.86	23.02	22.99	22.84
		1	#Mid	22.91	22.76	22.82	22.82	22.84	22.87
		1	#Max	22.78	22.76	22.68	22.84	22.8	22.78
		50%	#0	22.94	21.97	22	21.95	21.94	21.73
		50%	#Mid	22.79	21.82	21.88	21.91	21.76	21.69
		50%	#Max	22.78	21.86	21.85	21.85	21.77	21.6
		100%	--	21.82	21.84	21.76	21.7	21.63	21.72
	16QAM	1	#0	21.82	22.17	22.05	22.31	21.87	21.74
		1	#Mid	21.77	22.05	22.09	21.73	22.11	22.1
		1	#Max	21.64	22.01	21.97	22.03	21.99	21.74
		50%	#0	21.96	20.98	20.96	20.98	20.82	20.76
		50%	#Mid	21.92	20.84	20.84	20.83	20.76	20.58
		50%	#Max	21.91	20.61	20.95	20.87	20.67	20.59
		100%	--	20.8	20.78	20.79	20.68	20.68	20.72
High	QPSK	1	#0	22.79	22.81	22.67	22.76	22.83	22.82
		1	#Mid	22.77	22.85	22.82	22.88	22.88	22.87
		1	#Max	22.81	22.95	22.82	23.01	23.02	22.92
		50%	#0	22.84	21.96	21.93	21.88	21.76	21.67
		50%	#Mid	22.87	22.01	21.92	21.89	21.76	21.64
		50%	#Max	22.84	21.86	22.01	22.03	21.91	21.7
		100%	--	21.92	21.92	21.86	21.78	21.76	21.71
	16QAM	1	#0	21.76	22.1	21.82	21.7	21.55	21.75
		1	#Mid	21.77	22.19	21.82	22.07	22.14	21.72
		1	#Max	21.79	22.08	21.55	22.23	21.83	22.11
		50%	#0	21.91	20.97	20.94	20.81	20.72	20.56
		50%	#Mid	22.02	21.05	20.9	20.81	20.81	20.61
		50%	#Max	21.91	20.86	20.96	20.95	20.83	20.63
		100%	--	20.97	20.93	20.96	20.71	20.69	20.63

LTE-Band 25									
Channel	Modulation	RB No.	RB Offset	1.4M	3M	5M	10M	15M	20M
Reduce Power (Sensor ON)									
Low	QPSK	1	#0	21.02	21.06	21.02	21.09	21.13	21.64
		1	#Mid	21.1	21.07	21.02	21.14	21.08	21.65
		1	#Max	21.1	21.02	21.08	21.21	21.14	21.61
		50%	#0	21.16	21.14	21.09	20.89	20.9	21.36
		50%	#Mid	21.08	21.14	21.03	21.05	20.93	21.36
		50%	#Max	21.07	21.06	21.01	21.04	20.9	21.3
		100%	--	21.11	21.1	20.86	20.8	20.82	21.34
	16QAM	1	#0	20.93	20.9	21.25	21.18	21.13	21.04
		1	#Mid	21.12	20.96	21.15	21.26	21.01	20.99
		1	#Max	21.04	20.79	21.29	21.19	21.08	21.01
		50%	#0	21.11	20.49	20.58	20.38	20.38	20.33
		50%	#Mid	21.14	20.54	20.43	20.44	20.45	20.32
		50%	#Max	21.13	20.52	20.54	20.43	20.34	20.3
		100%	--	20.64	20.49	20.34	20.32	20.3	20.35
Mid	QPSK	1	#0	21.07	21.04	21.05	21.19	21.16	21.61
		1	#Mid	21.04	21	21.09	21.05	21.07	21.62
		1	#Max	21.08	21	21.04	21.02	20.98	21.54
		50%	#0	21.07	21.04	21.08	20.93	20.91	21.4
		50%	#Mid	21.04	21.04	21.05	20.94	20.86	21.33
		50%	#Max	21.05	21.08	21.06	20.94	20.89	21.26
		100%	--	21.08	21.03	20.9	20.81	20.85	21.29
	16QAM	1	#0	21	20.78	21.06	21.34	20.84	20.77
		1	#Mid	21.16	20.89	20.96	21.21	20.77	20.82
		1	#Max	21.05	20.88	20.96	21.03	20.66	20.68
		50%	#0	21.08	20.49	20.57	20.41	20.44	20.33
		50%	#Mid	21.1	20.48	20.59	20.37	20.4	20.29
		50%	#Max	21.14	20.5	20.55	20.34	20.29	20.24
		100%	--	20.64	20.47	20.4	20.27	20.34	20.26
High	QPSK	1	#0	21.16	21.15	21.07	21.01	21.04	21.54
		1	#Mid	21.23	21.25	21.16	21.11	21.11	21.54
		1	#Max	21.24	21.16	21.2	21.2	21.21	21.71
		50%	#0	21.16	21.2	21.24	20.95	20.84	21.23
		50%	#Mid	21.24	21.24	21.21	21.06	20.95	21.21
		50%	#Max	21.22	21.15	21.26	21.12	21.06	21.27
		100%	--	21.3	21.26	21.14	20.94	21	21.28
	16QAM	1	#0	21.1	21	21.14	21.16	20.75	21.09
		1	#Mid	21.14	21.09	21.11	21.31	20.91	20.98
		1	#Max	21.17	21.09	21.11	21.39	20.97	20.95
		50%	#0	21.16	20.66	20.72	20.46	20.29	20.21
		50%	#Mid	21.17	20.71	20.73	20.47	20.4	20.2
		50%	#Max	21.24	20.64	20.77	20.56	20.55	20.26
		100%	--	20.83	20.7	20.69	20.4	20.4	20.3

9. Proximity Sensor

9.1 proximity sensor triggering distances

According the KDB 616217 Section 6.2, The following procedures should be applied to determine proximity sensor triggering distances for the back surface and individual edges of a tablet.

a) The relevant transmitter should be set to operate at its normal maximum output power.

b) The entire back surface or edge of the tablet is positioned below a flat phantom filled with the required tissue-equivalent medium, and positioned at least 20 mm further than the distance that triggers power reduction.

c) It should be ensured that the cables required for power measurements are not interfering with the proximity sensor. Cable losses should be properly compensated to report the measured power results.

d) The back surface or edge is moved toward the phantom in 3 mm steps until the sensor triggers.

e) The back surface or edge is then moved back (further away) from the phantom by at least 5 mm or until maximum output power is returned to the normal maximum level.

