FCC SAR TEST REPORT

FCC ID	:	**XHM-191225**
Equipment	:	**Mobile PC**
Brand Name	:	**Flytech**
Model Name	:	**M284**
Applicant	:	**FLYTECH TECHNOLOGY CO., Ltd. No. 168, Sing-Ai Rd., Neihu District 11494, Taipei City, Taiwan**
Manufacturer	:	**FLYTECH TECHNOLOGY CO., Ltd. No. 168, Sing-Ai Rd., Neihu District 11494, Taipei City, Taiwan**
Standard	:	**FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013**

The product was received on Nov. 08, 2019 and testing was started from Nov. 23, 2019 and completed on Dec. 19, 2019. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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

Approved by: Cona Huang / Deputy Manager

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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History of this test report

Report No.	Version	Description	Issued Date
FA9O2913	01	Initial issue of report	Jan. 02, 2020

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **FLYTECH TECHNOLOGY CO., Ltd., Mobile PC, M284**, are as follows.

Equipment Class	Frequency Band		Highest SAR Summary Body 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
Licensed	LTE	LTE Band 4	1.20	1.59
		LTE Band 7	1.04	
		LTE Band 12	0.33	
		LTE Band 13	0.34	
		LTE Band 2 / 25	0.95	
		LTE Band 5 / 26	0.59	
		LTE Band 30	1.14	
		LTE Band 41	1.05	
Date of Testing:			2019/11/23 ~ 2020/1/10	

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. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (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.

Reviewed by: Eric Huang
Report Producer: Daisy Peng

2. 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 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02

3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	Mobile PC
Brand Name	Flytech
Model Name	M284
FCC ID	XHM-191225
Wireless Technology and Frequency Range	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 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 30: 2307.5 MHz ~ 2312.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 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
Mode	LTE: QPSK, 16QAM WLAN: 802.11a/b/g/n/ac HT20 / HT40 / VHT20 / VHT40 / VHT80 Bluetooth BR/EDR/LE/HS
HW Version	V 1.0
EUT Stage	Identical Prototype
Remark: 1. The device support Tx diversity only, Bluetooth and WLAN cannot transmit simultaneous but WWAN and WLAN/Bluetooth can used simultaneous transmission analysis. 2. WLAN and Bluetooth SAR results are referenced from the Sporton SAR test report, No. FA9O2913-01 (FCC ID: XHM-PB63D31), and these SAR results are also used to perform simultaneous transmission analysis.	

Accessory Information		
Accessory	**Serial number**	**Equipment Name**
accessory1	RP006524	MSR Reader
accessory2	PR006630	VP3300
accessory3	PR006564	Augusta Combo Reader
accessory4	PR006652	MSR Mini Smart II Combo F

3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	XHM-191225
Equipment Name	Mobile PC
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 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 30: 2307.5 MHz ~ 2312.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 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 07: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 30: 5MHz, 10MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz
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.
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 12
LTE Carrier Aggregation Additional Information	This device supports maximum of 2 carriers in the downlink only. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.

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 7								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560

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

LTE Band 13				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	23205	779.5	23230	782
M	23230	782		
H	23255	784.5		

LTE Band 25												
	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	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905

LTE Band 26										
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5

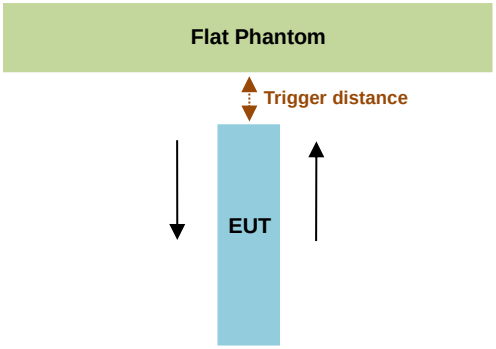
LTE Band 30				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	27685	2307.5	27710	2310
M	27710	2310		
H	27735	2312.5		

LTE Band 41								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506
L M	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593
H M	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680

4. 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.



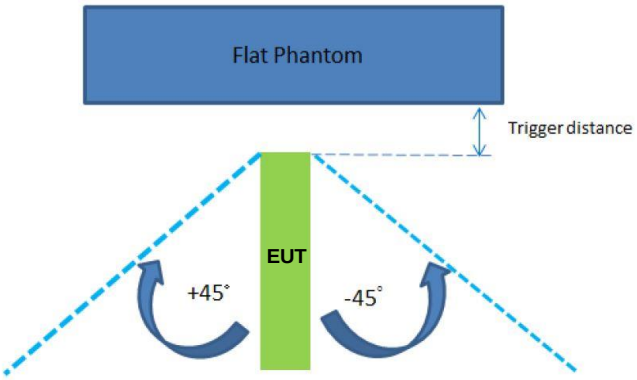
Proximity Sensor Trigger Distance (mm)		
Position	Bottom Face	Edge 1
Minimum	51	41

<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.

<Tablet Tilt angle influences to proximity sensor triggering (KDB 616217 D04 section 6.4)>:

The influence of table tilt angles to proximity sensor triggering was determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom, at 13 mm separation.
Rotating the tablet around the edge next to the phantom in ≤ 10° increments until the tablet is ± 45° from the vertical position at 0°, and the maximum output power remains in the reduced mode.



The Sensor Trigger Distance (mm)	
Position	Edge 1
Minimum	41

Proximity sensor power reduction

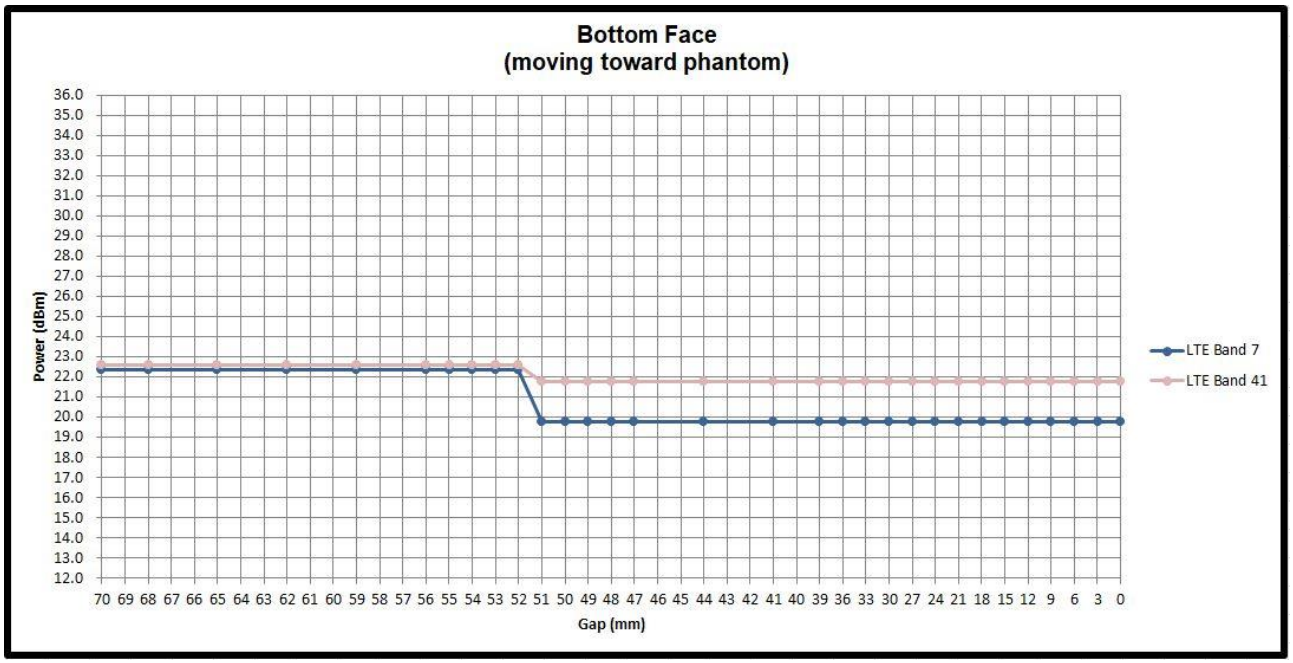
Exposure Position / wireless mode	Bottom Face(1)	Edge 1(1)	Edge 2	Edge 3	Edge 4
LTE Band 7	3 dB	3 dB	0 dB	0 dB	0 dB
LTE Band 41	1 dB	1 dB	0 dB	0 dB	0 dB

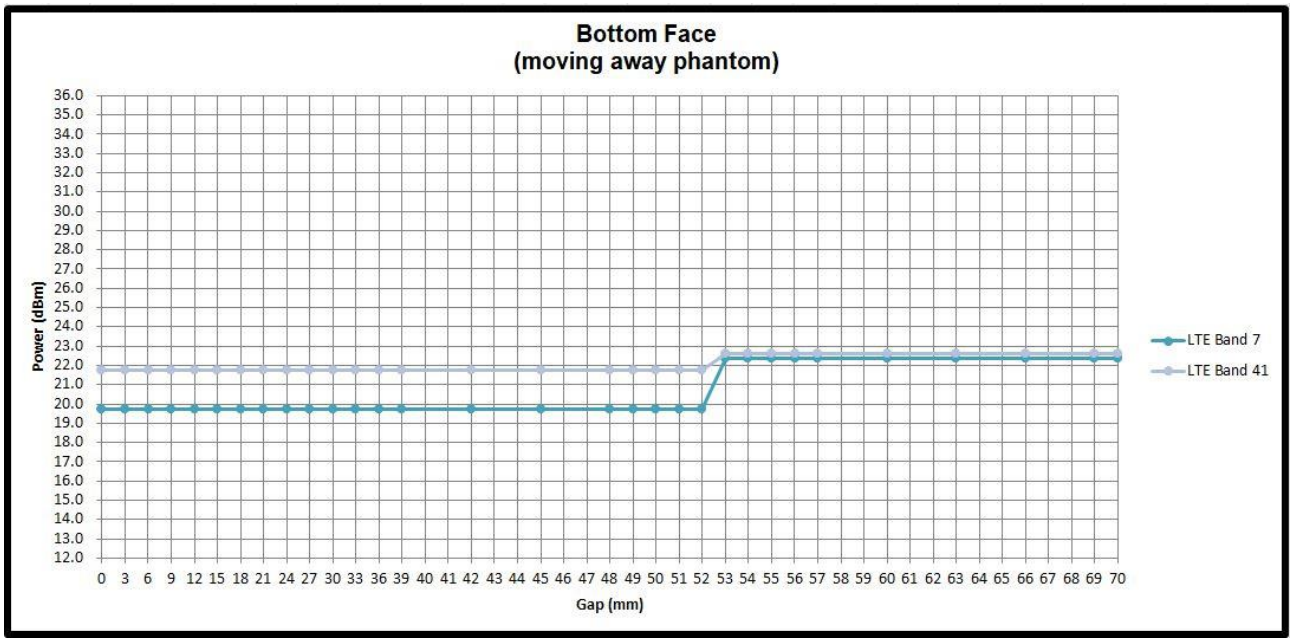
Remark:

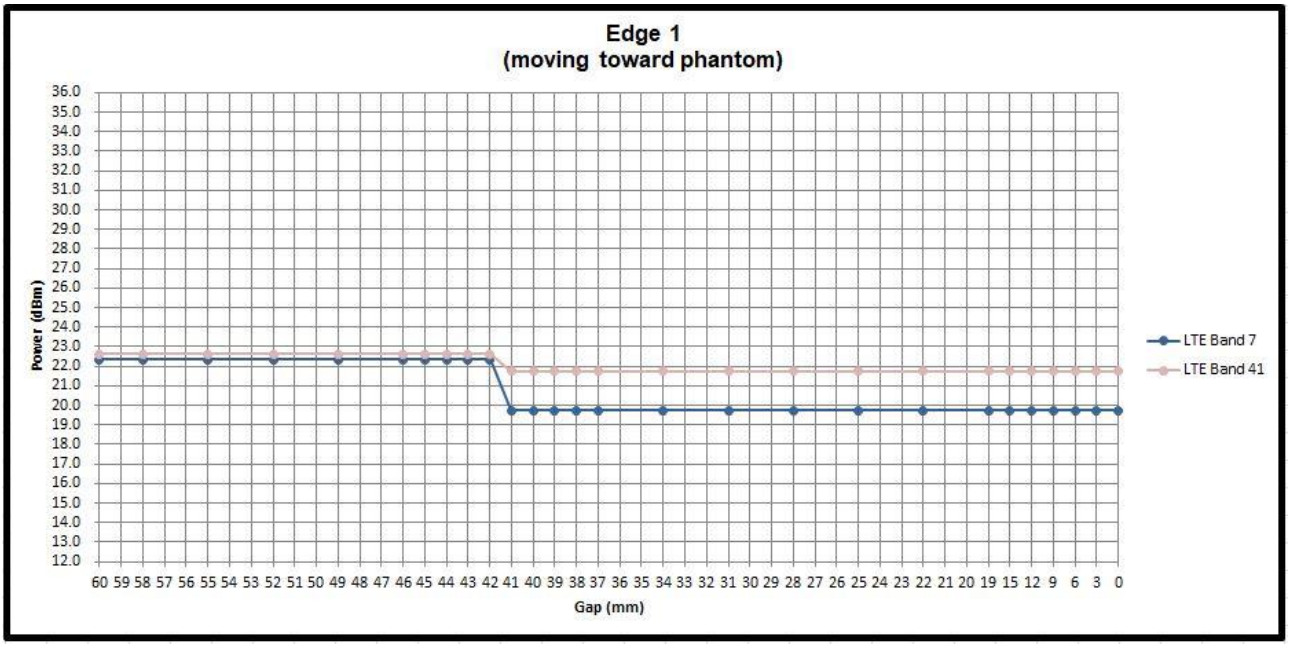
1. (1): Reduced maximum limit applied by activation of proximity sensor.
2. Power reduction is not applicable for WLAN and Bluetooth.
3. Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown and described in exhibit “P-Sensor operational 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: 50 mm
   - Edge1: 40 mm

