FCC SAR
Measurement and Test Report

For

Servicios Troncalizados SA de CV

Av. Revolucion 639 piso 4 Col.San Pedro de los Pinos CP 03800,Mexico City Mexico

FCC ID: 2AM58-TVXONE

Test Standards:	FCC Part 2.1093 ANSI / IEEE C95.1 ::2005+A1:2010 ANSI / IEEE C95.3 : 2002(R2008) IEEE 1528 :2013
Product Description:	Intelligent Two Way Radio
Tested Model:	TVXONE
Report No.:	WTX19X10072351W-7
Sample Received Date:	2019-04-15
Tested Date:	2019-04-16 to 2019-04-18
Issued Date:	2019-10-22
Tested By:	Ruler Liu / Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager
Prepared By:	

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Report version

Version No.	Date of issue	Description
Rev.1	2019-10-22	Refer the old report WTX19X03011771W-7, updated the trade name, model name, EUT appearance photos, and cert holder, but the circuit and the electronic construction do not change, declared by the manufacturer.so the test data from the original report.
/	/	/

1. General Information

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Servicios Troncalizados SA de CV
Address of applicant:	Av. Revolucion 639 piso 4 Col.San Pedro de los Pinos CP 03800 Mexico City Mexico
Manufacturer:	Servicios Troncalizados SA de CV
Address of manufacturer:	Av. Revolucion 639 piso 4 Col.San Pedro de los Pinos CP 03800 Mexico City Mexico

General Description of EUT:	
Product Name:	Intelligent Two Way Radio
Brand Name:	TeamVOX
Model No.:	TVXONE
Adding Model(s):	/
Rated Voltage:	DC3.7V
Battery:	4000mAh
Note: The test data is gathered from a production sample provided by the manufacturer.	

Technical Characteristics of EUT:	
2G	
Support Networks:	GSM, GPRS,EDGE
Support Band:	GSM850/PCS1900
Uplink Frequency:	GSM/GPRS 850: 824~849MHz GSM/GPRS 1900: 1850~1910MHz
Downlink Frequency:	GSM/GPRS 850: 869~894MHz GSM/GPRS 1900: 1930~1990MHz
RF Output Power:	GSM850: 32.02dBm, GSM1900: 29.09dBm EDGE850: 26.69dBm, EDGE1900: 25.77dBm
Type of Modulation:	GMSK,8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: 1.21dBi; GSM1900: 1.86dBi
GPRS/EDGE Class:	Class 12
3G	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Band:	WCDMA Band 2, WCDMA Band 5
Uplink Frequency:	WCDMA Band 2: 1850~1910MHz WCDMA Band 5: 824~849MHz
Downlink Frequency:	WCDMA Band 2: 1930~1990MHz WCDMA Band 5: 869~894MHz
RF Output Power:	WCDMA Band 2: 22.84dBm, WCDMA Band 5: 22.88dBm
Type of Modulation:	BPSK, QPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: 1.86dBi, WCDMA Band 5: 1.21dBi
4G	
Support Networks:	FDD-LTE
Support Band:	FDD-LTE Band 2, 4, 5, 7,12,13,17
Uplink Frequency:	FDD-LTE Band 2: Tx: 1850-1910MHz, FDD-LTE Band 4: Tx: 1710-1755MHz, FDD-LTE Band 5: Tx: 824-849MHz, FDD-LTE Band 7: Tx: 2500-2570MHz, FDD-LTE Band 12: Tx: 699-716MHz, FDD-LTE Band 13: Tx: 777-787MHz, FDD-LTE Band 17: Tx: 704-716MHz
Downlink Frequency:	FDD-LTE Band 2: Rx: 1930-1990MHz, FDD-LTE Band 4: Rx: 2110-2155MHz, FDD-LTE Band 5: Rx: 869-894MHz, FDD-LTE Band 7: Rx: 2620-2690MHz, FDD-LTE Band 12: Rx: 729-746MHz,

	FDD-LTE Band 13: Rx: 746-756MHz, FDD-LTE Band 17: Rx: 734-746MHz
RF Output Power:	FDD-LTE Band 2: 23.76dBm, FDD-LTE Band 4: 23.59dBm, FDD-LTE Band 5: 23.32dBm, FDD-LTE Band 7: 22.67dBm, FDD-LTE Band 12: 23.16dBm, FDD-LTE Band 13: 23.24dBm, FDD-LTE Band 17: 22.89dBm
Type of Modulation:	QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	FDD-LTE Band 2: 1.86dBi, FDD-LTE Band 4: 1.89dBi, FDD-LTE Band 5: 1.21dBi, FDD-LTE Band 7: 2.06dBi, FDD-LTE Band 12: 0.58dBi, FDD-LTE Band 13: 1.20dBi, FDD-LTE Band 17: 0.61dBi,
WIFI	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40)
RF Output Power:	15.31dBm (Conducted)
Type of Modulation:	CCK, QPSK, BPSK, 16QAM, 64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps
Quantity of Channels:	11/7
Channel Separation:	5MHz
Antenna Type:	Integral Antenna
Antenna Gain:	1.92dBi
Bluetooth	
Bluetooth Version:	V4.0
Frequency Range:	2402-2480MHz
RF Output Power:	5.711dBm (Conducted)
Data Rate:	1Mbps, 2Mbps, 3Mbps
Modulation:	GFSK, Pi/4 QDPSK, 8DPSK
Quantity of Channels:	79/40
Channel Separation:	1MHz/2MHz
Antenna Type:	Integral Antenna
Antenna Gain:	1.92dBi

1.2 Test Standards

The following report is prepared on behalf of the Servicios Troncalizados SA de CV in accordance with FCC 47 CFR Part 2.1093, ANSI/IEEE C95.1-2005, ANSI / IEEE C95.3 :2002, IEEE 1528-2013, KDB 447498 D01 v06, KDB 648474 D04 v01r03, KDB 941225 D01 v03r01, KDB 941225 D05 v02r05 and KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02 and KDB 248227 D01 v02r02.

The objective is to determine compliance with FCC Part 2.1093 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02. The public notice KDB 447498 D01 v06 for Mobile and Portable Devices RF Exposure Procedure also.

1.4 Test Facility

Address of the test laboratory
Laboratory: Shenzhen SEM Test Technology Co., Ltd.
Address: 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C. (518101）

FCC – Registration No.: 125990
Shenzhen SEM Test Technology 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 maintain ed in our files. The Designation Number is CN5010

Industry Canada (IC) Registration No.: 11464A
The 3m Semi-anechoic chamber of Shenzhen SEM Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

2. Summary of Test Results

The maximum results of Specific Absorption Rate (SAR) have found during testing are as follows:

Front-of-face(25mm Gap)

Frequency Band	Front-of-face (25mm Gap) Maximum SAR_{1g} (W/kg)	SAR_{1g} Limit (W/kg)
GSM	**0.340**	1.6
WCDMA	0.208	1.6
LTE	0.254	1.6
WLAN 2.4G	0.046	1.6
Simultaneous Transmission	0.386	1.6

Body(0mm Gap)

Frequency Band	Body (0mm Gap) Maximum SAR_{1g} (W/kg)	SAR_{1g} Limit (W/kg)
GSM	**0.952**	1.6
WCDMA	0.457	1.6
LTE	0.624	1.6
WLAN 2.4G	0.145	1.6
Simultaneous Transmission	**1.118**	1.6

Remark:

*The highest reported SAR values for Front-of-face, body and simultaneous transmission conditions are **0.340W/kg, 0.952W/kg, and 1.118W/kg** respectively.*

The device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR Part 2.1093 and ANSI/IEEE C95.1-2005, and had been tested in accordance with the measurement methods and procedure specified in IEEE 1528-2013 and KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02

3. Specific Absorption Rate (SAR)

3.1 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 techiques 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.

3.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

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

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

$$\mathbf{SAR} = \mathbf{C}\left(\frac{\boldsymbol{\delta}\mathbf{T}}{\boldsymbol{\delta}\mathbf{t}}\right)$$

Where: C is the specific heat capacity, δ T is the temperature rise and δ t is the exposure duration, or related to the
electrical field in the tissue by

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

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. SAR Measurement System

4.1 The Measurement System

Comosar is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The Comosar system consists of the following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.

The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The OpenSAR software computes the results to give a SAR value in a 1g or 10g mass.

4.2 Probe

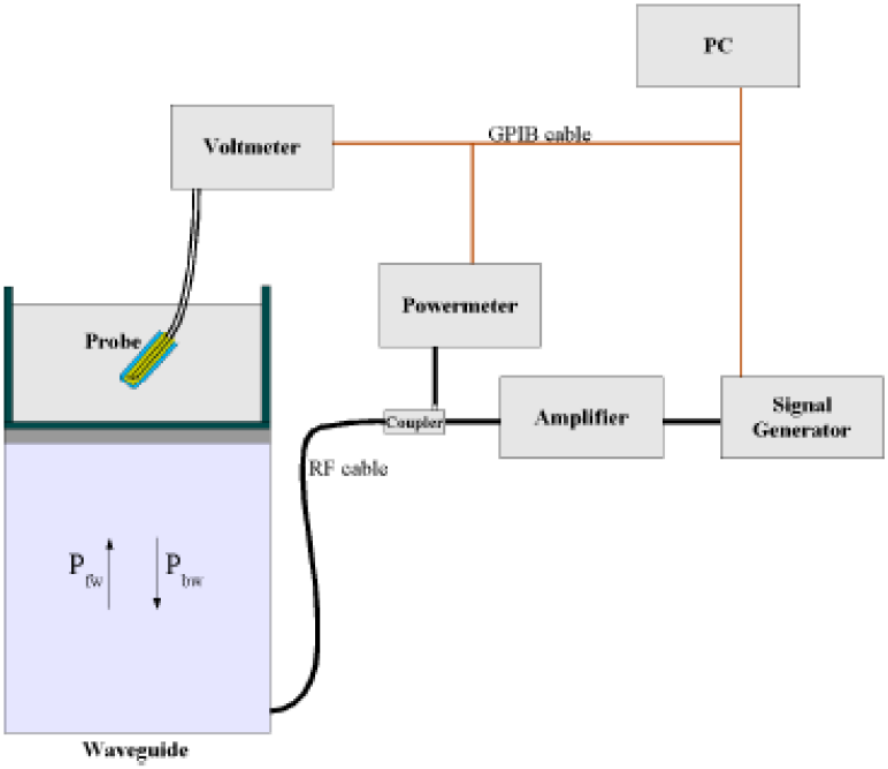
For the measurements the Specific Dosimetric E-Field Probe SSE5 SN 09/13 EP168 with following specifications is used

- Dynamic range: 0.01-100 W/kg
- Probe Length: 330 mm
- Length of Individual Dipoles: 4.5 mm
- Maximum external diameter: 8 mm
- Probe Tip External Diameter : 5 mm
- Distance between dipoles / probe extremity: 2.7mm

- Probe linearity: ＜0.25 dB
- Axial Isotropy: ＜0.25 dB
- Spherical Isotropy: ＜0.50 dB
- Calibration range: 700 to 3000MHz for head & body simulating liquid.