f) The back surface or edge is again moved toward the phantom, but in 1 mm steps, until it is at least 5 mm past the triggering point or touching the phantom. If 1 mm resolution is not suitable for the sensor triggering sensitivity, a KDB inquiry should be submitted to determine alternative test configurations.

g) If the tablet is not touching the phantom, it is moved in 3 mm steps until it touches the phantom to confirm that the sensor remains triggered and the maximum power stays reduced.

h) The process is then reversed by moving the tablet away from the phantom according to steps d) to g), to determine triggering release, until it is at least 10 mm beyond the point that triggers the return of normal maximum power.

i) The measured output power within 5 mm of the triggering points, or until the tablet is touching the phantom, for movements to and from the phantom should be tabulated in the SAR report.

j) If the sensor design and implementation allow additional variations for triggering distance tolerances, multiple samples should be tested to determine the most conservative distance required for SAR evaluation.

k) To ensure all production units are compliant, it is generally necessary to reduce the triggering distance determined from the triggering tests by 1 mm, or more if it is necessary, and use the smallest distance for movements to and from the phantom, minus 1 mm, as the sensor triggering distance for determining the SAR measurement distance.

9.2 Procedures for determining antenna and proximity sensor coverage

Proximity sensors are not normally designed to cover the entire back surface or edges of a tablet. The sensing regions are usually limited to areas near the sensor element. The following are used to determine if additional SAR measurements may be necessary due to sensor and antenna offset.

a) The back surface or edge of the tablet is positioned at a test separation distance less than or equal to the distance required for back surface or edge triggering, with both the antenna and sensor pad located at least 20 mm laterally outside the edge (boundary) of the phantom, along the direction of maximum antenna and sensor offset. For the back surface, if the direction of maximum offset is not aligned with the tablet coordinates (physical edges) the tablet test position would not be aligned with the phantom coordinates (orientations). Each applicable tablet edge should be positioned perpendicularly to the phantom to determine sensor coverage. For antennas and/or sensors located near the corner of a tablet, both adjacent edges must be considered.

b) The similar sequence of steps applied to determine sensor triggering distance in 6.2 are used to verify back surface and edge sensor coverage by moving the tablet (sensor and antenna) horizontally toward the phantom while maintaining the same vertical separation between the back surface or edge and the phantom.

c) After the exact location where triggering of power reduction is determined, with respect to the sensor and antenna, the tablet movement should be continued, in 3 mm increments, until both the sensor and antenna(s) are fully under the phantom and at least 20 mm inside the phantom edge.

d) The process is then repeated from the opposite direction, starting at the other end of the maximum antenna and sensor offset, by rotating the tablet 180 along the vertical axis.

e) The triggering points should be documented graphically, with the antenna and sensor clearly identified, along with all relevant dimensions.

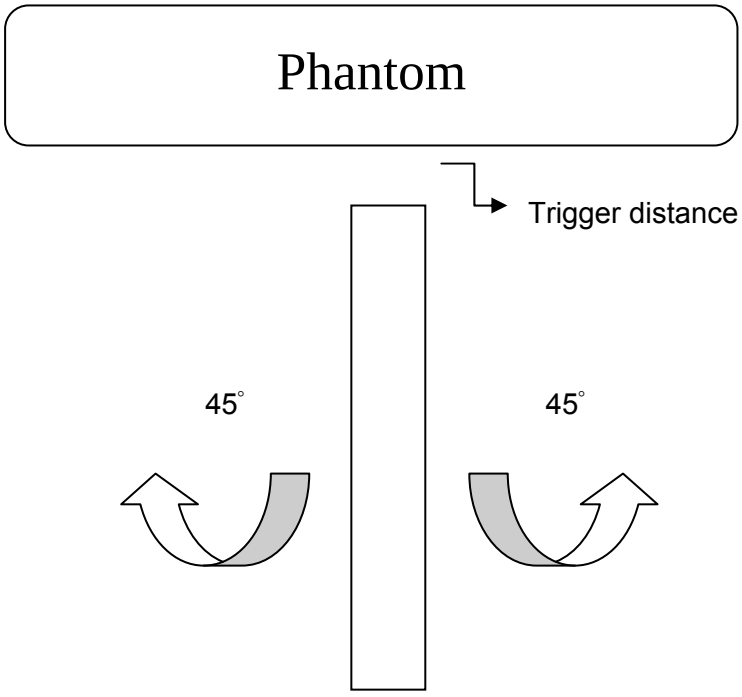
f) If the subsequently measured peak SAR location for the antenna is not between the triggering points, established by the sensor coverage tests from opposite ends of the antenna and sensor, additional SAR tests may be required for conditions where only part of the back surface or edge of a tablet corresponding to the antenna is in proximity to the user and the sensor may not be triggering as desired. A KDB inquiry must be submitted by the test lab to determine if additional tests are required and the proper test configurations to use for testing. This may include situations where the sensor coverage region is too small for the antenna, the sensor is located too far away from the antenna, the sensor location is insufficient to cover multiple antennas or the antenna is at the corner of a tablet etc.

9.3. Procedures for determining tablet tilt angle influences to proximity sensor triggering

a) The influence of table tilt angles to proximity sensor triggering is determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom, at the smallest sensor triggering test distance determined in 9.1 and 9.2 by rotating the tablet around the edge next to the phantom in ≤ 10° increments until the tablet is 45° or more from the vertical position at 0°.

b) If sensor triggering is released and normal maximum output power is restored within the 45° range, the procedures in step a) should be repeated by reducing the tablet to phantom separation distance by 1 mm until the proximity sensor no longer releases triggering, and maximum output power remains in the reduced mode.

c) The smallest separation distance determined in steps a) and b), minus 1 mm, is the sensor triggering distance for tablet tilt coverage. The smallest separation distance determined in 9.1, 9.2 and 9.3 for each triggering condition minus 1 mm should be used in the SAR measurements.