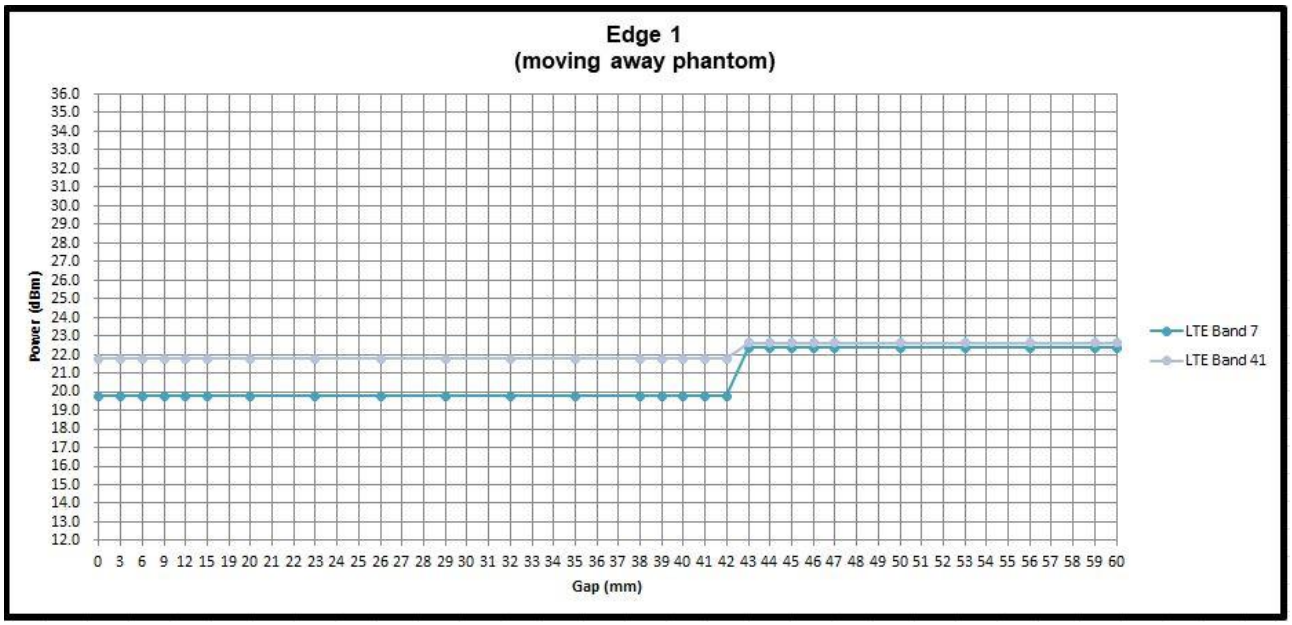
Power Measurement during Sensor Trigger distance testing

Band/Mode	Ch #	Measured power reduction (dBm)		Reduction Levels
		w/o power back-off	w/ power back-off	(dB)
LTE Band 7	21100	22.35	19.75	2.60
LTE Band 41	41055	22.62	21.75	0.87






Edge 1
(moving toward phantom)
Power (dBm)
36.0 35.0 34.0 33.0 32.0 31.0 30.0 29.0 28.0 27.0 26.0 25.0 24.0 23.0 22.0 21.0 20.0 19.0 18.0 17.0 16.0 15.0 14.0 13.0 12.0
60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 15 12 9 6 3 0
Gap (mm)
LTE Band 7
LTE Band 41


Edge 1
(moving away phantom)
Power (dBm)
36.0 35.0 34.0 33.0 32.0 31.0 30.0 29.0 28.0 27.0 26.0 25.0 24.0 23.0 22.0 21.0 20.0 19.0 18.0 17.0 16.0 15.0 14.0 13.0 12.0
0 3 6 9 12 15 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
Gap (mm)
LTE Band 7
LTE Band 41

5. RF Exposure Limits

5.1 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.

5.2 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.

6. Specific Absorption Rate (SAR)

6.1 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.

6.2 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:

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

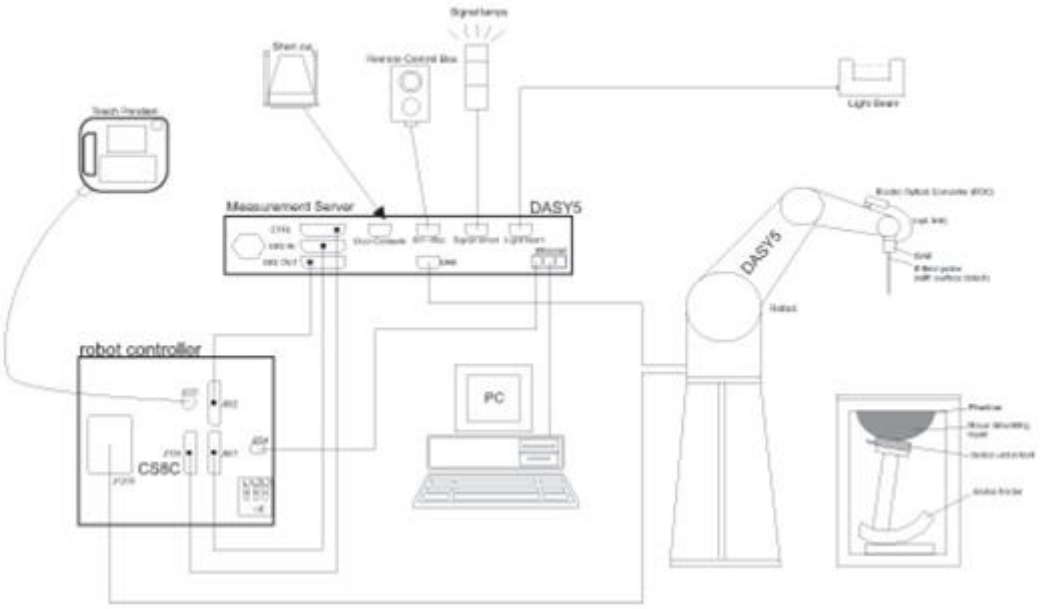
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. 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.

7.1 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	

7.2 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.

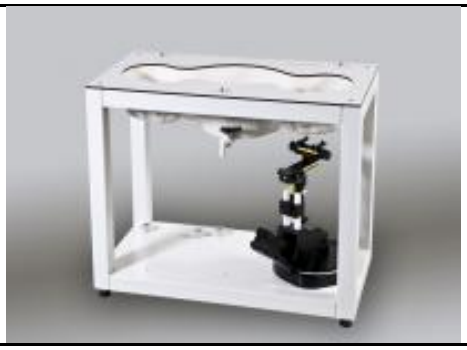
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

7.3 Phantom

<SAM Twin Phantom>

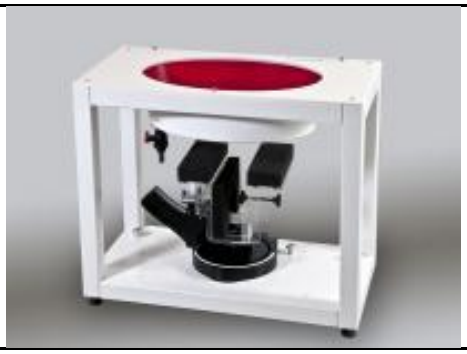
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



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.

7.4 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

8. 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

8.1 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

8.2 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.

8.3 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.	

8.4 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.

8.5 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.

8.6 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.

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1107	Mar. 08, 2019	Mar. 07, 2020
SPEAG	835MHz System Validation Kit	D835V2	499	Sep. 06, 2018	Sep. 05, 2020
SPEAG	1750MHz System Validation Kit	D1750V2	1112	Mar. 07, 2019	Mar. 06, 2020
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Sep. 11, 2018	Sep. 10, 2020
SPEAG	2300MHz System Validation Kit	D2300V2	1006	Jan. 28, 2019	Jan. 27, 2020
SPEAG	2600MHz System Validation Kit	D2600V2	1008	Aug. 31, 2018	Aug. 30, 2020
SPEAG	Data Acquisition Electronics	DAE4	778	May. 21, 2019	May. 20, 2020
SPEAG	Dosimetric E-Field Probe	EX3DV4	3728	Jan. 15, 2019	Jan. 14, 2020
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Sep. 26, 2019	Sep. 25, 2020
RCPTWN	Thermometer	HTC-1	TM685-1	Nov. 12, 2019	Nov. 11, 2020
RCPTWN	Thermometer	HTC-1	TM560-2	Nov. 12, 2019	Nov. 11, 2020
SPEAG	Device Holder	N/A	N/A	N/A	N/A
R&S	Signal Generator	SMA100A	101091	Jul. 03, 2019	Jul. 02, 2020
Agilent	ENA Network Analyzer	E5071C	MY46104758	Sep. 06, 2019	Sep. 05, 2020
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 18, 2019	Sep. 17, 2020
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3169	Sep. 10, 2019	Sep. 09, 2020
Anritsu	Power Meter	ML2495A	1036004	Aug. 08, 2019	Aug. 07, 2020
Anritsu	Power Sensor	MA2411B	1027253	Aug. 08, 2019	Aug. 07, 2020
Anritsu	Power Meter	ML2495A	1419002	May. 29, 2019	May. 28, 2020
Anritsu	Power Sensor	MA2411B	1339124	May. 29, 2019	May. 28, 2020
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 27, 2019	Aug. 26, 2020
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 27, 2019	Jun. 26, 2020
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 16, 2019	Oct. 15, 2020
Mini-Circuits	Power Amplifier	ZVE-8G+	6382	Aug. 12, 2019	Aug. 11, 2020
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.
2. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole D835V2, SN: 499, D1900V2, SN: 5d041, D2600V2, SN: 1008 can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.

10. System Verification

10.1 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.

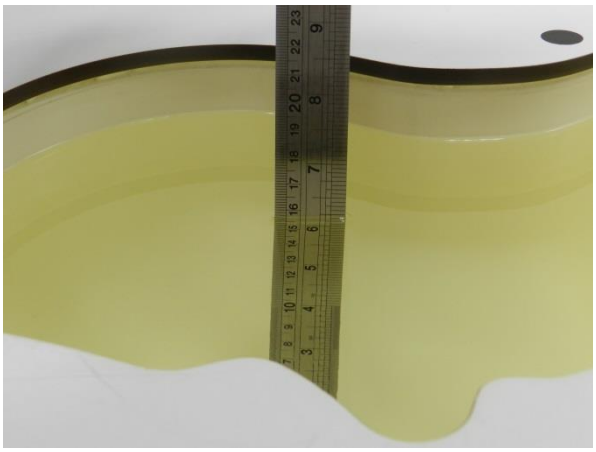


Fig 10.1Photo of Liquid Height for Head SAR

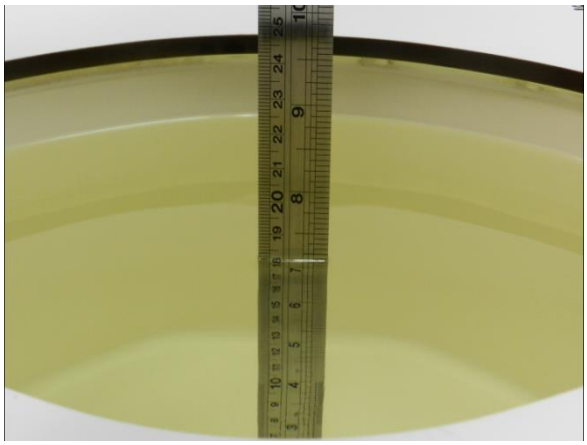


Fig 10.2 Photo of Liquid Height for Body SAR

10.2 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)
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

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)	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	22.2	0.890	42.450	0.89	41.90	0.00	1.31	±5	2019/11/23
835	22.2	0.874	43.185	0.90	41.50	-2.89	4.06	±5	2019/11/23
1750	22.6	1.372	40.969	1.37	40.10	0.15	2.17	±5	2019/11/22
1900	22.6	1.449	39.742	1.40	40.00	3.50	-0.65	±5	2019/11/22
2300	22.8	1.619	39.586	1.67	39.50	-3.05	0.22	±5	2020/1/10
2600	22.5	1.935	38.348	1.96	39.00	-1.28	-1.67	±5	2019/12/19

10.3 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)	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 (%)
2019/11/23	750	250	D750V3-1107	EX3DV4 - SN3931	DAE4 Sn778	2.19	8.32	8.76	5.29
2019/11/23	835	250	D835V2-499	EX3DV4 - SN3931	DAE4 Sn778	2.30	9.59	9.2	-4.07
2019/11/22	1750	250	D1750V2-1112	EX3DV4 - SN3931	DAE4 Sn778	9.21	36.70	36.84	0.38
2019/11/22	1900	250	D1900V2-5d041	EX3DV4 - SN3931	DAE4 Sn778	10.30	40.20	41.2	2.49
2020/1/10	2300	250	D2300V2-1006	EX3DV4 - SN3931	DAE4 Sn778	11.80	48.70	47.2	-3.08
2019/12/19	2600	250	D2600V2-1008	EX3DV4 - SN3728	DAE4 Sn778	14.50	56.40	58	2.84

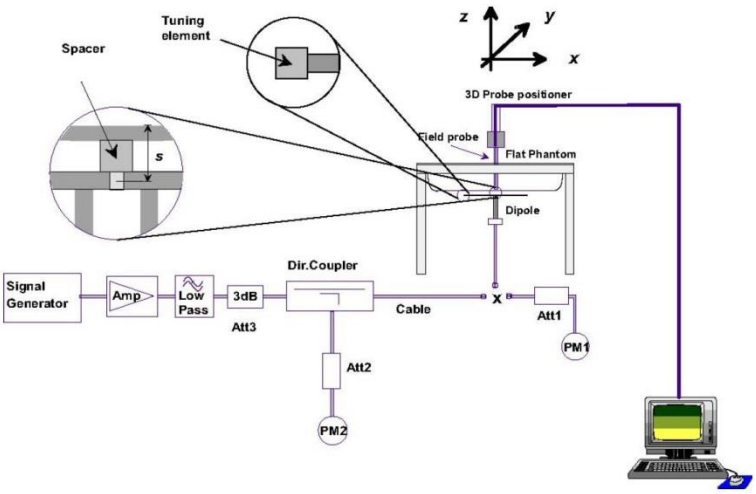


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 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.