Angle between probe axis (evaluation axis) and suface normal line:1ess than 30°

Probe calibration is realized, in compliance with EN 62209-1 and IEEE 1528 STD, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the EN 62209-1 annexe technique using reference guide at the five frequencies.



$$SAR = \frac{4\,(P_{fw} - P_{bw})}{ab\delta} \cos^2\left(\pi \frac{y}{a}\right) e^{-(2z/\delta)}$$

Where :

Pfw = Forward Power

Pbw = Backward Power

a and b =Waveguide dimensions

I = Skin depth

Keithley configuration:

Rate = Medium; Filter = ON; RDGS = 10; Filter type = Moving Average; Range auto after each calibration, a SAR measurement is performed on a validation dipole and compared with a NPL calibrated probe, to verify it.

The calibration factors, CF(N), for the 3 sensors corresponding to dipole 1, dipole 2 and dipole 3 are:

$$CF(N)=SAR(N)/Vlin(N) \quad (N=1,2,3)$$

The linearised output voltage Vlin(N) is obtained from the displayed output voltage V(N) using

$$Vlin(N)=V(N)*(1+V(N)/DCP(N)) \quad (N=1,2,3)$$

where DCP is the diode compression point in mV.

4.3 Probe Calibration Process

Dosimetric Assessment Procedure

Each E-Probe/Probe Amplifier combination has unique calibration parameters. SATIMO Probe calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm2) using an with CALISAR, Antenna proprietary calibration system.

Free Space Assessment Procedure

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1mW/cm2.

Temperature Assessment Procedure

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated head tissue. The E-field in the medium correlates with the temperature rise in the dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C\frac{\Delta T}{\Delta t}$$

Where:

Δt = exposure time (30 seconds),

C = heat capacity of tissue (brain or muscle),

ΔT = temperature increase due to RF exposure.

SAR is proportional to $\Delta T/\Delta t$, the initial rate of tissue heating, before thermal diffusion takes place. The electric field in the simulated tissue can be used to estimate SAR by equating the thermally derived SAR to that with the E- field component.

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

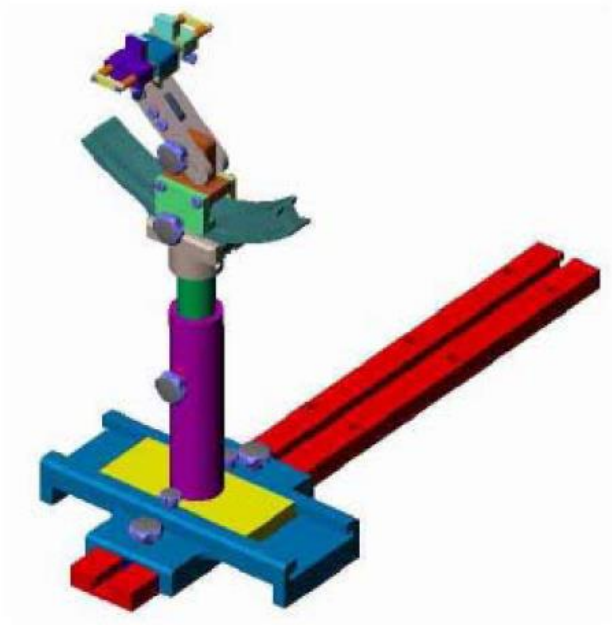
Where:
σ = simulated tissue conductivity,
ρ = Tissue density (1.25 g/cm3 for brain tissue)

4.4 Phantom

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The phantom is a polyurethane shell integrated in a wooden table. The thickness of the phantom amounts to 2mm +/- 0.2mm. It enables the dosimetric evaluation of left and right phone usage and includes an additional flat phantom part for the simplified performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.

4.5 Device Holder

The positioning system allows obtaining cheek and tilting position with a very good accuracy. In compliance with CENELEC, the tilt angle uncertainty is lower than 1 °.



System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

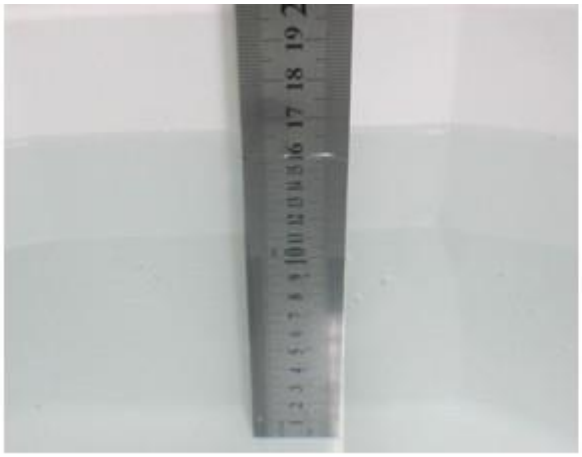
4.6 Test Equipment List

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
E-Field Probe	MVG	SSE5	SN 09/13 EP168	2018-06-01	2019-05-31
750MHz Dipole	MVG	SID750	SN 47/12 DIP 0G750-203	2019-03-16	2020-03-15
835MHz Dipole	MVG	SID835	SN 47/12 DIP 0G835-204	2019-03-16	2020-03-15
1800MHz Dipole	MVG	SID1800	SN 47/12 DIP 1G800-206	2019-03-16	2020-03-15
1900MHz Dipole	MVG	SID1900	SN 47/12 DIP 1G900-207	2019-03-16	2020-03-15
2450MHz Dipole	MVG	SID2450	SN 13/15 DIP 2G450-364	2019-03-16	2020-03-15
2600MHz Dipole	MVG	SID2600	SN 13/15 DIP 2G600-365	2019-03-16	2020-03-15
Dielectric Probe Kit	SATIMO	SCLMP	SN 47/12 OCPG49	2019-03-16	2020-03-15
SAM Phantom	SATIMO	SAM	SN/ 47/12 SAM95	N/A	N/A
MULTIMETER	KEITHLEY	Keithley 2000	4006367	2018-05-22	2019-05-21
Signal Generator	Rohde & Schwarz	SMR20	100047	2018-05-22	2019-05-21
Universal Tester	Rohde & Schwarz	CMU200	112315	2018-05-22	2019-05-21
Communications Tester	Rohde & Schwarz	CMW500	148650	2018-05-22	2019-05-21
Network Analyzer	HP	8753C	SEMT-1064	2018-05-22	2019-05-21
Directional Couplers	Agilent	778D	20160	2018-05-22	2019-05-21

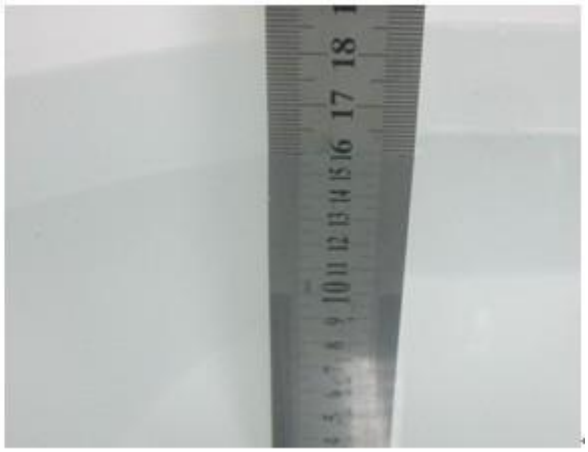
5. Tissue Simulating Liquids

5.1 Composition of Tissue Simulating Liquid

For the measurement of the field distribution inside the SAM phantom with SMTIMO, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm with ≤ ± 0.5 cm variation for SAR measurements ≤ 3 GHz .Please see the following photos for the liquid height.