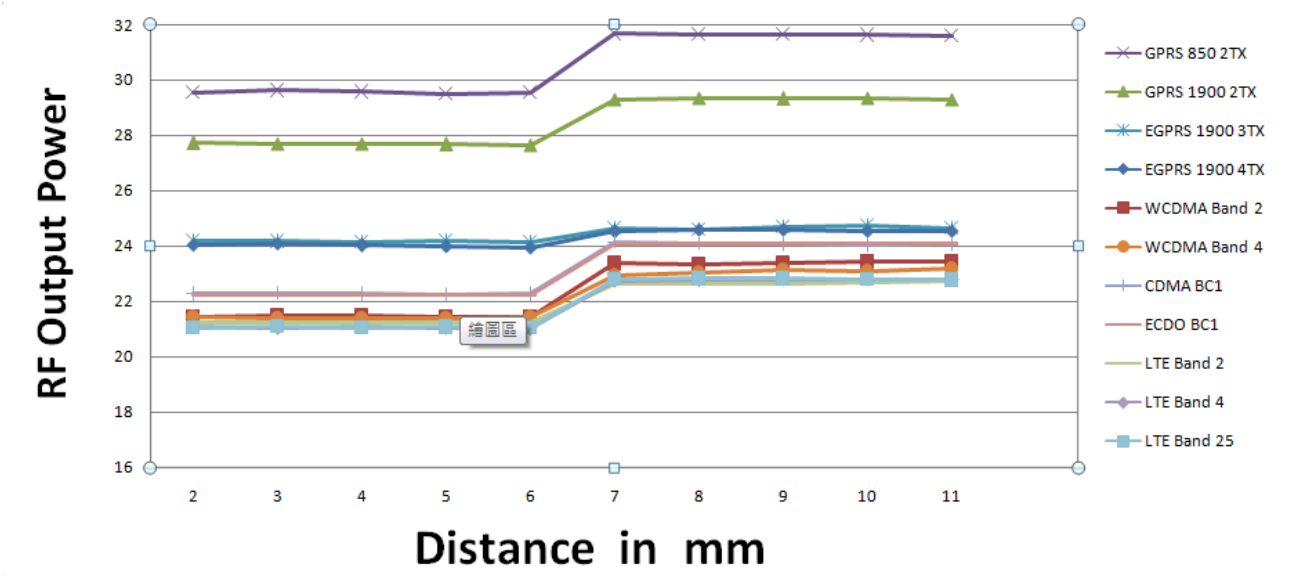


9.4. summary of Trigger Distance

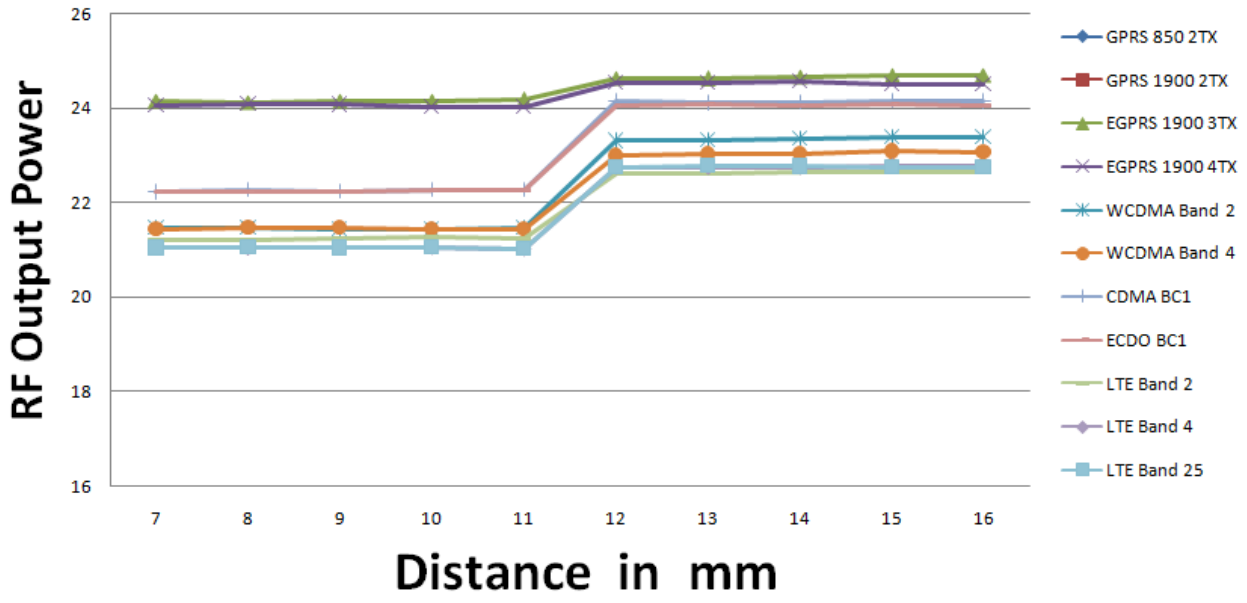
	Back		Top	
	Triggering	Tilt	Triggering	Tilt
WWAN	6mm	6mm	11mm	11mm
WLAN	N/A	N/A	N/A	N/A

Note : The smallest separation distance determined in each triggering condition minus 1 mm should be used in the SAR measurements.

Top										
Distance to DUT vs. Output Power in dBm										
Distance (mm)	2	3	4	5	6	7	8	9	10	11
GPRS 850 2TX	29.55	29.62	29.57	29.51	29.56	31.68	31.64	31.66	31.63	31.61
GPRS 1900 2TX	27.73	27.71	27.69	27.68	27.66	29.31	29.35	29.33	29.34	29.31
EGPRS 1900 3TX	24.18	24.17	24.16	24.18	24.15	24.64	24.61	24.68	24.73	24.65
EGPRS 1900 4TX	24.04	24.08	24.02	23.99	23.95	24.52	24.58	24.61	24.53	24.55
WCDMA Band 2	21.42	21.47	21.48	21.43	21.45	23.36	23.34	23.38	23.41	23.43
WCDMA Band 4	21.43	21.4	21.38	21.39	21.41	22.94	23.03	23.14	23.07	23.16
CDMA BC1	22.26	22.28	22.27	22.25	22.26	24.13	24.09	24.06	24.01	24.07
ECDO BC1	22.24	22.25	22.23	22.24	22.22	24.08	24.06	24.09	24.07	24.06
LTE Band 2	21.24	21.23	21.22	21.21	21.23	22.64	22.62	22.65	22.68	22.73
LTE Band 4	21.06	21.04	21.07	21.03	21.02	22.75	22.77	22.79	22.78	22.77
LTE Band 25	21.03	21.08	21.05	21.07	21.04	22.78	22.82	22.81	22.78	22.77