12. Conducted RF Output Power (Unit: dBm)

<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 / B26 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.
9. LTE band 2 / 5 SAR test was covered by Band 25 / 26; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
    a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
    b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

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	23.32	23.52	23.60	24	0
20	QPSK	1	49	23.35	23.50	23.57		
20	QPSK	1	99	23.31	23.41	23.36		
20	QPSK	50	0	22.48	22.52	22.68	23	1
20	QPSK	50	24	22.42	22.40	22.61		
20	QPSK	50	50	22.47	22.41	22.52		
20	QPSK	100	0	22.47	22.47	22.65		
20	16QAM	1	0	22.59	22.80	22.86	23	1
20	16QAM	1	49	22.64	22.84	22.82		
20	16QAM	1	99	22.58	22.66	22.57		
20	16QAM	50	0	21.38	21.45	21.49	22	2
20	16QAM	50	24	21.47	21.61	21.57		
20	16QAM	50	50	21.38	21.55	21.48		
20	16QAM	100	0	21.46	21.55	21.59		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	23.33	23.45	23.53	24	0
15	QPSK	1	37	23.37	23.55	23.47		
15	QPSK	1	74	23.31	23.42	23.35		
15	QPSK	36	0	22.32	22.50	22.60	23	1
15	QPSK	36	20	22.48	22.62	22.61		
15	QPSK	36	39	22.40	22.54	22.47		
15	QPSK	75	0	22.52	22.60	22.71		
15	16QAM	1	0	22.69	22.71	22.77	23	1
15	16QAM	1	37	22.64	22.81	22.89		
15	16QAM	1	74	22.64	22.65	22.52		
15	16QAM	36	0	21.39	21.39	21.53	22	2
15	16QAM	36	20	21.47	21.63	21.47		
15	16QAM	36	39	21.35	21.49	21.58		
15	16QAM	75	0	21.52	21.57	21.54		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	23.28	23.53	23.51	24	0
10	QPSK	1	25	23.29	23.46	23.53		
10	QPSK	1	49	23.25	23.46	23.45		
10	QPSK	25	0	22.31	22.37	22.57	23	1
10	QPSK	25	12	22.52	22.62	22.69		
10	QPSK	25	25	22.45	22.51	22.55		
10	QPSK	50	0	22.50	22.53	22.68		
10	16QAM	1	0	22.55	22.75	22.81	23	1
10	16QAM	1	25	22.66	22.85	22.85		
10	16QAM	1	49	22.68	22.71	22.52		
10	16QAM	25	0	21.43	21.54	21.52	22	2
10	16QAM	25	12	21.37	21.68	21.61		

10	16QAM	25	25	21.38	21.65	21.52		
10	16QAM	50	0	21.54	21.51	21.65		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	23.24	23.45	23.52	24	0
5	QPSK	1	12	23.43	23.53	23.45		
5	QPSK	1	24	23.41	23.48	23.35		
5	QPSK	12	0	22.29	22.36	22.52	23	1
5	QPSK	12	7	22.44	22.55	22.51		
5	QPSK	12	13	22.57	22.58	22.46		
5	QPSK	25	0	22.55	22.57	22.70		
5	16QAM	1	0	22.68	22.73	22.96	23	1
5	16QAM	1	12	22.63	22.90	22.80		
5	16QAM	1	24	22.59	22.69	22.67		
5	16QAM	12	0	21.40	21.45	21.47	22	2
5	16QAM	12	7	21.43	21.54	21.65		
5	16QAM	12	13	21.35	21.56	21.56		
5	16QAM	25	0	21.55	21.58	21.58		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	23.36	23.53	23.51	24	0
3	QPSK	1	8	23.29	23.50	23.52		
3	QPSK	1	14	23.24	23.51	23.45		
3	QPSK	8	0	22.48	22.36	22.68	23	1
3	QPSK	8	4	22.58	22.52	22.58		
3	QPSK	8	7	22.57	22.54	22.62		
3	QPSK	15	0	22.43	22.64	22.69		
3	16QAM	1	0	22.55	22.79	22.77	23	1
3	16QAM	1	8	22.71	22.80	22.78		
3	16QAM	1	14	22.63	22.64	22.65		
3	16QAM	8	0	21.35	21.43	21.53	22	2
3	16QAM	8	4	21.47	21.61	21.65		
3	16QAM	8	7	21.38	21.49	21.46		
3	16QAM	15	0	21.42	21.65	21.64		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	23.38	23.55	23.51	24	0
1.4	QPSK	1	3	23.43	23.51	23.57		
1.4	QPSK	1	5	23.35	23.35	23.34		
1.4	QPSK	3	0	22.31	22.39	22.56		
1.4	QPSK	3	1	22.62	22.52	22.55		
1.4	QPSK	3	3	22.55	22.48	22.48		
1.4	QPSK	6	0	22.48	22.50	22.55	23	1
1.4	16QAM	1	0	22.57	22.85	22.86	23	1
1.4	16QAM	1	3	22.58	22.79	22.74		
1.4	16QAM	1	5	22.68	22.63	22.57		
1.4	16QAM	3	0	22.53	22.95	22.90		
1.4	16QAM	3	1	22.65	22.87	22.70		
1.4	16QAM	3	3	22.65	22.71	22.52		
1.4	16QAM	6	0	21.50	21.64	21.63	22	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	23.07	23.00	23.09	24	0
20	QPSK	1	49	23.01	22.97	23.08		
20	QPSK	1	99	22.88	22.84	22.85		
20	QPSK	50	0	22.08	22.14	22.23	23	1
20	QPSK	50	24	22.04	22.09	22.14		
20	QPSK	50	50	22.07	22.00	22.02		
20	QPSK	100	0	22.03	22.00	22.08		
20	16QAM	1	0	22.13	22.28	22.31	23	1
20	16QAM	1	49	22.37	22.22	22.40		
20	16QAM	1	99	22.17	22.09	22.12		
20	16QAM	50	0	20.98	21.01	21.04	22	2
20	16QAM	50	24	21.05	21.07	21.10		
20	16QAM	50	50	21.02	20.99	20.93		
20	16QAM	100	0	21.02	20.96	21.07		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.87	22.99	23.07	24	0
15	QPSK	1	37	23.00	22.94	23.01		
15	QPSK	1	74	22.87	22.79	22.87		
15	QPSK	36	0	21.94	22.11	22.11	23	1
15	QPSK	36	20	22.06	22.03	22.04		
15	QPSK	36	39	22.04	21.90	21.96		
15	QPSK	75	0	21.96	22.06	22.10		
15	16QAM	1	0	22.04	22.38	22.34	23	1
15	16QAM	1	37	22.34	22.24	22.32		
15	16QAM	1	74	22.08	22.17	22.13		
15	16QAM	36	0	21.01	20.93	21.04	22	2
15	16QAM	36	20	20.97	21.13	21.02		
15	16QAM	36	39	21.05	20.91	20.99		
15	16QAM	75	0	21.04	20.91	21.00		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.86	23.04	23.03	24	0
10	QPSK	1	25	23.04	23.06	23.05		
10	QPSK	1	49	22.86	22.80	22.85		
10	QPSK	25	0	21.96	22.08	22.08	23	1
10	QPSK	25	12	21.97	22.03	22.09		
10	QPSK	25	25	22.14	22.04	21.99		
10	QPSK	50	0	22.00	21.98	22.14		
10	16QAM	1	0	22.15	22.32	22.39	23	1
10	16QAM	1	25	22.47	22.18	22.40		
10	16QAM	1	49	22.27	22.00	22.20		
10	16QAM	25	0	20.95	20.99	21.13	22	2
10	16QAM	25	12	21.09	21.05	21.14		
10	16QAM	25	25	21.05	21.08	20.84		

10	16QAM	50	0	20.92	20.87	21.07		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.97	22.86	23.02	24	0
5	QPSK	1	12	23.01	23.02	23.02		
5	QPSK	1	24	22.94	22.88	22.86		
5	QPSK	12	0	22.09	22.13	22.09	23	1
5	QPSK	12	7	22.00	22.16	22.23		
5	QPSK	12	13	22.12	21.94	21.92		
5	QPSK	25	0	22.02	22.09	21.98		
5	16QAM	1	0	22.23	22.21	22.38	23	1
5	16QAM	1	12	22.38	22.20	22.38		
5	16QAM	1	24	22.20	22.10	22.11		
5	16QAM	12	0	21.07	20.95	20.98	22	2
5	16QAM	12	7	20.97	21.07	21.06		
5	16QAM	12	13	21.11	20.93	20.86		
5	16QAM	25	0	21.12	20.94	21.10		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.95	23.05	23.04	24	0
3	QPSK	1	8	23.01	23.03	23.02		
3	QPSK	1	14	22.78	22.78	22.89		
3	QPSK	8	0	21.92	22.11	22.12	23	1
3	QPSK	8	4	22.10	22.04	22.06		
3	QPSK	8	7	22.08	22.09	22.08		
3	QPSK	15	0	22.11	21.94	22.17		
3	16QAM	1	0	22.12	22.23	22.37	23	1
3	16QAM	1	8	22.41	22.32	22.37		
3	16QAM	1	14	22.25	22.07	22.04		
3	16QAM	8	0	20.98	21.11	21.02	22	2
3	16QAM	8	4	20.98	21.02	21.17		
3	16QAM	8	7	21.07	21.08	20.94		
3	16QAM	15	0	20.97	20.91	21.00		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.88	23.03	23.00	24	0
1.4	QPSK	1	3	23.01	23.05	23.05		
1.4	QPSK	1	5	22.85	22.88	22.86		
1.4	QPSK	3	0	22.88	22.85	22.88		
1.4	QPSK	3	1	22.83	22.82	22.84		
1.4	QPSK	3	3	22.88	22.95	22.94		
1.4	QPSK	6	0	21.96	21.96	22.15	23	1
1.4	16QAM	1	0	22.19	22.26	22.30	23	1
1.4	16QAM	1	3	22.33	22.22	22.31		
1.4	16QAM	1	5	22.20	22.01	22.17		
1.4	16QAM	3	0	21.94	21.84	21.95		
1.4	16QAM	3	1	21.94	21.98	21.98		
1.4	16QAM	3	3	21.82	21.99	21.95		
1.4	16QAM	6	0	21.12	20.96	20.99	22	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	23.00	23.18	23.06	24	0
10	QPSK	1	25	23.00	23.17	23.05		
10	QPSK	1	49	22.81	22.97	22.59		
10	QPSK	25	0	21.91	21.85	21.93	23	1
10	QPSK	25	12	21.94	21.97	22.02		
10	QPSK	25	25	21.88	22.00	22.06		
10	QPSK	50	0	21.92	21.96	22.02		
10	16QAM	1	0	22.43	22.34	22.36	23	1
10	16QAM	1	25	22.26	22.32	22.41		
10	16QAM	1	49	22.12	22.26	21.90		
10	16QAM	25	0	20.87	20.90	20.91	22	2
10	16QAM	25	12	20.91	21.02	20.98		
10	16QAM	25	25	20.83	21.00	20.99		
10	16QAM	50	0	20.90	20.93	20.99		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.97	22.88	23.04	24	0
5	QPSK	1	12	23.09	23.15	22.99		
5	QPSK	1	24	22.72	23.02	22.69		
5	QPSK	12	0	21.94	21.88	21.96	23	1
5	QPSK	12	7	22.00	22.02	22.09		
5	QPSK	12	13	21.89	22.10	21.99		
5	QPSK	25	0	21.82	21.94	22.07		
5	16QAM	1	0	22.42	22.36	22.44	23	1
5	16QAM	1	12	22.26	22.24	22.46		
5	16QAM	1	24	22.15	22.17	21.98		
5	16QAM	12	0	20.77	20.88	20.91	22	2
5	16QAM	12	7	21.00	21.05	21.00		
5	16QAM	12	13	20.89	20.97	21.02		
5	16QAM	25	0	20.91	20.96	21.03		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	23.02	23.01	23.11	24	0
3	QPSK	1	8	22.97	23.02	23.08		
3	QPSK	1	14	22.74	22.98	22.58		
3	QPSK	8	0	21.83	21.84	21.91	23	1
3	QPSK	8	4	21.97	21.97	21.96		
3	QPSK	8	7	21.84	21.92	22.03		
3	QPSK	15	0	21.95	22.03	22.03		
3	16QAM	1	0	22.40	22.36	22.41	23	1
3	16QAM	1	8	22.27	22.26	22.35		
3	16QAM	1	14	22.12	22.24	21.90		
3	16QAM	8	0	20.80	20.82	20.87	22	2
3	16QAM	8	4	20.90	21.11	20.93		
3	16QAM	8	7	20.91	20.94	20.92		

