FCC SAR Test Report

APPLICANT	:	MiTAC Digital Technology Corporation
EQUIPMENT	:	Tablet
BRAND NAME	:	MiTAC, Mio, NAVMAN, MAGELLAN
MODEL NAME	:	N564B
FCC ID	:	P4Q-N564B
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and had been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.)

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA722135-07	Rev. 01	Initial issue of report	May 24, 2018

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **MiTAC Digital Technology Corporation, Tablet, N564B**, are as follows.

Equipment Class	Frequency Band		Highest SAR Summary Body 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
Licensed	WCDMA	WCDMA II	1.09	1.40
		WCDMA V	1.19	
	LTE	LTE Band 2	1.16	
		LTE Band 4	1.02	
		LTE Band 5	1.15	
		LTE Band 12	1.06	
DTS	WLAN	2.4GHz WLAN	0.92	1.37
NII		5GHz WLAN	0.97	1.40
Date of Testing:			2018/3/28 ~ 2018/4/13	

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications

2. Administration Data

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	MiTAC Digital Technology Corporation
Address	No.200, Wen Hua 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

Manufacturer	
Company Name	MITAC Computer (Kunshan) Co,. Ltd.
Address	No. 269, 2nd Avenue, District A, Conprehensive Free Trade Zone, 300 Kunshan, China

3. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Tablet
Brand Name	MiTAC, Mio, NAVMAN, MAGELLAN
Model Name	N564B
FCC ID	P4Q-N564B
IMEI Code	357649070021392
Wireless Technology and Frequency Range	WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	RMC/AMR 12.2Kbps HSDPA HSUPA LTE: QPSK, 16QAM WLAN 2.4GHz : 802.11b/g/n HT20 WLAN 5GHz : 802.11a/n HT20/HT40 Bluetooth BR/EDR/LE NFC:ASK
EUT Stage	Production Unit

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	P4Q-N564B
Equipment Name	Tablet
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz
Channel Bandwidth	LTE Band 02:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 04:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 05:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz
uplink modulations used	QPSK / 16QAM
LTE Voice / Data requirements	Data only
LTE MPR permanently built-in by design	Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.
Power reduction applied to satisfy SAR compliance	Yes, Proximity Sensor for LTE B2/B4.

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

Transmission (H, M, L) channel numbers and frequencies in each LTE band

LTE Band 2

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900

LTE Band 4

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745

LTE Band 5

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844

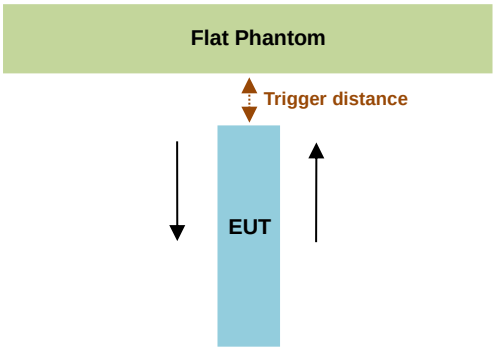
LTE Band 12

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711

5. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance (KDB 616217 D04 section 6.2)>:

Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed. The details are illustrated in the exhibit "P-Sensor operational description", and the shortest triggering distances were reported and used for SAR assessment.
In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 1900MHz, and the tissue-equivalent medium for 1900MHz was used for formal proximity sensor triggering testing.



Proximity Sensor Trigger Distance (mm)	
Position	Bottom Face
Minimum	19

<Proximity Sensor Triggering Coverage (KDB 616217 D04 section 6.3)>:

If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, the device is moved and "along the direction of maximum antenna and sensor offset". Illustrated in the internal photo exhibit, although the senor is spatially offset, there is no trigger condition where the antenna is next to the user but the sensor is laterally further away, therefore proximity sensor coverage testing is not required.
This procedure is not required because antenna and sensor are collocated and the peak SAR location is overlapping with the sensor.

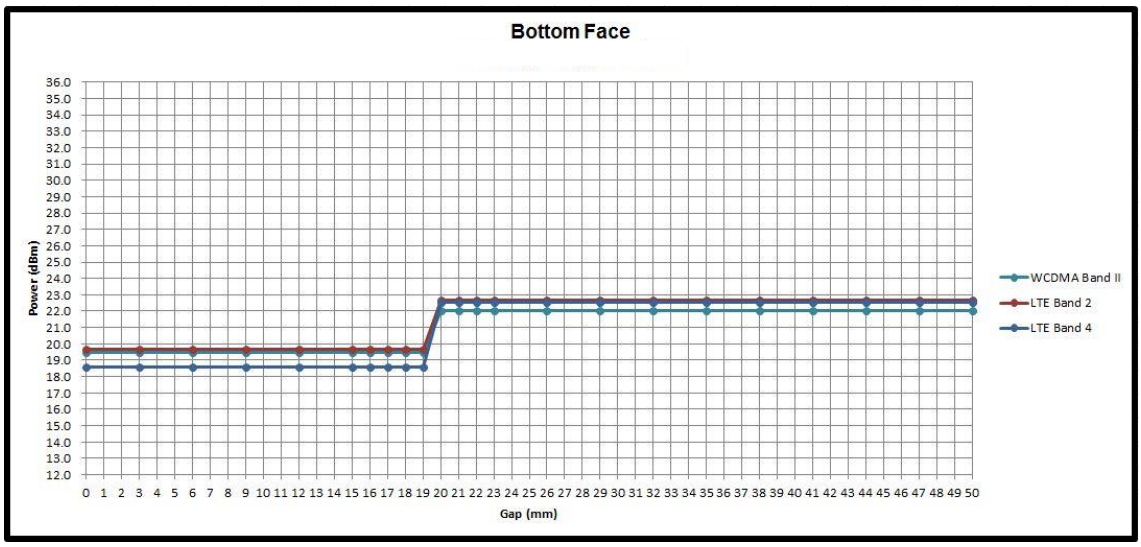
Proximity sensor power reduction

Exposure Position / wireless mode	Bottom Face(1)	Edge 1	Edge 2	Edge 3	Edge 4
WCDMA Band II	3.5 dB	0 dB	0 dB	0 dB	0 dB
LTE Band 2	3.5 dB				
LTE Band 4	4.5 dB				

Remark:
1. (1): Reduced maximum limit applied by activation of proximity sensor.
2. Power reduction is not applicable for WLAN and Bluetooth.
3. Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown and described in exhibit "P-Sensor operational description
4. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
   - Bottom Face: 10 mm

Power Measurement during Sensor Trigger distance testing

Band/Mode	Ch #	Measured power reduction (dBm)		Reduction Levels
		w/o power back-off	w/ power back-off	(dB)
WCDMA Band II	9400	22.06	19.46	2.60
LTE Band 2	19100	22.68	19.66	3.02
LTE Band 4	20300	22.76	18.66	4.10



6. RF Exposure Limits

6.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

6.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

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

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

7. Specific Absorption Rate (SAR)

7.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

7.2 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:

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

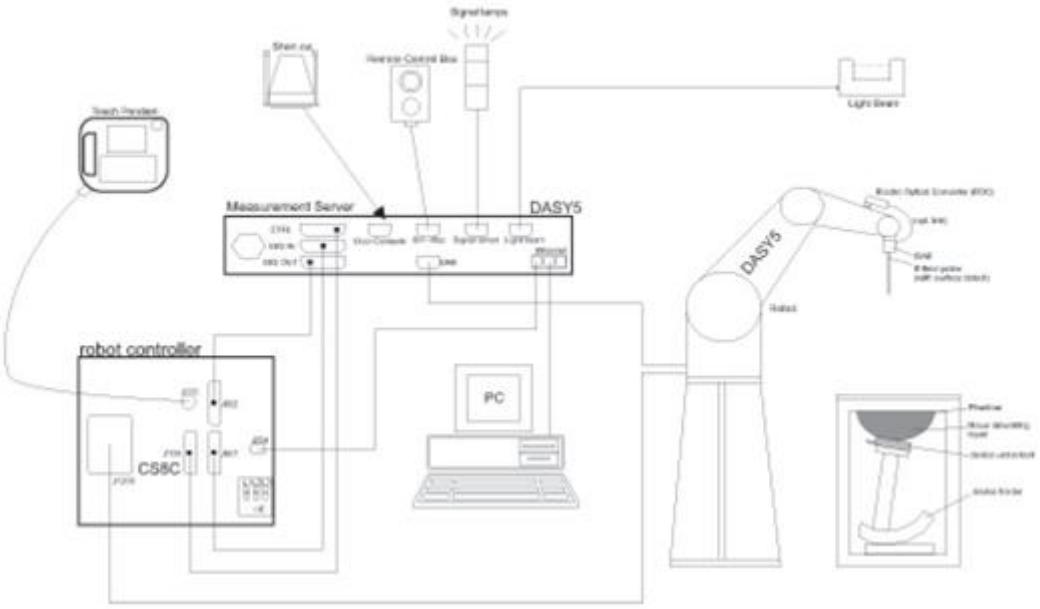
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

8. System Description and Setup

The DASY system used 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).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- 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 function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 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.

8.1 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. This probe has a built in optical surface detection system to prevent from collision with phantom.

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – 4 GHz; Linearity: ±0.2 dB (30 MHz – 4 GHz)	
Directivity	±0.2 dB in TSL (rotation around probe axis) ±0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 µW/g – >100 mW/g; Linearity: ±0.2 dB	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – >6 GHz Linearity: ±0.2 dB (30 MHz – 6 GHz)	
Directivity	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 µW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 µW/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

8.2 Data Acquisition Electronics (DAE)

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.