Back										
Distance to DUT vs. Output Power in dBm										
Distance (mm)	7	8	9	10	11	12	13	14	15	16
GPRS 850 2TX	29.5	29.51	29.53	29.51	29.54	31.66	31.62	31.67	31.64	31.63
GPRS 1900 2TX	27.69	27.68	27.68	27.66	27.64	29.28	29.33	29.31	29.32	29.32
EGPRS 1900 3TX	24.16	24.13	24.15	24.15	24.17	24.63	24.62	24.67	24.69	24.69
EGPRS 1900 4TX	24.06	24.1	24.08	24.02	24.03	24.54	24.53	24.58	24.51	24.51
WCDMA Band 2	21.47	21.46	21.43	21.44	21.46	23.31	23.33	23.35	23.38	23.39
WCDMA Band 4	21.44	21.47	21.46	21.43	21.44	22.99	23.02	23.04	23.08	23.07
CDMA BC1	22.22	22.26	22.24	22.26	22.27	24.15	24.11	24.13	24.15	24.14
ECDO BC1	22.22	22.24	22.24	22.26	22.25	24.06	24.08	24.07	24.08	24.07
LTE Band 2	21.21	21.22	21.24	21.26	21.24	22.61	22.63	22.64	22.66	22.66
LTE Band 4	21.06	21.04	21.05	21.06	21.03	22.76	22.74	22.75	22.77	22.78
LTE Band 25	21.04	21.06	21.04	21.05	21.02	22.74	22.78	22.77	22.75	22.75



10. Test Results

10.1 SAR Test Results Summary

SAR MEASUREMENT									
Liquid Temperature (°C): 20.8 ±2					Relative Humidity (%): 54				
Ambient Temperature (°C): 21.9 ±2					Depth of Liquid (cm): >15				
Test Mode: GSM 850 (GPRS 2Slot)									
Test Position Body	Pwr On-Off	Dist (mm)	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
			Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Scaled	
Back	ON	0	189	836.4	29.52	31.5	0.446	0.704	1.6
Top	ON	0	128	824.2	29.52	31.5	0.680	**1.073**	1.6
Top	ON	0	189	836.4	29.52	31.5	0.634	1.000	1.6
Top	ON	0	251	848.8	29.82	31.5	0.710	1.045	1.6
Back	OFF	5	128	824.2	31.82	33	0.756	0.992	1.6
Back	OFF	5	189	836.4	31.86	33	0.767	0.997	1.6
Back	OFF	5	251	848.8	31.84	33	0.786	1.027	1.6
Top	OFF	10	189	836.4	31.86	33	0.530	0.689	1.6
Right-Side	OFF	0	189	836.4	31.86	33	0.065	0.085	1.6
Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel. (2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.									

SAR MEASUREMENT

Liquid Temperature (°C): 20.1 ±2	Relative Humidity (%): 55
Ambient Temperature (°C): 21.8 ±2	Depth of Liquid (cm): >15

Test Mode: PCS 1900 (GPRS 2Slot)

Test Position Body	Pwr On-Off	Dist (mm)	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
			Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Scaled	
Back	ON	0	512	1850.2	27.56	29	0.562	0.783	1.6
Back	ON	0	661	1880	27.75	29	0.619	0.825	1.6
Back	ON	0	810	1909.8	27.53	29	0.663	0.930	1.6
Top	ON	0	512	1850.2	27.56	29	0.697	0.971	1.6
Top	ON	0	661	1880	27.75	29	0.674	0.899	1.6
Top	ON	0	810	1909.8	27.53	29	0.701	**0.983**	1.6
Back	OFF	5	661	1880	29.29	30	0.677	0.797	1.6
Top	OFF	10	661	1880	29.29	30	0.479	0.564	1.6
Right-Side	OFF	0	661	1880	29.29	30	0.258	0.304	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT

Liquid Temperature (°C): 20.1 ±2	Relative Humidity (%): 55
Ambient Temperature (°C): 21.8 ±2	Depth of Liquid (cm): >15

Test Mode: WCDMA RMC Band 2

Test Position Body	Pwr On-Off	Dist (mm)	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
			Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Scaled	
Back	ON	0	9400	1880	21.43	23	0.554	0.795	1.6
Top	ON	0	9262	1852.4	21.22	23	0.679	**1.023**	1.6
Top	ON	0	9400	1880	21.43	23	0.600	0.861	1.6
Top	ON	0	9538	1907.6	21.52	23	0.611	0.859	1.6
Back	OFF	5	9262	1852.4	23.43	24	0.751	0.856	1.6
Back	OFF	5	9400	1880	23.33	24	0.743	0.867	1.6
Back	OFF	5	9538	1907.6	23.52	24	0.596	0.666	1.6
Top	OFF	10	9400	1880	23.33	24	0.491	0.573	1.6
Right-Side	OFF	0	9400	1880	23.33	24	0.267	0.312	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT

Liquid Temperature (°C): 20.3 ±2	Relative Humidity (%): 52
Ambient Temperature (°C): 21.5 ±2	Depth of Liquid (cm): >15

Test Mode: WCDMA RMC Band 4

Test Position Body	Pwr On-Off	Dist (mm)	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
			Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Scaled	
Back	ON	0	1413	1732.6	21.47	23	0.543	0.772	1.6
Top	ON	0	1312	1712.4	21.5	23	0.735	**1.038**	1.6
Top	ON	0	1413	1732.6	21.47	23	0.701	0.997	1.6
Top	ON	0	1513	1752.6	21.51	23	0.729	1.027	1.6
Back	OFF	5	1413	1732.6	23.12	24	0.619	0.758	1.6
Top	OFF	10	1413	1732.6	23.12	24	0.551	0.675	1.6
Right-Side	OFF	0	1413	1732.6	23.12	24	0.336	0.411	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT

Liquid Temperature (°C): 20.3 ±2	Relative Humidity (%): 52
Ambient Temperature (°C): 21.5 ±2	Depth of Liquid (cm): >15

Test Mode: WCDMA RMC Band 5

Test Position Body	Pwr On-Off	Dist (mm)	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
			Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Scaled	
Back	OFF	0	4183	836.6	23.11	24	0.465	0.571	1.6
Top	OFF	0	4183	836.6	23.11	24	0.635	**0.779**	1.6
Right-Side	OFF	0	4183	836.6	23.11	24	0.035	0.043	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT

Liquid Temperature (°C): 20.8 ±2	Relative Humidity (%): 54
Ambient Temperature (°C): 21.9 ±2	Depth of Liquid (cm): >15