Liquid Height for Head SAR



Liquid Height for Body SAR

The Composition of Tissue Simulating Liquid

Frequency (MHz)	Water (%)	Salt (%)	Sugar (%)	HEC (%)	Preventol (%)	DGBE (%)
Head						
750	41.1	1.4	57.0	0.2	0.3	0
835	40.3	1.4	57.9	0.2	0.2	0
1800-1900	55.2	0.3	0	0	0	44.5
2450	55.0	0.1	0	0	0	44.9
2600	54.9	0.1	0	0	0	45.0
Body						
750	50.0	0.8	48.8	0.2	0.2	0
835	50.8	0.9	48.1	0.1	0.1	0
1800-1900	70.2	0.4	0	0	0	29.4
2450	68.6	0.1	0	0	0	31.3
2600	68.2	0.1	0	0	0	31.7

5.2 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 (MHz)	Head		Body	
	Conductivity (σ)	Permittivity (ε_r)	Conductivity (σ)	Permittivity (ε_r)
150	0.76	52.3	0.80	61.9
300	0.87	45.3	0.92	58.2
450	0.87	43.5	0.94	56.7
750	**0.89**	**41.9**	**0.96**	**55.5**
835	**0.90**	**41.5**	**0.97**	**55.2**
900	0.97	41.5	1.05	55.0
915	0.98	41.5	1.06	55.0
1450	1.20	40.5	1.30	54.0
1610	1.29	40.3	1.40	53.8
1750	**1.37**	**40.1**	**1.49**	**53.4**
1800-2000	**1.40**	**40.0**	**1.52**	**53.3**
2450	**1.80**	**39.2**	**1.95**	**52.7**
3000	2.40	38.5	2.73	52.0
5800	5.27	35.3	6.00	48.2

5.3 Tissue Calibration Result

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

Calibration Result for Dielectric Parameters of Tissue Simulating Liquid

Head Tissue Simulating Liquid									
Freq. MHz.	Temp. (℃)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ε r)	Target (ε r)	Delta (%)		
750	21.2	0.86	0.89	-3.37	41.32	41.90	-1.38	±5	2019-04-16
835	21.2	0.87	0.90	-3.33	41.11	41.50	-0.94	±5	2019-04-16
1750	21.3	1.37	1.37	0.00	39.02	40.1	-2.69	±5	2019-04-17
1800	21.3	1.37	1.40	-2.14	39.02	40.0	-2.45	±5	2019-04-17
1900	21.3	1.38	1.40	-1.43	38.56	40.00	-3.60	±5	2019-04-17
2450	21.3	1.74	1.80	-3.33	38.15	39.20	-2.68	±5	2019-04-18
2600	21.3	1.93	1.96	-1.53	38.63	39.0	-0.95	±5	2019-04-18

Body Tissue Simulating Liquid									
Freq. MHz.	Temp. (℃)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ε r)	Target (ε r)	Delta (%)		
750	21.2	0.93	0.96	-3.12	54.96	55.50	-0.97	±5	2019-04-16
835	21.2	0.95	0.97	-2.06	54.85	55.20	-0.63	±5	2019-04-16
1750	21.3	1.46	1.49	-2.01	51.22	53.40	-4.08	±5	2019-04-17
1800	21.3	1.46	1.52	-3.95	51.22	53.30	-3.90	±5	2019-04-17
1900	21.3	1.50	1.52	-1.32	52.42	53.30	-1.65	±5	2019-04-17
2450	21.3	1.91	1.95	-2.05	52.01	52.70	-1.31	±5	2019-04-18
2600	21.3	2.12	2.16	-1.85	52.24	52.50	-0.50	±5	2019-04-18

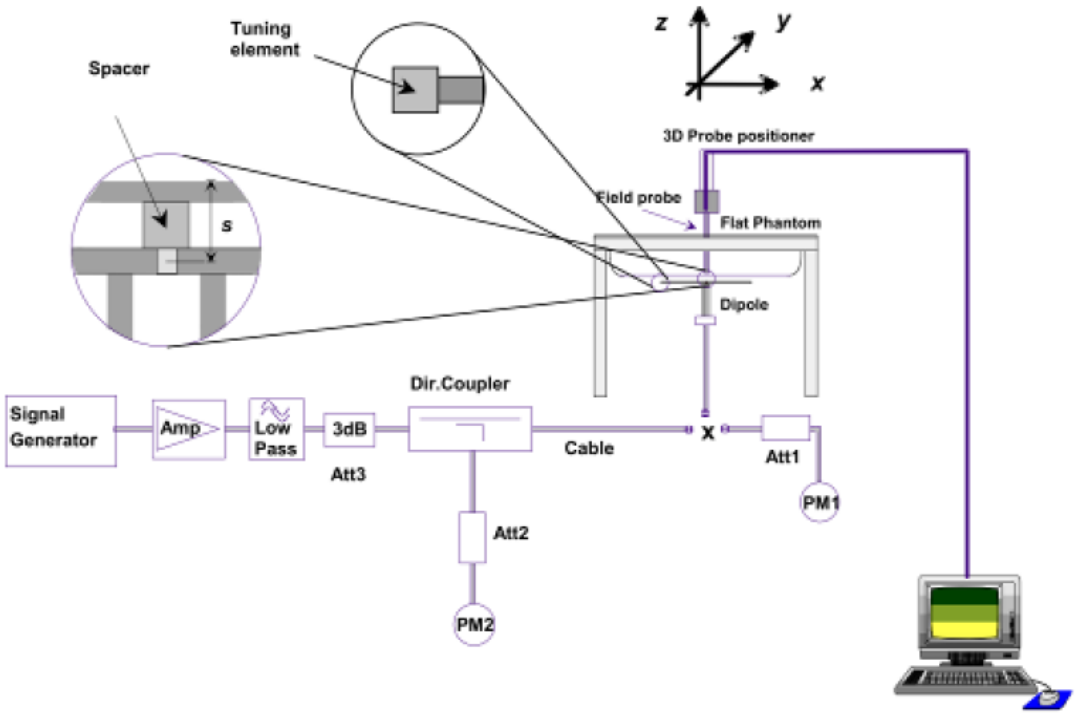
6. SAR Measurement Evaluation

6.1 Purpose of System Performance Check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

6.2 System Setup

In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave which comes from a signal generator at frequency 750 MHz, 835 MHz, 1750 MHz 1800 MHz, 1900 MHz , 2450MHz and 2600MHz. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom.



System Verification Setup Block Diagram

Setup Photo of Dipole Antenna

The output power on dipole port must be calibrated to 24 dBm(250 mW) before dipole is connected.

6.3 Validation Results

Comparing to the original SAR value provided by SATIMO, the validation data should be within its specification of 10 %. Table 6.1 shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion.

Frequency	Targeted SAR_{1g}	Measured SAR_{1g}	Normalized SAR_{1g}	Tolerance	Date
MHz	(W/kg)	(W/kg)	(W/kg)	(%)	
Head					
750	8.40	2.16	8.64	2.86	2019-04-16
835	9.65	2.41	9.64	-0.10	2019-04-16
1800	38.49	9.61	38.44	-0.13	2019-04-17
1900	39.59	9.91	39.64	0.13	2019-04-17
2450	53.76	13.45	53.8	0.07	2019-04-18
2600	55.07	13.67	54.68	-0.71	2019-04-18
Body					
750	8.40	2.12	8.48	0.95	2019-04-16
835	9.36	2.35	9.4	0.43	2019-04-16
1800	38.29	9.58	38.32	0.08	2019-04-17
1900	39.01	9.78	39.12	0.28	2019-04-17
2450	50.33	12.59	50.36	0.06	2019-04-18
2600	53.92	13.43	53.72	-0.37	2019-04-18

Remark: Referring to IEEE 1528-2013, Section 8.2, The system check shall be performed at a test frequency that

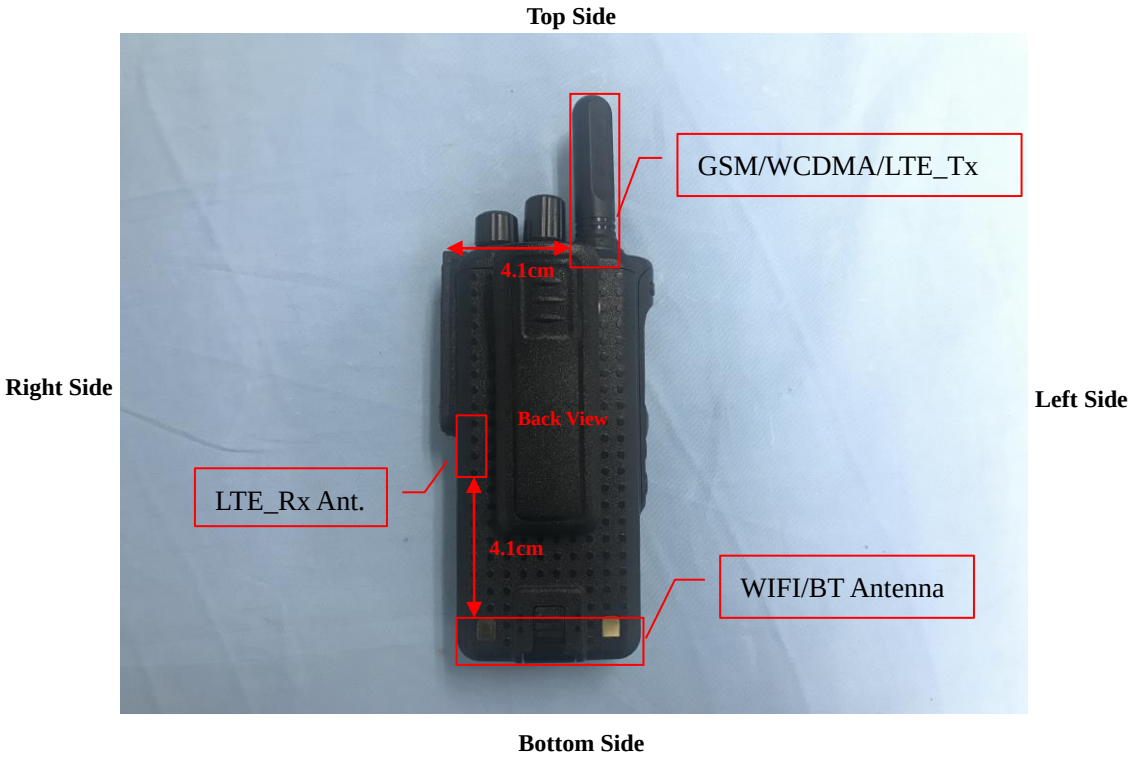
is within ±10% or ±100 MHz of the compliance test mid-band frequency, so the 1750 MHz system verification is made of 1800MHz Dipole.

