



**FCC 47 CFR § 2.1093
IEEE Std 1528-2013**

SAR EVALUATION REPORT

FOR

GSM/WCDMA/LTE Tablet + BT/BLE, DTS/UNII a/b/g/n/ac

MODEL NUMBER: SM-T735

FCC ID: A3LSMT735

REPORT NUMBER: 4789867746-S1V2

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Testing Laboratory

TL-637

Revision History

Rev.	Date	Revisions	Revised By
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V2	5/6/2021	Added note in Sec 6.9.1	



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1. Attestation of Test Results

Applicant Name	SAMSUNG ELECTRONICS CO.,LTD.			
FCC ID	A3LSMT735			
Model Name	SM-T735			
Applicable Standards	FCC 47 CFR § 2.1093 Published RF exposure KDB procedures IEEE Std 1528-2013			
SAR Limits (W/Kg)				
Exposure Category	Peak spatial-average(1g of tissue)			
General population / Uncontrolled exposure	1.6			
The Highest Reported SAR (W/kg)				
RF Exposure Conditions	Equipment Class			
	Licensed	DTS	U-NII	DSS(BT)
Standalone	1.16	0.58	1.20	0.27
Simultaneous TX	1.60	1.47	1.60	1.60
Date Tested	Reference model (FCC ID : A3LSMT736B) : 2/26/2021 to 4/20/2021 Variant model (FCC ID : A3LSMT735): 3/22/2021 to 4/21/2021			
Test Results	Pass			
<p>UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.</p> <p>Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.</p>				
Approved & Released By:		Prepared By:		
				
Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory		JeongYeon Won Senior Laboratory Technician UL Korea, Ltd. Suwon Laboratory		

1.1. The Highest Reported SAR for RF exposure conditions for each bands

Equipment Class	Band	The Highest Reported SAR (W/kg)
		1g of tissue
		Standalone Exposure condition
PCB	GSM 850	0.636
	GSM 1900	1.031
	WCDMA Band II	1.092
	WCDMA Band IV	0.803
	WCDMA Band V	0.673
	LTE Band 2	1.157
	LTE Band 5	0.765
	LTE Band 12	0.586
	LTE Band 13	0.587
	LTE Band 17	0.967
	LTE Band 25	1.157
	LTE Band 26	1.145
	LTE Band 41	0.855
LTE Band 66	1.133	
DTS	2.4GHz WLAN	0.579
UNII	5GHz WLAN	1.197
DSS	Bluetooth	0.266

Note(s):

The Highest Reported SAR value are determined to be the higher of both Reference model and Variant model.

1.2. Introduction Of Test Data Reuse

This report referenced from the FCC ID: A3LSMT736B SAR (FCC 47 CFR § 2.1093, IEEE 1528-2013).

And the applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID..

1.3. Difference

The FCC ID: A3LSMT735 shares the same enclosure and circuit board as FCC ID:

A3LSMT736B. Except NR Band is not supported, The antennas (WWAN & WLAN & BT) and surrounding circuitry and layout are identical between these two units.

After confirming through Spot-check SAR evaluation that the performance of the FCC ID: A3LSMT736B remains representative of FCC ID: A3LSMT735. The test data of FCC ID: A3LSMT736B being submitted for this application to cover WWAN & WLAN & BT features.

1.4. Spot-Check Verification Data

Band	Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Reference Model (FCC ID : A3LSMT736B)	Variant Model (FCC ID : A3LSMT735)	Deviation (%)	
						Highest configuration Reported SAR (W/kg)	Spot check Reported SAR (W/kg)		
GSM	850	Main 1 Ant.	Standalone	GPRS 4 slots	19	Rear	0.595	0.636	6.9
GSM	1900	Main 1 Ant.	Standalone	GPRS 2 slots	0	Edge 1	1.031	0.755	-26.8
WCDMA	Band II	Main 1 Ant.	Standalone	Rel 99 RMC	0	Edge 1	1.092	0.930	-14.8
WCDMA	Band IV	Main 1 Ant.	Standalone	Rel 99 RMC	0	Edge 1	0.803	0.753	-6.2
WCDMA	Band V	Main 1 Ant.	Standalone	Rel 99 RMC	0	Edge 1	0.673	0.504	-25.1
LTE	Band 2	Main 1 Ant.	Standalone	QPSK	0	Edge 1	1.157	1.070	-7.5
LTE	Band 5	Main 1 Ant.	Standalone	QPSK	0	Edge 1	0.765	0.591	-22.7
LTE	Band 12	Main 1 Ant.	Standalone	QPSK	0	Edge 1	0.586	0.477	-18.6
LTE	Band 13	Main 1 Ant.	Standalone	QPSK	0	Edge 1	0.490	0.587	19.8
LTE	Band 17	Main 1 Ant.	Standalone	QPSK	0	Edge 1	0.959	0.967	0.8
LTE	Band 25	Main 1 Ant.	Standalone	QPSK	0	Edge 1	1.157	1.060	-8.4
LTE	Band 26	Main 1 Ant.	Standalone	QPSK	0	Edge 1	1.144	1.135	-0.8
LTE	Band 41	Main 1 Ant.	Standalone	QPSK	0	Edge 1	0.855	0.762	-10.9
LTE	Band 66	Main 1 Ant.	Standalone	QPSK	0	Edge 1	1.133	1.035	-8.6
Wi-Fi	DTS	WiFi/BT 2.4G Ant.1	Standalone	802.11b	9	Edge 2	0.431	0.308	-28.5
Wi-Fi	DTS	WiFi/BT 2.4G Ant.2	Standalone	802.11b	6	Edge 4	0.579	0.521	-10.0
Wi-Fi	U-NII 2A	WiFi/BT 5G Ant.1	Standalone	802.11ac VHT 80	0	Edge 2	1.194	0.951	-20.4
Wi-Fi	U-NII 2A	WiFi/BT 5G Ant.2	Standalone	802.11ac VHT 80	0	Rear	0.622	0.496	-20.3
Wi-Fi	U-NII 2A	WiFi/BT 5G MIMO	Standalone	802.11ac VHT 80	0	Edge 2	1.152	0.835	-27.5
Wi-Fi	U-NII 2C	WiFi/BT 5G Ant.1	Standalone	802.11ac VHT 80	0	Edge 2	1.155	0.982	-15.0
Wi-Fi	U-NII 2C	WiFi/BT 5G Ant.2	Standalone	802.11ac VHT 80	0	Rear	0.554	0.451	-18.6
Wi-Fi	U-NII 3	WiFi/BT 5G MIMO	Standalone	802.11ac VHT 80	0	Edge 2	1.197	1.170	-2.3
Wi-Fi	U-NII 3	WiFi/BT 5G Ant.1	Standalone	802.11ac VHT 80	0	Edge 2	0.960	0.894	-6.9
Wi-Fi	U-NII 3	WiFi/BT 5G Ant.2	Standalone	802.11ac VHT 80	0	Rear	0.726	0.527	-27.4
Wi-Fi	U-NII 3	WiFi/BT 5G MIMO	Standalone	802.11ac VHT 80	0	Edge 2	1.075	0.883	-17.9
Wi-Fi	Bluetooth	WiFi/BT 2.4G Ant.1	Standalone	GFSK	0	Rear	0.236	0.266	12.7