3	16QAM	15	0	20.90	20.90	20.99		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.99	23.06	23.11	24	0
1.4	QPSK	1	3	23.00	23.03	23.04		
1.4	QPSK	1	5	22.80	22.96	22.56		
1.4	QPSK	3	0	22.88	22.87	22.90		
1.4	QPSK	3	1	22.90	22.98	22.82		
1.4	QPSK	3	3	22.89	22.86	22.85		
1.4	QPSK	6	0	21.89	22.06	21.96	23	1
1.4	16QAM	1	0	22.38	22.27	22.38	23	1
1.4	16QAM	1	3	22.30	22.39	22.44		
1.4	16QAM	1	5	22.10	22.25	21.94		
1.4	16QAM	3	0	21.83	21.99	21.89		
1.4	16QAM	3	1	21.89	21.05	21.90		
1.4	16QAM	3	3	21.92	21.06	21.03		
1.4	16QAM	6	0	20.97	20.89	21.01	22	2

<LTE Band 7>

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				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	22.26	22.35	22.23	23	0
20	QPSK	1	49	22.05	22.33	22.12		
20	QPSK	1	99	22.16	22.23	22.13		
20	QPSK	50	0	21.33	21.59	21.26	22	1
20	QPSK	50	24	21.13	21.43	21.21		
20	QPSK	50	50	21.28	21.42	21.22		
20	QPSK	100	0	21.17	21.30	21.23		
20	16QAM	1	0	21.18	21.55	21.40	22	1
20	16QAM	1	49	21.37	21.61	21.55		
20	16QAM	1	99	21.53	21.51	21.38		
20	16QAM	50	0	20.00	20.29	20.12	21	2
20	16QAM	50	24	20.10	20.45	20.27		
20	16QAM	50	50	20.28	20.42	20.20		
20	16QAM	100	0	20.18	20.32	20.23		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	21.84	22.29	22.11	23	0
15	QPSK	1	37	22.01	22.27	22.22		
15	QPSK	1	74	22.26	22.25	22.22		
15	QPSK	36	0	21.05	21.19	21.25	22	1
15	QPSK	36	20	21.09	21.44	21.37		
15	QPSK	36	39	21.32	21.44	21.13		
15	QPSK	75	0	21.08	21.28	21.32		
15	16QAM	1	0	21.11	21.64	21.40	22	1
15	16QAM	1	37	21.31	21.68	21.59		
15	16QAM	1	74	21.56	21.42	21.33		
15	16QAM	36	0	19.97	20.29	20.06	21	2
15	16QAM	36	20	20.16	20.36	20.36		
15	16QAM	36	39	20.31	20.34	20.15		
15	16QAM	75	0	20.09	20.25	20.31		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	21.90	22.14	22.07	23	0
10	QPSK	1	25	22.11	22.26	22.29		
10	QPSK	1	49	22.31	22.19	22.19		
10	QPSK	25	0	21.11	21.31	21.26	22	1
10	QPSK	25	12	21.23	21.42	21.28		
10	QPSK	25	25	21.30	21.48	21.26		
10	QPSK	50	0	21.08	21.37	21.20		
10	16QAM	1	0	21.24	21.55	21.35	22	1
10	16QAM	1	25	21.32	21.55	21.58		
10	16QAM	1	49	21.43	21.46	21.33		
10	16QAM	25	0	19.95	20.36	20.16	21	2
10	16QAM	25	12	20.14	20.45	20.33		
10	16QAM	25	25	20.22	20.49	20.14		

10	16QAM	50	0	20.13	20.35	20.16		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	21.95	22.15	22.07	23	0
5	QPSK	1	12	22.02	22.19	22.14		
5	QPSK	1	24	22.20	22.12	22.10		
5	QPSK	12	0	21.11	21.28	21.11	22	1
5	QPSK	12	7	21.06	21.51	21.27		
5	QPSK	12	13	21.27	21.44	21.13		
5	QPSK	25	0	21.22	21.33	21.13		
5	16QAM	1	0	21.22	21.51	21.41	22	1
5	16QAM	1	12	21.38	21.67	21.65		
5	16QAM	1	24	21.50	21.55	21.28		
5	16QAM	12	0	19.97	20.32	20.13	21	2
5	16QAM	12	7	20.03	20.52	20.36		
5	16QAM	12	13	20.26	20.46	20.16		
5	16QAM	25	0	20.11	20.26	20.19		

<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	23.58	23.61	23.59	24	0
10	QPSK	1	25	23.50	23.50	23.49		
10	QPSK	1	49	23.48	23.46	23.54		
10	QPSK	25	0	22.38	22.47	22.30	23	1
10	QPSK	25	12	22.33	22.37	22.37		
10	QPSK	25	25	22.36	22.34	22.41		
10	QPSK	50	0	22.38	22.34	22.26		
10	16QAM	1	0	22.73	22.73	22.72	23	1
10	16QAM	1	25	22.77	22.76	22.73		
10	16QAM	1	49	22.69	22.68	22.71		
10	16QAM	25	0	21.36	21.38	21.30	22	2
10	16QAM	25	12	21.43	21.38	21.36		
10	16QAM	25	25	21.39	21.35	21.38		
10	16QAM	50	0	21.40	21.43	21.38		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.45	23.54	23.43	24	0
5	QPSK	1	12	23.60	23.42	23.52		
5	QPSK	1	24	23.50	23.51	23.54		
5	QPSK	12	0	22.43	22.30	22.40	23	1
5	QPSK	12	7	22.34	22.30	22.34		
5	QPSK	12	13	22.28	22.24	22.45		
5	QPSK	25	0	22.38	22.39	22.33		
5	16QAM	1	0	22.78	22.69	22.81	23	1
5	16QAM	1	12	22.80	22.71	22.81		
5	16QAM	1	24	22.60	22.62	22.72		
5	16QAM	12	0	21.39	21.36	21.30	22	2
5	16QAM	12	7	21.48	21.43	21.34		
5	16QAM	12	13	21.39	21.39	21.36		
5	16QAM	25	0	21.40	21.50	21.48		
Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.43	23.60	23.46	24	0
3	QPSK	1	8	23.57	23.51	23.57		
3	QPSK	1	14	23.39	23.36	23.49		
3	QPSK	8	0	22.44	22.33	22.33	23	1
3	QPSK	8	4	22.39	22.35	22.40		
3	QPSK	8	7	22.43	22.26	22.42		
3	QPSK	15	0	22.35	22.51	22.30		
3	16QAM	1	0	22.69	22.68	22.79	23	1
3	16QAM	1	8	22.79	22.85	22.82		
3	16QAM	1	14	22.68	22.59	22.79		
3	16QAM	8	0	21.40	21.38	21.22	22	2
3	16QAM	8	4	21.47	21.48	21.40		
3	16QAM	8	7	21.32	21.27	21.28		

3	16QAM	15	0	21.46	21.50	21.37		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.42	23.54	23.47	24	0
1.4	QPSK	1	3	23.50	23.49	23.52		
1.4	QPSK	1	5	23.44	23.50	23.45		
1.4	QPSK	3	0	22.37	22.46	22.34		
1.4	QPSK	3	1	22.45	22.39	22.47		
1.4	QPSK	3	3	22.35	22.37	22.50		
1.4	QPSK	6	0	22.42	22.49	22.31	23	1
1.4	16QAM	1	0	22.76	22.79	22.82	23	1
1.4	16QAM	1	3	22.80	22.80	22.82		
1.4	16QAM	1	5	22.75	22.64	22.72		
1.4	16QAM	3	0	21.45	21.40	21.22		
1.4	16QAM	3	1	21.41	21.37	21.34		
1.4	16QAM	3	3	21.44	21.28	21.32		
1.4	16QAM	6	0	21.48	21.45	21.37	22	2

<LTE Band 13>

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				23230				
Frequency (MHz)				782				
10	QPSK	1	0	23.37			24	0
10	QPSK	1	25	23.36				
10	QPSK	1	49	23.31				
10	QPSK	25	0	22.25			23	1
10	QPSK	25	12	22.12				
10	QPSK	25	25	22.14				
10	QPSK	50	0	22.22				
10	16QAM	1	0	22.54			23	1
10	16QAM	1	25	22.52				
10	16QAM	1	49	22.52				
10	16QAM	25	0	21.23			22	2
10	16QAM	25	12	21.17				
10	16QAM	25	25	21.14				
10	16QAM	50	0	21.17				
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	23.29	23.31	23.22	24	0
5	QPSK	1	12	23.14	23.20	23.24		
5	QPSK	1	24	23.06	23.32	23.26		
5	QPSK	12	0	22.24	22.21	22.18	23	1
5	QPSK	12	7	22.15	22.14	22.26		
5	QPSK	12	13	22.10	22.22	22.21		
5	QPSK	25	0	22.23	22.22	22.23		
5	16QAM	1	0	22.53	22.59	22.47	23	1
5	16QAM	1	12	22.59	22.62	22.65		
5	16QAM	1	24	22.35	22.58	22.54		
5	16QAM	12	0	21.17	21.22	21.14	22	2
5	16QAM	12	7	21.15	21.14	21.25		
5	16QAM	12	13	21.13	21.20	21.23		
5	16QAM	25	0	21.23	21.25	21.27		

<LTE Band 25>

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				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	23.61	23.62	23.60	24	0
20	QPSK	1	49	23.60	23.59	23.59		
20	QPSK	1	99	23.36	23.58	23.55		
20	QPSK	50	0	22.28	22.60	22.47	23	1
20	QPSK	50	24	22.35	22.57	22.56		
20	QPSK	50	50	22.28	22.48	22.54		
20	QPSK	100	0	22.33	22.63	22.63		
20	16QAM	1	0	22.68	22.84	22.78	23	1
20	16QAM	1	49	22.73	22.83	22.96		
20	16QAM	1	99	22.59	22.80	22.90		
20	16QAM	50	0	21.30	21.51	21.44	22	2
20	16QAM	50	24	21.37	21.49	21.55		
20	16QAM	50	50	21.33	21.43	21.59		
20	16QAM	100	0	21.37	21.50	21.60		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	23.46	23.58	23.46	24	0
15	QPSK	1	37	23.58	23.53	23.58		
15	QPSK	1	74	23.32	23.55	23.58		
15	QPSK	36	0	22.23	22.60	22.42	23	1
15	QPSK	36	20	22.25	22.60	22.57		
15	QPSK	36	39	22.35	22.39	22.67		
15	QPSK	75	0	22.31	22.65	22.69		
15	16QAM	1	0	22.73	22.78	22.88	23	1
15	16QAM	1	37	22.64	22.77	22.96		
15	16QAM	1	74	22.60	22.81	22.95		
15	16QAM	36	0	21.37	21.52	21.44	22	2
15	16QAM	36	20	21.39	21.42	21.65		
15	16QAM	36	39	21.36	21.44	21.54		
15	16QAM	75	0	21.45	21.52	21.69		
Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	23.47	23.50	23.54	24	0
10	QPSK	1	25	23.49	23.51	23.60		
10	QPSK	1	49	23.31	23.56	23.58		
10	QPSK	25	0	22.32	22.60	22.41	23	1
10	QPSK	25	12	22.27	22.51	22.68		
10	QPSK	25	25	22.28	22.38	22.74		
10	QPSK	50	0	22.30	22.59	22.59		
10	16QAM	1	0	22.74	22.82	22.75	23	1
10	16QAM	1	25	22.75	22.75	22.99		
10	16QAM	1	49	22.55	22.83	22.84		
10	16QAM	25	0	21.27	21.55	21.42	22	2
10	16QAM	25	12	21.37	21.40	21.61		
10	16QAM	25	25	21.35	21.45	21.56		

10	16QAM	50	0	21.37	21.48	21.62		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	23.32	23.53	23.59	24	0
5	QPSK	1	12	23.60	23.58	23.56		
5	QPSK	1	24	23.44	23.60	23.49		
5	QPSK	12	0	22.34	22.51	22.42	23	1
5	QPSK	12	7	22.36	22.59	22.69		
5	QPSK	12	13	22.23	22.52	22.73		
5	QPSK	25	0	22.27	22.68	22.64		
5	16QAM	1	0	22.60	22.87	22.69	23	1
5	16QAM	1	12	22.64	22.77	22.96		
5	16QAM	1	24	22.63	22.87	23.00		
5	16QAM	12	0	21.24	21.48	21.41	22	2
5	16QAM	12	7	21.30	21.43	21.59		
5	16QAM	12	13	21.33	21.49	21.66		
5	16QAM	25	0	21.40	21.44	21.55		
Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	23.41	23.51	23.54	24	0
3	QPSK	1	8	23.52	23.53	23.59		
3	QPSK	1	14	23.26	23.54	23.49		
3	QPSK	8	0	22.27	22.53	22.43	23	1
3	QPSK	8	4	22.31	22.47	22.52		
3	QPSK	8	7	22.29	22.50	22.62		
3	QPSK	15	0	22.30	22.59	22.58		
3	16QAM	1	0	22.77	22.85	22.87	23	1
3	16QAM	1	8	22.72	22.84	22.91		
3	16QAM	1	14	22.52	22.82	22.90		
3	16QAM	8	0	21.30	21.55	21.47	22	2
3	16QAM	8	4	21.47	21.48	21.63		
3	16QAM	8	7	21.32	21.46	21.61		
3	16QAM	15	0	21.46	21.40	21.69		
Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	23.43	23.58	23.47	24	0
1.4	QPSK	1	3	23.58	23.58	23.60		
1.4	QPSK	1	5	23.46	23.52	23.53		
1.4	QPSK	3	0	23.36	23.49	23.42		
1.4	QPSK	3	1	23.31	23.40	23.46		
1.4	QPSK	3	3	23.24	23.47	23.60		
1.4	QPSK	6	0	22.42	22.72	22.63	23	1
1.4	16QAM	1	0	22.77	22.76	22.76	23	1
1.4	16QAM	1	3	22.73	22.86	22.96		
1.4	16QAM	1	5	22.54	22.77	22.88		
1.4	16QAM	3	0	22.27	22.61	22.41		
1.4	16QAM	3	1	22.47	22.58	22.51		
1.4	16QAM	3	3	22.24	22.38	22.59		
1.4	16QAM	6	0	21.39	21.41	21.57	22	2