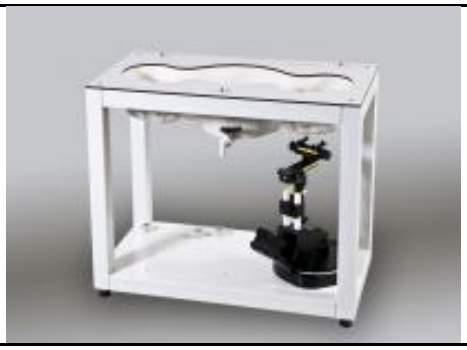
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

8.3 Phantom

<SAM Twin Phantom>

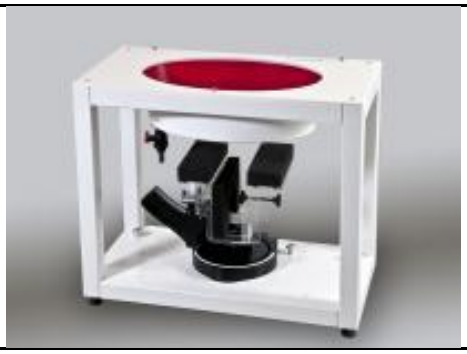
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



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.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)
Filling Volume	Approx. 30 liters
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm



The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

8.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.

Mounting Device for Laptops

9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

(a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
(b) Read the WWAN RF power level from the base station simulator.
(c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
(d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
(b) Place the EUT in the positions as Appendix D demonstrates.
(c) Set scan area, grid size and other setting on the DASY software.
(d) Measure SAR results for the highest power channel on each testing position.
(e) Find out the largest SAR result on these testing positions of each band
(f) Measure SAR results for other channels in worst SAR testing position if the reported 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

9.1 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 DASY 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 (SEMCAD). 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 (A/D values and measurement parameters)
(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 3-D 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

9.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

9.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

9.4 Zoom Scan

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

9.5 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. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

9.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY 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 drifts more than 5%, the SAR will be retested.

10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1012	May. 22, 2017	May. 21, 2018
SPEAG	835MHz System Validation Kit	D835V2	4d167	Feb. 27, 2018	Feb. 26, 2019
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 15, 2017	Nov. 14, 2018
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Sep. 28, 2017	Sep. 27, 2018
SPEAG	2450MHz System Validation Kit	D2450V2	736	Sep. 18, 2017	Sep. 17, 2018
SPEAG	5GHz System Validation Kit	D5GHzV2	1171	Jul. 18, 2017	Jul. 17, 2018
SPEAG	Data Acquisition Electronics	DAE4	1424	Jan. 18, 2018	Jan. 17, 2019
SPEAG	Data Acquisition Electronics	DAE4	853	Jul. 19, 2017	Jul. 18, 2018
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 24, 2017	May. 23, 2018
SPEAG	Dosimetric E-Field Probe	ES3DV3	3169	May. 11, 2017	May. 10, 2018
Gencom	Thermometer	TE1	TM685-1	Mar. 16, 2018	Mar. 15, 2019
Gencom	Thermometer	TE1	TM685-2	Mar. 16, 2018	Mar. 15, 2019
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Apr. 20, 2017	Apr. 19, 2018
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 30, 2017	May. 29, 2018
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Dec. 07, 2017	Dec. 06, 2018
Agilent	ENA Network Analyzer	E5071C	MY46316648	Jan. 17, 2018	Jan. 16, 2019
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 26, 2017	Sep. 25, 2018
LINE SEIKI	Digital Thermometer	LKMelectronic	DTM3000SPEZIAL	Sep. 06, 2017	Sep. 05, 2018
Anritsu	Power Meter	ML2495A	1419002	May. 15, 2017	May. 14, 2018
Anritsu	Power Sensor	MA2411B	1339124	May. 15, 2017	May. 14, 2018
Anritsu	Power Meter	ML2495A	1218006	Oct. 06, 2017	Oct. 05, 2018
Anritsu	Power Sensor	MA2411B	1207363	Oct. 06, 2017	Oct. 05, 2018
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 23, 2017	Aug. 22, 2018
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 26, 2017	Jun. 25, 2018
Mini-Circuits	Power Amplifier	ZVE-8G+	D120604	Mar. 12, 2018	Mar. 11, 2019
Mini-Circuits	Power Amplifier	ZHL-42W+	QA1344002	Mar. 12, 2018	Mar. 11, 2019
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.

11. System Verification

11.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, 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, which is shown in Fig. 10.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.2.

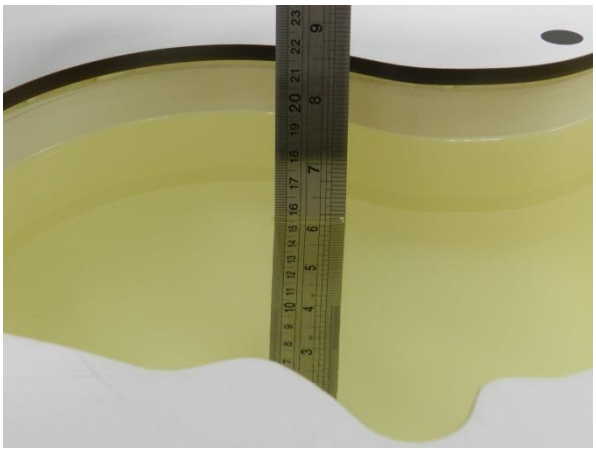


Fig 10.1Photo of Liquid Height for Head SAR

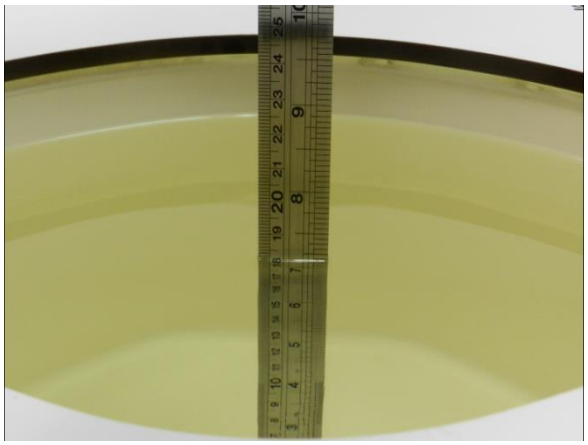


Fig 10.2 Photo of Liquid Height for Body SAR

11.2 Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	MSL	22.4	0.972	54.233	0.96	55.50	1.25	-2.28	±5	2018/3/28
750	MSL	22.2	0.972	55.486	0.96	55.50	1.25	-0.03	±5	2018/4/4
835	MSL	22.4	0.975	57.194	0.97	55.20	0.52	3.61	±5	2018/3/28
835	MSL	22.2	0.975	55.770	0.97	55.20	0.52	1.03	±5	2018/4/4
1750	MSL	22.6	1.456	55.070	1.49	53.40	-2.28	3.13	±5	2018/4/1
1900	MSL	22.6	1.566	52.553	1.52	53.30	3.03	-1.40	±5	2018/4/1
2450	MSL	22.6	1.986	53.073	1.95	52.70	1.85	0.71	±5	2018/4/12
5250	MSL	22.4	5.349	47.692	5.36	48.95	-0.21	-2.57	±5	2018/4/13
5600	MSL	22.4	5.793	47.101	5.77	48.50	0.40	-2.88	±5	2018/4/13
5750	MSL	22.4	5.995	46.834	5.94	48.28	0.93	-3.00	±5	2018/4/13

11.3 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table 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 and the plots can be referred to Appendix A of this report.

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2018/3/28	750	MSL	250	D750V3-1012	ES3DV3 - SN3169	DAE4 Sn853	2.27	8.71	9.08	4.25
2018/4/4	750	MSL	250	D750V3-1012	ES3DV3 - SN3169	DAE4 Sn853	2.32	8.71	9.28	6.54
2018/3/28	835	MSL	250	D835V2-4d167	ES3DV3 - SN3169	DAE4 Sn853	2.49	9.62	9.96	3.53
2018/4/4	835	MSL	250	D835V2-4d167	ES3DV3 - SN3169	DAE4 Sn853	2.29	9.62	9.16	-4.78
2018/4/1	1750	MSL	250	D1750V2-1068	ES3DV3 - SN3169	DAE4 Sn853	9.31	37.20	37.24	0.11
2018/4/1	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3169	DAE4 Sn853	9.96	40.70	39.84	-2.11
2018/4/12	2450	MSL	250	D2450V2-736	ES3DV3 - SN3169	DAE4 Sn853	12.40	50.80	49.60	-2.36
2018/4/13	5250	MSL	100	D5GHzV2-1171-5250	EX3DV4 - SN3925	DAE4 Sn1424	7.97	78.10	79.70	2.05
2018/4/13	5600	MSL	100	D5GHzV2-1171-5600	EX3DV4 - SN3925	DAE4 Sn1424	8.36	81.00	83.60	3.21
2018/4/13	5750	MSL	100	D5GHzV2-1171-5750	EX3DV4 - SN3925	DAE4 Sn1424	7.98	78.70	79.80	1.40

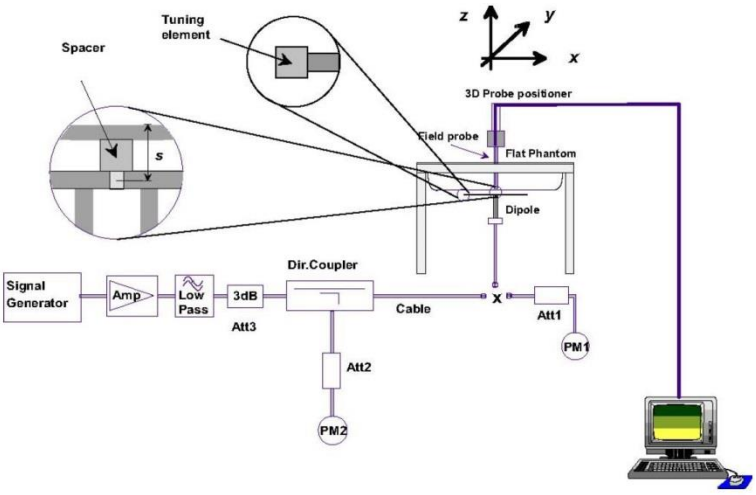


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

12. RF Exposure Positions

12.1 SAR Testing for Tablet

This device can be used also in full sized tablet exposure conditions, due to its size. Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR exclusion threshold in KDB 447498 D01v06 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

13. Conducted RF Output Power (Unit: dBm)

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set Gain Factors (β_c and β_d) and parameters were set according to each
   ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
   iii. Set RMC 12.2Kbps + HSDPA mode.
   iv. Set Cell Power = -86 dBm
   v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
   vi. Select HSDPA Uplink Parameters
   vii. Set Delta ACK, Delta NACK and Delta CQI = 8
   viii. Set Ack-Nack Repetition Factor to 3
   ix. Set CQI Feedback Cycle (k) to 4 ms
   x. Set CQI Repetition Factor to 2
   xi. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with β_{hs} = 30/15 * β_c, and Δ_{CQI} = 24/15 with β_{hs} = 24/15 * β_c.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

Setup Configuration

HSUPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting * :
   i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
   ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
   iii. Set Cell Power = -86 dBm
   iv. Set Channel Type = 12.2k + HSPA
   v. Set UE Target Power
   vi. Power Ctrl Mode= Alternating bits
   vii. Set and observe the E-TFCI
   viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
d. The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * β_c.

Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

Setup Configuration

<WCDMA Conducted Power>

General Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA.

Default Power Mode

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		4132	4182	4233	
Rx Channel		9662	9800	9938		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	21.85	22.02	21.92	23.00	21.80	21.66	21.74	23.00
3GPP Rel 99	RMC 12.2Kbps	21.88	22.06	21.98	23.00	21.83	21.69	21.77	23.00
3GPP Rel 6	HSDPA Subtest-1	21.77	21.90	21.69	22.50	21.61	21.48	21.55	22.50
3GPP Rel 6	HSDPA Subtest-2	21.73	21.89	21.59	22.50	21.64	21.43	21.53	22.50
3GPP Rel 6	HSDPA Subtest-3	21.26	21.36	21.11	22.00	21.13	20.96	21.08	22.00
3GPP Rel 6	HSDPA Subtest-4	21.78	21.76	21.64	22.00	21.56	21.42	21.61	22.00
3GPP Rel 6	HSUPA Subtest-1	21.26	21.59	21.42	22.50	21.22	21.35	21.32	22.50
3GPP Rel 6	HSUPA Subtest-2	19.67	19.77	19.55	20.50	19.58	19.49	19.56	20.50
3GPP Rel 6	HSUPA Subtest-3	20.76	20.76	20.67	21.50	20.54	20.57	20.49	21.50
3GPP Rel 6	HSUPA Subtest-4	19.91	20.03	19.90	20.50	19.85	19.72	19.81	20.50
3GPP Rel 6	HSUPA Subtest-5	21.77	21.95	21.86	22.50	21.71	21.70	21.72	22.50

Reduced Power Mode

Band		WCDMA II			Tune-up Limit (dBm)
TX Channel		9262	9400	9538	
Rx Channel		9662	9800	9938	
Frequency (MHz)		1852.4	1880	1907.6	
3GPP Rel 99	AMR 12.2Kbps	19.28	19.42	19.35	19.50
3GPP Rel 99	RMC 12.2Kbps	19.33	19.46	19.37	19.50
3GPP Rel 6	HSDPA Subtest-1	19.29	19.40	19.32	19.50
3GPP Rel 6	HSDPA Subtest-2	19.32	19.42	19.36	19.50
3GPP Rel 6	HSDPA Subtest-3	19.27	19.41	19.32	19.50
3GPP Rel 6	HSDPA Subtest-4	19.20	19.38	19.26	19.50
3GPP Rel 6	HSUPA Subtest-1	19.01	19.09	18.99	19.50
3GPP Rel 6	HSUPA Subtest-2	18.89	19.35	19.28	19.50
3GPP Rel 6	HSUPA Subtest-3	19.06	19.28	19.18	19.50
3GPP Rel 6	HSUPA Subtest-4	19.12	19.28	19.32	19.50
3GPP Rel 6	HSUPA Subtest-5	19.30	19.40	19.30	19.50

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Default Power Mode

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	22.34	22.48	22.68	23.5	0
20	QPSK	1	49	21.65	21.65	21.89		
20	QPSK	1	99	22.03	22.17	22.00		
20	QPSK	50	0	21.48	21.33	21.79	22.5	1
20	QPSK	50	24	21.07	21.03	21.38		
20	QPSK	50	50	21.30	21.32	21.28		
20	QPSK	100	0	21.43	21.33	21.49		
20	16QAM	1	0	21.86	21.96	22.30	22.5	1
20	16QAM	1	49	21.10	21.13	21.36		
20	16QAM	1	99	21.56	21.70	21.38		
20	16QAM	50	0	20.43	20.40	20.78	21.5	2
20	16QAM	50	24	20.08	20.04	20.34		
20	16QAM	50	50	20.29	20.29	20.22		
20	16QAM	100	0	20.34	20.26	20.51		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.48	22.60	22.58	23.5	0
15	QPSK	1	37	22.13	22.00	22.09		
15	QPSK	1	74	22.21	22.58	22.09		
15	QPSK	36	0	21.35	21.38	21.50	22.5	1
15	QPSK	36	20	21.06	21.20	21.24		
15	QPSK	36	39	21.10	21.31	21.13		
15	QPSK	75	0	21.24	21.44	21.32		
15	16QAM	1	0	21.74	22.04	21.97	22.5	1
15	16QAM	1	37	21.34	21.30	21.46		
15	16QAM	1	74	21.43	21.83	21.43		
15	16QAM	36	0	20.44	20.43	20.59	21.5	2
15	16QAM	36	20	20.14	20.15	20.24		
15	16QAM	36	39	20.23	20.36	20.21		
15	16QAM	75	0	20.30	20.37	20.27		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.34	22.19	22.60	23.5	0
10	QPSK	1	25	22.15	21.93	22.05		
10	QPSK	1	49	22.15	22.17	22.13		
10	QPSK	25	0	21.21	21.20	21.36	22.5	1
10	QPSK	25	12	21.13	21.11	21.17		
10	QPSK	25	25	21.11	21.08	21.20		
10	QPSK	50	0	21.25	21.17	21.31		
10	16QAM	1	0	21.61	21.54	21.82	22.5	1
10	16QAM	1	25	21.39	21.30	21.31		
10	16QAM	1	49	21.43	21.47	21.49		
10	16QAM	25	0	20.34	20.25	20.34	21.5	2
10	16QAM	25	12	20.17	20.07	20.12		
10	16QAM	25	25	20.08	20.13	20.22		
10	16QAM	50	0	20.28	20.19	20.25		

Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.11	22.13	22.16	23.5	0
5	QPSK	1	12	22.07	22.08	22.08		
5	QPSK	1	24	22.06	22.02	21.94		
5	QPSK	12	0	21.23	21.16	21.26	22.5	1
5	QPSK	12	7	21.17	21.10	21.10		
5	QPSK	12	13	21.09	21.14	21.12		
5	QPSK	25	0	21.14	21.14	21.12		
5	16QAM	1	0	21.49	21.40	21.58	22.5	1
5	16QAM	1	12	21.46	21.45	21.51		
5	16QAM	1	24	21.34	21.24	21.44		
5	16QAM	12	0	20.30	20.18	20.26	21.5	2
5	16QAM	12	7	20.17	20.23	20.23		
5	16QAM	12	13	20.18	20.11	20.24		
5	16QAM	25	0	20.14	20.15	20.15		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	21.95	22.12	22.17	23.5	0
3	QPSK	1	8	22.02	22.08	22.10		
3	QPSK	1	14	21.99	22.13	22.00		
3	QPSK	8	0	21.07	21.05	21.24	22.5	1
3	QPSK	8	4	21.10	21.08	21.22		
3	QPSK	8	7	21.17	21.11	21.23		
3	QPSK	15	0	21.14	21.09	21.18		
3	16QAM	1	0	21.29	21.28	21.53	22.5	1
3	16QAM	1	8	21.38	21.34	21.36		
3	16QAM	1	14	21.26	21.21	21.28		
3	16QAM	8	0	20.19	20.24	20.29	21.5	2
3	16QAM	8	4	20.16	20.16	20.27		
3	16QAM	8	7	20.21	20.18	20.28		
3	16QAM	15	0	20.21	20.14	20.23		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.04	22.10	22.12	23.5	0
1.4	QPSK	1	3	22.03	21.97	22.05		
1.4	QPSK	1	5	21.95	22.10	21.99		
1.4	QPSK	3	0	22.09	22.06	22.06		
1.4	QPSK	3	1	22.08	21.98	22.05		
1.4	QPSK	3	3	22.09	22.08	22.05		
1.4	QPSK	6	0	21.15	21.15	21.14	22.5	1
1.4	16QAM	1	0	21.50	21.42	21.48	22.5	1
1.4	16QAM	1	3	21.44	21.37	21.53		
1.4	16QAM	1	5	21.44	21.44	21.41		
1.4	16QAM	3	0	21.22	21.14	21.17		
1.4	16QAM	3	1	21.18	21.11	21.24		
1.4	16QAM	3	3	21.16	21.15	21.18		
1.4	16QAM	6	0	20.18	20.20	20.23	21.5	2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	22.75	22.51	22.76	23.5	0
20	QPSK	1	49	21.78	21.85	21.53		
20	QPSK	1	99	21.97	22.07	22.36		
20	QPSK	50	0	21.55	21.50	21.37	22.5	1
20	QPSK	50	24	21.11	21.10	20.67		
20	QPSK	50	50	21.01	21.19	20.62		
20	QPSK	100	0	21.33	21.38	20.69		
20	16QAM	1	0	22.03	21.89	20.93	22.5	1
20	16QAM	1	49	21.27	21.29	20.91		
20	16QAM	1	99	21.41	21.54	20.93		
20	16QAM	50	0	20.45	20.40	20.19	21.5	2
20	16QAM	50	24	20.19	20.18	20.12		
20	16QAM	50	50	20.14	20.12	20.20		
20	16QAM	100	0	20.22	20.23	20.15		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.76	22.39	22.57	23.5	0
15	QPSK	1	37	22.16	22.02	21.88		
15	QPSK	1	74	22.10	22.29	22.18		
15	QPSK	36	0	21.52	21.39	21.33	22.5	1
15	QPSK	36	20	21.32	21.09	21.18		
15	QPSK	36	39	21.24	21.18	21.16		
15	QPSK	75	0	21.48	21.28	21.37		
15	16QAM	1	0	22.19	21.85	21.85	22.5	1
15	16QAM	1	37	21.56	21.31	21.51		
15	16QAM	1	74	21.46	21.57	21.40		
15	16QAM	36	0	20.45	20.36	20.38	21.5	2
15	16QAM	36	20	20.30	20.21	20.27		
15	16QAM	36	39	20.14	20.20	20.18		
15	16QAM	75	0	20.37	20.23	20.27		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.65	22.38	22.42	23.5	0
10	QPSK	1	25	22.11	22.04	22.07		
10	QPSK	1	49	22.32	22.17	22.19		
10	QPSK	25	0	21.40	21.35	21.29	22.5	1
10	QPSK	25	12	21.17	21.23	21.21		
10	QPSK	25	25	21.24	21.13	21.24		
10	QPSK	50	0	21.25	21.25	21.27		
10	16QAM	1	0	21.93	21.71	21.80	22.5	1
10	16QAM	1	25	21.48	21.42	21.39		
10	16QAM	1	49	21.60	21.42	21.54		
10	16QAM	25	0	20.40	20.26	20.28	21.5	2
10	16QAM	25	12	20.18	20.16	20.24		
10	16QAM	25	25	20.24	20.15	20.13		
10	16QAM	50	0	20.22	20.16	20.22		

Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.36	22.27	22.14	23.5	0
5	QPSK	1	12	22.32	22.08	22.09		
5	QPSK	1	24	22.21	22.09	22.10		
5	QPSK	12	0	21.35	21.25	21.25	22.5	1
5	QPSK	12	7	21.23	21.17	21.21		
5	QPSK	12	13	21.15	21.13	21.17		
5	QPSK	25	0	21.30	21.16	21.26		
5	16QAM	1	0	21.70	21.61	21.55	22.5	1
5	16QAM	1	12	21.47	21.59	21.53		
5	16QAM	1	24	21.43	21.30	21.29		
5	16QAM	12	0	20.33	20.21	20.25	21.5	2
5	16QAM	12	7	20.23	20.17	20.23		
5	16QAM	12	13	20.13	20.12	20.17		
5	16QAM	25	0	20.31	20.23	20.21		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.27	22.05	22.12	23.5	0
3	QPSK	1	8	22.22	22.09	22.06		
3	QPSK	1	14	22.19	21.95	21.99		
3	QPSK	8	0	21.24	21.14	21.14	22.5	1
3	QPSK	8	4	21.24	21.15	21.10		
3	QPSK	8	7	21.27	21.00	21.15		
3	QPSK	15	0	21.29	21.10	21.15		
3	16QAM	1	0	21.67	21.38	21.46	22.5	1
3	16QAM	1	8	21.55	21.27	21.38		
3	16QAM	1	14	21.44	21.22	21.41		
3	16QAM	8	0	20.32	20.13	20.27	21.5	2
3	16QAM	8	4	20.36	20.14	20.24		
3	16QAM	8	7	20.36	20.01	20.26		
3	16QAM	15	0	20.37	20.12	20.21		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.30	22.16	21.94	23.5	0
1.4	QPSK	1	3	22.12	22.11	22.11		
1.4	QPSK	1	5	22.21	22.04	22.21		
1.4	QPSK	3	0	22.26	22.12	22.13		
1.4	QPSK	3	1	22.25	22.10	22.19		
1.4	QPSK	3	3	22.22	22.06	22.05		
1.4	QPSK	6	0	21.26	21.11	21.13	22.5	1
1.4	16QAM	1	0	21.56	21.44	21.53	22.5	1
1.4	16QAM	1	3	21.61	21.47	21.44		
1.4	16QAM	1	5	21.62	21.43	21.53		
1.4	16QAM	3	0	21.43	21.23	21.23		
1.4	16QAM	3	1	21.31	21.22	21.34		
1.4	16QAM	3	3	21.36	21.11	21.19		
1.4	16QAM	6	0	20.42	20.15	20.29	21.5	2

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	21.50	21.64	21.53	23	0
10	QPSK	1	25	21.49	21.43	21.30		
10	QPSK	1	49	21.35	21.28	21.28		
10	QPSK	25	0	20.45	20.52	20.42	22	1
10	QPSK	25	12	20.55	20.44	20.32		
10	QPSK	25	25	20.45	20.37	20.36		
10	QPSK	50	0	20.42	20.42	20.33		
10	16QAM	1	0	20.72	20.77	20.76	22	1
10	16QAM	1	25	20.81	20.77	20.74		
10	16QAM	1	49	20.73	20.61	20.55		
10	16QAM	25	0	19.47	19.51	19.45	21	2
10	16QAM	25	12	19.50	19.45	19.30		
10	16QAM	25	25	19.47	19.33	19.29		
10	16QAM	50	0	19.52	19.46	19.38		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	21.40	21.48	21.36	23	0
5	QPSK	1	12	21.51	21.43	21.45		
5	QPSK	1	24	21.41	21.36	21.35		
5	QPSK	12	0	20.48	20.51	20.39	22	1
5	QPSK	12	7	20.53	20.44	20.37		
5	QPSK	12	13	20.62	20.35	20.37		
5	QPSK	25	0	20.44	20.37	20.41		
5	16QAM	1	0	20.75	20.76	20.73	22	1
5	16QAM	1	12	20.70	20.73	20.77		
5	16QAM	1	24	20.65	20.66	20.73		
5	16QAM	12	0	19.40	19.58	19.45	21	2
5	16QAM	12	7	19.51	19.48	19.39		
5	16QAM	12	13	19.53	19.42	19.48		
5	16QAM	25	0	19.46	19.42	19.43		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	21.42	21.53	21.43	23	0
3	QPSK	1	8	21.49	21.52	21.48		
3	QPSK	1	14	21.44	21.39	21.43		
3	QPSK	8	0	20.45	20.57	20.40	22	1
3	QPSK	8	4	20.42	20.41	20.49		
3	QPSK	8	7	20.36	20.38	20.48		
3	QPSK	15	0	20.39	20.51	20.50		
3	16QAM	1	0	20.71	20.80	20.63	22	1
3	16QAM	1	8	20.79	20.78	20.80		
3	16QAM	1	14	20.66	20.61	20.70		
3	16QAM	8	0	19.47	19.61	19.51	21	2
3	16QAM	8	4	19.48	19.56	19.53		
3	16QAM	8	7	19.48	19.48	19.53		
3	16QAM	15	0	19.46	19.53	19.49		

Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	21.49	21.50	21.50	23	0
1.4	QPSK	1	3	21.45	21.50	21.50		
1.4	QPSK	1	5	21.45	21.52	21.56		
1.4	QPSK	3	0	21.48	21.46	21.48		
1.4	QPSK	3	1	21.41	21.45	21.52		
1.4	QPSK	3	3	21.50	21.49	21.52		
1.4	QPSK	6	0	20.44	20.42	20.53	22	1
1.4	16QAM	1	0	20.83	20.93	20.84	22	1
1.4	16QAM	1	3	20.90	20.93	20.85		
1.4	16QAM	1	5	20.72	20.83	20.91		
1.4	16QAM	3	0	20.53	20.62	20.49		
1.4	16QAM	3	1	20.44	20.56	20.52		
1.4	16QAM	3	3	20.52	20.57	20.56		
1.4	16QAM	6	0	19.47	19.59	19.55	21	2

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	21.64	21.75	21.65	23	0
10	QPSK	1	25	21.38	21.57	21.48		
10	QPSK	1	49	21.46	21.33	21.56		
10	QPSK	25	0	20.53	20.66	20.57	22	1
10	QPSK	25	12	20.44	20.52	20.46		
10	QPSK	25	25	20.43	20.42	20.56		
10	QPSK	50	0	20.43	20.62	20.45		
10	16QAM	1	0	20.84	20.88	20.98	22	1
10	16QAM	1	25	20.70	20.82	20.68		
10	16QAM	1	49	20.76	20.64	20.88		
10	16QAM	25	0	19.70	19.57	19.65	21	2
10	16QAM	25	12	19.56	19.58	19.52		
10	16QAM	25	25	19.48	19.52	19.50		
10	16QAM	50	0	19.59	19.55	19.44		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	21.52	21.44	21.53	23	0
5	QPSK	1	12	21.59	21.59	21.53		
5	QPSK	1	24	21.44	21.37	21.57		
5	QPSK	12	0	20.61	20.50	20.38	22	1
5	QPSK	12	7	20.52	20.48	20.51		
5	QPSK	12	13	20.50	20.47	20.49		
5	QPSK	25	0	20.52	20.55	20.51		
5	16QAM	1	0	20.74	20.62	20.69	22	1
5	16QAM	1	12	20.71	20.76	20.75		
5	16QAM	1	24	20.68	20.65	20.85		
5	16QAM	12	0	19.56	19.56	19.48	21	2
5	16QAM	12	7	19.60	19.60	19.54		
5	16QAM	12	13	19.53	19.60	19.55		
5	16QAM	25	0	19.57	19.54	19.59		
Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	21.56	21.58	21.51	23	0
3	QPSK	1	8	21.59	21.63	21.60		
3	QPSK	1	14	21.51	21.46	21.63		
3	QPSK	8	0	20.53	20.52	20.52	22	1
3	QPSK	8	4	20.61	20.50	20.59		
3	QPSK	8	7	20.59	20.45	20.51		
3	QPSK	15	0	20.53	20.53	20.51		
3	16QAM	1	0	20.78	20.69	20.71	22	1
3	16QAM	1	8	20.78	20.79	20.74		
3	16QAM	1	14	20.69	20.72	20.75		
3	16QAM	8	0	19.59	19.57	19.54	21	2
3	16QAM	8	4	19.54	19.55	19.47		
3	16QAM	8	7	19.50	19.61	19.60		
3	16QAM	15	0	19.63	19.61	19.54		

Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	21.57	21.64	21.66	23	0
1.4	QPSK	1	3	21.63	21.57	21.68		
1.4	QPSK	1	5	21.68	21.57	21.66		
1.4	QPSK	3	0	21.53	21.62	21.58		
1.4	QPSK	3	1	21.57	21.62	21.65		
1.4	QPSK	3	3	21.62	21.65	21.65		
1.4	QPSK	6	0	20.56	20.55	20.59	22	1
1.4	16QAM	1	0	20.86	20.89	20.88	22	1
1.4	16QAM	1	3	20.80	20.85	20.96		
1.4	16QAM	1	5	20.90	20.89	20.93		
1.4	16QAM	3	0	20.61	20.63	20.63		
1.4	16QAM	3	1	20.57	20.67	20.64		
1.4	16QAM	3	3	20.59	20.60	20.72		
1.4	16QAM	6	0	19.62	19.66	19.57	21	2

Reduced Power Mode

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	19.15	19.36	19.66	20	0
20	QPSK	1	49	18.56	18.56	18.79		
20	QPSK	1	99	18.50	18.97	18.88		
20	QPSK	50	0	18.10	18.17	18.52	19	1
20	QPSK	50	24	17.86	17.88	18.13		
20	QPSK	50	50	17.92	18.04	17.98		
20	QPSK	100	0	18.00	18.10	18.26		
20	16QAM	1	0	18.42	18.71	18.99	19	1
20	16QAM	1	49	17.94	17.90	18.13		
20	16QAM	1	99	17.87	18.29	18.23		
20	16QAM	50	0	17.15	17.25	17.54	18	2
20	16QAM	50	24	16.90	16.97	17.15		
20	16QAM	50	50	16.98	17.12	17.01		
20	16QAM	100	0	17.05	17.13	17.27		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	19.14	19.14	19.64	20	0
15	QPSK	1	37	18.77	18.73	18.84		
15	QPSK	1	74	18.79	18.88	19.09		
15	QPSK	36	0	18.14	18.06	18.43	19	1
15	QPSK	36	20	17.88	17.87	18.02		
15	QPSK	36	39	17.86	17.89	18.07		
15	QPSK	75	0	17.96	17.96	18.19		
15	16QAM	1	0	18.48	18.48	19.00	19	1
15	16QAM	1	37	18.07	18.06	18.19		
15	16QAM	1	74	18.10	18.21	18.46		
15	16QAM	36	0	17.22	17.16	17.53	18	2
15	16QAM	36	20	16.92	16.96	17.15		
15	16QAM	36	39	16.96	16.97	17.15		
15	16QAM	75	0	17.06	17.02	17.25		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	18.99	18.98	19.28	20	0
10	QPSK	1	25	18.77	18.73	18.80		
10	QPSK	1	49	18.73	18.83	18.89		
10	QPSK	25	0	17.97	17.96	18.11	19	1
10	QPSK	25	12	17.88	17.85	17.95		
10	QPSK	25	25	17.83	17.87	17.98		
10	QPSK	50	0	17.94	17.93	18.04		
10	16QAM	1	0	18.33	18.34	18.62	19	1
10	16QAM	1	25	18.13	18.10	18.18		
10	16QAM	1	49	18.09	18.21	18.25		
10	16QAM	25	0	17.06	17.08	17.22	18	2
10	16QAM	25	12	16.96	16.97	17.04		
10	16QAM	25	25	16.90	16.99	17.08		
10	16QAM	50	0	17.01	17.04	17.13		

Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	18.80	18.79	18.96	20	0
5	QPSK	1	12	18.68	18.74	18.84		
5	QPSK	1	24	18.74	18.69	18.81		
5	QPSK	12	0	17.97	17.93	18.03	19	1
5	QPSK	12	7	17.86	17.87	17.97		
5	QPSK	12	13	17.84	17.87	18.01		
5	QPSK	25	0	17.88	17.87	17.96		
5	16QAM	1	0	18.21	18.18	18.28	19	1
5	16QAM	1	12	18.15	18.12	18.21		
5	16QAM	1	24	18.10	18.06	18.12		
5	16QAM	12	0	17.06	17.03	17.10	18	2
5	16QAM	12	7	16.95	16.99	17.07		
5	16QAM	12	13	16.91	16.96	17.04		
5	16QAM	25	0	16.94	16.98	17.05		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	18.75	18.79	18.87	20	0
3	QPSK	1	8	18.73	18.74	18.85		
3	QPSK	1	14	18.64	18.73	18.77		
3	QPSK	8	0	17.86	17.89	18.01	19	1
3	QPSK	8	4	17.89	17.86	18.04		
3	QPSK	8	7	17.85	17.86	17.98		
3	QPSK	15	0	17.88	17.87	17.96		
3	16QAM	1	0	18.06	18.09	18.24	19	1
3	16QAM	1	8	18.05	18.07	18.20		
3	16QAM	1	14	17.98	18.03	18.09		
3	16QAM	8	0	16.94	16.99	17.09	18	2
3	16QAM	8	4	16.93	16.94	17.07		
3	16QAM	8	7	16.93	16.97	17.06		
3	16QAM	15	0	16.97	17.00	17.05		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	18.79	18.77	18.87	20	0
1.4	QPSK	1	3	18.73	18.75	18.81		
1.4	QPSK	1	5	18.73	18.78	18.80		
1.4	QPSK	3	0	18.80	18.84	18.91		
1.4	QPSK	3	1	18.75	18.82	18.88		
1.4	QPSK	3	3	18.76	18.84	18.88		
1.4	QPSK	6	0	17.80	17.90	17.93	19	1
1.4	16QAM	1	0	18.08	18.15	18.24	19	1
1.4	16QAM	1	3	18.10	18.17	18.24		
1.4	16QAM	1	5	18.05	18.11	18.17		
1.4	16QAM	3	0	17.94	17.97	18.08		
1.4	16QAM	3	1	17.93	17.93	18.08		
1.4	16QAM	3	3	17.89	17.95	18.03		
1.4	16QAM	6	0	16.95	16.99	17.09	18	2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	18.52	18.56	18.66	19	0
20	QPSK	1	49	18.00	17.97	17.93		
20	QPSK	1	99	17.78	18.07	17.96		
20	QPSK	50	0	17.41	17.49	17.51	18	1
20	QPSK	50	24	17.10	17.21	17.13		
20	QPSK	50	50	16.88	17.21	17.20		
20	QPSK	100	0	17.23	17.40	17.35		
20	16QAM	1	0	17.92	17.94	18.00	18	1
20	16QAM	1	49	17.35	17.38	17.34		
20	16QAM	1	99	17.23	17.44	17.40		
20	16QAM	50	0	16.47	16.52	16.57	17	2
20	16QAM	50	24	16.17	16.22	16.16		
20	16QAM	50	50	15.94	16.24	16.22		
20	16QAM	100	0	16.25	16.39	16.34		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	18.50	18.31	18.54	19	0
15	QPSK	1	37	18.16	18.08	18.04		
15	QPSK	1	74	18.15	18.00	18.01		
15	QPSK	36	0	17.52	17.40	17.39	18	1
15	QPSK	36	20	17.34	17.18	17.14		
15	QPSK	36	39	17.23	17.06	17.15		
15	QPSK	75	0	17.50	17.28	17.24		
15	16QAM	1	0	18.00	17.68	17.96	18	1
15	16QAM	1	37	17.61	17.50	17.43		
15	16QAM	1	74	17.55	17.43	17.45		
15	16QAM	36	0	16.60	16.45	16.45	17	2
15	16QAM	36	20	16.39	16.21	16.19		
15	16QAM	36	39	16.24	16.10	16.18		
15	16QAM	75	0	16.49	16.30	16.26		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	18.54	18.23	18.38	19	0
10	QPSK	1	25	18.06	18.06	18.05		
10	QPSK	1	49	18.17	17.98	18.05		
10	QPSK	25	0	17.35	17.33	17.22	18	1
10	QPSK	25	12	17.17	17.14	17.12		
10	QPSK	25	25	17.26	17.03	17.07		
10	QPSK	50	0	17.26	17.19	17.17		
10	16QAM	1	0	17.97	17.67	17.68	18	1
10	16QAM	1	25	17.53	17.52	17.46		
10	16QAM	1	49	17.61	17.39	17.35		
10	16QAM	25	0	16.44	16.40	16.28	17	2
10	16QAM	25	12	16.25	16.16	16.22		
10	16QAM	25	25	16.31	16.05	16.19		
10	16QAM	50	0	16.30	16.21	16.29		

Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	18.25	18.28	18.15	19	0
5	QPSK	1	12	18.12	18.04	18.05		
5	QPSK	1	24	18.01	17.93	17.98		
5	QPSK	12	0	17.26	17.19	17.21	18	1
5	QPSK	12	7	17.21	17.09	17.11		
5	QPSK	12	13	17.15	17.03	17.09		
5	QPSK	25	0	17.23	17.14	17.13		
5	16QAM	1	0	17.67	17.60	17.58	18	1
5	16QAM	1	12	17.55	17.50	17.44		
5	16QAM	1	24	17.42	17.33	17.40		
5	16QAM	12	0	16.38	16.26	16.30	17	2
5	16QAM	12	7	16.30	16.17	16.19		
5	16QAM	12	13	16.23	16.11	16.16		
5	16QAM	25	0	16.33	16.19	16.21		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	18.24	18.13	17.99	19	0
3	QPSK	1	8	18.16	18.09	18.15		
3	QPSK	1	14	18.14	17.97	18.35		
3	QPSK	8	0	17.24	17.20	17.16	18	1
3	QPSK	8	4	17.20	17.18	17.39		
3	QPSK	8	7	17.19	17.05	17.05		
3	QPSK	15	0	17.20	17.13	16.71		
3	16QAM	1	0	17.60	17.42	17.55	18	1
3	16QAM	1	8	17.51	17.41	17.42		
3	16QAM	1	14	17.46	17.27	17.36		
3	16QAM	8	0	16.33	16.21	16.23	17	2
3	16QAM	8	4	16.30	16.17	16.11		
3	16QAM	8	7	16.31	16.11	16.14		
3	16QAM	15	0	16.37	16.21	16.15		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	18.24	18.13	18.14	19	0
1.4	QPSK	1	3	18.13	18.09	18.07		
1.4	QPSK	1	5	18.18	18.06	18.13		
1.4	QPSK	3	0	18.25	18.08	18.20		
1.4	QPSK	3	1	18.28	18.07	18.16		
1.4	QPSK	3	3	18.12	18.08	18.49		
1.4	QPSK	6	0	17.20	17.12	17.43	18	1
1.4	16QAM	1	0	17.62	17.50	17.42	18	1
1.4	16QAM	1	3	17.63	17.52	17.38		
1.4	16QAM	1	5	17.56	17.45	17.39		
1.4	16QAM	3	0	17.40	17.26	17.33		
1.4	16QAM	3	1	17.39	17.28	17.25		
1.4	16QAM	3	3	17.33	17.25	17.19		
1.4	16QAM	6	0	16.33	16.26	16.22	17	2

<WLAN Conducted Power>

General Note:

1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
2. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
3. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
4. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
    a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
    b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
    c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	15.30	16.50	97.14
		6	2437	15.32	16.50	
		11	2462	15.45	16.50	
	802.11g 6Mbps	1	2412	15.30	16.50	86.08
		6	2437	15.74	16.50	
		11	2462	14.03	14.50	
	802.11n-HT20 MCS0	1	2412	14.29	14.50	86.49
		6	2437	16.17	16.50	
		11	2462	13.48	14.00	

<5GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	13.85	15.50	87.26
		40	5200	13.71	15.50	
		44	5220	13.76	15.50	
		48	5240	13.96	15.50	
	802.11n-HT20 MCS0	36	5180	13.68	15.50	86.49
		40	5200	13.65	15.50	
		44	5220	13.56	15.50	
		48	5240	13.71	15.50	
	802.11n-HT40 MCS0	38	5190	13.55	15.50	85.14
		46	5230	13.98	15.50	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	14.71	15.50	87.26
		56	5280	14.85	15.50	
		60	5300	14.88	15.50	
		64	5320	14.97	15.50	
	802.11n-HT20 MCS0	52	5260	14.78	15.50	86.49
		56	5280	14.80	15.50	
		60	5300	14.74	15.50	
		64	5320	15.12	15.50	
	802.11n-HT40 MCS0	54	5270	15.17	15.50	85.14
		62	5310	14.52	15.50	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	14.05	14.50	87.26
		116	5580	14.14	14.50	
		124	5620	13.92	14.50	
		132	5660	13.97	14.50	
		140	5700	13.85	14.50	
	802.11n-HT20 MCS0	100	5500	14.18	14.50	86.49
		116	5580	13.94	14.50	
		124	5620	13.98	14.50	
		132	5660	13.91	14.50	
		140	5700	13.17	14.50	
	802.11n-HT40 MCS0	102	5510	14.24	14.50	85.14
		110	5550	14.26	14.50	
		126	5630	14.22	14.50	
		134	5670	14.28	14.50	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	11.11	12.00	87.26
		157	5785	11.20	12.00	
		165	5825	11.44	12.00	
	802.11n-HT20 MCS0	149	5745	11.22	12.00	86.49
		157	5785	11.05	12.00	
		165	5825	11.49	12.00	
	802.11n-HT40 MCS0	151	5755	11.43	12.00	85.14
		159	5795	11.53	12.00	

14. Bluetooth Exclusions Applied

Mode Band	Max Average power(dBm)	
	BR/EDR	LE
2.4GHz Bluetooth	7	-1

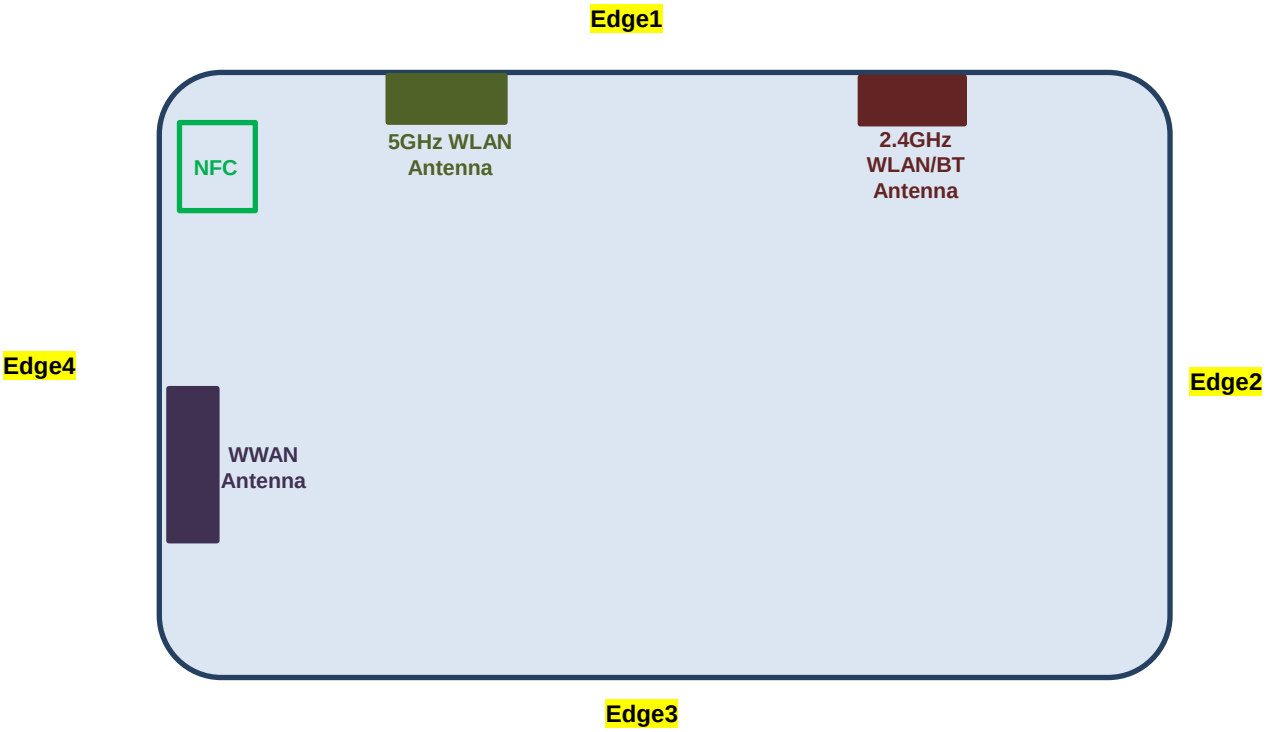
Note:

1. Per KDB 447498 D01v06, 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, mW*)/(*min. test separation distance, mm*)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation
   - The result is rounded to one decimal place for comparison

Bluetooth Max Power (dBm)	Separation Distance (mm)	Frequency (GHz)	exclusion thresholds
7	< 5	2.48	1.58

Note:
Per KDB 447498 D01v06, when the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion. The test exclusion threshold is 1.58 which is <= 3, SAR testing is not required.

15. Antenna Location



Front View

The separation distance for antenna to edge:

Antenna	To Edge1 (mm)	To Edge2 (mm)	To Edge3 (mm)	To Edge4 (mm)
WWAN Antenna	42.3	191.0	18.8	5.0
2.4GHz WLAN Antenna	5.0	21.0	117.6	162.3
5GHz WLAN Antenna	5.0	135.7	117.6	59.4

<SAR test exclusion table>

General Note:

1. The below table, when the distance is < 50 mm exclusion threshold is "Ratio", when the distance is > 50 mm exclusion threshold is "mW"
2. Maximum power is the source-based time-average power and represents the maximum RF output power among production units
3. Per KDB 447498 D01v06, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
4. Per KDB 447498 D01v06, standalone SAR test exclusion threshold is applied; If the test separation distance is < 5mm, 5mm is used to determine SAR exclusion threshold.
5. Per KDB 447498 D01v06, 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, mW*)/(*min. test separation distance, mm*)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation
   - The result is rounded to one decimal place for comparison
6. Per KDB 447498 D01v06, at 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following
   a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz
   b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

Exposure Position	Wireless Interface	WCDMA Band V	WCDMA Band II	LTE Band 12	LTE Band 5	LTE Band 4	LTE Band 2	2.4GHz WLAN	5GHz WLAN
	Calculated Frequency	846MHz	1907MHz	715MHz	848MHz	1754MHz	1909MHz	2462MHz	5825MHz
	Maximum power (dBm)	23	23	23	23	23.5	23.5	16.5	15.5
	Maximum rated power(mW)	200.0	200.0	200.0	200.0	224.0	224.0	45.0	35.0
Bottom Face	Separation distance(mm)	5.0						5.0	5.0
	exclusion threshold	36.8	55.2	33.8	36.8	59.3	61.9	14.1	16.9
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Edge 1	Separation distance(mm)	42.3						5.0	5.0
	exclusion threshold	4.4	6.5	4.0	4.4	7.0	7.3	14.1	16.9
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Edge 2	Separation distance(mm)	191.0						21.0	135.7
	exclusion threshold	958.0	1519.0	849.0	960.0	1523.0	1519.0	3.4	919.0
	Testing required?	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**
Edge 3	Separation distance(mm)	18.8						117.6	117.6
	exclusion threshold	9.8	14.7	9.0	9.8	15.8	16.5	772.0	738.0
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**
Edge 4	Separation distance(mm)	5.0						162.3	59.4
	exclusion threshold	36.8	55.2	33.8	36.8	59.3	61.9	1219.0	156.0
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**

16. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. For the exposure positions that proximity sensor power reduction is applied for SAR compliance, additional SAR testing with EUT transmitting full power in normal mode was performed; 10mm for bottom face.