1.5 Reference Detail

Reference application that contains the reused reference data.

Equipment Class	Reference FCC ID (Parent)	Application Type	Reference Test report number	Exhibit Type	Variant Test report number	Data Re-used
PCE	A3LSMT736B	Original Grant	4789841420-S1	Test Report	4789867746-S1	All (SAR results)
DTS	A3LSMT736B	Original Grant	4789841420-S1	Test Report	4789867746-S1	All (SAR results)
DSS	A3LSMT736B	Original Grant	4789841420-S1	Test Report	4789867746-S1	All (SAR results)
NII	A3LSMT736B	Original Grant	4789841420-S1	Test Report	4789867746-S1	All (SAR results)

2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE STD 1528-2013, the following FCC Published RF exposure [KDB](#) procedures:

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 616217 D04 SAR for laptop and tablets v01r02
- 690783 D01 SAR Listings on Grants v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02
- 941225 D06 Hotspot Mode v02r01
- 971168 D01 Power Meas License Digital System v03r01

In addition to the above, the following information was used:

- [TCB workshop](#) October, 2014; Page 36, RF Exposure Procedures Update (Overlapping LTE Bands)
- [TCB workshop](#) October, 2014; Page 37, RF Exposure Procedures Update (Other LTE Considerations)
- [TCB workshop](#) October, 2016; Page 7, RF Exposure Procedures (Bluetooth Duty Factor)
- [TCB workshop](#) May, 2017; Page 6, RF Exposure Procedures (LTE Test Conditions)
- [TCB workshop](#) April, 2018; Page 3, RF Exposure Procedures (LTE DL CA SAR Test Exclusion Update)
- [TCB workshop](#) April, 2019 Page 19, RF Exposure Procedures (Tissue Simulating Liquids (TSL))
- [TCB workshop](#) November, 2019 Page 5, RF Exposure Procedures (SPLSR Hotspot Combination)
- [TCB workshop](#) October, 2020 Page 1, Test Reductions via Data Referencing for Closely Related Products

Additional Guidance: KDB inquiry

- Additional SAR test of corner side – KDB guidance to identify that SAR test when sensor and antenna is located near corner side.