Targeted and Measurement SAR

Please refer to Annex A for the plots of system performance check.

7. EUT Testing Position

7.1 EUT Antenna Position



Block Diagram for EUT Antenna Position

7.2 EUT Testing Position

Body/ Front-of-face mode SAR assessments are required for this device. This EUT was tested in different positions for different SAR test modes, more information as below:

Body SAR tests, Test distance: 0mm		
Antennas	**Front**	**Back**
WWAN	No	Yes
WLAN	No	Yes

Front-of-face SAR tests, Test distance: 25mm		
Antennas	**Front**	**Back**
WWAN	Yes	No
WLAN	Yes	No

Remark:

1. Referring to KDB 447498 D01 v06, A test separation distance of 25mm must be applied for in-front-of the face SAR test exclusion and SAR measurement .

2 With body worn SAR, the belt-clip is used for body worn operation with only back side position of the device which is touching the body, so body worn SAR for only back side position is performed.

3. The typical use of the product would be the front of the device to the face.

4. The EUT is not a typical of PTT devices, which is supports 2G/3G/4G network communication, so PTT duty cycle correction is not need.

5. Referring to KDB 447498 D01 v06 , All body-worn accessories containing metallic components, either supplied with the product or available as an option from the device manufacturer, must be tested in conjunction with the host device to demonstrate compliance, So tested with belt clip when evaluating body-worn SAR.

6. RF energy will be generated only when the radio is transmitting.

7. The EUT must be 2.5cm away from human face when transmitting. With body worn SAR, the typical use of the products is with the belt clip, and the belt clip t is not to remove. So tested with belt clip when evaluating body-worn SAR.

Please refer to Annex D for the EUT test setup photos.

8. SAR Measurement Procedures

8.1 Measurement Procedures

The measurement procedures are as follows:
(a) Use base station simulator (if applicable) or engineering software to transmit RF power continuously (continuous Tx) in the highest power channel.
(b) Keep EUT to radiate maximum output power or 100% factor (if applicable)
(c) Measure output power through RF cable and power meter.
(d) Place the EUT in the positions as Annex D demonstrates.
(e) Set scan area, grid size and other setting on the SATIMO software.
(f) Measure SAR results for the highest power channel on each testing position.
(g) Find out the largest SAR result on these testing positions of each band
(h) Measure SAR results for other channels in worst SAR testing position if the SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:
(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

8.2 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The SATIMO software includes all numerical procedures necessary to evaluate the spatial peak SAR value.
The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.
The entire evaluation of the spatial peak values is performed within the post-processing engine. The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:
(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

8.3 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan measures 5x5x7 points with step size 8, 8 and 5 mm for 300 MHz to 3 GHz, and 8x8x8 points with step size 4, 4 and 2.5 mm for 3 GHz to 6 GHz. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g.

8.4 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing (step-size is 4, 4 and 2.5 mm). When all volume scan were completed, the software can combine and subsequently superpose these measurement data to calculating the multiband SAR.

8.5 SAR Averaged Methods

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimize measurements errors, but the highest local SAR will occur at the surface of the phantom.

An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1mm step.

The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10g and 1 g requires a very fine resolution in the three dimensional scanned data array.

8.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In SATIMO measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

9. SAR Test Result

9.1 Conducted RF Output Power

GSM - Burst Average Power (dBm)								
Band	**GSM850**			**Tune-up power (dBm)**	**PCS1900**			**Tune-up power (dBm)**
Channel	**128**	**190**	**251**		**512**	**661**	**810**	
Frequency (MHz)	**824.2**	**836.6**	**848.8**		**1850.2**	**1880**	**1909.8**	
GSM	31.6	31.85	32.02	32.5	29.06	28.79	29.00	29.5
GPRS (1 slot)	31.63	31.73	31.73	32.0	29.08	28.88	29.09	29.5
GPRS (2 slots)	30.87	30.98	30.99	31.0	28.36	28.18	28.40	28.5
GPRS (3 slots)	29.10	29.20	29.25	29.5	26.65	26.46	26.72	27.0
GPRS (4 slots)	27.99	28.12	28.17	28.5	25.59	25.36	25.66	26.0
EGPRS (1 slot)	26.29	26.69	26.67	27.0	25.77	25.66	25.52	26.0
EGPRS (2 slots)	25.16	25.51	25.50	26.0	24.81	24.70	24.58	25.0
EGPRS (3 slots)	22.91	23.26	23.17	23.5	22.71	22.58	22.45	23.0
EGPRS (4 slots)	21.70	21.87	21.89	22.0	21.69	21.49	21.44	22.0

GSM - Source-Based Time-Average Power (dBm)								
Band	**GSM850**			**Tune-up power (dBm)**	**PCS1900**			**Tune-up power (dBm)**
Channel	**128**	**190**	**251**		**512**	**661**	**810**	
Frequency (MHz)	**824.2**	**836.6**	**848.8**		**1850.2**	**1880**	**1909.8**	
GSM	22.60	22.85	23.02	23.5	20.06	19.79	20.00	20.5
GPRS (1 slot)	22.63	22.73	22.73	23.0	20.08	19.88	20.09	20.5
GPRS (2 slots)	24.87	24.98	24.99	25.0	22.36	22.18	22.40	22.5
GPRS (3 slots)	24.85	24.95	25.00	25.5	22.40	22.21	22.47	22.5
GPRS (4 slots)	24.99	25.12	25.17	25.5	22.59	22.36	22.66	23.0
EGPRS (1 slot)	17.29	17.69	17.67	18.0	16.77	16.66	16.52	17.0
EGPRS (2 slots)	19.16	19.51	19.50	20.0	18.81	18.70	18.58	19.0
EGPRS (3 slots)	18.66	19.01	18.92	19.5	18.46	18.33	18.20	18.5
EGPRS (4 slots)	18.70	18.87	18.89	19.0	18.69	18.49	18.44	19.0
Note: The source-based time-averaged power is linearly scaled the maximum burst averaged power based on time slots. The calculated method are shown as below: Source based time-average power = Burst averaged power - Duty cycle factor in dB Duty cycle factor = 9 dB for 1 Tx slot, 6 dB for 2 Tx slots, 4.25 dB for 3 Tx slots, 3 dB for 4 Tx slots								

Remark:

1. For Front-of-face SAR testing, GSM and GPRS (4TX slots) and GPRS (4TX slots) should be evaluated, therefore the EUT was set in GSM and GPRS (4TX slots) for GSM850 and GPRS (4TX slots) for GSM1900 due to its highest source-based time-average power.
2. For Body SAR testing, GPRS should be evaluated, therefore the EUT was set in GPRS (4TX slots) for GSM850 and

GPRS (4TX slots) for GSM1900 due to its highest source-based time-average power.

3. Per KDB 447498 D01 v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.

4. The DUT do not support DTM function.

WCDMA - Average Power (dBm)								
Band	**WCDMA Band II**				**WCDMA Band V**			
Channel	**9262**	**9400**	**9538**	**Tune-up power (dBm)**	**4132**	**4182**	**4233**	**Tune-up power (dBm)**
Frequency (MHz)	**1852.4**	**1880.0**	**1907.6**		**826.4**	**836.6**	**846.6**	
RMC 12.2k	22.84	22.35	22.58	23.0	22.88	22.80	22.66	23.0
HSDPA Subtest-1	22.50	21.98	21.88	23.0	21.41	21.27	21.29	21.5
HSDPA Subtest-2	22.48	21.96	21.83	23.0	21.38	21.25	21.26	21.5
HSDPA Subtest-3	22.47	21.97	21.85	23.0	21.39	21.25	21.26	21.5
HSDPA Subtest-4	22.46	21.97	21.84	23.0	21.38	21.24	21.27	21.5
HSUPA Subtest-1	22.53	21.91	21.79	23.0	21.33	21.20	21.28	21.5
HSUPA Subtest-2	22.52	21.87	21.75	23.0	21.31	21.18	21.25	21.5
HSUPA Subtest-3	22.51	21.89	21.76	23.0	21.31	21.17	21.25	21.5
HSUPA Subtest-4	22.51	21.87	21.75	23.0	21.3	21.17	21.26	21.5
HSUPA Subtest-5	22.52	21.86	21.76	23.0	21.3	21.17	21.26	21.5

Remark:

1. Per KDB 941225 D01 v03, The 12.2kbps RMC mode was selected for SAR testing(the primary mode).

2. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤1/4 dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode

FDD-LTE Band 2:

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.61	0
		1	3	23.69	0
		1	5	23.52	0
		3	0	22.5	0
		3	2	22.56	0
		3	3	22.53	0
		6	0	22.65	1
	MCH	1	0	22.62	0
		1	3	22.75	0
		1	5	22.62	0
		3	0	22.68	0
		3	2	22.68	0
		3	3	22.65	0
		6	0	21.79	1
	HCH	1	0	22.68	0
		1	3	22.77	0
		1	5	22.7	0
		3	0	22.72	0
		3	2	22.72	0
		3	3	22.77	0
		6	0	21.86	1
16QAM	LCH	1	0	22.69	1
		1	3	22.36	1
		1	5	22.71	1
		3	0	22.68	1
		3	2	22.67	1
		3	3	22.68	1
		6	0	21.53	2
	MCH	1	0	21.93	1
		1	3	22.14	1
		1	5	21.94	1
		3	0	21.68	1
		3	2	21.73	1
		3	3	21.68	1
		6	0	20.64	2
	HCH	1	0	21.91	1
		1	3	22.14	1