UMTS Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA,)are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA.

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 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 KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B12 / B5 / B4 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

16.1 Body SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Bottom Face	0mm	ON	9400	1880	19.46	19.50	1.009	0	1.010	1.019
01	WCDMA II	RMC 12.2Kbps	Bottom Face	0mm	ON	9262	1852.4	19.33	19.50	1.040	-0.06	1.050	1.092
	WCDMA II	RMC 12.2Kbps	Bottom Face	0mm	ON	9538	1907.6	19.37	19.50	1.030	-0.07	0.928	0.956
	WCDMA II	RMC 12.2Kbps	Bottom Face	10mm	OFF	9400	1880	22.06	23.00	1.242	-0.16	0.478	0.594
	WCDMA II	RMC 12.2Kbps	Edge 1	0mm	OFF	9400	1880	22.06	23.00	1.242	-0.06	0.163	0.202
	WCDMA II	RMC 12.2Kbps	Edge 3	0mm	OFF	9400	1880	22.06	23.00	1.242	0.06	0.801	0.995
	WCDMA II	RMC 12.2Kbps	Edge 3	0mm	OFF	9262	1852.4	21.88	23.00	1.294	-0.13	0.734	0.950
	WCDMA II	RMC 12.2Kbps	Edge 3	0mm	OFF	9538	1907.6	21.98	23.00	1.265	-0.01	0.781	0.988
	WCDMA II	RMC 12.2Kbps	Edge 4	0mm	OFF	9400	1880	22.06	23.00	1.242	-0.15	0.746	0.926
	WCDMA II	RMC 12.2Kbps	Edge 4	0mm	OFF	9262	1852.4	21.88	23.00	1.294	-0.01	0.685	0.887
	WCDMA II	RMC 12.2Kbps	Edge 4	0mm	OFF	9538	1907.6	21.98	23.00	1.265	-0.14	0.745	0.942
	WCDMA V	RMC 12.2Kbps	Bottom Face	0mm	OFF	4132	826.4	21.83	23.00	1.309	-0.01	0.742	0.971
	WCDMA V	RMC 12.2Kbps	Bottom Face	0mm	OFF	4182	836.4	21.69	23.00	1.352	-0.08	0.770	1.041
	WCDMA V	RMC 12.2Kbps	Bottom Face	0mm	OFF	4233	846.6	21.77	23.00	1.327	-0.05	0.863	1.146
	WCDMA V	RMC 12.2Kbps	Edge 1	0mm	OFF	4132	826.4	21.83	23.00	1.309	0.05	0.227	0.297
	WCDMA V	RMC 12.2Kbps	Edge 3	0mm	OFF	4132	826.4	21.83	23.00	1.309	0.15	0.142	0.186
	WCDMA V	RMC 12.2Kbps	Edge 4	0mm	OFF	4132	826.4	21.83	23.00	1.309	-0.02	0.854	1.118
	WCDMA V	RMC 12.2Kbps	Edge 4	0mm	OFF	4182	836.4	21.69	23.00	1.352	0.04	0.837	1.132
02	WCDMA V	RMC 12.2Kbps	Edge 4	0mm	OFF	4233	846.6	21.77	23.00	1.327	-0.09	0.895	1.188

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2	20M	QPSK	1	0	Bottom Face	0mm	ON	19100	1900	19.66	20.00	1.081	-0.01	1.060	1.146
03	LTE Band 2	20M	QPSK	1	0	Bottom Face	0mm	ON	18700	1860	19.15	20.00	1.216	0.15	0.957	1.164
	LTE Band 2	20M	QPSK	1	0	Bottom Face	0mm	ON	18900	1880	19.36	20.00	1.159	0	0.943	1.093
	LTE Band 2	20M	QPSK	50	0	Bottom Face	0mm	ON	19100	1900	18.52	19.00	1.117	-0.1	0.717	0.801
	LTE Band 2	20M	QPSK	50	0	Bottom Face	0mm	ON	18700	1860	18.10	19.00	1.230	-0.02	0.749	0.921
	LTE Band 2	20M	QPSK	50	0	Bottom Face	0mm	ON	18900	1880	18.17	19.00	1.211	0.03	0.736	0.891
	LTE Band 2	20M	QPSK	100	0	Bottom Face	0mm	ON	19100	1900	18.26	19.00	1.186	0	0.726	0.861
	LTE Band 2	20M	QPSK	1	0	Bottom Face	10mm	OFF	19100	1900	22.68	23.50	1.208	-0.03	0.520	0.628
	LTE Band 2	20M	QPSK	50	0	Bottom Face	10mm	OFF	19100	1900	21.79	22.50	1.178	-0.02	0.400	0.471
	LTE Band 2	20M	QPSK	1	0	Edge 1	0mm	OFF	19100	1900	22.68	23.50	1.208	-0.06	0.156	0.188
	LTE Band 2	20M	QPSK	50	0	Edge 1	0mm	OFF	19100	1900	21.79	22.50	1.178	0	0.116	0.137
	LTE Band 2	20M	QPSK	1	0	Edge 3	0mm	OFF	19100	1900	22.68	23.50	1.208	-0.16	0.954	1.152
	LTE Band 2	20M	QPSK	1	0	Edge 3	0mm	OFF	18700	1860	22.34	23.50	1.306	-0.15	0.728	0.951
	LTE Band 2	20M	QPSK	1	0	Edge 3	0mm	OFF	18900	1880	22.48	23.50	1.265	-0.08	0.807	1.021
	LTE Band 2	20M	QPSK	50	0	Edge 3	0mm	OFF	19100	1900	21.79	22.50	1.178	-0.13	0.764	0.900
	LTE Band 2	20M	QPSK	50	0	Edge 3	0mm	OFF	18700	1860	21.48	22.50	1.265	-0.1	0.565	0.715
	LTE Band 2	20M	QPSK	50	0	Edge 3	0mm	OFF	18900	1880	21.33	22.50	1.309	-0.12	0.635	0.831
	LTE Band 2	20M	QPSK	100	0	Edge 3	0mm	OFF	19100	1900	21.49	22.50	1.262	-0.09	0.760	0.959
	LTE Band 2	20M	QPSK	1	0	Edge 4	0mm	OFF	19100	1900	22.68	23.50	1.208	-0.11	0.835	1.009
	LTE Band 2	20M	QPSK	1	0	Edge 4	0mm	OFF	18700	1860	22.34	23.50	1.306	-0.01	0.692	0.904
	LTE Band 2	20M	QPSK	1	0	Edge 4	0mm	OFF	18900	1880	22.48	23.50	1.265	-0.17	0.717	0.907
	LTE Band 2	20M	QPSK	50	0	Edge 4	0mm	OFF	19100	1900	21.79	22.50	1.178	0	0.672	0.791
	LTE Band 2	20M	QPSK	100	0	Edge 4	0mm	OFF	19100	1900	21.49	22.50	1.262	-0.05	0.640	0.808
04	LTE Band 4	20M	QPSK	1	0	Bottom Face	0mm	ON	20175	1732.5	18.56	19.00	1.107	-0.07	0.923	1.021
	LTE Band 4	20M	QPSK	50	0	Bottom Face	0mm	ON	20175	1732.5	17.49	18.00	1.125	0	0.778	0.875
	LTE Band 4	20M	QPSK	100	0	Bottom Face	0mm	ON	20175	1732.5	17.40	18.00	1.148	-0.03	0.769	0.883
	LTE Band 4	20M	QPSK	1	0	Bottom Face	10mm	OFF	20175	1732.5	22.51	23.50	1.256	-0.01	0.615	0.772
	LTE Band 4	20M	QPSK	50	0	Bottom Face	10mm	OFF	20175	1732.5	21.50	22.50	1.259	-0.04	0.484	0.609
	LTE Band 4	20M	QPSK	1	0	Edge 1	0mm	OFF	20175	1732.5	22.51	23.50	1.256	-0.08	0.150	0.188
	LTE Band 4	20M	QPSK	50	0	Edge 1	0mm	OFF	20175	1732.5	21.50	22.50	1.259	0.18	0.130	0.164
	LTE Band 4	20M	QPSK	1	0	Edge 3	0mm	OFF	20175	1732.5	22.51	23.50	1.256	0.12	0.614	0.771
	LTE Band 4	20M	QPSK	50	0	Edge 3	0mm	OFF	20175	1732.5	21.50	22.50	1.259	0.01	0.504	0.634
	LTE Band 4	20M	QPSK	1	0	Edge 4	0mm	OFF	20175	1732.5	22.51	23.50	1.256	-0.01	0.786	0.987
	LTE Band 4	20M	QPSK	50	0	Edge 4	0mm	OFF	20175	1732.5	21.50	22.50	1.259	-0.04	0.616	0.775
	LTE Band 4	20M	QPSK	100	0	Edge 4	0mm	OFF	20175	1732.5	21.38	22.50	1.294	-0.03	0.599	0.775