3. Facilities and Accreditation

The test sites and measurement facilities used to collect data are located at

Suwon
SAR 1 Room
SAR 2 Room
SAR 3 Room
SAR 4 Room
SAR 5 Room

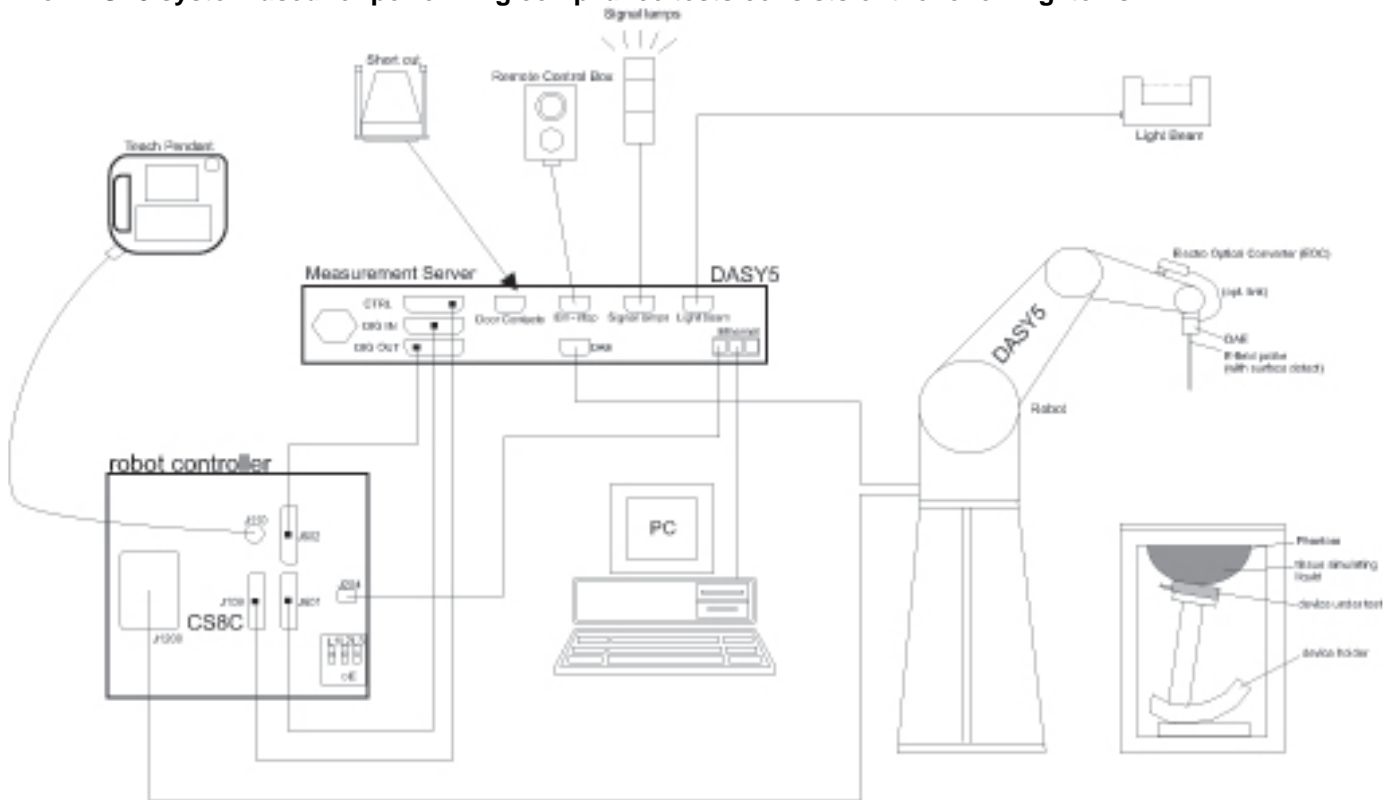
UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.

The full scope of accreditation can be viewed at <http://www.iasonline.org/PDF/TL/TL-637.pdf>.

4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

The DASY5 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.

4.2. SAR Scan Procedures

Step 1: 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. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: 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 locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE 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 KDB 865664 D01 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	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
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 \leq the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

Step 3: Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose 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 g and 10 g and displays these values next to the job's label.

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

		≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$		≤ 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 1 st two points closest to phantom surface	≤ 4 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$
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 <i>reported</i> SAR from the area scan based <i>1-g SAR estimation</i> 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.			

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

Step 5: Z-Scan (FCC only)

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation the extrapolated distance should not be larger than the step size in Z-direction.

4.3. Test Equipment

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations, and is traceable to recognized national standards.

Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Agilent	E5071C	MY46522054	8-4-2021
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	7-17-2021
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3424	8-11-2021

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8-4-2021
Power Sensor	Agilent	U2000A	MY60180020	9-9-2021
Power Sensor	Agilent	U2000A	MY54260007	8-7-2021
Power Amplifier	EXODUS	1410025-AMP2027-10003	10003	8-4-2021
Directional Coupler	Agilent	772D	MY52180193	8-4-2021
Directional Coupler	Agilent	778D	MY52180432	8-4-2021
Low Pass Filter	MICROLAB	LA-15N	3943	8-4-2021
Low Pass Filter	FILTRON	L14012FL	1410003S	8-4-2021
Low Pass Filter	MICROLAB	LA-60N	3942	8-4-2021
Attenuator	Agilent	8491B/003	MY39271969	12-3-2021
Attenuator	Agilent	8491B/010	MY39271981	9-9-2021
Attenuator	Agilent	8491B/020	MY39271973	9-9-2021
E-Field Probe (SAR1)	SPEAG	EX3DV4	7376	7-31-2021
E-Field Probe (SAR2)	SPEAG	EX3DV4	7313	1-26-2022
E-Field Probe (SAR3)	SPEAG	EX3DV4	3871	8-28-2021
E-Field Probe (SAR4)	SPEAG	EX3DV4	7314	5-29-2021
E-Field Probe (SAR5)	SPEAG	EX3DV4	7545	11-23-2021
Data Acquisition Electronics (SAR1)	SPEAG	DAE4	1468	8-25-2021
Data Acquisition Electronics (SAR2)	SPEAG	DAE4	1343	8-25-2021
Data Acquisition Electronics (SAR3)	SPEAG	DAE4	1494	7-23-2021
Data Acquisition Electronics (SAR4)	SPEAG	DAE4	912	11-24-2021
Data Acquisition Electronics (SAR5)	SPEAG	DAE4	1447	3-21-2021
Data Acquisition Electronics (SAR5)	SPEAG	DAE4	479	3-23-2022
System Validation Dipole	SPEAG	D750V3	1122	2-24-2022
System Validation Dipole	SPEAG	D835V2	4d194	3-20-2022
System Validation Dipole	SPEAG	D1750V2	1125	2-21-2022
System Validation Dipole	SPEAG	D1900V2	5d199	3-19-2022
System Validation Dipole	SPEAG	D2450V2	939	7-25-2021
System Validation Dipole	SPEAG	D2600V2	1097	9-19-2021
System Validation Dipole	SPEAG	D5GHzV2	1209	2-27-2022
Thermometer (SAR1)	Lutron	MHB-382SD	AH.91463	8-11-2021
Thermometer (SAR2)	Lutron	MHB-382SD	AH.50215	8-11-2021
Thermometer (SAR3)	Lutron	MHB-382SD	AH.50213	8-11-2021
Thermometer (SAR4, 5)	Lutron	MHB-382SD	AH.45903	8-11-2021

Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	150313	8-4-2021
Base Station Simulator	R & S	CMW500	150314	8-4-2021
Base Station Simulator	R & S	CMW500	162790	8-4-2021
Wireless Connectivity Tester	R & S	CMW270	100982	8-3-2021

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations (D750(SN : 1122), D835(SN : 4d194), D1750(SN : 1125), D1900(SN : 5d199), D2450(SN : 939), D2600(SN : 1097) D5GHz(SN : 1209))

5. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, 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 $\leq 30\%$, 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.