Test Mode: CDMA BC0

Test Position Body	Pwr On-Off	Dist (mm)	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
			Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Scaled	
Back	OFF	0	384	836.52	23.84	24.5	0.593	0.690	1.6
Top	OFF	0	1013	824.7	23.78	24.5	0.797	0.941	1.6
Top	OFF	0	384	836.52	23.84	24.5	0.868	**1.010**	1.6
Top	OFF	0	777	848.31	23.56	24.5	0.691	0.858	1.6
Right-Side	OFF	0	384	836.52	23.84	24.5	0.047	0.055	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT

Liquid Temperature (°C): 20.1 ±2	Relative Humidity (%): 55
Ambient Temperature (°C): 21.8 ±2	Depth of Liquid (cm): >15

Test Mode: CDMA BC1

Test Position Body	Pwr On-Off	Dist (mm)	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
			Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Scaled	
Back	ON	0	25	1851.25	22.14	23.5	0.716	0.979	1.6
Back	ON	0	600	1880	22.28	23.5	0.726	0.961	1.6
Back	ON	0	1175	1908.75	22.25	23.5	0.654	0.872	1.6
Top	ON	0	25	1851.25	22.14	23.5	0.800	1.094	1.6
Top	ON	0	600	1880	22.28	23.5	0.759	1.005	1.6
Top	ON	0	1175	1908.75	22.25	23.5	0.703	0.937	1.6
Back	OFF	5	25	1851.25	24.12	24.5	1.020	1.113	1.6
Back	OFF	5	600	1880	23.63	24.5	0.975	**1.191**	1.6
Back	OFF	5	1175	1908.75	23.88	24.5	0.716	0.826	1.6
Top	OFF	10	600	1880	23.63	24.5	0.607	0.742	1.6
Right-Side	OFF	0	600	1880	23.63	24.5	0.327	0.400	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT

Liquid Temperature (°C): 20.8 ±2	Relative Humidity (%): 54
Ambient Temperature (°C): 21.9 ±2	Depth of Liquid (cm): >15

Test Mode: CDMA BC10

Test Position Body	Pwr On-Off	Dist (mm)	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
			Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Scaled	
Back	OFF	0	580	820.5	23.56	24.5	0.569	0.707	1.6
Top	OFF	0	476	817.95	23.72	24.5	0.748	0.895	1.6
Top	OFF	0	580	820.5	23.56	24.5	0.742	0.921	1.6
Top	OFF	0	670	822.75	23.6	24.5	0.778	**0.957**	1.6
Right-Side	OFF	0	580	820.5	23.56	24.5	0.045	0.056	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT

Liquid Temperature (°C): 20.8 ±2	Relative Humidity (%): 54
Ambient Temperature (°C): 21.9 ±2	Depth of Liquid (cm): >15

Test Mode: 1xEVDO BC0

Test Position Body	Pwr On-Off	Dist (mm)	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
			Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Scaled	
Back	OFF	0	384	836.52	23.87	24.5	0.590	0.682	1.6
Top	OFF	0	1013	824.7	23.8	24.5	0.823	0.967	1.6
Top	OFF	0	384	836.52	23.87	24.5	0.858	**0.992**	1.6
Top	OFF	0	777	848.31	23.54	24.5	0.698	0.871	1.6
Right-Side	OFF	0	384	836.52	23.87	24.5	0.047	0.054	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT

Liquid Temperature (°C): 20.1 ±2	Relative Humidity (%): 55
Ambient Temperature (°C): 21.8 ±2	Depth of Liquid (cm): >15

Test Mode: 1xEVDO BC1

Test Position Body	Pwr On-Off	Dist (mm)	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
			Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Scaled	
Back	ON	0	25	1851.25	22.12	23.5	0.711	0.977	1.6
Back	ON	0	600	1880	22.24	23.5	0.711	0.950	1.6
Back	ON	0	1175	1908.75	22.23	23.5	0.653	0.875	1.6
Top	ON	0	25	1851.25	22.12	23.5	0.796	1.094	1.6
Top	ON	0	600	1880	22.24	23.5	0.752	1.005	1.6
Top	ON	0	1175	1908.75	22.23	23.5	0.700	0.938	1.6
Back	OFF	5	25	1851.25	24.06	24.5	1.020	1.129	1.6
Back	OFF	5	600	1880	23.63	24.5	0.968	**1.183**	1.6
Back	OFF	5	1175	1908.75	23.81	24.5	0.705	0.826	1.6
Top	OFF	10	600	1880	23.63	24.5	0.601	0.734	1.6
Right-Side	OFF	0	600	1880	23.63	24.5	0.349	0.426	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT

Liquid Temperature (°C): 20.8 ±2	Relative Humidity (%): 54
Ambient Temperature (°C): 21.9 ±2	Depth of Liquid (cm): >15

Test Mode: 1xEVDO BC10

Test Position Body	Pwr On-Off	Dist (mm)	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
			Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Scaled	
Back	OFF	0	580	820.5	23.54	24.5	0.569	0.710	1.6
Top	OFF	0	476	817.95	23.73	24.5	0.742	0.886	1.6
Top	OFF	0	580	820.5	23.54	24.5	0.736	0.918	1.6
Top	OFF	0	670	822.75	23.62	24.5	**0.763**	**0.934**	1.6
Right-Side	OFF	0	580	820.5	23.54	24.5	0.045	0.056	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT											
Liquid Temperature (°C): 20.1 ±2							Relative Humidity (%): 55				
Ambient Temperature (°C): 21.8 ±2							Depth of Liquid (cm): >15				
Test Mode: LTE Band 2-QPSK(20M)											
Test Position Body	Pwr On-Off	Dist (mm)	RB	RB offset	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
					Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Limit	
Back	ON	0	1	0	18700	1860	21.72	23	0.631	0.847	1.6
Back	ON	0	1	0	18900	1880	21.89	23	0.614	0.793	1.6
Back	ON	0	1	0	19100	1900	21.71	23	0.588	0.791	1.6
Back	ON	0	50	24	18700	1860	21.54	22	0.604	0.671	1.6
Back	ON	0	50	24	18900	1880	21.47	22	0.577	0.652	1.6
Back	ON	0	50	24	19100	1900	21.39	22	0.547	0.629	1.6
Top	ON	0	1	0	18700	1860	21.72	23	0.671	0.901	1.6
Top	ON	0	1	0	18900	1880	21.89	23	0.657	0.848	1.6
Top	ON	0	1	0	19100	1900	21.71	23	0.614	0.826	1.6
Top	ON	0	50	24	18700	1860	21.54	22	0.618	0.687	1.6
Top	ON	0	50	24	18900	1880	21.47	22	0.615	0.698	1.6
Top	ON	0	50	24	19100	1900	21.39	22	0.564	0.649	1.6
Back	OFF	5	1	0	18700	1860	22.74	24	0.701	**0.937**	1.6
Back	OFF	5	1	0	18900	1880	22.86	24	0.704	0.915	1.6
Back	OFF	5	1	0	19100	1900	22.66	24	0.667	0.908	1.6
Back	OFF	5	50	24	18900	1880	21.67	23	0.533	0.724	1.6
Top	OFF	10	1	0	18900	1880	22.86	24	0.510	0.663	1.6
Top	OFF	10	50	24	18900	1880	21.67	23	0.379	0.515	1.6
Right-Side	OFF	0	1	0	18900	1880	22.86	24	0.276	0.359	1.6
Right-Side	OFF	0	50	24	18900	1880	21.67	23	0.209	0.284	1.6
Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel. (2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.											