		1	5	21.97	1
		3	0	21.88	1
		3	2	21.88	1
		3	3	21.93	1
		6	0	20.89	2

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.48	0
		1	7	23.7	0
		1	14	23.41	0
		8	0	22.64	1
		8	4	22.64	1
		8	7	22.59	1
		15	0	22.57	1
	MCH	1	0	22.69	0
		1	7	22.91	0
		1	14	22.62	0
		8	0	21.8	1
		8	4	21.79	1
		8	7	21.77	1
		15	0	21.68	1
	HCH	1	0	22.66	0
		1	7	22.78	0
		1	14	22.73	0
		8	0	21.77	1
		8	4	21.85	1
		8	7	21.79	1
		15	0	21.77	1
16QAM	LCH	1	0	22.74	1
		1	7	22.64	1
		1	14	22.73	1
		8	0	21.62	2
		8	4	21.64	2
		8	7	21.52	2
		15	0	21.47	2
	MCH	1	0	21.99	1
		1	7	22.19	1
		1	14	22.02	1
		8	0	20.7	2
		8	4	20.7	2
		8	7	20.66	2

		15	0	20.67	2
	HCH	1	0	21.92	1
		1	7	22.18	1
		1	14	21.98	1
		8	0	20.65	2
		8	4	20.76	2
		8	7	20.67	2
		15	0	20.71	2

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.49	0
		1	12	23.75	0
		1	24	23.35	0
		12	0	22.56	1
		12	6	22.61	1
		12	13	22.49	1
		25	0	22.54	1
	MCH	1	0	22.63	0
		1	12	22.94	0
		1	24	22.58	0
		12	0	21.73	1
		12	6	21.76	1
		12	13	21.65	1
		25	0	21.7	1
	HCH	1	0	22.61	0
		1	12	23.01	0
		1	24	22.69	0
		12	0	21.78	1
		12	6	21.76	1
		12	13	21.69	1
		25	0	21.71	1
16QAM	LCH	1	0	22.7	1
		1	12	23	1
		1	24	22.66	1
		12	0	21.61	2
		12	6	21.66	2
		12	13	21.48	2
		25	0	21.51	2
	MCH	1	0	21.79	1
		1	12	22.12	1
		1	24	21.84	1

		12	0	20.79	2
		12	6	20.86	2
		12	13	20.74	2
		25	0	20.68	2
	HCH	1	0	21.74	1
		1	12	22.08	1
		1	24	21.91	1
		12	0	20.69	2
		12	6	20.74	2
		12	13	20.67	2
		25	0	20.67	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.44	0
		1	24	23.46	0
		1	49	23.14	0
		25	0	22.57	1
		25	12	22.45	1
		25	25	22.48	1
		50	0	22.52	1
	MCH	1	0	22.71	0
		1	24	22.72	0
		1	49	22.54	0
		25	0	21.83	1
		25	12	21.71	1
		25	25	21.65	1
		50	0	21.7	1
	HCH	1	0	22.54	0
		1	24	22.67	0
		1	49	22.71	0
		25	0	21.74	1
		25	12	21.67	1
		25	25	21.62	1
		50	0	21.67	1
16QAM	LCH	1	0	22.74	1
		1	24	22.75	1
		1	49	22.48	1
		25	0	21.56	2
		25	12	21.43	2
		25	25	21.47	2
		50	0	21.46	2

	MCH	1	0	21.95	1
		1	24	22.07	1
		1	49	21.99	1
		25	0	20.79	2
		25	12	20.67	2
		25	25	20.67	2
		50	0	20.7	2
	HCH	1	0	21.76	1
		1	24	21.89	1
		1	49	21.98	1
		25	0	20.68	2
		25	12	20.6	2
		25	25	20.6	2
		50	0	20.65	2

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.37	0
		1	37	23.41	0
		1	74	22.89	0
		37	0	22.54	1
		37	18	22.46	1
		37	38	22.47	1
		75	0	22.56	1
	MCH	1	0	22.75	0
		1	37	22.94	0
		1	74	22.39	0
		37	0	21.98	1
		37	18	21.86	1
		37	38	21.72	1
		75	0	21.89	1
	HCH	1	0	22.43	0
		1	37	22.72	0
		1	74	22.61	0
		37	0	21.75	1
		37	18	21.76	1
		37	38	21.72	1
		75	0	21.71	1
16QAM	LCH	1	0	22.65	1
		1	37	22.71	1
		1	74	22.17	1
		37	0	21.5	2

		37	18	21.39	2
		37	38	21.38	2
		75	0	21.41	2
	MCH	1	0	21.84	1
		1	37	22	1
		1	74	21.81	1
		37	0	20.88	2
		37	18	20.78	2
		37	38	20.69	2
		75	0	20.76	2
	HCH	1	0	21.74	1
		1	37	21.94	1
		1	74	21.88	1
		37	0	20.62	2
		37	18	20.66	2
		37	38	20.6	2
		75	0	20.6	2

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.76	0
		1	49	23.36	0
		1	99	23.56	0
		50	0	22.78	1
		50	25	22.29	1
		50	50	22.31	1
		100	0	22.72	1
	MCH	1	0	22.64	0
		1	49	22.81	0
		1	99	22.26	0
		50	0	21.77	1
		50	25	21.69	1
		50	50	21.59	1
		100	0	21.74	1
	HCH	1	0	22.18	0
		1	49	22.57	0
		1	99	22.33	0
		50	0	21.49	1
		50	25	21.62	1
		50	50	21.39	1
		100	0	21.42	1
16QAM	LCH	1	0	22.47	1

		1	49	22.6	1
		1	99	21.81	1
		50	0	21.27	2
		50	25	21.23	2
		50	50	21.28	2
		100	0	21.27	2
	MCH	1	0	21.88	1
		1	49	22.09	1
		1	99	21.73	1
		50	0	20.75	2
		50	25	20.71	2
		50	50	20.6	2
		100	0	20.65	2
	HCH	1	0	21.58	1
		1	49	21.86	1
		1	99	21.66	1
		50	0	20.53	2
		50	25	20.56	2
		50	50	20.37	2
		100	0	20.46	2

FDD-LTE Band 4:

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.76	0
		1	3	22.94	0
		1	5	22.75	0
		3	0	22.53	0
		3	2	22.51	0
		3	3	22.52	0
		6	0	21.82	1
	MCH	1	0	22.79	0
		1	3	22.94	0
		1	5	22.83	0
		3	0	22.59	0
		3	2	22.51	0
		3	3	22.5	0
		6	0	21.53	1
	HCH	1	0	23.21	0
		1	3	23.38	0

		1	5	23.26	0
		3	0	22.28	0
		3	2	22.28	0
		3	3	22.26	0
		6	0	22.32	1
16QAM	LCH	1	0	21.95	1
		1	3	22.07	1
		1	5	21.93	1
		3	0	21.87	1
		3	2	21.87	1
		3	3	21.88	1
		6	0	20.87	2
	MCH	1	0	21.85	1
		1	3	21.95	1
		1	5	21.86	1
		3	0	21.85	1
		3	2	21.86	1
		3	3	21.89	1
		6	0	20.67	2
	HCH	1	0	22.44	1
		1	3	22.67	1
		1	5	22.46	1
		3	0	22.19	1
		3	2	22.22	1
		3	3	22.18	1
		6	0	21.14	2

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.7	0
		1	7	22.97	0
		1	14	22.72	0
		8	0	21.72	1
		8	4	21.76	1
		8	7	21.72	1
		15	0	21.7	1
	MCH	1	0	22.78	0
		1	7	22.98	0
		1	14	22.78	0
		8	0	21.77	1
		8	4	21.8	1
		8	7	21.76	1

		15	0	21.69	1
	HCH	1	0	23.24	0
		1	7	23.47	0
		1	14	23.27	0
		8	0	22.26	1
		8	4	22.29	1
		8	7	22.24	1
		15	0	22.2	1
16QAM	LCH	1	0	21.91	1
		1	7	22.13	1
		1	14	21.89	1
		8	0	20.72	2
		8	4	20.74	2
		8	7	20.69	2
		15	0	20.62	2
	MCH	1	0	21.98	1
		1	7	22.23	1
		1	14	22.02	1
		8	0	20.7	1
		8	4	20.7	2
		8	7	20.66	2
		15	0	20.66	2
	HCH	1	0	22.37	2
		1	7	22.59	1
		1	14	22.38	1
		8	0	21.12	1
		8	4	21.14	1
		8	7	21.12	2
		15	0	21.13	2

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.75	0
		1	12	23.02	0
		1	24	22.7	0
		12	0	21.66	1
		12	6	21.68	1
		12	13	21.69	1
		25	0	21.73	1
	MCH	1	0	22.73	0
		1	12	22.97	0
		1	24	22.81	0

		12	0	21.69	1
		12	6	21.74	1
		12	13	21.7	1
		25	0	21.71	1
	HCH	1	0	23.22	0
		1	12	23.58	0
		1	24	23.3	0
		12	0	22.12	1
		12	6	22.23	1
		12	13	22.21	1
		25	0	22.21	1
16QAM	LCH	1	0	21.94	1
		1	12	22.19	1
		1	24	21.86	1
		12	0	20.67	2
		12	6	20.74	2
		12	13	20.74	2
		25	0	20.66	2
	MCH	1	0	21.82	1
		1	12	22.18	1
		1	24	21.91	1
		12	0	20.76	2
		12	6	20.83	2
		12	13	20.8	2
		25	0	20.71	2
	HCH	1	0	22.22	1
		1	12	22.58	1
		1	24	22.3	1
		12	0	21.12	2
		12	6	21.22	2
		12	13	21.14	2
		25	0	21.2	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.68	0
		1	24	22.87	0
		1	49	22.63	0
		25	0	21.71	1
		25	12	21.7	1
		25	25	21.76	1
		50	0	21.68	1
	MCH	1	0	22.72	0
		1	24	22.95	0
		1	49	22.84	0
		25	0	21.78	1
		25	12	21.8	1
		25	25	21.83	1
		50	0	21.77	1
	HCH	1	0	23.04	0
		1	24	23.33	0
		1	49	23.26	0
		25	0	22.14	1
		25	12	22.16	1
		25	25	22.27	1
		50	0	22.12	1
16QAM	LCH	1	0	21.94	1
		1	24	22.08	1
		1	49	21.84	1
		25	0	20.67	2
		25	12	20.66	2
		25	25	20.73	2
		50	0	20.7	2
	MCH	1	0	21.99	1
		1	24	22.19	1
		1	49	22.08	1
		25	0	20.76	2
		25	12	20.74	2
		25	25	20.83	2
		50	0	20.77	2
	HCH	1	0	22.17	1
		1	24	22.48	1
		1	49	22.36	1
		25	0	21.08	2