5.1 DECISION RULE

Decision rule for statement(s) of conformity is based on Procedure 1, Clause 4.4.2 in IEC Guide 115:2007.

6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	Refer to Appendix A.																														
Back Cover	<input checked="" type="checkbox"/> The Back Cover is not removable.																														
Battery Options	<input checked="" type="checkbox"/> The rechargeable battery is not user accessible.																														
Accessory	Keyboard																														
Wireless Router (Hotspot)	Wi-Fi Hotspot mode permits the device to share its cellular data connection with other Wi-Fi-enabled devices. <input checked="" type="checkbox"/> Mobile Hotspot (Wi-Fi 2.4 GHz) <input checked="" type="checkbox"/> Mobile Hotspot (Wi-Fi 5.8 GHz_UNII-3 (Ch.149(20Mhz)/Ch.151(40Mhz)))																														
Wi-Fi Direct	Wi-Fi Direct enabled devices transfer data directly between each other <input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 2.4 GHz) <input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 5 GHz : Ch.36 – Ch.48, Ch.149 – Ch.165))																														
Test Sample Information	<table border="1"> <thead> <tr> <th>No.</th> <th>S/N</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>R32R200DD0X</td> <td>Main & WI-FI & BT Conducted</td> </tr> <tr> <td>2</td> <td>R32R200DDCT</td> <td>Main Conducted</td> </tr> <tr> <td>3</td> <td>R32R200DD8N</td> <td>SAR</td> </tr> <tr> <td>4</td> <td>R32R200DD9K</td> <td>SAR</td> </tr> <tr> <td>5</td> <td>R32R200DH4D</td> <td>SAR</td> </tr> <tr> <td>6</td> <td>R32R200DFVP</td> <td>SAR</td> </tr> <tr> <td>7</td> <td>R32R200DYNY</td> <td>SAR</td> </tr> <tr> <td>8</td> <td>R32R200DYKP</td> <td>SAR</td> </tr> <tr> <td>9</td> <td>R32R200DCVT</td> <td>SAR</td> </tr> </tbody> </table>	No.	S/N	Notes	1	R32R200DD0X	Main & WI-FI & BT Conducted	2	R32R200DDCT	Main Conducted	3	R32R200DD8N	SAR	4	R32R200DD9K	SAR	5	R32R200DH4D	SAR	6	R32R200DFVP	SAR	7	R32R200DYNY	SAR	8	R32R200DYKP	SAR	9	R32R200DCVT	SAR
No.	S/N	Notes																													
1	R32R200DD0X	Main & WI-FI & BT Conducted																													
2	R32R200DDCT	Main Conducted																													
3	R32R200DD8N	SAR																													
4	R32R200DD9K	SAR																													
5	R32R200DH4D	SAR																													
6	R32R200DFVP	SAR																													
7	R32R200DYNY	SAR																													
8	R32R200DYKP	SAR																													
9	R32R200DCVT	SAR																													

6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK)	GPRS Multi-Slot Class: <input type="checkbox"/> Class 8 - 1 Up, 4 Down <input type="checkbox"/> Class 10 - 2 Up, 4 Down <input type="checkbox"/> Class 12 - 4 Up, 4 Down <input checked="" type="checkbox"/> Class 33 - 4 Up, 5 Down	GSM Voice: 12.5% (E)GPRS: 1 Slot: 12.5% 2 Slots: 25% 3 Slots: 37.5% 4 Slots: 50%
		GPRS (GMSK)		
Does this device support DTM (Dual Transfer Mode)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
W-CDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Category 24) HSUPA (Category 6) DC-HSDPA (Category 24) HSPA+ (DL Only)		100%
LTE	FDD Band 2 FDD Band 4 FDD Band 5 FDD Band 12 FDD Band 13 FDD Band 17 FDD Band 25 FDD Band 26 FDD Band 66 TDD Band 41	QPSK 16QAM 64QAM Rel. 15 Carrier Aggregation (1 Uplink and 3 Downlinks)		100% (FDD) 63.3% (TDD)
		Does this device support SV-LTE (1xRTT-LTE)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Wi-Fi	2.4 GHz	802.11b		98.8% (802.11b)
		802.11g		98.7% (802.11g)
		802.11n (HT20)		98.6% (802.11n 20MHz BW)
	5 GHz	802.11a		98.7% (802.11a SISO & MIMO)
802.11n (HT20)		98.6% (802.11n,ac 20MHz BW)		
802.11n (HT40)		98.6% (802.11n,ac 40MHz BW)		
802.11ac (VHT20)		98.6% (802.11ac 80MHz BW SISO)		
802.11ac (VHT40)		97.3% (802.11ac 80MHz BW MIMO)		
802.11ac (VHT80)				
Does this device support bands 5.60 ~ 5.65 GHz? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Does this device support Band gap channel(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Bluetooth	2.4 GHz	Version 5.0 LE		77.1% (DH5)

Notes:

- The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 77.1% and was considered and used for SAR Testing.
- Duty cycle for Wi-Fi is referenced from the DTS and UNII report.