SAR MEASUREMENT

Liquid Temperature (°C): 20.3 ±2	Relative Humidity (%): 52
Ambient Temperature (°C): 21.5 ±2	Depth of Liquid (cm): >15

Test Mode: LTE Band 4-QPSK(20M)

Test Position Body	Pwr On-Off	Dist (mm)	RB	RB offset	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
					Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Limit	
Back	ON	0	1	99	20050	1720	21.92	23	0.541	0.694	1.6
Back	ON	0	1	99	20175	1732.5	22.01	23	0.573	0.720	1.6
Back	ON	0	1	99	20300	1745	22.04	23	0.569	0.710	1.6
Back	ON	0	50	0	20050	1720	21.56	22	0.463	0.512	1.6
Back	ON	0	50	0	20175	1732.5	21.64	22	0.498	0.541	1.6
Back	ON	0	50	0	20300	1745	21.82	22	0.541	0.564	1.6
Top	ON	0	1	99	20050	1720	21.92	23	0.628	0.805	1.6
Top	ON	0	1	99	20175	1732.5	22.01	23	0.697	**0.875**	1.6
Top	ON	0	1	99	20300	1745	22.04	23	0.642	0.801	1.6
Top	ON	0	50	0	20050	1720	21.56	22	0.583	0.645	1.6
Top	ON	0	50	0	20175	1732.5	21.64	22	0.656	0.713	1.6
Top	ON	0	50	0	20300	1745	21.82	22	0.614	0.640	1.6
Back	OFF	5	1	99	20175	1732.5	23.05	24	0.575	0.716	1.6
Back	OFF	5	50	0	20175	1732.5	21.73	23	0.418	0.560	1.6
Top	OFF	10	1	99	20175	1732.5	23.05	24	0.540	0.672	1.6
Top	OFF	10	50	0	20175	1732.5	21.73	23	0.397	0.532	1.6
Right-Side	OFF	0	1	99	20175	1732.5	23.05	24	0.342	0.426	1.6
Right-Side	OFF	0	50	0	20175	1732.5	21.73	23	0.243	0.326	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT

Liquid Temperature (°C): 20.8 ±2	Relative Humidity (%): 54
Ambient Temperature (°C): 21.9 ±2	Depth of Liquid (cm): >15

Test Mode: LTE Band 5-QPSK(20M)

Test Position Body	Pwr On-Off	Dist (mm)	RB	RB offset	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
					Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Limit	
Back	OFF	0	1	25	20525	836.5	22.42	24	0.460	0.662	1.6
Back	OFF	0	25	12	20525	836.5	21.41	23	0.362	0.522	1.6
Top	OFF	0	1	25	20450	829	22.24	24	0.623	**0.934**	1.6
Top	OFF	0	1	25	20525	836.5	22.42	24	0.635	0.914	1.6
Top	OFF	0	1	25	20600	829	22.35	24	0.615	0.899	1.6
Top	OFF	0	25	12	20525	836.5	21.41	23	0.499	0.720	1.6
Right-Side	OFF	0	1	25	20525	836.5	22.42	24	0.031	0.045	1.6
Right-Side	OFF	0	25	12	20525	836.5	21.41	23	0.025	0.036	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT

Liquid Temperature (°C): 21.1 ±2	Relative Humidity (%): 53
Ambient Temperature (°C): 22.4 ±2	Depth of Liquid (cm): >15

Test Mode: LTE Band 13-QPSK(10M)

Test Position Body	Pwr On-Off	Dist (mm)	RB	RB offset	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
					Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Limit	
Back	OFF	0	1	25	23230	782	22.54	24	0.318	0.445	1.6
Back	OFF	0	25	25	23230	782	21.54	23	0.245	0.343	1.6
Top	OFF	0	1	25	23230	782	22.54	24	0.376	**0.526**	1.6
Top	OFF	0	25	25	23230	782	21.54	23	0.299	0.418	1.6
Right-Side	OFF	0	1	25	23230	782	22.54	24	0.024	0.034	1.6
Right-Side	OFF	0	25	25	23230	782	21.54	23	0.019	0.027	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT

Liquid Temperature (°C): 21.1 ±2	Relative Humidity (%): 53
Ambient Temperature (°C): 22.4 ±2	Depth of Liquid (cm): >15

Test Mode: LTE Band 17-QPSK(20M)

Test Position Body	Pwr On-Off	Dist (mm)	RB	RB offset	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
					Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Limit	
Back	OFF	0	1	25	23790	710	22.54	24	0.062	0.087	1.6
Back	OFF	0	25	12	23790	710	21.55	23	0.061	0.085	1.6
Top	OFF	0	1	25	23790	710	22.54	24	0.081	**0.113**	1.6
Top	OFF	0	25	12	23790	710	21.55	23	0.071	0.099	1.6
Right-Side	OFF	0	1	25	23790	710	22.54	24	0.010	0.014	1.6
Right-Side	OFF	0	25	12	23790	710	21.55	23	0.010	0.013	1.6

Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel.

(2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.