		25	12	21.12	2
		25	25	21.2	2
		50	0	21.12	2

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.64	0
		1	37	22.9	0
		1	74	22.58	0
		37	0	21.78	1
		37	18	21.81	1
		37	38	21.8	1
		75	0	21.8	1
	MCH	1	0	22.68	0
		1	37	23.01	0
		1	74	22.87	0
		37	0	21.8	1
		37	18	21.91	1
		37	38	21.97	1
		75	0	21.94	1
	HCH	1	0	22.91	0
		1	37	23.37	0
		1	74	23.2	0
		37	0	22.14	1
		37	18	22.21	1
		37	38	22.29	1
		75	0	21.94	1
16QAM	LCH	1	0	21.86	1
		1	37	21.99	1
		1	74	21.79	1
		37	0	20.68	2
		37	18	20.72	2
		37	38	20.71	2
		75	0	20.69	2
	MCH	1	0	21.84	1
		1	37	22.22	1
		1	74	21.99	1
		37	0	20.76	2
		37	18	20.85	2
		37	38	20.91	2
		75	0	20.79	2
	HCH	1	0	22.05	1

		1	37	22.36	1
		1	74	22.31	1
		37	0	20.84	2
		37	18	20.77	2
		37	38	20.8	2
		75	0	20.79	2

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.59	0
		1	49	23.57	0
		1	99	23.12	0
		50	0	22.66	1
		50	25	22.64	1
		50	50	22.66	1
		100	0	22.68	1
	MCH	1	0	23.17	0
		1	49	23.28	0
		1	99	22.77	0
		50	0	22.13	1
		50	25	22.08	1
		50	50	21.94	1
		100	0	22.05	1
	HCH	1	0	22.7	0
		1	49	22.88	0
		1	99	22.36	0
		50	0	21.93	1
		50	25	21.83	1
		50	50	21.84	1
		100	0	21.83	1
16QAM	LCH	1	0	22.24	1
		1	49	22.54	1
		1	99	22.01	1
		50	0	21.04	2
		50	25	21.11	2
		50	50	21.05	2
		100	0	21.04	2
	MCH	1	0	22.18	1
		1	49	22.45	1
		1	99	22.01	1
		50	0	21.03	2
		50	25	21.03	2

		50	50	20.93	2
		100	0	20.94	2
	HCH	1	0	21.86	1
		1	49	22.1	1
		1	99	21.47	1
		50	0	20.88	2
		50	25	20.77	2
		50	50	20.8	2
		100	0	20.81	2

FDD-LTE Band 5:

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.18	0
		1	3	23.16	0
		1	5	23.09	0
		3	0	22.07	0
		3	2	22.09	0
		3	3	22.05	0
		6	0	22.16	1
	MCH	1	0	22.48	0
		1	3	22.57	0
		1	5	22.44	0
		3	0	22.24	0
		3	2	22.29	0
		3	3	22.29	0
		6	0	21.51	1
	HCH	1	0	22.31	0
		1	3	22.48	0
		1	5	22.32	0
		3	0	22.27	0
		3	2	22.11	0
		3	3	22.19	0
		6	0	21.35	1
16QAM	LCH	1	0	22.14	1
		1	3	22.24	1
		1	5	22.13	1
		3	0	22.08	1
		3	2	22.11	1
		3	3	22.04	1
		6	0	20.97	2

	MCH	1	0	21.74	1
		1	3	21.9	1
		1	5	21.71	1
		3	0	21.44	1
		3	2	21.45	1
		3	3	21.44	1
		6	0	20.37	2
	HCH	1	0	21.48	1
		1	3	21.65	1
		1	5	21.53	1
		3	0	21.48	1
		3	2	21.42	1
		3	3	21.42	1
		6	0	21.29	2

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.14	0
		1	7	23.31	0
		1	14	23.05	0
		8	0	22.13	1
		8	4	22.16	1
		8	7	22.1	1
		15	0	22.07	1
	MCH	1	0	22.61	0
		1	7	22.78	0
		1	14	22.53	0
		8	0	21.57	1
		8	4	21.58	1
		8	7	21.53	1
		15	0	21.48	1
	HCH	1	0	22.39	0
		1	7	22.6	0
		1	14	22.39	0
		8	0	21.38	1
		8	4	21.45	1
		8	7	21.41	1
		15	0	21.38	1
16QAM	LCH	1	0	22.24	1
		1	7	22.41	1
		1	14	22.21	1
		8	0	21.09	2

		8	4	21.1	2
		8	7	21.01	2
		15	0	20.94	2
	MCH	1	0	21.88	1
		1	7	22.02	1
		1	14	21.8	1
		8	0	20.47	2
		8	4	20.47	2
		8	7	20.43	2
		15	0	20.45	2
	HCH	1	0	21.63	1
		1	7	21.82	1
		1	14	21.63	1
		8	0	20.39	2
		8	4	20.46	2
		8	7	20.4	2
		15	0	20.32	2

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.15	0
		1	12	23.31	0
		1	24	22.9	0
		12	0	22.01	1
		12	6	22.05	1
		12	13	21.93	1
		25	0	21.97	1
	MCH	1	0	22.62	0
		1	12	22.86	0
		1	24	22.41	0
		12	0	21.5	1
		12	6	21.56	1
		12	13	21.48	1
		25	0	21.53	1
	HCH	1	0	22.44	0
		1	12	22.7	0
		1	24	22.38	0
		12	0	21.44	1
		12	6	21.42	1
		12	13	21.39	1
		25	0	21.4	1
16QAM	LCH	1	0	22.22	1

		1	12	22.37	1
		1	24	22.08	1
		12	0	21.02	2
		12	6	21.02	2
		12	13	20.94	2
		25	0	20.92	2
	MCH	1	0	21.76	1
		1	12	21.96	1
		1	24	21.59	1
		12	0	20.56	2
		12	6	20.63	2
		12	13	20.56	2
		25	0	20.47	2
	HCH	1	0	21.67	1
		1	12	21.88	1
		1	24	21.57	1
		12	0	20.43	2
		12	6	20.48	2
		12	13	20.38	2
		25	0	20.37	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.32	0
		1	24	23.08	0
		1	49	23.09	0
		25	0	22.28	1
		25	12	22.31	1
		25	25	22.26	1
		50	0	22.29	1
	MCH	1	0	22.75	0
		1	24	22.54	0
		1	49	22.34	0
		25	0	21.64	1
		25	12	21.59	1
		25	25	21.54	1
		50	0	21.51	1
	HCH	1	0	22.44	0
		1	24	22.59	0
		1	49	22.37	0
		25	0	21.47	1
		25	12	21.25	1

		25	25	21.33	1
		50	0	21.37	1
16QAM	LCH	1	0	22.25	1
		1	24	22.29	1
		1	49	21.89	1
		25	0	21.05	2
		25	12	20.95	2
		25	25	20.85	2
		50	0	20.89	2
	MCH	1	0	21.88	1
		1	24	21.93	1
		1	49	21.67	1
		25	0	20.57	2
		25	12	20.54	2
		25	25	20.57	2
		50	0	20.57	2
	HCH	1	0	21.7	1
		1	24	21.77	1
		1	49	21.4	1
		25	0	20.6	2
		25	12	20.34	2
		25	25	20.69	2
		50	0	20.49	2

FDD-LTE Band 7:

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.66	0
		1	12	22.45	0
		1	24	22.58	0
		12	0	21.55	1
		12	6	21.59	1
		12	13	21.51	1
		25	0	21.5	1
	MCH	1	0	21.96	0
		1	12	22.37	0
		1	24	22.06	0
		12	0	20.99	1
		12	6	21.06	1
		12	13	21.02	1
		25	0	21.02	1
	HCH	1	0	22.03	0
		1	12	22.24	0
		1	24	22.06	0
		12	0	21.05	1
		12	6	21.06	1
		12	13	21.03	1
		25	0	21.02	1
16QAM	LCH	1	0	21.61	1
		1	12	21.76	1
		1	24	21.47	1
		12	0	20.47	2
		12	6	20.5	2
		12	13	20.42	2
		25	0	20.38	2
	MCH	1	0	21.07	1
		1	12	21.39	1
		1	24	21.06	1
		12	0	20.65	2
		12	6	20.74	2
		12	13	20.65	2
		25	0	20.62	2
	HCH	1	0	21.11	1
		1	12	21.4	1