6.3. Nominal and Maximum Output Power

KDB 447498 sec.4.1. at the maximum rated output power and within the tune-up tolerance range specified for the product, but not more than 2 dB lower than the maximum tune-up tolerance limit

RF Air interface	Antenna	Mode	Time Slots	Max. RF Output Power (dBm)		Reduced. RF Output Power Proximity sensor back-off (dBm)	
				Tune-up Limit	Frame Pwr	Tune-up Limit	Frame Pwr
GSM850	Main Ant.	Voice	1	34.0	25.0	24.0	15.0
		GPRS	1	34.0	25.0	24.0	15.0
		GPRS	2	32.0	26.0	23.0	17.0
		GPRS	3	30.0	25.7	21.0	16.7
		GPRS	4	29.0	26.0	19.0	16.0
		EGPRS	1	29.0	20.0	19.0	10.0
		EGPRS	2	27.0	21.0	17.0	11.0
		EGPRS	3	25.0	20.7	15.0	10.7
GSM1900	Main Ant.	Voice	1	31.0	22.0	22.0	13.0
		GPRS	1	31.0	22.0	22.0	13.0
		GPRS	2	29.0	23.0	20.0	14.0
		GPRS	3	27.0	22.7	18.0	13.7
		GPRS	4	25.0	22.0	16.0	13.0
		EGPRS	1	27.0	18.0	19.0	10.0
		EGPRS	2	25.5	19.5	17.0	11.0
		EGPRS	3	23.0	18.7	15.0	10.7
W-CDMA Band II	Main Ant.	R99		23.5		13.5	
		HSDPA		22.5		12.5	
		HSUPA		22.5		12.5	
		DC-HSDPA		22.5		12.5	
W-CDMA Band IV	Main Ant.	R99		23.5		13.5	
		HSDPA		22.5		12.5	
		HSUPA		22.5		12.5	
		DC-HSDPA		22.5		12.5	
W-CDMA Band V	Main Ant.	R99		25.0		15.0	
		HSDPA		24.0		14.0	
		HSUPA		24.0		14.0	
		DC-HSDPA		24.0		14.0	
RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power Proximity sensor Back-off (dBm)			
LTE Band 2	Main Ant.	QPSK	24.0	14.0			
LTE Band 4	Main Ant.	QPSK	24.0	14.0			
LTE Band 5	Main Ant.	QPSK	25.5	16.0			
LTE Band 12	Main Ant.	QPSK	25.0	15.0			
LTE Band 13	Main Ant.	QPSK	25.0	15.0			
LTE Band 17	Main Ant.	QPSK	25.0	17.0			
LTE Band 25	Main Ant.	QPSK	24.0	14.0			
LTE Band 26	Main Ant.	QPSK	25.5	17.5			
LTE Band 41	Main Ant.	QPSK	24.5	15.0			
LTE Band 66	Main Ant.	QPSK	24.0	14.0			

WLAN SISO mode

RF Air interface	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm) -Proximity sensor back-off-
		Wi-Fi Ant.1	Wi-Fi Ant.1
WiFi 2.4 GHz (Ch.1)	802.11b	19.0	12.0
	802.11g	16.0	12.0
	802.11n HT20	16.0	12.0
WiFi 2.4 GHz (Ch.2~10)	802.11b	19.0	12.0
	802.11g	19.0	12.0
	802.11n HT20	18.0	12.0
WiFi 2.4 GHz (Ch11)	802.11b	19.0	12.0
	802.11g	16.0	12.0
	802.11n HT20	16.0	12.0
WiFi 2.4 GHz (Ch.12)	802.11b	5.0	5.0
	802.11g	5.0	5.0
	802.11n HT20	5.0	5.0
WiFi 2.4 GHz (Ch.13)	802.11b	2.0	2.0
	802.11g	2.0	2.0
	802.11n HT20	2.0	2.0
WiFi 5 GHz (UNII-1)	802.11a	17.0	9.5
	802.11n HT20	17.0	9.5
	802.11n HT40	14.0	9.5
	802.11ac VHT20	17.0	9.5
	802.11ac VHT40	14.0	9.5
WiFi 5 GHz (UNII-2A)	802.11ac VHT80	13.0	9.5
	802.11a	17.0	9.5
	802.11n HT20	17.0	9.5
	802.11n HT40	14.0	9.5
	802.11ac VHT20	17.0	9.5
WiFi 5 GHz (UNII-2C)	802.11ac VHT40	14.0	9.5
	802.11ac VHT80	13.0	9.5
	802.11a	17.0	9.5
	802.11n HT20	17.0	9.5
	802.11n HT40	14.0	9.5
WiFi 5 GHz (UNII-3)	802.11ac VHT20	17.0	9.5
	802.11ac VHT40	14.0	9.5
	802.11ac VHT80	13.0	9.5
	802.11a	17.0	9.5
	802.11n HT20	17.0	9.5
Bluetooth		18.0	10.0
Bluetooth-EDR		16.0	10.0
Bluetooth-LE_1Mbps		8.0	8.0
Bluetooth-LE_2Mbps		8.0	8.0

Notes:

1. WLAN bands has support to power reduction during triggering proximity sensor. So the Proximity sensor were verified according to KDB 616217 D04. Please refer to section 6.6.