<LTE Band 26>

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				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	23.15	23.17	23.00	24	0
15	QPSK	1	37	23.06	23.00	22.99		
15	QPSK	1	74	22.89	22.87	22.95		
15	QPSK	36	0	22.35	22.26	22.27	23	1
15	QPSK	36	20	22.33	22.24	22.29		
15	QPSK	36	39	22.22	22.18	22.36		
15	QPSK	75	0	22.01	22.03	22.04		
15	16QAM	1	0	21.93	21.83	21.94	23	1
15	16QAM	1	37	21.94	21.89	22.00		
15	16QAM	1	74	22.07	21.81	22.02		
15	16QAM	36	0	20.94	20.93	20.80	22	2
15	16QAM	36	20	20.95	20.82	20.86		
15	16QAM	36	39	21.06	20.77	21.04		
15	16QAM	75	0	21.08	20.91	21.03		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.87	23.10	22.93	24	0
10	QPSK	1	25	23.10	23.09	23.06		
10	QPSK	1	49	22.96	22.88	22.99		
10	QPSK	25	0	22.27	22.35	22.26	23	1
10	QPSK	25	12	22.39	22.22	22.25		
10	QPSK	25	25	22.21	22.17	22.28		
10	QPSK	50	0	22.00	21.97	22.04		
10	16QAM	1	0	21.96	21.87	21.85	23	1
10	16QAM	1	25	22.02	21.89	21.93		
10	16QAM	1	49	21.97	21.84	21.95		
10	16QAM	25	0	20.99	20.88	20.86	22	2
10	16QAM	25	12	21.00	20.84	20.93		
10	16QAM	25	25	20.96	20.80	20.95		
10	16QAM	50	0	20.99	20.91	20.99		
Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.77	23.15	22.87	24	0
5	QPSK	1	12	23.06	23.15	23.08		
5	QPSK	1	24	22.96	22.83	22.90		
5	QPSK	12	0	22.30	22.45	22.26	23	1
5	QPSK	12	7	22.41	22.24	22.15		
5	QPSK	12	13	22.30	22.15	22.25		
5	QPSK	25	0	22.10	22.03	21.98		
5	16QAM	1	0	22.05	21.81	21.94	23	1
5	16QAM	1	12	22.05	21.92	21.84		
5	16QAM	1	24	21.97	21.87	21.98		
5	16QAM	12	0	21.03	20.84	20.87	22	2
5	16QAM	12	7	21.07	20.78	21.03		
5	16QAM	12	13	21.04	20.82	21.00		

5	16QAM	25	0	21.08	21.00	21.00		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.97	23.01	22.88	24	0
3	QPSK	1	8	23.15	23.04	23.09		
3	QPSK	1	14	22.95	22.80	22.96		
3	QPSK	8	0	22.31	22.42	22.28	23	1
3	QPSK	8	4	22.32	22.13	22.23		
3	QPSK	8	7	22.16	22.26	22.18		
3	QPSK	15	0	22.08	21.97	22.05		
3	16QAM	1	0	21.88	21.86	21.76	23	1
3	16QAM	1	8	22.06	21.92	21.88		
3	16QAM	1	14	21.94	21.90	21.94		
3	16QAM	8	0	20.99	20.82	20.83	22	2
3	16QAM	8	4	21.00	20.78	20.94		
3	16QAM	8	7	20.98	20.85	20.97		
3	16QAM	15	0	21.02	20.97	21.05		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.94	23.16	22.95	24	0
1.4	QPSK	1	3	23.09	23.12	23.10		
1.4	QPSK	1	5	23.01	22.86	22.91		
1.4	QPSK	3	0	22.85	22.83	22.68		
1.4	QPSK	3	1	23.15	22.96	23.03		
1.4	QPSK	3	3	22.86	22.69	22.80		
1.4	QPSK	6	0	22.03	21.93	22.10	23	1
1.4	16QAM	1	0	22.17	22.25	22.36	23	1
1.4	16QAM	1	3	22.49	22.22	22.33		
1.4	16QAM	1	5	22.19	22.12	22.31		
1.4	16QAM	3	0	21.69	21.75	21.73		
1.4	16QAM	3	1	22.04	21.76	21.76		
1.4	16QAM	3	3	21.82	21.90	21.84		
1.4	16QAM	6	0	21.01	20.87	20.92	22	2

<LTE Band 30>

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					27710			
Frequency (MHz)					2310			
10	QPSK	1	0		22.27		23	0
10	QPSK	1	25		22.13			
10	QPSK	1	49		22.10			
10	QPSK	25	0		21.35		22	1
10	QPSK	25	12		21.51			
10	QPSK	25	25		21.45			
10	QPSK	50	0		21.05			
10	16QAM	1	0		20.94		22	1
10	16QAM	1	25		21.01			
10	16QAM	1	49		21.07			
10	16QAM	25	0		19.98		21	2
10	16QAM	25	12		20.04			
10	16QAM	25	25		20.09			
10	16QAM	50	0		20.07			
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	22.02	21.99	22.08	23	0
5	QPSK	1	12	22.01	22.02	21.85		
5	QPSK	1	24	22.20	21.97	21.91		
5	QPSK	12	0	20.96	20.87	20.91	22	1
5	QPSK	12	7	20.96	21.00	20.96		
5	QPSK	12	13	20.84	20.94	20.90		
5	QPSK	25	0	20.88	20.95	20.96		
5	16QAM	1	0	21.21	21.30	21.33	22	1
5	16QAM	1	12	21.24	21.33	21.26		
5	16QAM	1	24	21.37	21.27	21.26		
5	16QAM	12	0	19.93	19.95	20.02	21	2
5	16QAM	12	7	19.98	20.06	20.02		
5	16QAM	12	13	19.93	20.03	19.99		
5	16QAM	25	0	19.92	19.93	19.94		

Reduced Power Mode

<LTE Band 7>

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				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	19.70	19.75	19.65	20	0
20	QPSK	1	49	19.49	19.71	19.57		
20	QPSK	1	99	19.49	19.73	19.50		
20	QPSK	50	0	19.66	19.68	19.53	20	0
20	QPSK	50	24	19.41	19.57	19.44		
20	QPSK	50	50	19.64	19.57	19.46		
20	QPSK	100	0	19.56	19.70	19.63		
20	16QAM	1	0	19.41	19.67	19.54	20	0
20	16QAM	1	49	19.66	19.66	19.67		
20	16QAM	1	99	19.35	19.60	19.56		
20	16QAM	50	0	19.66	19.53	19.53	20	0
20	16QAM	50	24	19.56	19.65	19.53		
20	16QAM	50	50	19.35	19.63	19.42		
20	16QAM	100	0	19.46	19.53	19.43		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	19.51	19.58	19.60	20	0
15	QPSK	1	37	19.47	19.55	19.42		
15	QPSK	1	74	19.34	19.68	19.49		
15	QPSK	36	0	19.52	19.56	19.50	20	0
15	QPSK	36	20	19.30	19.50	19.29		
15	QPSK	36	39	19.54	19.44	19.44		
15	QPSK	75	0	19.37	19.65	19.61		
15	16QAM	1	0	19.31	19.52	19.39	20	0
15	16QAM	1	37	19.52	19.59	19.58		
15	16QAM	1	74	19.33	19.45	19.46		
15	16QAM	36	0	19.57	19.40	19.34	20	0
15	16QAM	36	20	19.38	19.59	19.37		
15	16QAM	36	39	19.29	19.56	19.25		
15	16QAM	75	0	19.33	19.41	19.25		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	19.59	19.60	19.65	20	0
10	QPSK	1	25	19.32	19.58	19.51		
10	QPSK	1	49	19.47	19.71	19.48		
10	QPSK	25	0	19.49	19.62	19.41	20	0
10	QPSK	25	12	19.41	19.37	19.37		
10	QPSK	25	25	19.58	19.42	19.34		
10	QPSK	50	0	19.54	19.76	19.54		
10	16QAM	1	0	19.21	19.67	19.45	20	0
10	16QAM	1	25	19.55	19.55	19.52		
10	16QAM	1	49	19.17	19.48	19.46		
10	16QAM	25	0	19.56	19.46	19.42	20	0
10	16QAM	25	12	19.39	19.46	19.33		

10	16QAM	25	25	19.32	19.48	19.34		
10	16QAM	50	0	19.29	19.47	19.34		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	19.68	19.74	19.53	20	0
5	QPSK	1	12	19.42	19.70	19.50		
5	QPSK	1	24	19.45	19.68	19.45		
5	QPSK	12	0	19.48	19.59	19.41	20	0
5	QPSK	12	7	19.21	19.52	19.42		
5	QPSK	12	13	19.51	19.39	19.40		
5	QPSK	25	0	19.38	19.59	19.63		
5	16QAM	1	0	19.38	19.59	19.48	20	0
5	16QAM	1	12	19.47	19.64	19.54		
5	16QAM	1	24	19.27	19.52	19.50		
5	16QAM	12	0	19.63	19.50	19.37	20	0
5	16QAM	12	7	19.51	19.59	19.36		
5	16QAM	12	13	19.16	19.48	19.33		
5	16QAM	25	0	19.28	19.53	19.37		

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
b. "special subframe S" contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

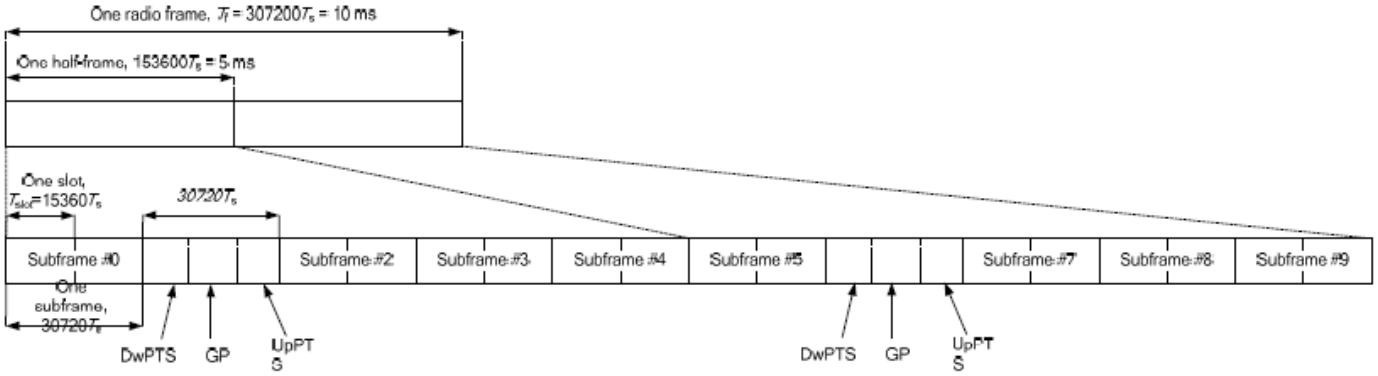


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Special subframe (30720·T_s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~4**	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T_s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~3**	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subfames, uplink operation is in 3 uplink subframes and 1 special subframe.

ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink

iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.167)/5 = 63.3%

iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.143)/5 = 62.9%

v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

Default Power Mode

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	22.38	22.39	22.21	22.62	22.37		
20	QPSK	1	49	22.30	22.35	22.19	22.53	22.33	23	0
20	QPSK	1	99	22.24	22.35	22.18	22.55	22.20		
20	QPSK	50	0	21.70	21.65	21.29	21.99	21.72		
20	QPSK	50	24	21.52	21.51	21.14	21.89	21.56	22	1
20	QPSK	50	50	21.49	21.41	21.14	21.97	21.49		
20	QPSK	100	0	21.45	21.45	21.14	21.88	21.35		
20	16QAM	1	0	21.42	21.52	21.26	21.81	21.38		
20	16QAM	1	49	21.49	21.52	21.26	21.89	21.54	22	1
20	16QAM	1	99	21.37	21.33	21.12	21.69	21.37		
20	16QAM	50	0	20.51	20.49	20.19	20.87	20.43		
20	16QAM	50	24	20.50	20.50	20.26	20.99	20.60	21	2
20	16QAM	50	50	20.55	20.44	20.27	21.02	20.52		
20	16QAM	100	0	20.49	20.49	20.23	20.84	20.56		
Channel				39725	40173	40620	20.85	20.44	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	22.04	22.24	22.09	22.39	22.15		
15	QPSK	1	37	22.22	22.21	22.07	22.33	22.26	23	0
15	QPSK	1	74	22.23	21.92	21.97	22.46	22.24		
15	QPSK	36	0	21.41	21.31	20.97	21.33	21.36		
15	QPSK	36	20	21.33	21.38	20.91	21.69	21.41	22	1
15	QPSK	36	39	21.32	21.20	20.96	21.84	21.26		
15	QPSK	75	0	21.40	21.39	20.97	21.80	21.20		
15	16QAM	1	0	21.29	21.29	21.20	21.63	21.22		
15	16QAM	1	37	21.38	21.29	21.10	21.76	21.31	22	1
15	16QAM	1	74	21.17	21.09	20.99	21.55	21.13		
15	16QAM	36	0	20.31	20.37	19.99	20.69	20.26		
15	16QAM	36	20	20.36	20.35	20.08	20.74	20.37	21	2
15	16QAM	36	39	20.41	20.34	20.08	20.82	20.27		
15	16QAM	75	0	20.28	20.27	20.14	20.73	20.40		
Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	22.01	22.15	21.93	22.39	22.07		
10	QPSK	1	25	22.31	22.19	22.01	22.37	22.26	23	0
10	QPSK	1	49	22.07	21.92	22.07	22.44	22.11		
10	QPSK	25	0	21.27	21.28	21.01	21.30	21.25		
10	QPSK	25	12	21.47	21.32	21.05	21.75	21.39	22	1
10	QPSK	25	25	21.32	21.36	20.93	21.77	21.42		
10	QPSK	50	0	21.22	21.38	21.03	21.70	21.29		
10	16QAM	1	0	21.35	21.27	21.10	21.70	21.33		
10	16QAM	1	25	21.29	21.42	21.10	21.72	21.46	22	1
10	16QAM	1	49	21.20	21.24	20.96	21.55	21.12		
10	16QAM	25	0	20.45	20.38	20.10	20.66	20.29	21	2