		1	24	21.06	1
		12	0	20.36	2
		12	6	20.58	2
		12	13	20.73	2
		25	0	20.68	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.39	0
		1	24	22.32	0
		1	49	22.31	0
		25	0	21.55	1
		25	12	21.54	1
		25	25	21.41	1
		50	0	21.45	1
	MCH	1	0	22.01	0
		1	24	22.22	0
		1	49	22.14	0
		25	0	21.07	1
		25	12	21.05	1
		25	25	21.06	1
		50	0	20.98	1
	HCH	1	0	22.11	0
		1	24	22.12	0
		1	49	22	0
		25	0	21.15	1
		25	12	21.13	1
		25	25	21.15	1
		50	0	21.16	1
16QAM	LCH	1	0	21.67	1
		1	24	21.61	1
		1	49	21.39	1
		25	0	20.43	2
		25	12	20.37	2
		25	25	20.69	2
		50	0	20.35	2
	MCH	1	0	21.25	1
		1	24	21.33	1
		1	49	21.2	1
		25	0	20.68	2
		25	12	20.71	2
		25	25	20.65	2

		50	0	20.65	2
	HCH	1	0	21.3	1
		1	24	21.32	1
		1	49	21.09	1
		25	0	20.59	2
		25	12	20.96	2
		25	25	20.74	2
		50	0	20.97	2

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.39	0
		1	37	22.19	0
		1	74	22.15	0
		37	0	21.56	1
		37	18	21.53	1
		37	38	21.58	1
		75	0	21.56	1
	MCH	1	0	22	0
		1	37	22.35	0
		1	74	22.21	0
		37	0	21.02	1
		37	18	21.21	1
		37	38	21.23	1
		75	0	21.22	1
	HCH	1	0	22.08	0
		1	37	22.07	0
		1	74	22.1	0
		37	0	21.17	1
		37	18	21.18	1
		37	38	21.24	1
		75	0	21.24	1
16QAM	LCH	1	0	21.61	1
		1	37	21.56	1
		1	74	21.26	1
		37	0	20.61	2
		37	18	20.48	2
		37	38	20.35	2
		75	0	20.49	2
	MCH	1	0	21.21	1
		1	37	21.37	1
		1	74	21.1	1

		37	0	20.68	2
		37	18	20.46	2
		37	38	20.36	2
		75	0	20.65	2
	HCH	1	0	21.23	1
		1	37	21.42	1
		1	74	21	1
		37	0	20.65	2
		37	18	20.42	2
		37	38	20.65	2
		75	0	20.69	2

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.67	0
		1	49	22.26	0
		1	99	22.03	0
		50	0	21.64	1
		50	25	21.63	1
		50	50	21.62	1
		100	0	21.63	1
	MCH	1	0	21.92	0
		1	49	22.38	0
		1	99	22.03	0
		50	0	20.91	1
		50	25	21.04	1
		50	50	20.95	1
		100	0	20.89	1
	HCH	1	0	21.78	0
		1	49	21.98	0
		1	99	21.94	0
		50	0	21.09	1
		50	25	21.13	1
		50	50	21.15	1
		100	0	21.11	1
16QAM	LCH	1	0	21.47	1
		1	49	21.53	1
		1	99	21.12	1
		50	0	20.4	2
		50	25	20.39	2
		50	50	20.76	2
		100	0	20.69	2

	MCH	1	0	21.17	1
		1	49	21.39	1
		1	99	21.09	1
		50	0	20.87	2
		50	25	20.85	2
		50	50	20.68	2
		100	0	20.83	2
	HCH	1	0	20.89	1
		1	49	21.33	1
		1	99	20.84	1
		50	0	20.65	2
		50	25	20.72	2
		50	50	20.69	2
		100	0	20.56	2

FDD-LTE Band 12:

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.85	0
		1	3	22.99	0
		1	5	22.82	0
		3	0	21.9	0
		3	2	21.97	0
		3	3	21.93	0
		6	0	20.96	1
	MCH	1	0	22.48	0
		1	3	22.59	0
		1	5	22.41	0
		3	0	21.59	0
		3	2	21.6	0
		3	3	21.57	0
		6	0	20.62	1
	HCH	1	0	22.06	0
		1	3	22.18	0
		1	5	22.06	0
		3	0	22.17	0
		3	2	22.17	0
		3	3	22.11	0
		6	0	21.23	1
16QAM	LCH	1	0	22.19	1
		1	3	22.35	1
		1	5	22.14	1
		3	0	22.15	1
		3	2	22.14	1
		3	3	22.14	1
		6	0	20.91	2
	MCH	1	0	21.87	1
		1	3	21.95	1
		1	5	21.81	1
		3	0	21.61	1
		3	2	21.65	1
		3	3	21.6	1
		6	0	20.51	2
	HCH	1	0	21.33	1
		1	3	21.41	1

		1	5	21.2	1
		3	0	21.3	1
		3	2	21.27	1
		3	3	21.22	1
		6	0	20.58	2

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.79	0
		1	7	23.05	0
		1	14	22.71	0
		8	0	21.98	1
		8	4	21.96	1
		8	7	21.92	1
		15	0	21.94	1
	MCH	1	0	22.53	0
		1	7	22.61	0
		1	14	22.39	0
		8	0	21.63	1
		8	4	21.69	1
		8	7	21.62	1
		15	0	21.55	1
	HCH	1	0	22.27	0
		1	7	22.34	0
		1	14	22.05	0
		8	0	21.26	1
		8	4	21.26	1
		8	7	21.24	1
		15	0	21.18	1
16QAM	LCH	1	0	22.13	1
		1	7	22.44	1
		1	14	22.14	1
		8	0	21	2
		8	4	21.07	2
		8	7	20.98	2
		15	0	20.93	2
	MCH	1	0	21.92	1
		1	7	22.04	1
		1	14	21.82	1
		8	0	20.59	2
		8	4	20.57	2
		8	7	20.52	2

		15	0	20.55	2
	HCH	1	0	21.61	1
		1	7	21.63	1
		1	14	21.2	1
		8	0	20.65	2
		8	4	20.75	2
		8	7	20.63	2
		15	0	20.47	2

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.76	0
		1	12	23.15	0
		1	24	22.55	0
		12	0	21.96	1
		12	6	21.92	1
		12	13	21.82	1
		25	0	21.95	1
	MCH	1	0	22.48	0
		1	12	22.79	0
		1	24	22.31	0
		12	0	21.46	1
		12	6	21.61	1
		12	13	21.42	1
		25	0	21.48	1
	HCH	1	0	22.25	0
		1	12	22.39	0
		1	24	22.72	0
		12	0	21.41	1
		12	6	21.35	1
		12	13	21.25	1
		25	0	21.4	1
16QAM	LCH	1	0	22.12	1
		1	12	22.05	1
		1	24	21.93	1
		12	0	21.05	2
		12	6	21.01	2
		12	13	20.91	2
		25	0	20.96	2
	MCH	1	0	21.76	1
		1	12	22	1
		1	24	21.58	1

		12	0	20.66	2
		12	6	20.74	2
		12	13	20.58	2
		25	0	20.51	2
	HCH	1	0	21.51	1
		1	12	21.79	1
		1	24	21.18	1
		12	0	20.47	2
		12	6	20.38	2
		12	13	20.63	2
		25	0	20.42	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.71	0
		1	24	23.16	0
		1	49	22.36	0
		25	0	22.14	1
		25	12	22.18	1
		25	25	22.15	1
		50	0	22.19	1
	MCH	1	0	22.59	0
		1	24	22.56	0
		1	49	22.24	0
		25	0	21.47	1
		25	12	21.55	1
		25	25	21.27	1
		50	0	21.37	1
	HCH	1	0	22.48	0
		1	24	22.43	0
		1	49	22.05	0
		25	0	21.67	1
		25	12	21.5	1
		25	25	21.29	1
		50	0	21.53	1
16QAM	LCH	1	0	22.14	1
		1	24	22.07	1
		1	49	21.65	1
		25	0	20.96	2
		25	12	20.76	2
		25	25	20.82	2
		50	0	20.89	2

	MCH	1	0	22.11	1
		1	24	21.99	1
		1	49	21.76	1
		25	0	20.47	2
		25	12	20.57	2
		25	25	20.33	2
		50	0	20.39	2
	HCH	1	0	21.16	1
		1	24	21.79	1
		1	49	21.25	1
		25	0	20.6	2
		25	12	20.48	2
		25	25	20.32	2
		50	0	20.51	2

FDD-LTE Band 13:

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.70	0
		1	12	23.21	0
		1	24	22.89	0
		12	0	21.74	1
		12	6	21.89	1
		12	13	21.77	1
		25	0	21.80	1
	MCH	1	0	22.86	0
		1	12	23.23	0
		1	24	23.02	0
		12	0	21.96	1
		12	6	21.96	1
		12	13	21.93	1
		25	0	21.98	1
	HCH	1	0	22.89	0
		1	12	23.17	0
		1	24	23.09	0
		12	0	21.91	1
		12	6	22.00	1
		12	13	22.08	1
		25	0	22.05	1
16QAM	LCH	1	0	21.81	1
		1	12	22.16	1

		1	24	22.07	1
		12	0	21.04	2
		12	6	21.07	2
		12	13	21.03	2
		25	0	20.90	2
	MCH	1	0	21.98	1
		1	12	22.37	1
		1	24	22.08	1
		12	0	21.09	2
		12	6	21.07	2
		12	13	20.99	2
		25	0	21.05	2
	HCH	1	0	22.10	1
		1	12	22.44	1
		1	24	22.16	1
		12	0	21.02	2
		12	6	21.15	2
		12	13	21.14	2
		25	0	21.09	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
	MCH	1	0	22.13	0
		1	24	23.24	0
		1	49	23.12	0
		25	0	22.03	1
		25	12	21.91	1
		25	25	22.13	1
		50	0	22.04	1
	HCH	/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/

		/	/	/	/
16QAM	LCH	/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
	MCH	1	0	21.87	1
		1	24	22.27	1
		1	49	22.17	1
		25	0	21.13	2
		25	12	21.07	2
		25	25	21.17	2
		50	0	21.09	2
	HCH	/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/