WLAN MIMO mode

RF Air interface	Mode	Max RF Output power (dBm)			Reduced RF Output power (dBm) -Proximity sensor back-off-		
		Wi-Fi Ant.1	Wi-Fi Ant.2	Wi-Fi MIMO (Ant 1 + Ant 2)	Wi-Fi Ant.1	Wi-Fi Ant.2	Wi-Fi MIMO (Ant 1 + Ant 2)
WiFi 2.4 GHz (Ch.1)	802.11g	16.0	16.0	19.0	12.0	12.0	15.0
	802.11n HT20	16.0	16.0	19.0	12.0	12.0	15.0
WiFi 2.4 GHz (Ch.2~10)	802.11g	19.0	19.0	22.0	12.0	12.0	15.0
	802.11n HT20	18.0	18.0	21.0	12.0	12.0	15.0
WiFi 2.4 GHz (Ch.11)	802.11g	16.0	16.0	19.0	12.0	12.0	15.0
	802.11n HT20	16.0	16.0	19.0	12.0	12.0	15.0
WiFi 2.4 GHz (Ch.12)	802.11g	5.0	5.0	8.0	5.0	5.0	8.0
	802.11n HT20	5.0	5.0	8.0	5.0	5.0	8.0
WiFi 2.4 GHz (Ch.13)	802.11g	2.0	2.0	5.0	2.0	2.0	5.0
	802.11n HT20	2.0	2.0	5.0	2.0	2.0	5.0
WiFi 5 GHz (UNII-1)	802.11a	17.0	17.0	20.0	9.5	9.5	12.5
	802.11n HT20	17.0	17.0	20.0	9.5	9.5	12.5
	802.11n HT40	14.0	14.0	17.0	9.5	9.5	12.5
	802.11ac VHT20	17.0	17.0	20.0	9.5	9.5	12.5
	802.11ac VHT40	14.0	14.0	17.0	9.5	9.5	12.5
	802.11ac VHT80	13.0	13.0	16.0	9.5	9.5	12.5
WiFi 5 GHz (UNII-2A)	802.11a	17.0	17.0	20.0	9.5	9.5	12.5
	802.11n HT20	17.0	17.0	20.0	9.5	9.5	12.5
	802.11n HT40	14.0	14.0	17.0	9.5	9.5	12.5
	802.11ac VHT20	17.0	17.0	20.0	9.5	9.5	12.5
	802.11ac VHT40	14.0	14.0	17.0	9.5	9.5	12.5
	802.11ac VHT80	13.0	13.0	16.0	9.5	9.5	12.5
WiFi 5 GHz (UNII-2C)	802.11a	17.0	17.0	20.0	9.5	9.5	12.5
	802.11n HT20	17.0	17.0	20.0	9.5	9.5	12.5
	802.11n HT40	14.0	14.0	17.0	9.5	9.5	12.5
	802.11ac VHT20	17.0	17.0	20.0	9.5	9.5	12.5
	802.11ac VHT40	14.0	14.0	17.0	9.5	9.5	12.5
	802.11ac VHT80	13.0	13.0	16.0	9.5	9.5	12.5
WiFi 5 GHz (UNII-3)	802.11a	17.0	17.0	20.0	9.5	9.5	12.5
	802.11n HT20	17.0	17.0	20.0	9.5	9.5	12.5
	802.11n HT40	14.0	14.0	17.0	9.5	9.5	12.5
	802.11ac VHT20	17.0	17.0	20.0	9.5	9.5	12.5
	802.11ac VHT40	14.0	14.0	17.0	9.5	9.5	12.5
	802.11ac VHT80	13.0	13.0	16.0	9.5	9.5	12.5

Notes:

1. WLAN bands has support to power reduction during triggering proximity sensor. So the Proximity sensor were verified according to KDB 616217 D04. Please refer to section 6.6.

6.4. General LTE SAR Test and Reporting Considerations

Item	Description						
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 2	Frequency range: 1850 - 1910 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	18700/ 1860.0	18675/ 1857.5	18650/ 1855.0	18625/ 1852.5	18615/ 1851.5	18607/ 1850.7
	Mid	18900/ 1880.0	18900/ 1880.0	18900/ 1880.0	18900/ 1880.0	18900/ 1880.0	18900/ 1880.0
	High	19100/ 1900.0	19125/ 1902.5	19150/ 1905.0	19175/ 1907.5	19185/ 1908.5	19193/ 1909.3
	Band 4	Frequency range: 1710 - 1755 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20050/ 1720.0	20025/ 1717.5	20000/ 1715.0	19975/ 1712.5	19965/ 1711.5	19957/ 1710.7
	Mid	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5
	High	20300/ 1745.0	20325/ 1747.5	20350/ 1750.0	20375/ 1752.5	20385/ 1753.5	20393/ 1754.3
	Band 5	Frequency range: 824 - 849 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			20450/ 829.0	20425/ 826.5	20415/ 825.5	20407/ 824.7
	Mid			20525/ 836.5	20525/ 836.5	20525/ 836.5	20525/ 836.5
	High			20600/ 844.0	20625/ 846.5	20635/ 847.5	20643/ 848.3
	Band 12	Frequency range: 699 - 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			23060/ 704.0	23035/ 701.5	23025/ 700.5	23017/ 699.7
	Mid			23095/ 707.5	23095/ 707.5	23095/ 707.5	23095/ 707.5
	High			23130/ 711.0	23155/ 713.5	23165/ 714.5	23173/ 715.3
	Band 13	Frequency range: 777 - 787 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low				23205/ 779.5		
Mid			23230/ 782.0	23230/ 782.0			
High				23255/ 784.5			
Band 17	Frequency range: 704 - 716 MHz						
	Channel Bandwidth						
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz	
Low			23780/ 709.0	23755/ 706.5			
Mid			23790/ 710.0	23790/ 710.0			
High			23800/ 711.0	23825/ 713.5			

General LTE SAR Test and Reporting Considerations (Continued)

Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 25	Frequency range: 1850 - 1915 MHz																																																																		
		Channel Bandwidth																																																																		
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz																																																													
	Low	26140/ 1860.0	26115/ 1857.5	26090/ 1855.0	26065/ 1852.5	26055/ 1851.5	26047/ 1850.7																																																													
	Mid	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5																																																													
	High	26590/ 1905.0	26615/ 1907.5	26640/ 1910.0	26665/ 1912.5	26675/ 1913.5	26683/ 1914.3																																																													
	Band 26	Frequency range: 814 - 849 MHz																																																																		
		Channel Bandwidth																																																																		
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz																																																													
	Low		26765/ 821.5	26740/ 819.0	26715/ 816.5	26705/ 815.5	26697/ 814.7																																																													
	Mid		26865/ 831.5	26865/ 831.5	26865/ 831.5	26865/ 831.5	26865/ 831.5																																																													
	High		26975/ 842.5	26990/ 844.0	27015/ 846.5	27025/ 847.5	27033/ 848.3																																																													
	Band 66	Frequency range: 1710 - 1780 MHz																																																																		
		Channel Bandwidth																																																																		
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz																																																													
	Low	132072/ 1720.0	132047/ 1717.5	132022/ 1715.0	131997/ 1712.5	131987/ 1711.5	131979/ 1710.7																																																													
	Mid	132322/ 1745.0	132322/ 1745.0	132322/ 1745.0	132322/ 1745.0	132322/ 1745.0	132322/ 1745.0																																																													
	High	132572/ 1770.0	132597/ 1772.5	132622/ 1775.0	132647/ 1777.5	132657/ 1778.5	132665/ 1779.3																																																													
	Band 66	Frequency range: 1710 - 1780 MHz																																																																		
		Channel Bandwidth																																																																		
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz																																																														
Low	39750 / 2506.0																																																																			
Low-Mid	40185 / 2549.5																																																																			
Mid	40620 / 2593.0																																																																			
Mid-High	41055 / 2636.5																																																																			
High	41490 / 2680.0																																																																			
LTE transmitter and antenna implementation	Refer to Appendix A.																																																																			
Maximum power reduction (MPR)	<p>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 3</td> </tr> <tr> <td>256 QAM</td> <td colspan="6">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table> <p>MPR Built-in by design The manufacturer MPR values are always within the 3GPP maximum MPR allowance but may not follow the default MPR values. A-MPR (additional MPR) was disabled during SAR testing</p>						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
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																																																													
Power reduction	Yes																																																																			
Spectrum plots for RB configurations	A properly configured base station simulator was used for the SAR and power measurements; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																																			

Notes:

- SAR Testing for LTE was performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
- Maximum bandwidth does not support at least three non-overlapping channels in certain channel bandwidths. 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 per KDB 941225 D05 SAR for LTE devices.

6.5 LTE (TDD) Considerations

According to KDB 941225 D05 SAR for LTE Devices, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

LTE TDD Bands support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

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	$26336 \cdot T_s$			$7680 \cdot T_s$		
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-		
9	$13168 \cdot T_s$			-		

Calculated Duty Cycle

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

Calculated Duty Cycle = Extended cyclic prefix in uplink x (T_s) x # of S + # of U

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:

Calculated Duty Cycle = $5120 \times [1/(15000 \times 2048)] \times 2 + 6 \text{ ms} = 63.33\%$

where

$T_s = 1/(15000 \times 2048)$ seconds

Note(s):

This device supports uplink-downlink configurations 0-6. The configuration with highest duty cycle was used for SAR Testing: configuration 0 at 63.3% duty cycle. Only LTE Band 41 Power Class 2 was used configuration 1 at 43.3% duty cycle for SAR testing.

6.6 LTE Carrier Aggregation

DL Inter-Bnad (2CC)

E-UTRA CA configuration (BCS)	E-UTRA Band	Bandwidth						Max Aggregated BW	Reverse Y/N
		1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz		
CA_2A-4A (0)(1)(2)	Band 2	Yes	Yes	Yes	Yes	Yes	Yes	40 MHz	Yes
	Band 4			Yes	Yes	Yes	Yes		
	Band 2			Yes	Yes			20 MHz	Yes
	Band 4			Yes	Yes				
	Band 2			Yes	Yes	Yes	Yes	40 MHz	Yes
	Band 4			Yes	Yes	Yes	Yes		
CA_2A-5A (0)(1)	Band 2			Yes	Yes	Yes	Yes	30 MHz	Yes
	Band 5			Yes	Yes				
	Band 2			Yes	Yes			20 MHz	Yes
	Band 5			Yes	Yes				
CA_2A-12A (0)(1)(2)	Band 2			Yes	Yes	Yes	Yes	30 MHz	Yes
	Band 12			Yes	Yes				
	Band 2			Yes	Yes	Yes	Yes	30 MHz	Yes
	Band 12		Yes	Yes	Yes				
	Band 2			Yes	Yes			20 MHz	Yes
	Band 12			Yes	Yes				
CA_2A-66A (0)(1)(2)	Band 2	Yes	Yes	Yes	Yes	Yes	Yes	40 MHz	Yes
	Band 66			Yes	Yes	Yes	Yes		
	Band 2			Yes	Yes			20 MHz	Yes
	Band 66			Yes	Yes				
	Band 2			Yes	Yes	Yes	Yes	40 MHz	Yes
	Band 66			Yes	Yes	Yes	Yes		
CA_4A-5A (0)(1)	Band 4			Yes	Yes			20 MHz	Yes
	Band 5			Yes	Yes				
	Band 4			Yes	Yes	Yes	Yes	30 MHz	Yes
	Band 5			Yes	Yes				
CA_4A-13A (0)(1)	Band 4			Yes	Yes	Yes	Yes	30 MHz	Yes
	Band 13				Yes				
	Band 4			Yes	Yes			20 MHz	Yes
	Band 13				Yes				
CA_4A-17A (0)	Band 4			Yes	Yes			20 MHz	Yes
	Band 17			Yes	Yes				

DL Inter-Bnad (3CC)