10	16QAM	25	12	20.32	20.29	20.15	20.86	20.45		
10	16QAM	25	25	20.41	20.32	20.10	20.93	20.28		
10	16QAM	50	0	20.40	20.32	20.07	20.61	20.36		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	22.00	22.17	21.96	22.44	22.12	23	0
5	QPSK	1	12	22.22	22.25	22.06	22.46	22.14		
5	QPSK	1	24	22.09	22.11	22.03	22.48	22.27		
5	QPSK	12	0	21.30	21.24	21.01	21.28	21.22	22	1
5	QPSK	12	7	21.31	21.44	21.01	21.84	21.35		
5	QPSK	12	13	21.32	21.29	20.93	21.89	21.25		
5	QPSK	25	0	21.30	21.21	20.92	21.79	21.16		
5	16QAM	1	0	21.34	21.35	21.18	21.56	21.31	22	1
5	16QAM	1	12	21.25	21.39	21.19	21.64	21.46		
5	16QAM	1	24	21.26	21.23	20.97	21.59	21.25		
5	16QAM	12	0	20.46	20.35	20.08	20.68	20.27	21	2
5	16QAM	12	7	20.28	20.32	20.06	20.78	20.38		
5	16QAM	12	13	20.46	20.28	20.08	20.86	20.30		
5	16QAM	25	0	20.30	20.37	20.05	20.71	20.46		

Reduced Power Mode

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	21.65	21.35	21.32	21.75	21.19		
20	QPSK	1	49	21.23	21.27	21.29	21.39	21.23	22	0
20	QPSK	1	99	21.18	21.25	21.22	21.35	21.03		
20	QPSK	50	0	20.62	20.63	20.36	20.82	20.71		
20	QPSK	50	24	20.52	20.48	20.24	20.73	20.37	21	1
20	QPSK	50	50	20.32	20.34	20.19	20.80	20.38		
20	QPSK	100	0	20.53	20.51	20.18	20.91	20.63		
20	16QAM	1	0	20.40	20.48	20.11	20.79	20.52		
20	16QAM	1	49	20.35	20.23	20.11	20.78	20.45	21	1
20	16QAM	1	99	20.31	20.39	20.03	20.89	20.39		
20	16QAM	50	0	20.42	20.37	19.97	20.81	20.61		
20	16QAM	50	24	20.49	20.28	19.94	20.61	20.26	21	1
20	16QAM	50	50	20.21	20.26	19.99	20.69	20.25		
20	16QAM	100	0	20.43	20.51	20.14	20.91	20.54		
Channel				39725	40173	40620	20.85	20.44	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	21.35	21.09	20.92	21.36	21.00		
15	QPSK	1	37	21.03	21.06	20.97	21.24	21.06	22	0
15	QPSK	1	74	21.02	21.10	20.98	21.35	20.83		
15	QPSK	36	0	20.40	20.44	20.10	20.76	20.60		
15	QPSK	36	20	20.39	20.28	20.10	20.57	20.25	21	1
15	QPSK	36	39	20.21	20.26	20.00	20.67	20.24		
15	QPSK	75	0	20.37	20.32	20.00	20.78	20.61		
15	16QAM	1	0	20.38	20.50	20.12	20.65	20.71		
15	16QAM	1	37	20.42	20.46	20.05	20.60	20.27	21	1
15	16QAM	1	74	20.32	20.14	20.07	20.78	20.31		
15	16QAM	36	0	20.40	20.33	20.02	20.78	20.57		
15	16QAM	36	20	20.40	20.48	20.04	20.54	20.27	21	1
15	16QAM	36	39	20.26	20.21	20.11	20.74	20.34		
15	16QAM	75	0	20.41	20.42	20.06	20.81	20.59		
Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	21.19	21.13	21.01	21.43	20.99		
10	QPSK	1	25	21.12	21.11	20.98	21.27	21.18	22	0
10	QPSK	1	49	21.04	21.24	20.96	21.27	20.94		
10	QPSK	25	0	20.38	20.38	20.03	20.64	20.53		
10	QPSK	25	12	20.38	20.35	20.14	20.72	20.37	21	1
10	QPSK	25	25	20.22	20.15	19.90	20.73	20.24		
10	QPSK	50	0	20.38	20.39	19.98	20.90	20.45		
10	16QAM	1	0	20.25	20.31	20.05	20.59	20.35		
10	16QAM	1	25	20.26	20.04	19.94	20.67	20.32	21	1
10	16QAM	1	49	20.30	20.33	19.87	20.72	20.36		
10	16QAM	25	0	20.42	20.33	19.93	20.62	20.62	21	1

10	16QAM	25	12	20.43	20.28	20.10	20.57	20.27		
10	16QAM	25	25	20.25	20.18	19.83	20.67	20.26		
10	16QAM	50	0	20.38	20.33	20.02	20.83	20.48		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	21.25	21.19	20.84	21.46	21.19	22	0
5	QPSK	1	12	21.23	21.19	21.01	21.30	21.13		
5	QPSK	1	24	21.03	21.11	20.79	21.18	21.01		
5	QPSK	12	0	20.32	20.53	20.11	20.67	20.67	21	1
5	QPSK	12	7	20.32	20.31	20.09	20.54	20.29		
5	QPSK	12	13	20.12	20.22	19.84	20.72	20.34		
5	QPSK	25	0	20.37	20.32	20.04	20.91	20.46		
5	16QAM	1	0	20.33	20.28	20.11	20.75	20.40	21	1
5	16QAM	1	12	20.16	20.05	19.94	20.66	20.41		
5	16QAM	1	24	20.17	20.25	19.86	20.74	20.27		
5	16QAM	12	0	20.48	20.34	19.99	20.82	20.51	21	1
5	16QAM	12	7	20.41	20.31	20.07	20.61	20.34		
5	16QAM	12	13	20.24	20.16	19.83	20.79	20.31		
5	16QAM	25	0	20.48	20.43	20.05	20.82	20.58		

<LTE Carrier Aggregation combinations>

General Note:

1. This device supports Carrier Aggregation on downlink only for inter and intra band, Uplink CA is not supported. For the device supports combination bands and configurations are according to 3GPP.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configurations require power measurement should be highlighted in the below table.
3. All permutations exist. No restrictions on Pcell & Scell combinations.

2CC Downlink Carrier Aggregation			
Number	Combination	Restriction	Covered by Measurement Superset
1	2A-5A		
2	2A-12A		
3	2A-13A		
4	4A-5A		
5	4A-12A		
6	4A-13A		
7	2C		
8	7C		
9	41C		
10	2A-2A		
11	4A-4A		
12	7A-7A		
13	41A-41A		

<Power verification when LTE Carrier Aggregation Active>

General Note:

i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.

ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.

iii. The device supports downlink two carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.

iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

v. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.

vi. The device supports uplink carrier aggregation for LTE B41C with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre the 3GPP requirement.

vii. According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

viii. Uplink CA is only operating with power class 3 for LTE B41, and additional SAR measurement for TLE UL CA whit other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA _41C active.

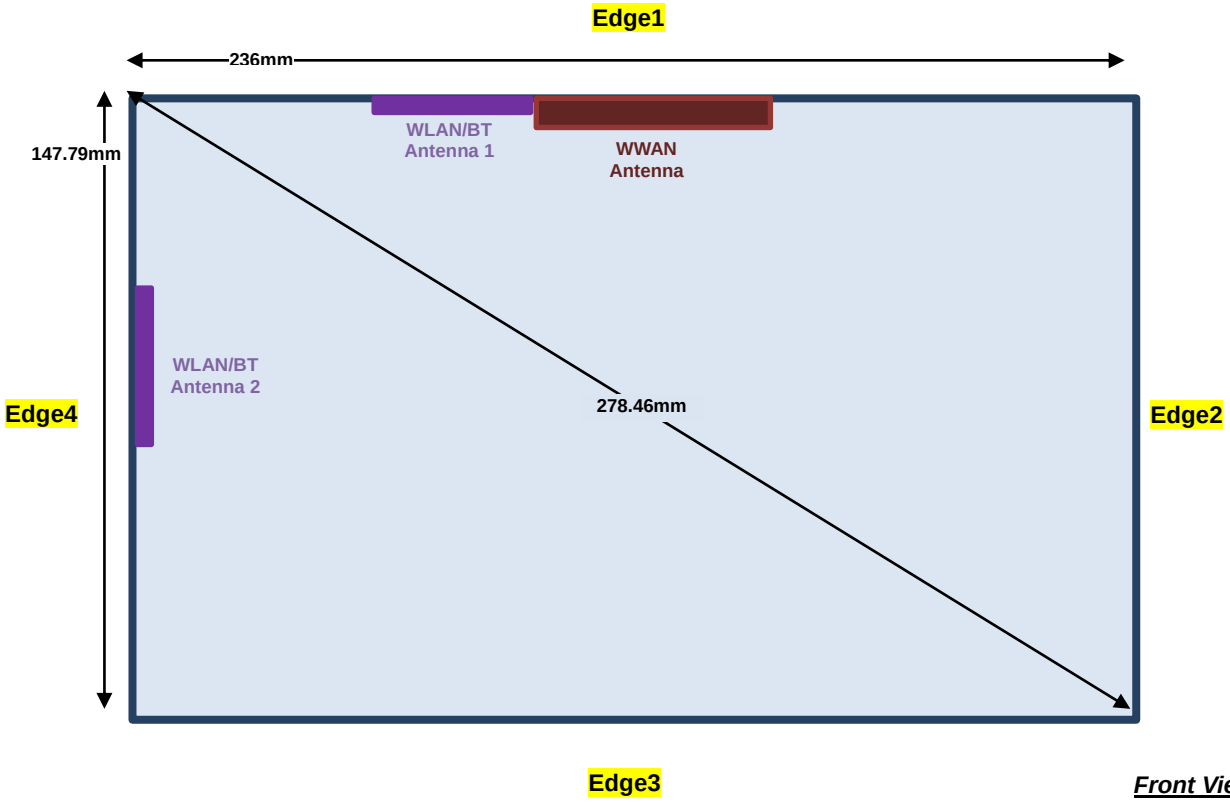
ix. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lfloor \frac{BW_{Channel(1)} + BW_{Channel(2)} - 0.1\left|BW_{Channel(1)} - BW_{Channel(2)}\right|}{0.6} \right\rfloor 0.3 \ \ [\text{MHz}]$$

<Two Carrier power verification>

Configure		PCC							SCC				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band		Band 2	20	1900	19100	QPSK	1	0	Band 5	10	881.5	2525	23.55	23.57
		Band 2	20	1900	19100	QPSK	1	0	Band 12	10	737.5	5095	23.56	23.57
		Band 2	20	1900	19100	QPSK	1	0	Band 13	10	751	5230	23.55	23.57
		Band 4	20	1745	20300	QPSK	1	0	Band 5	10	881.5	2525	22.99	23.02
		Band 4	20	1745	20300	QPSK	1	0	Band 12	10	737.5	5095	23.00	23.02
		Band 4	20	1745	20300	QPSK	1	0	Band 13	10	751	5230	23.01	23.02
Intra-Band	Non-Contiguous	Band 2	20	1900	19100	QPSK	1	0	Band 2	5	1932.5	625	23.56	23.57
		Band 4	20	1745	20300	QPSK	1	0	Band 4	5	2112.5	1975	23.01	23.02
		Band 7	20	2535	21100	QPSK	1	0	Band 7	5	2687.5	3425	22.20	22.23
		Band 41	20	2636.5	41055	QPSK	1	0	Band 41	5	2498.5	39675	22.48	22.49
	Contiguous	Band 2	20	1900	19100	QPSK	1	0	Band 2	20	1960.2	902	23.56	23.57
		Band 7	20	2535	21100	QPSK	1	0	Band 7	20	2674.8	3298	22.21	22.23
		Band 41	20	2636.5	41055	QPSK	1	0	Band 41	20	2656.3	41253	22.47	22.49

13. 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	≤5	83	134	88
WLAN/BT Antenna 1	≤5	167.2	143.4	46.3
WLAN/BT Antenna 2	58.9	231.7	66.4	≤5