SAR MEASUREMENT											
Liquid Temperature (°C): 20.1 ±2							Relative Humidity (%): 55				
Ambient Temperature (°C): 21.8 ±2							Depth of Liquid (cm): >15				
Test Mode: LTE Band 17-QPSK(20M)											
Test Position Body	Pwr On-Off	Dist (mm)	RB	RB offset	Frequency		Conducted Power (dBm)		SAR 1g (W/Kg)		Limit (W/kg)
					Channel	MHz	Measurement	Tune-up Limit	Measurement	Tune-up Limit	
Back	ON	0	1	49	26140	1860	21.65	23	0.637	0.869	1.6
Back	ON	0	1	49	26365	1882.5	21.62	23	0.595	0.818	1.6
Back	ON	0	1	49	26590	1905	21.54	23	0.559	0.782	1.6
Back	ON	0	50	0	26140	1860	21.36	22	0.565	0.655	1.6
Back	ON	0	50	0	26365	1882.5	21.4	22	0.567	0.651	1.6
Back	ON	0	50	0	26590	1905	21.23	22	0.544	0.650	1.6
Top	ON	0	1	49	26140	1860	21.65	23	0.644	0.879	1.6
Top	ON	0	1	49	26365	1882.5	21.62	23	0.635	0.873	1.6
Top	ON	0	1	49	26590	1905	21.54	23	0.590	0.826	1.6
Top	ON	0	50	0	26140	1860	21.36	22	0.610	0.707	1.6
Top	ON	0	50	0	26365	1882.5	21.4	22	0.619	0.711	1.6
Top	ON	0	50	0	26590	1905	21.23	22	0.572	0.683	1.6
Back	OFF	5	1	49	26140	1860	22.87	24	0.706	**0.916**	1.6
Back	OFF	5	1	49	26365	1882.5	22.87	24	0.683	0.886	1.6
Back	OFF	5	1	49	26590	1905	22.87	24	0.573	0.743	1.6
Back	OFF	5	50	0	26365	1882.5	21.73	23	0.526	0.705	1.6
Top	OFF	10	1	49	26365	1882.5	22.87	24	0.492	0.638	1.6
Top	OFF	10	50	0	26365	1882.5	21.73	23	0.376	0.504	1.6
Right-Side	OFF	0	1	49	26365	1882.5	22.87	24	0.268	0.348	1.6
Right-Side	OFF	0	50	0	26365	1882.5	21.73	23	0.210	0.281	1.6
Note: (1)When the reported SAR of the Mid channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in other channel. (2)We have already evaluated Right side in sensor “off” on 0mm , so don’t need evaluated Right side in sensor “on” on 0mm.											

9.2 Simultaneous Transmission

9.2.1 Simultaneous transmission of Wi-Fi and other wireless technologies

According the KDB 447498 D01 Section 4.3.2, the standalone SAR must be estimated according to the following to determine simultaneous transmission SAR test exclusion

(max. power of channel, mW)/(min. test separation distance, mm)]·[√f(GHz)/7.5]

Mode	Frequency	Max. power (mW)	Test separation distance,(mm)	Estimated SAR (W/Kg)
BT	2441	8.82	6	0.31

Note : A test separation distance of 5 mm must be applied to determine test exclusion according to the SAR Test Exclusion Threshold requirements

When the sum of SAR is larger than the limit, The ratio is determined by ***(SAR1 + SAR2)^1.5/Ri,*** rounded to two decimal digits, and must be ≤ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion. The estimation result as below:

Simultaneous Transmission Summation Scenario with 2.4 GHz WLAN

Test Position (Body)	Band	(1) WWAN (W/Kg)	(2) DTS (W/Kg) Main	(3) DTS (W/Kg) Aux	(4) BT (W/Kg)	(1)+(2)	(1)+(3)	(1)+(2)+(4)
						Σ 1-g SAR	**Σ 1-g SAR**	**Σ 1-g SAR**
Back	GSM 850	1.027	0.072	0.166	0.31	1.099	1.193	1.409
	PCS 1900	0.896	0.072	0.166	0.31	0.968	1.062	1.278
	WCDMA-2	0.867	0.072	0.166	0.31	0.939	1.033	1.249
	WCDMA-4	0.781	0.072	0.166	0.31	0.853	0.947	1.163
	WCDMA-5	0.571	0.072	0.166	0.31	0.643	0.737	0.953
	CDMA-BC0	0.682	0.072	0.166	0.31	0.754	0.848	1.064
	CDMA-BC1	1.191	0.072	0.166	0.31	1.263	1.357	1.573
	CDMA-BC10	0.707	0.072	0.166	0.31	0.779	0.873	1.089
	1xEVDO-BC0	0.682	0.072	0.166	0.31	0.754	0.848	1.064
	1xEVDO-BC1	1.183	0.072	0.166	0.31	1.255	1.349	1.565
	1xEVDO-BC10	0.710	0.072	0.166	0.31	0.782	0.876	1.092
	LTE-2	0.937	0.072	0.166	0.31	1.009	1.103	1.319
	LTE-4	0.809	0.072	0.166	0.31	0.881	0.975	1.191
	LTE-5	0.662	0.072	0.166	0.31	0.734	0.828	1.044
	LTE-13	0.445	0.072	0.166	0.31	0.517	0.611	0.827
	LTE-17	0.087	0.072	0.166	0.31	0.159	0.253	0.469
	LTE-25	0.916	0.072	0.166	0.31	0.988	1.082	1.298

Note: The sum of value is less than 1.6W/Kg, thus simultaneous SAR testing is not need.

Simultaneous Transmission Summation Scenario with 2.4 GHz WLAN

Test Position (Body)	Band	(1) WWAN (W/Kg)	(2) DTS (W/Kg) Main	(3) DTS (W/Kg) Aux	(4) BT (W/Kg)	(1)+(2) Σ 1-g SAR	(1)+(3) Σ 1-g SAR	(1)+(2)+(4) Σ 1-g SAR
Top	GSM 850	1.065	N/A	0.182	0.31	1.065	1.247	1.375
	PCS 1900	0.998	N/A	0.182	0.31	0.998	1.180	1.308
	WCDMA-2	1.035	N/A	0.182	0.31	1.035	1.217	1.345
	WCDMA-4	1.067	N/A	0.182	0.31	1.067	1.249	1.377
	WCDMA-5	0.779	N/A	0.182	0.31	0.779	0.961	1.089
	CDMA-BC0	0.992	N/A	0.182	0.31	0.992	1.174	1.302
	CDMA-BC1	1.094	N/A	0.182	0.31	1.094	1.276	1.404
	CDMA-BC10	0.957	N/A	0.182	0.31	0.957	1.139	1.267
	1xEVDO-BC0	0.992	N/A	0.182	0.31	0.992	1.174	1.302
	1xEVDO-BC1	1.094	N/A	0.182	0.31	1.094	1.276	1.404
	1xEVDO-BC10	0.934	N/A	0.182	0.31	0.934	1.116	1.244
	LTE-2	0.948	N/A	0.182	0.31	0.948	1.130	1.258
	LTE-4	0.985	N/A	0.182	0.31	0.985	1.167	1.295
	LTE-5	0.934	N/A	0.182	0.31	0.934	1.116	1.244
	LTE-13	0.526	N/A	0.182	0.31	0.526	0.708	0.836
	LTE-17	0.113	N/A	0.182	0.31	0.113	0.295	0.423
	LTE-25	0.910	N/A	0.182	0.31	0.910	1.092	1.220

Note : (1)The sum of value is less than 1.6W/Kg, thus simultaneous SAR testing is not need.