FDD-LTE Band 17:

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.54	0
		1	12	22.82	0
		1	24	22.35	0
		12	0	21.51	1
		12	6	21.6	1
		12	13	21.56	1
		25	0	21.55	1
	MCH	1	0	22.41	0
		1	12	22.69	0
		1	24	22.19	0
		12	0	21.53	1
		12	6	21.5	1
		12	13	21.21	1
		25	0	21.43	1
	HCH	1	0	22.25	0
		1	12	22.24	0
		1	24	22.61	0
		12	0	21.44	1
		12	6	21.34	1
		12	13	21.2	1
		25	0	21.33	1
16QAM	LCH	1	0	21.86	1
		1	12	21.54	1
		1	24	21.62	1
		12	0	20.58	2
		12	6	20.73	2
		12	13	20.69	2
		25	0	20.55	2
	MCH	1	0	21.67	1
		1	12	21.89	1
		1	24	21.5	1
		12	0	20.5	2
		12	6	20.47	2
		12	13	20.69	2
		25	0	20.44	2
	HCH	1	0	21.58	1
		1	12	21.78	1
		1	24	21.19	1

		12	0	20.5	2
		12	6	20.41	2
		12	13	20.57	2
		25	0	20.35	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.42	0
		1	24	22.48	0
		1	49	22.07	0
		25	0	21.44	1
		25	12	21.42	1
		25	25	21.11	1
		50	0	21.29	1
	MCH	1	0	22.45	0
		1	24	22.45	0
		1	49	22.05	0
		25	0	21.49	1
		25	12	21.43	1
		25	25	21.19	1
		50	0	21.32	1
	HCH	1	0	22.44	0
		1	24	22.89	0
		1	49	22.02	0
		25	0	21.62	1
		25	12	21.46	1
		25	25	21.27	1
		50	0	21.45	1
16QAM	LCH	1	0	21.62	1
		1	24	21.72	1
		1	49	21.46	1
		25	0	20.39	2
		25	12	20.44	2
		25	25	20.46	2
		50	0	20.73	2
	MCH	1	0	21.87	1
		1	24	21.93	1
		1	49	21.51	1
		25	0	20.50	2
		25	12	20.45	2
		25	25	20.54	2
		50	0	20.34	2

	HCH	1	0	21.72	1
		1	24	21.78	1
		1	49	21.26	1
		25	0	20.60	2
		25	12	20.45	2
		25	25	20.69	2
		50	0	20.48	2

Remark:

1. Per KDB941225 D05 v02r05, Start with the largest channel bandwidth then measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle, and lower edge of each required test channel. When the reported SAR is≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB 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. 6 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.
2. Per KDB941225 D05 v02r05, The procedures required for 1 RB allocation in 5.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.
3. Per KDB941225 D05 v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations, and the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB941225 D05 v02r05, For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in 5.2.1, 5.2.2, and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg

WLAN - Maximum Average Power					
Test Mode	**Data Rate**	**Channel**	**Frequency (MHz)**	**Average Power (dBm)**	**Tune-up power (dBm)**
802.11b	1Mbps	CH 01	2412	14.85	15.5
		CH 06	2437	15.31	15.5
		CH 11	2462	14.85	15.5
802.11g	6Mbps	CH 01	2412	13.72	14.0
		CH 06	2437	13.96	14.0
		CH 11	2462	13.69	14.0
802.11n (20MHz)	MCS0	CH 01	2412	14.02	14.5
		CH 06	2437	13.9	14.5
		CH 11	2462	13.96	14.5
802.11n (40MHz)	MCS0	CH 03	2422	13.56	14.0
		CH 06	2437	12.92	14.0
		CH 09	2452	12.9	14.0

Remark:

1. Per KDB 248227 D01 v02r02, For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions.

2. Per KDB 248227 D01 v02r02, For 802.11b DSSS SAR measurements ,when the reported SAR of the highest measured maximum output power channel (see 3.1) for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration. When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

3 .For OFDM modes (802.11g/n), SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and it is <= 1.2W/kg.

Bluetooth - Maximum Average Power			
Test Mode	**Data Rate**	**Average Power(dBm)**	**Tune-up power (dBm)**
GFSK	1Mbps	5.548	6.0
Pi/4 QDPSK	2Mbps	4.938	6.0
8DPSK	3Mbps	5.036	6.0

Bluetooth - Maximum Average Power					
Test Mode	**Data Rate**	**Channel**	**Frequency (MHz)**	**Average Power (dBm)**	**Tune-up power (dBm)**
BLE	1Mbps	CH 00	2402	5.028	6.0
		CH 19	2440	5.711	6.0
		CH 39	2480	5.394	6.0

Remark:

Bluetooth maximum output power is 5.711dBm, and Maximum Tune-Up output power is 6.0dBm. Per KDB 447498 D01 V06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, 4.87mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,16 where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation17
- The result is rounded to one decimal place for comparison

Bluetooth:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
6	3.98	5	2.440	1.24	3

The exclusion thresholds is1.24< 3, therefore, the RF exposure evaluation is not required.

9.2 Test Results for Standalone SAR Test

Front-of-face SAR

GSM850 – Head SAR Test (Gap: 25mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
1.	GSM	Front side	251	848.8	32.02	32.5	1.117	0.304	0.340

GSM1900 – Head SAR Test (Gap: 25mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
2.	GSM	Front side	512	1850.2	29.06	29.5	1.107	0.021	0.023

GSM850 –Head SAR Test (Gap: 25mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
3.	GPRS_4TX	Front side	251	848.8	28.17	28.5	1.079	0.304	0.328

GSM1900 –Head SAR Test (Gap: 25mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
4.	GPRS_4TX	Front side	810	1909.8	25.66	26.0	1.081	0.032	0.035

WCDMA Band 2 –Head SAR Test (Gap: 25mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
5.	RMC 12.2k	Front side	9262	1852.4	22.84	23.0	1.038	0.06	0.062

WCDMA Band 5 –Head SAR Test (Gap: 25mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
6.	RMC 12.2k	Front Side	4132	826.4	22.88	23.0	1.028	0.202	0.208

LTE Band 2–Head SAR Test (Gap: 25mm)								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			
7.	QPSK 20MHz 1RB	Front Side	1860.0	23.76	24.0	1.057	0.084	0.089
8.	QPSK 20MHz 50%RB	Front Side	1860.0	22.78	23.0	1.052	0.041	0.043

LTE Band 4–Head SAR Test (Gap: 25mm)								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			
9.	QPSK 20MHz 1RB	Front Side	1720.0	23.59	24.0	1.099	0.186	0.204
10.	QPSK 20MHz 50%RB	Front Side	1720.0	22.66	23.0	1.081	0.091	0.098

LTE Band 5–Head SAR Test (Gap: 25mm)								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			
11.	QPSK 10MHz 1RB	Front Side	829.0	23.32	23.5	1.042	0.242	0.252
12.	QPSK 10MHz 50%RB	Front Side	829.0	22.31	22.5	1.045	0.11	0.115

LTE Band 7–Head SAR Test (Gap: 25mm)								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			
13.	QPSK 20MHz 1RB	Front Side	2510.0	22.67	23.0	1.079	0.087	0.094
14.	QPSK 20MHz 50%RB	Front Side	2510.0	21.64	22.0	1.086	0.042	0.046

LTE Band 12–Head SAR Test (Gap: 25mm)								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			
15.	QPSK 10MHz 1RB	Front Side	704.0	23.16	23.5	1.081	0.178	0.192
16.	QPSK 10MHz 50%RB	Front Side	704.0	22.18	22.5	1.076	0.074	0.080

LTE Band 13–Head SAR Test (Gap: 25mm)								
Plot No.	Mode	Test Position Body	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
17.	QPSK 10MHz 1RB	Front Side	782.0	23.24	23.5	1.062	0.239	0.254
18.	QPSK 10MHz 50%RB	Front Side	782.0	22.13	22.5	1.089	0.121	0.132

LTE Band 17–Head SAR Test (Gap: 25mm)								
Plot No.	Mode	Test Position Body	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
19.	QPSK 10MHz 1RB	Front Side	711.0	22.89	23.0	1.026	0.185	0.190
20.	QPSK 10MHz 50%RB	Front Side	711.0	21.62	22.0	1.091	0.093	0.102

WLAN 2.4GHz –Head SAR Test (Gap: 25mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
21.	802.11b	Front Side	06	2437	15.31	15.5	1.045	0.044	0.046

Remark: Per KDB 447498 D01 v06, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

Body SAR

GSM850 – Body SAR Test (Gap: 0mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
22.	GPRS_4TX	Back Side	251	848.8	28.17	28.5	1.079	0.882	0.952
23.	GPRS_4TX	Back Side	128	824.2	27.99	28.5	1.125	0.646	0.726
24.	GPRS_4TX	Back Side	190	836.6	28.12	28.5	1.091	0.719	0.785

GSM1900 – Body SAR Test (Gap: 0mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
25.	GPRS_4TX	Back Side	810	1909.8	25.66	26.0	1.081	0.076	0.082

WCDMA Band 2 – Body SAR Test (Gap: 0mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
26.	RMC 12.2k	Back Side	9262	1852.4	22.84	23.0	1.038	0.118	0.122

WCDMA Band 5 – Body SAR Test (Gap: 0mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
27.	RMC 12.2k	Back Side	4132	826.4	22.88	23.0	1.028	0.445	0.457

LTE Band 2–Body SAR Test (Gap: 0mm)								
Plot No.	Mode	Test Position Body	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
28.	QPSK 20MHz 1RB	Back Side	1860.0	23.76	24.0	1.057	0.151	0.160
29.	QPSK 20MHz 50%RB	Back Side	1860.0	22.78	23.0	1.052	0.072	0.076