<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	LTE Band 12	LTE Band 13	LTE Band 5	LTE Band 26	LTE Band 4	LTE Band 2	LTE Band 25	LTE Band 30	LTE Band 7	LTE Band 41
	Calculated Frequency	715MHz	784MHz	848MHz	848MHz	1754MHz	1909MHz	1914MHz	2312MHz	2567MHz	2687MHz
	Maximum power (dBm)	24	24	24	24	24	24	24	23	23	23
	Maximum rated power(mW)	251.0	251.0	251.0	251.0	251.0	251.0	251.0	200.0	200.0	200.0
Bottom Face	Separation distance(mm)	5.0									
	exclusion threshold	42.5	44.5	46.2	46.2	66.5	69.4	69.5	60.8	64.1	65.6
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Edge 1	Separation distance(mm)	5.0									
	exclusion threshold	42.5	44.5	46.2	46.2	66.5	69.4	69.5	60.8	64.1	65.6
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Edge 2	Separation distance(mm)	83.0									
	exclusion threshold	335.0	342.0	349.0	349.0	443.0	439.0	438.0	429.0	424.0	422.0
	Testing required?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Edge 3	Separation distance(mm)	134.0									
	exclusion threshold	578.0	608.0	638.0	638.0	953.0	949.0	948.0	939.0	934.0	932.0
	Testing required?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Edge 4	Separation distance(mm)	88.0									
	exclusion threshold	359.0	368.0	378.0	378.0	493.0	489.0	488.0	479.0	474.0	472.0
	Testing required?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

14. 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 TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
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; 50mm for bottom face, 40mm for Edge 1

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 B4 / B5 / B12 / B26 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.
7. LTE band 2 / 5 SAR test was covered by Band 25 / 26; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

14.1 Body SAR

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	accessory	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)
01	LTE Band 4	20M	QPSK	1	0	Bottom Face	0mm		OFF	20175	1732.5	23.00	24.00	1.259	-0.07	0.951	1.197
	LTE Band 4	20M	QPSK	50	0	Bottom Face	0mm		OFF	20175	1732.5	22.14	23.00	1.219	-0.04	0.794	0.968
	LTE Band 4	20M	QPSK	100	0	Bottom Face	0mm		OFF	20175	1732.5	22.00	23.00	1.259	-0.01	0.789	0.993
	LTE Band 4	20M	QPSK	1	0	Edge 1	0mm		OFF	20175	1732.5	23.00	24.00	1.259	-0.17	0.599	0.754
	LTE Band 4	20M	QPSK	50	0	Edge 1	0mm		OFF	20175	1732.5	22.14	23.00	1.219	-0.15	0.482	0.588
	LTE Band 4	20M	QPSK	1	0	Bottom Face	0mm	accessory1	OFF	20175	1732.5	23.00	24.00	1.259	-0.06	0.949	1.195
	LTE Band 4	20M	QPSK	1	0	Bottom Face	0mm	accessory2	OFF	20175	1732.5	23.00	24.00	1.259	-0.1	0.945	1.190
	LTE Band 4	20M	QPSK	1	0	Bottom Face	0mm	accessory3	OFF	20175	1732.5	23.00	24.00	1.259	0.01	0.933	1.175
	LTE Band 4	20M	QPSK	1	0	Bottom Face	0mm	accessory4	OFF	20175	1732.5	23.00	24.00	1.259	0	0.944	1.188
	LTE Band 7	20M	QPSK	1	0	Bottom Face	0mm		ON	21100	2535	19.75	20.00	1.059	-0.13	0.935	0.990
	LTE Band 7	20M	QPSK	1	0	Bottom Face	0mm		ON	20850	2510	19.70	20.00	1.072	-0.14	0.938	1.005
	LTE Band 7	20M	QPSK	1	0	Bottom Face	0mm		ON	21350	2560	19.65	20.00	1.084	-0.17	0.821	0.890
	LTE Band 7	20M	QPSK	50	0	Bottom Face	0mm		ON	21100	2535	19.68	20.00	1.076	-0.14	0.929	1.000
02	LTE Band 7	20M	QPSK	50	0	Bottom Face	0mm		ON	20850	2510	19.66	20.00	1.081	-0.15	0.958	1.036
	LTE Band 7	20M	QPSK	50	0	Bottom Face	0mm		ON	21350	2560	19.53	20.00	1.114	-0.07	0.821	0.915
	LTE Band 7	20M	QPSK	100	0	Bottom Face	0mm		ON	21100	2535	19.70	20.00	1.072	-0.12	0.913	0.978
	LTE Band 7	20M	QPSK	1	0	Bottom Face	50mm		OFF	21100	2535	22.35	23.00	1.161	-0.14	0.032	0.037
	LTE Band 7	20M	QPSK	50	0	Bottom Face	50mm		OFF	21100	2535	21.59	22.00	1.099	-0.1	0.025	0.027
	LTE Band 7	20M	QPSK	1	0	Edge 1	0mm		ON	21100	2535	19.75	20.00	1.059	0.12	0.835	0.884
	LTE Band 7	20M	QPSK	1	0	Edge 1	0mm		ON	20850	2510	19.70	20.00	1.072	-0.17	0.828	0.887
	LTE Band 7	20M	QPSK	1	0	Edge 1	0mm		ON	21350	2560	19.65	20.00	1.084	0.13	0.720	0.780
	LTE Band 7	20M	QPSK	50	0	Edge 1	0mm		ON	21100	2535	19.68	20.00	1.076	-0.12	0.847	0.912
	LTE Band 7	20M	QPSK	50	0	Edge 1	0mm		ON	20850	2510	19.66	20.00	1.081	0.15	0.816	0.882
	LTE Band 7	20M	QPSK	50	0	Edge 1	0mm		ON	21350	2560	19.53	20.00	1.114	0.12	0.728	0.811
	LTE Band 7	20M	QPSK	100	0	Edge 1	0mm		ON	21100	2535	19.70	20.00	1.072	0.1	0.755	0.809
	LTE Band 7	20M	QPSK	1	0	Edge 1	40mm		OFF	21100	2535	22.35	23.00	1.161	-0.12	0.037	0.043
	LTE Band 7	20M	QPSK	50	0	Edge 1	40mm		OFF	21100	2535	21.59	22.00	1.099	0.11	0.022	0.024
	LTE Band 7	20M	QPSK	50	0	Bottom Face	0mm	accessory1	ON	20850	2510	19.66	20.00	1.081	0.03	0.953	1.031
	LTE Band 7	20M	QPSK	50	0	Bottom Face	0mm	accessory2	ON	20850	2510	19.66	20.00	1.081	0.06	0.950	1.027
	LTE Band 7	20M	QPSK	50	0	Bottom Face	0mm	accessory3	ON	20850	2510	19.66	20.00	1.081	0.11	0.942	1.019
	LTE Band 7	20M	QPSK	50	0	Bottom Face	0mm	accessory4	ON	20850	2510	19.66	20.00	1.081	-0.07	0.956	1.034
	LTE Band 12	10M	QPSK	1	0	Bottom Face	0mm		OFF	23095	707.5	23.61	24.00	1.094	-0.03	0.229	0.251
	LTE Band 12	10M	QPSK	25	0	Bottom Face	0mm		OFF	23095	707.5	22.47	23.00	1.130	0.03	0.151	0.171
03	LTE Band 12	10M	QPSK	1	0	Edge 1	0mm		OFF	23095	707.5	23.61	24.00	1.094	0.05	0.303	0.331
	LTE Band 12	10M	QPSK	25	0	Edge 1	0mm		OFF	23095	707.5	22.47	23.00	1.130	0.13	0.229	0.259
	LTE Band 12	10M	QPSK	1	0	Edge 1	0mm	accessory1	OFF	23095	707.5	23.61	24.00	1.094	-0.06	0.300	0.328
	LTE Band 12	10M	QPSK	1	0	Edge 1	0mm	accessory2	OFF	23095	707.5	23.61	24.00	1.094	-0.08	0.299	0.327
	LTE Band 12	10M	QPSK	1	0	Edge 1	0mm	accessory3	OFF	23095	707.5	23.61	24.00	1.094	0.13	0.286	0.313
	LTE Band 12	10M	QPSK	1	0	Edge 1	0mm	accessory4	OFF	23095	707.5	23.61	24.00	1.094	0.08	0.297	0.325

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	accessory	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 13	10M	QPSK	1	0	Bottom Face	0mm		OFF	23230	782	23.37	24.00	1.156	0.11	0.255	0.295
	LTE Band 13	10M	QPSK	25	0	Bottom Face	0mm		OFF	23230	782	22.25	23.00	1.189	0.02	0.204	0.242
04	LTE Band 13	10M	QPSK	1	0	Edge 1	0mm		OFF	23230	782	23.37	24.00	1.156	-0.08	0.296	0.342
	LTE Band 13	10M	QPSK	25	0	Edge 1	0mm		OFF	23230	782	22.25	23.00	1.189	-0.06	0.238	0.283
	LTE Band 13	10M	QPSK	1	0	Edge 1	0mm	accessory1	OFF	23230	782	23.37	24.00	1.156	0.07	0.292	0.338
	LTE Band 13	10M	QPSK	1	0	Edge 1	0mm	accessory2	OFF	23230	782	23.37	24.00	1.156	0.09	0.291	0.336
	LTE Band 13	10M	QPSK	1	0	Edge 1	0mm	accessory3	OFF	23230	782	23.37	24.00	1.156	-0.01	0.284	0.328
	LTE Band 13	10M	QPSK	1	0	Edge 1	0mm	accessory4	OFF	23230	782	23.37	24.00	1.156	0	0.289	0.334
05	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm		OFF	26340	1880	23.62	24.00	1.091	-0.06	0.871	0.951
	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm		OFF	26140	1860	23.61	24.00	1.094	-0.05	0.684	0.748
	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm		OFF	26590	1905	23.60	24.00	1.096	-0.01	0.865	0.948
	LTE Band 25	20M	QPSK	50	0	Bottom Face	0mm		OFF	26340	1880	22.60	23.00	1.096	-0.01	0.680	0.746
	LTE Band 25	20M	QPSK	100	0	Bottom Face	0mm		OFF	26340	1880	22.63	23.00	1.089	0.01	0.677	0.737
	LTE Band 25	20M	QPSK	1	0	Edge 1	0mm		OFF	26340	1880	23.62	24.00	1.091	-0.19	0.731	0.798
	LTE Band 25	20M	QPSK	50	0	Edge 1	0mm		OFF	26340	1880	22.60	23.00	1.096	-0.12	0.602	0.660
	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm	accessory1	OFF	26340	1880	23.62	24.00	1.091	0.03	0.869	0.948
	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm	accessory2	OFF	26340	1880	23.62	24.00	1.091	0.06	0.866	0.945
	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm	accessory3	OFF	26340	1880	23.62	24.00	1.091	0.06	0.859	0.938
	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm	accessory4	OFF	26340	1880	23.62	24.00	1.091	0.11	0.863	0.942
	LTE Band 26	15M	QPSK	1	0	Bottom Face	0mm		OFF	26865	831.5	23.17	24.00	1.211	-0.08	0.400	0.484
	LTE Band 26	15M	QPSK	36	0	Bottom Face	0mm		OFF	26865	831.5	22.26	23.00	1.186	-0.04	0.309	0.366
06	LTE Band 26	15M	QPSK	1	0	Edge 1	0mm		OFF	26865	831.5	23.17	24.00	1.211	0.06	0.488	0.591
	LTE Band 26	15M	QPSK	36	0	Edge 1	0mm		OFF	26865	831.5	22.26	23.00	1.186	0.09	0.380	0.451
	LTE Band 26	15M	QPSK	1	0	Edge 1	0mm	accessory1	OFF	26865	831.5	23.17	24.00	1.211	0.08	0.483	0.585
	LTE Band 26	15M	QPSK	1	0	Edge 1	0mm	accessory2	OFF	26865	831.5	23.17	24.00	1.211	-0.02	0.481	0.582
	LTE Band 26	15M	QPSK	1	0	Edge 1	0mm	accessory3	OFF	26865	831.5	23.17	24.00	1.211	0	0.478	0.579
	LTE Band 26	15M	QPSK	1	0	Edge 1	0mm	accessory4	OFF	26865	831.5	23.17	24.00	1.211	0.03	0.485	0.587
07	LTE Band 30	10M	QPSK	1	0	Bottom Face	0mm		OFF	27710	2310	22.27	23.00	1.183	0.05	0.964	1.140
	LTE Band 30	10M	QPSK	25	12	Bottom Face	0mm		OFF	27710	2310	21.51	22.00	1.119	0.07	0.753	0.843
	LTE Band 30	10M	QPSK	50	0	Bottom Face	0mm		OFF	27710	2310	21.05	22.00	1.245	0	0.683	0.850
	LTE Band 30	10M	QPSK	1	0	Edge 1	0mm		OFF	27710	2310	22.27	23.00	1.183	0.02	0.560	0.663
	LTE Band 30	10M	QPSK	25	12	Edge 1	0mm		OFF	27710	2310	21.51	22.00	1.119	0.08	0.487	0.545
	LTE Band 30	10M	QPSK	1	0	Bottom Face	0mm	accessory1	OFF	27710	2310	22.27	23.00	1.183	0	0.961	1.137
	LTE Band 30	10M	QPSK	1	0	Bottom Face	0mm	accessory2	OFF	27710	2310	22.27	23.00	1.183	0.06	0.959	1.135
	LTE Band 30	10M	QPSK	1	0	Bottom Face	0mm	accessory3	OFF	27710	2310	22.27	23.00	1.183	-0.02	0.955	1.130
	LTE Band 30	10M	QPSK	1	0	Bottom Face	0mm	accessory4	OFF	27710	2310	22.27	23.00	1.183	0	0.958	1.133