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 5	10M	QPSK	1	0	Bottom Face	0mm	OFF	20525	836.5	21.64	23.00	1.368	-0.06	0.708	0.968
	LTE Band 5	10M	QPSK	25	0	Bottom Face	0mm	OFF	20525	836.5	20.52	22.00	1.406	0.01	0.555	0.780
	LTE Band 5	10M	QPSK	50	0	Bottom Face	0mm	OFF	20525	836.5	20.42	22.00	1.439	-0.04	0.529	0.761
	LTE Band 5	10M	QPSK	1	0	Edge 1	0mm	OFF	20525	836.5	21.64	23.00	1.368	0.03	0.092	0.126
	LTE Band 5	10M	QPSK	25	0	Edge 1	0mm	OFF	20525	836.5	20.52	22.00	1.406	-0.04	0.074	0.104
	LTE Band 5	10M	QPSK	1	0	Edge 3	0mm	OFF	20525	836.5	21.64	23.00	1.368	0.1	0.116	0.159
	LTE Band 5	10M	QPSK	25	0	Edge 3	0mm	OFF	20525	836.5	20.52	22.00	1.406	0.07	0.090	0.127
05	LTE Band 5	10M	QPSK	1	0	Edge 4	0mm	OFF	20525	836.5	21.64	23.00	1.368	-0.07	0.838	1.146
	LTE Band 5	10M	QPSK	25	0	Edge 4	0mm	OFF	20525	836.5	20.52	22.00	1.406	-0.01	0.614	0.863
	LTE Band 5	10M	QPSK	50	0	Edge 4	0mm	OFF	20525	836.5	20.42	22.00	1.439	-0.04	0.611	0.879
	LTE Band 12	10M	QPSK	1	0	Bottom Face	0mm	OFF	23095	707.5	21.75	23.00	1.334	0.04	0.505	0.673
	LTE Band 12	10M	QPSK	25	0	Bottom Face	0mm	OFF	23095	707.5	20.66	22.00	1.361	0.04	0.398	0.542
	LTE Band 12	10M	QPSK	1	0	Edge 1	0mm	OFF	23095	707.5	21.75	23.00	1.334	0.08	0.094	0.125
	LTE Band 12	10M	QPSK	25	0	Edge 1	0mm	OFF	23095	707.5	20.66	22.00	1.361	-0.09	0.072	0.098
	LTE Band 12	10M	QPSK	1	0	Edge 3	0mm	OFF	23095	707.5	21.75	23.00	1.334	-0.15	0.091	0.121
	LTE Band 12	10M	QPSK	25	0	Edge 3	0mm	OFF	23095	707.5	20.66	22.00	1.361	0.09	0.072	0.098
06	LTE Band 12	10M	QPSK	1	0	Edge 4	0mm	OFF	23095	707.5	21.75	23.00	1.334	-0.05	0.794	1.059
	LTE Band 12	10M	QPSK	25	0	Edge 4	0mm	OFF	23095	707.5	20.66	22.00	1.361	0.07	0.618	0.841
	LTE Band 12	10M	QPSK	50	0	Edge 4	0mm	OFF	23095	707.5	20.62	22.00	1.374	0	0.631	0.867

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	11	2462	15.45	16.50	1.274	97.14	1.029	0.06	0.155	0.203
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	0mm	11	2462	15.45	16.50	1.274	97.14	1.029	0.15	0.544	0.713
07	WLAN2.4GHz	802.11b 1Mbps	Edge 1	0mm	1	2412	15.30	16.50	1.318	97.14	1.029	0.08	0.681	0.924
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	0mm	6	2437	15.32	16.50	1.312	97.14	1.029	-0.17	0.548	0.740
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	0mm	11	2462	15.45	16.50	1.274	97.14	1.029	0.03	0.118	0.155
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Face	0mm	54	5270	15.17	15.50	1.079	85.14	1.175	-0.04	0.178	0.226
	WLAN5GHz	802.11n-HT40 MCS0	Edge 1	0mm	54	5270	15.17	15.50	1.079	85.14	1.175	0.1	0.761	0.965
08	WLAN5GHz	802.11n-HT40 MCS0	Edge 1	0mm	62	5310	14.52	15.50	1.254	85.14	1.175	-0.04	0.661	0.974
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Face	0mm	134	5670	14.28	14.50	1.052	85.14	1.175	0.06	0.190	0.235
09	WLAN5GHz	802.11n-HT40 MCS0	Edge 1	0mm	134	5670	14.28	14.50	1.052	85.14	1.175	-0.06	0.678	0.838
	WLAN5GHz	802.11n-HT40 MCS0	Edge 1	0mm	102	5510	14.24	14.50	1.062	85.14	1.175	-0.06	0.547	0.683
	WLAN5GHz	802.11n-HT40 MCS0	Edge 1	0mm	110	5550	14.26	14.50	1.057	85.14	1.175	-0.08	0.589	0.732
	WLAN5GHz	802.11n-HT40 MCS0	Edge 1	0mm	126	5630	14.22	14.50	1.067	85.14	1.175	-0.08	0.589	0.738
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Face	0mm	159	5795	11.53	12.00	1.115	85.14	1.175	-0.06	0.166	0.217
	WLAN5GHz	802.11n-HT40 MCS0	Edge 1	0mm	151	5755	11.43	12.00	1.141	85.14	1.175	-0.02	0.572	0.767
10	WLAN5GHz	802.11n-HT40 MCS0	Edge 1	0mm	159	5795	11.53	12.00	1.115	85.14	1.175	0.02	0.698	0.914

16.2 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA V	RMC 12.2Kbps	Edge 4	0mm	OFF	4233	846.6	21.77	23.00	1.327	-0.09	0.895	-	1.188
2nd	WCDMA V	RMC 12.2Kbps	Edge 4	0mm	OFF	4233	846.6	21.77	23.00	1.327	-0.01	0.878	1.02	1.165
1st	LTE Band 2	20M_QPSK_1_0	Bottom Face	0mm	ON	19100	1900	19.66	20.00	1.081	-0.01	1.060	-	1.146
2nd	LTE Band 2	20M_QPSK_1_0	Bottom Face	0mm	ON	19100	1900	19.66	20.00	1.081	0	1.030	1.03	1.114
1st	LTE Band 4	20M_QPSK_1_0	Bottom Face	0mm	ON	20175	1732.5	18.56	19.00	1.107	-0.07	0.923	-	1.021
2nd	LTE Band 4	20M_QPSK_1_0	Bottom Face	0mm	ON	20175	1732.5	18.56	19.00	1.107	-0.02	0.922	1.00	1.020

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

17. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Tablet
		Body
1.	WCDMA + WLAN2.4GHz	Yes
2.	LTE + WLAN2.4GHz	Yes
3.	WCDMA+ Bluetooth	Yes
4.	LTE + Bluetooth	Yes
5.	WCDMA + WLAN5GHz	Yes
6.	LTE + WLAN5GHz	Yes

General Note:

1. For simultaneous transmission analysis for exposure position of bottom face 10mm, WLAN SAR tested at 0mm separation is worse and the test data is used for conservative SAR summation.
2. 2.4GHz WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
3. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
4. The Scaled SAR summation is calculated based on the same configuration and test position.
5. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
6. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below.
   i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm; where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
   ii) When the minimum separation distance is < 5mm, the distance is used 5mm to determine SAR test exclusion.
   iii) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is > 50 mm.
   iv) Bluetooth estimated SAR is conservatively determined by 5mm separation, for all applicable exposure positions.

Bluetooth Max Power	Exposure Position	All Positions
7 dBm	Estimated SAR (W/kg)	0.210 W/kg

17.1 Body Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 5GHz WLAN 1g SAR (W/kg)	4 Bluetooth Estimated 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
WCDMA	WCDMA II	Bottom Face at 10mm	0.594	0.203	0.235	0.210	**0.797**	**0.829**	**0.804**
		Bottom Face at 0mm	1.092	0.203	0.235	0.210	**1.295**	**1.327**	**1.302**
		Edge 1 at 0mm	0.202	0.924	0.974	0.210	**1.126**	**1.176**	**0.412**
		Edge 3 at 0mm	0.995				**0.995**	**0.995**	**0.995**
		Edge 4 at 0mm	0.942				**0.942**	**0.942**	**0.942**
	WCDMA V	Bottom Face at 0mm	1.146	0.203	0.235	0.210	**1.349**	**1.381**	**1.356**
		Edge 1 at 0mm	0.297	0.924	0.974	0.210	**1.221**	**1.271**	**0.507**
		Edge 3 at 0mm	0.186				**0.186**	**0.186**	**0.186**
		Edge 4 at 0mm	1.188				**1.188**	**1.188**	**1.188**
LTE	LTE Band 2	Bottom Face at 10mm	0.628	0.203	0.235	0.210	**0.831**	**0.863**	**0.838**
		Bottom Face at 0mm	1.164	0.203	0.235	0.210	**1.367**	**1.399**	**1.374**
		Edge 1 at 0mm	0.188	0.924	0.974	0.210	**1.112**	**1.162**	**0.398**
		Edge 3 at 0mm	1.152				**1.152**	**1.152**	**1.152**
		Edge 4 at 0mm	1.009				**1.009**	**1.009**	**1.009**
	LTE Band 4	Bottom Face at 10mm	0.772	0.203	0.235	0.210	**0.975**	**1.007**	**0.982**
		Bottom Face at 0mm	1.021	0.203	0.235	0.210	**1.224**	**1.256**	**1.231**
		Edge 1 at 0mm	0.188	0.924	0.974	0.210	**1.112**	**1.162**	**0.398**
		Edge 3 at 0mm	0.771				**0.771**	**0.771**	**0.771**
		Edge 4 at 0mm	0.987				**0.987**	**0.987**	**0.987**
	LTE Band 5	Bottom Face at 0mm	0.968	0.203	0.235	0.210	**1.171**	**1.203**	**1.178**
		Edge 1 at 0mm	0.126	0.924	0.974	0.210	**1.050**	**1.100**	**0.336**
		Edge 3 at 0mm	0.159				**0.159**	**0.159**	**0.159**
		Edge 4 at 0mm	1.146				**1.146**	**1.146**	**1.146**
	LTE Band 12	Bottom Face at 0mm	0.673	0.203	0.235	0.210	**0.876**	**0.908**	**0.883**
		Edge 1 at 0mm	0.125	0.924	0.974	0.210	**1.049**	**1.099**	**0.335**
		Edge 3 at 0mm	0.121				**0.121**	**0.121**	**0.121**
		Edge 4 at 0mm	1.059				**1.059**	**1.059**	**1.059**

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18. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg. Therefore, the measurement uncertainty table is not required in this report.

19. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013

[4] SPEAG DASY System Handbook

[5] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

[6] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015

[7] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015

[8] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015

[9] FCC KDB 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, Oct 2015

[10] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

[11] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.