(2) WLAN (Main) is compliance for the SAR Test Exclusion Threshold calculations.

Simultaneous Transmission Summation Scenario with 5 GHz WLAN

Test Position (Body)	Band	(1) WWAN (W/Kg)	(2) U-NII (W/Kg) Main	(3) U-NII (W/Kg) Aux	(4) BT (W/Kg)	(1)+(2)	(1)+(3)	(1)+(2)+(4)
						Σ 1-g SAR	**Σ 1-g SAR**	**Σ 1-g SAR**
Back	GSM 850	1.027	0.084	0.442	0.31	1.111	1.469	1.421
	PCS 1900	0.896	0.084	0.442	0.31	0.98	1.338	1.290
	WCDMA-2	0.867	0.084	0.442	0.31	0.951	1.309	1.261
	WCDMA-4	0.781	0.084	0.442	0.31	0.865	1.223	1.175
	WCDMA-5	0.571	0.084	0.442	0.31	0.655	1.013	0.965
	CDMA-BC0	0.682	0.084	0.442	0.31	0.766	1.124	1.076
	CDMA-BC1	1.191	0.084	0.442	0.31	1.275	1.633[*2]	1.585
	CDMA-BC10	0.707	0.084	0.442	0.31	0.791	1.149	1.101
	1xEVDO-BC0	0.682	0.084	0.442	0.31	0.766	1.124	1.076
	1xEVDO-BC1	1.183	0.084	0.442	0.31	1.267	1.625[*2]	1.577
	1xEVDO-BC10	0.710	0.084	0.442	0.31	0.794	1.152	1.104
	LTE-2	0.937	0.084	0.442	0.31	1.021	1.379	1.331
	LTE-4	0.809	0.084	0.442	0.31	0.893	1.251	1.203
	LTE-5	0.662	0.084	0.442	0.31	0.746	1.104	1.056
	LTE-13	0.445	0.084	0.442	0.31	0.529	0.887	0.839
	LTE-17	0.087	0.084	0.442	0.31	0.171	0.529	0.481
	LTE-25	0.916	0.084	0.442	0.31	1.000	1.358	1.310

Note (1) The sum of value is less than 1.6W/Kg, thus simultaneous SAR testing is not need.

(2)

Simultaneous Transmission (W/Kg)	Antenna pair in mm	Peak location separation ratio
1.633	110	0.02
1.625	110	0.02

Note : The sum of value is less than 1.6W/Kg or the ratio is determined by $(SAR1 + SAR2)^{1.5}/Ri$, rounded to two decimal digits, and must be ≤ 0.04 for all antenna pairs in the configuration to qualify for SAR test exclusion.

Simultaneous Transmission Summation Scenario with 5 GHz WLAN

Test Position (Body)	Band	(1) WWAN (W/Kg)	(2) U-NII (W/Kg) Main	(3) U-NII (W/Kg) Aux	(4) BT (W/Kg)	(1)+(2)	(1)+(3)	(1)+(2)+(4)
						Σ 1-g SAR	**Σ 1-g SAR**	**Σ 1-g SAR**
Top	GSM 850	1.065	N/A	0.406	0.31	1.065	1.471	1.375
	PCS 1900	0.998	N/A	0.406	0.31	0.998	1.404	1.308
	WCDMA-2	1.035	N/A	0.406	0.31	1.035	1.441	1.345
	WCDMA-4	1.067	N/A	0.406	0.31	1.067	1.473	1.377
	WCDMA-5	0.779	N/A	0.406	0.31	0.779	1.185	1.089
	CDMA-BC0	0.992	N/A	0.406	0.31	0.992	1.398	1.302
	CDMA-BC1	1.094	N/A	0.406	0.31	1.094	1.500	1.404
	CDMA-BC10	0.957	N/A	0.406	0.31	0.957	1.363	1.267
	1xEVDO-BC0	0.992	N/A	0.406	0.31	0.992	1.398	1.302
	1xEVDO-BC1	1.094	N/A	0.406	0.31	1.094	1.500	1.404
	1xEVDO-BC10	0.934	N/A	0.406	0.31	0.934	1.34	1.244
	LTE-2	0.948	N/A	0.406	0.31	0.948	1.354	1.258
	LTE-4	0.985	N/A	0.406	0.31	0.985	1.391	1.295
	LTE-5	0.934	N/A	0.406	0.31	0.934	1.340	1.244
	LTE-13	0.526	N/A	0.406	0.31	0.526	0.932	0.836
	LTE-17	0.113	N/A	0.406	0.31	0.113	0.519	0.423
	LTE-25	0.910	N/A	0.406	0.31	0.910	1.316	1.220

Note : (1)The sum of value is less than 1.6W/Kg, thus simultaneous SAR testing is not need.
(2) WLAN (Main) is compliance for the SAR Test Exclusion Threshold calculations.

10. SAR measurement variability

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Frequency			**SAR** 1g (W/kg)						
Mode	Channel	MHz	Original	First Repeated		Second Repeated		Third Repeated	
				Value	Ratio	Value	Ratio	Value	Ratio
CDMA	384	836.52	0.868	0.851	1.02	N/A	N/A	N/A	N/A
EVDO	25	1851.25	1.020	0.966	1.06	N/A	N/A	N/A	N/A
CDMA	384	836.52	0.858	0.856	1.00	N/A	N/A	N/A	N/A
EVDO	25	1851.25	1.020	1.010	1.06	N/A	N/A	N/A	N/A

Appendix

Appendix A. SAR System Check Data

Appendix B. SAR measurement Data

Appendix C. Test Setup Photographs & EUT Photographs

Appendix D. Probe Calibration Data

Appendix E. Dipole Calibration Data