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	accessory	Power Reduction	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)
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm		ON	41055	2636.5	21.75	22.00	1.059	62.9	1.006	-0.12	0.751	0.800
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm		ON	39750	2506	21.65	22.00	1.084	62.9	1.006	-0.1	0.953	1.039
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm		ON	40185	2549.5	21.35	22.00	1.161	62.9	1.006	-0.03	0.811	0.948
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm		ON	40620	2593	21.32	22.00	1.169	62.9	1.006	-0.02	0.759	0.893
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm		ON	41490	2680	21.19	22.00	1.205	62.9	1.006	-0.08	0.776	0.941
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm		ON	41055	2636.5	20.82	21.00	1.042	62.9	1.006	-0.09	0.750	0.786
08	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm		ON	39750	2506	20.62	21.00	1.091	62.9	1.006	-0.06	0.960	1.054
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm		ON	40185	2549.5	20.63	21.00	1.089	62.9	1.006	-0.04	0.825	0.904
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm		ON	40620	2593	20.36	21.00	1.159	62.9	1.006	-0.04	0.751	0.875
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm		ON	41490	2680	20.71	21.00	1.069	62.9	1.006	-0.03	0.810	0.871
	LTE Band 41	20M	QPSK	100	0	Bottom Face	0mm		ON	41055	2636.5	20.91	21.00	1.021	62.9	1.006	-0.02	0.739	0.759
	LTE Band 41	20M	QPSK	1	0	Bottom Face	50mm		OFF	41055	2636.5	22.62	23.00	1.091	62.9	1.006	-0.04	0.035	0.038
	LTE Band 41	20M	QPSK	50	0	Bottom Face	50mm		OFF	41055	2636.5	21.99	22.00	1.002	62.9	1.006	-0.05	0.022	0.022
	LTE Band 41	20M	QPSK	1	0	Edge 1	0mm		ON	41055	2636.5	21.75	22.00	1.059	62.9	1.006	-0.09	0.790	0.842
	LTE Band 41	20M	QPSK	1	0	Edge 1	0mm		ON	39750	2506	21.65	22.00	1.084	62.9	1.006	0.13	0.857	0.934
	LTE Band 41	20M	QPSK	1	0	Edge 1	0mm		ON	40185	2549.5	21.35	22.00	1.161	62.9	1.006	0.19	0.717	0.838
	LTE Band 41	20M	QPSK	1	0	Edge 1	0mm		ON	40620	2593	21.32	22.00	1.169	62.9	1.006	0.08	0.777	0.914
	LTE Band 41	20M	QPSK	1	0	Edge 1	0mm		ON	41490	2680	21.19	22.00	1.205	62.9	1.006	0.14	0.704	0.853
	LTE Band 41	20M	QPSK	50	0	Edge 1	0mm		ON	41055	2636.5	20.82	21.00	1.042	62.9	1.006	0.03	0.796	0.835
	LTE Band 41	20M	QPSK	50	0	Edge 1	0mm		ON	39750	2506	20.62	21.00	1.091	62.9	1.006	0.1	0.858	0.942
	LTE Band 41	20M	QPSK	50	0	Edge 1	0mm		ON	40185	2549.5	20.63	21.00	1.089	62.9	1.006	0.18	0.717	0.785
	LTE Band 41	20M	QPSK	50	0	Edge 1	0mm		ON	40620	2593	20.36	21.00	1.159	62.9	1.006	0.09	0.779	0.908
	LTE Band 41	20M	QPSK	50	0	Edge 1	0mm		ON	41490	2680	20.71	21.00	1.069	62.9	1.006	0.12	0.705	0.758
	LTE Band 41	20M	QPSK	100	0	Edge 1	0mm		ON	41055	2636.5	20.91	21.00	1.021	62.9	1.006	0.04	0.766	0.787
	LTE Band 41	20M	QPSK	1	0	Edge 1	40mm		OFF	41055	2636.5	22.62	23.00	1.091	62.9	1.006	-0.02	0.040	0.044
	LTE Band 41	20M	QPSK	50	0	Edge 1	40mm		OFF	41055	2636.5	21.99	22.00	1.002	62.9	1.006	-0.17	0.033	0.033
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	accessory1	ON	39750	2506	20.62	21.00	1.091	62.9	1.006	-0.11	0.955	1.049
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	accessory2	ON	39750	2506	20.62	21.00	1.091	62.9	1.006	-0.05	0.951	1.044
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	accessory3	ON	39750	2506	20.62	21.00	1.091	62.9	1.006	-0.09	0.947	1.040
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	accessory4	ON	39750	2506	20.62	21.00	1.091	62.9	1.006	-0.09	0.958	1.052

14.2 Repeated SAR Measurement

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	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 4	20M	QPSK	1	0	Bottom Face	0mm	OFF	20175	1732.5	23.00	24.00	1.259	-	1.000	-0.07	0.951		1.197
2nd	LTE Band 4	20M	QPSK	1	0	Bottom Face	0mm	OFF	20175	1732.5	23.00	24.00	1.259	-	1.000	-0.08	0.921	1.03	1.159
1st	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm	OFF	26340	1880	23.62	24.00	1.091	-	1.000	-0.06	0.871		0.951
2nd	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm	OFF	26340	1880	23.62	24.00	1.091	-	1.000	0.09	0.812	1.07	0.886
1st	LTE Band 30	10M	QPSK	1	0	Bottom Face	0mm	OFF	27710	2310	22.27	23.00	1.183	-	1.000	0.05	0.964		1.140
2nd	LTE Band 30	10M	QPSK	1	0	Bottom Face	0mm	OFF	27710	2310	22.27	23.00	1.183	-	1.000	0.02	0.957	1.01	1.132
1st	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	ON	39750	2506	20.62	21.00	1.091	62.9	1.006	-0.06	0.960		1.054
2nd	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	ON	39750	2506	20.62	21.00	1.091	62.9	1.006	-0.1	0.946	1.01	1.039

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.

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Body
1.	WWAN + 2.4GHz WLAN Antenna 1	Yes
2.	WWAN + 2.4GHz WLAN Antenna 2	Yes
3.	WWAN + 5GHz WLAN Antenna 1	Yes
4.	WWAN + 5GHz WLAN Antenna 2	Yes
5.	WWAN + Bluetooth Antenna 1	Yes
6.	WWAN + Bluetooth Antenna 2	Yes

General Note:

1. All licensed modes share the same antenna part and cannot transmit simultaneously
2. 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.
3. The Scaled SAR summation is calculated based on the same configuration and test position.
4. 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.
   v) The SPLSR calculated results please refer to section 15.2.

15.1 Body Exposure Conditions

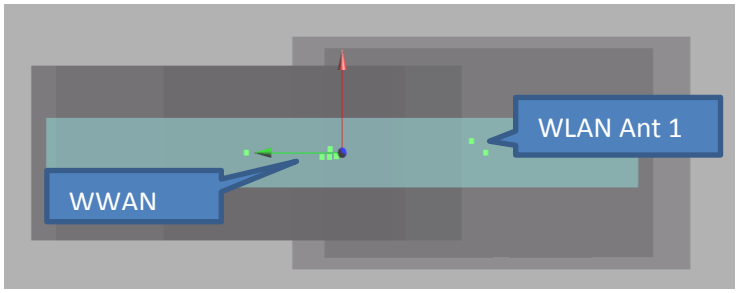
WWAN Band		Exposure Position	1	2	3	4	5	6	7	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+5 Summed 1g SAR (W/kg)	1+6 Summed 1g SAR (W/kg)	1+7 Summed 1g SAR (W/kg)	1+2 SPLSR	1+2 Case No	1+4 SPLSR	1+4 Case No
			WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 1	Bluetooth Ant 2										
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	Estimated 1g SAR (W/kg)	Estimated 1g SAR (W/kg)										
LTE	LTE Band 4	Bottom Face at 0mm	1.197	0.290	0.089	0.330	0.266	0.084	0.084	1.487	1.286	1.527	1.463	1.281	1.281				
		Edge 1 at 0mm	0.754	0.896		0.928		0.084		1.650	0.754	1.682	0.754	0.838	0.754	0.04	Case 1	0.04	Case 5
		Edge 4 at 0mm		0.075	1.136		0.837		0.084	0.075	1.136	0.000	0.837	0.000	0.084				
	LTE Band 7	Bottom Face at 0mm	1.036	0.290	0.089	0.330	0.266	0.084	0.084	1.326	1.125	1.366	1.302	1.120	1.120				
		Bottom Face at 50mm	0.037	0.290	0.089	0.330	0.266	0.084	0.084	0.327	0.126	0.367	0.303	0.121	0.121				
		Edge 1 at 0mm	0.912	0.896		0.928		0.084		1.808	0.912	1.840	0.912	0.996	0.912	0.04	Case 2	0.04	Case 6
		Edge 1 at 40mm	0.043	0.896		0.928		0.084		0.939	0.043	0.971	0.043	0.127	0.043				
		Edge 4 at 0mm		0.075	1.136		0.837		0.084	0.075	1.136	0.000	0.837	0.000	0.084				
	LTE Band 12	Bottom Face at 0mm	0.251	0.290	0.089	0.330	0.266	0.084	0.084	0.541	0.340	0.581	0.517	0.335	0.335				
		Edge 1 at 0mm	0.331	0.896		0.928		0.084		1.227	0.331	1.259	0.331	0.415	0.331				
		Edge 4 at 0mm		0.075	1.136		0.837		0.084	0.075	1.136	0.000	0.837	0.000	0.084				
	LTE Band 13	Bottom Face at 0mm	0.295	0.290	0.089	0.330	0.266	0.084	0.084	0.585	0.384	0.625	0.561	0.379	0.379				
		Edge 1 at 0mm	0.342	0.896		0.928		0.084		1.238	0.342	1.270	0.342	0.426	0.342				
		Edge 4 at 0mm		0.075	1.136		0.837		0.084	0.075	1.136	0.000	0.837	0.000	0.084				
	LTE Band 25	Bottom Face at 0mm	0.951	0.290	0.089	0.330	0.266	0.084	0.084	1.241	1.040	1.281	1.217	1.035	1.035				
		Edge 1 at 0mm	0.798	0.896		0.928		0.084		1.694	0.798	1.726	0.798	0.882	0.798	0.03	Case 3	0.03	Case 7
		Edge 4 at 0mm		0.075	1.136		0.837		0.084	0.075	1.136	0.000	0.837	0.000	0.084				
	LTE Band 26	Bottom Face at 0mm	0.484	0.290	0.089	0.330	0.266	0.084	0.084	0.774	0.573	0.814	0.750	0.568	0.568				
		Edge 1 at 0mm	0.591	0.896		0.928		0.084		1.487	0.591	1.519	0.591	0.675	0.591				
		Edge 4 at 0mm		0.075	1.136		0.837		0.084	0.075	1.136	0.000	0.837	0.000	0.084				
	LTE Band 30	Bottom Face at 0mm	1.140	0.290	0.089	0.330	0.266	0.084	0.084	1.430	1.229	1.470	1.406	1.224	1.224				
		Edge 1 at 0mm	0.663	0.896	0.062	0.928	0.087	0.084	0.084	1.559	0.725	1.591	0.750	0.747	0.747				
		Edge 4 at 0mm		0.075	1.136	0.022	0.837	0.084	0.084	0.075	1.136	0.022	0.837	0.084	0.084				
	LTE Band 41	Bottom Face at 0mm	1.054	0.290	0.089	0.330	0.266	0.084	0.084	1.344	1.143	1.384	1.320	1.138	1.138				
		Bottom Face at 50mm	0.038	0.290	0.089	0.330	0.266	0.084	0.084	0.328	0.127	0.368	0.304	0.122	0.122				
		Edge 1 at 0mm	0.942	0.896		0.928		0.084		1.838	0.942	1.870	0.942	1.026	0.942	0.04	Case 4	0.04	Case 8
		Edge 1 at 40mm	0.044	0.896		0.928		0.084		0.940	0.044	0.972	0.044	0.128	0.044				
		Edge 4 at 0mm		0.075	1.136		0.837		0.084	0.075	1.136	0.000	0.837	0.000	0.084				

15.2 SPLSR Evaluation and Analysis

General Note:

1. SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*). If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 1	LTE B4	Edge 1	0.754	0mm	-1.5	5	-1.18	58.8	1.65	0.04	Not required
	WLAN2.4G_Ant 1		0.896	0mm	-2.97	-53.8	-2.73				
Case 2	LTE B7	Edge 1	0.912	0mm	-2.2	12.4	-2.19	66.2	1.81	0.04	Not required
	WLAN2.4G_Ant 1		0.896	0mm	-2.97	-53.8	-2.73				
Case 3	LTE 25	Edge 1	0.798	0mm	-4.7	16	-1.18	69.8	1.69	0.03	Not required
	WLAN2.4G_Ant 1		0.896	0mm	-2.97	-53.8	-2.73				
Case 4	LTE 41	Edge 1	0.942	0mm	-1.8	12.8	-2.41	66.6	1.84	0.04	Not required
	WLAN2.4G_Ant 1		0.896	0mm	-2.97	-53.8	-2.73				
Case 5	LTE B4	Edge 1	0.754	0mm	-1.5	5	-1.18	55.6	1.68	0.04	Not required
	WLAN5G_Ant 1		0.928	0mm	2.42	-50.4	0.36				
Case 6	LTE B7	Edge 1	0.912	0mm	-2.2	12.4	-2.19	63.0	1.84	0.04	Not required
	WLAN5G_Ant 1		0.928	0mm	2.42	-50.4	0.36				
Case 7	LTE 25	Edge 1	0.798	0mm	-4.7	16	-1.18	66.8	1.73	0.03	Not required
	WLAN5G_Ant 1		0.928	0mm	2.42	-50.4	0.36				
Case 8	LTE 41	Edge 1	0.942	0mm	-1.8	12.8	-2.41	63.4	1.87	0.04	Not required
	WLAN5G_Ant 1		0.928	0mm	2.42	-50.4	0.36				



Test Engineer： Jay Jian and Mood Huang

16. 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.

17. 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 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015

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

[7] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015

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

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

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