E-UTRA CA configuration (BCS)	E-UTRA Band	Bandwidth						Max Aggregated BW	Reverse Y/N
		1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz		
CA_2A-4A-13A (0)	Band 2			Yes	Yes	Yes	Yes	50 MHz	Yes
	Band 4			Yes	Yes	Yes	Yes		
	Band 13				Yes				
CA_4A-4A-12A (0)	Band 4	4A-4A BCS 0						50 MHz	Yes
	Band 12			Yes	Yes				
CA_41A-41C (0)	Band 41	41C BCS 1						60 MHz	No
	Band 41			Yes	Yes	Yes	Yes		

DL Intra Band(non-contiguous)

E-UTRA CA configuration (BCS)	E-UTRA Band	Allowed Channel BW Per Carrier (MHz)					Max Aggregated BW
		1st Carrier	2nd Carrier	3rd Carrier	4th Carrier	5th Carrier	
CA_2A-2A (0)	Band 2	5, 10, 15, 20	5, 10, 15, 20				40 MHz
CA_4A-4A (0)(1)	Band 4	5, 10, 15, 20	5, 10, 15, 20				40 MHz
		5, 10	5, 10				20 MHz
CA_41A-41A (0)(1)	Band 41	10, 15, 20	10, 15, 20				40 MHz
		5, 10, 15, 20	5, 10, 15, 20				40 MHz
CA_66A-66A (0)	Band 66	5, 10, 15, 20	5, 10, 15, 20				40 MHz
CA_41A-41D (0)	Band 41	5, 10, 15, 20	41D BCS 0				80 MHz
		41D BCS 0	5, 10, 15, 20				80 MHz
CA_41C-41C (0)	Band 41	41C BCS 0	41C BCS 0				80 MHz

DL Intra Band(contiguous)2CC

E-UTRA CA configuration (BCS)	E-UTRA Band	Allowed Channel BW Per Carrier (MHz)					Max Aggregated BW
		1st Carrier	2nd Carrier	3rd Carrier	4th Carrier	5th Carrier	
CA_2C (0)	Band 2	5	20				40 MHz
		10	15, 20				
		15	10, 15, 20				
		20	5, 10, 15, 20				
CA_66B (0)	Band 66	5	5, 10, 15				20 MHz
		10	5, 10				
		15	5				
CA_66C (0)	Band 66	5	20				40 MHz
		10	15, 20				
		15	10, 15, 20				
		20	5, 10, 15, 20				
CA_41C (0),(1),(2),(3)	Band 41	10	20				40 MHz
		15	15,20				
		20	10,15,20				
	Band 41	5,10	20				40 MHz
		15	15,20				
		20	5,10,15,20				
	Band 41	10	15,20				40 MHz
		15	10,15,20				
		20	10,15,20				
	Band 41	10	20				40 MHz
		20	20				
	CA_41D (0)	Band 41	10	20	15		
10			15, 20	20			
15			20	10, 15			
15			10, 15, 20	20			
20			15, 20	10			
20			10, 15, 20	15, 20			

Note(s):

For supported channels, please refer to §6.4

6.7. Dynamic Antenna tuner testing – For PAG REUSE

This Device applies Qualcomm chipset solution's Dynamic Antenna tuning technology to some 3G / 4G bands. (CDMA BC0/BC1/BC10 and WCDMA BII/BIV/BV and LTE B2/B4/B5/B12/B13/B14/B17/B25/B26/B66/B71) Dynamic Antenna tuning was tested in accordance with the April 2019 FCC TCBC Workshop notes.

Per 2019, April TCBC Workshop document

- SAR is measured according to required procedures with dynamic tuner active allowing device to automatically tune. Auto-tune state determined by device during normal SAR measurement verified and listed alongside the reported SAR results.
- Additional single point SAR (time-sweep) measurements were evaluated for other tuner states to determine that the other configurations would result in equivalent or lower SAR values.
- Single point measurements performed at the peak SAR location of the highest measured SAR configuration for each combination. SAR probe remains stationary throughout the entire series of single point measurements for each combination.
- Total number tuner states divided evenly among each supported band / air interface and exposure condition combination. If any single point SAR measurement result is > 1.2 W/kg for a band / exposure condition combination set, all supported tuner states are evaluated with single point SAR measurements for the combination. Tuner state is established remotely so that the device is not moved for the entire series of single point SAR measurements for the tuner states in each combination.

The following test procedures were followed to demonstrate that the SAR results in Section 9 represented the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR was measured according to the required FCC SAR test procedures with the dynamic tuning active to allow the device to automatically to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements were evaluated for other tuner states to determine that the other configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence on the antenna characteristics, other impedance matching.

To evaluate all the tuner states, the 80 tuner states were divided among the aggregate band, mode and exposure combinations so that each combination was evaluated for at least 20 tuner states and also so that at least 3 single point SAR measurements were made for every available tuner state. Single point time-sweep measurements were performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state was able to be established remotely so that the device was not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe remained stationary at the same position throughout the entire series of single point measurements for each combination. When the single point SAR or 1g SAR was > 1.2 W/kg for a particular band / mode / exposure condition, point SAR measurements were made for all 80 states.

This Device supports LTE capabilities with overlapping transmission frequency ranges.

LTE Band 4 (1710 MHz – 1755 MHz) is covered by LTE Band 66 (1710 MHz – 1780 MHz)

LTE Band 17 (704 MHz – 716 MHz) is covered by LTE Band 12 (699 MHz – 716 MHz) in Max Power

Each both LTE bands share the same transmission path and signal characteristics. The Evaluation of Dynamic antenna tuner was only evaluated for the band with the larger transmission frequency range. We evaluated the dynamic antenna tuning of the body SAR conditions at the higher of the two cases, Hotspot SAR and Body worn SAR. The operational description contains more information about the design and implementation of the dynamic antenna tuning.

WCDMA Band II		WCDMA Band IV		LTE Band 2		LTE Band 5		LTE Band 12	
RMC		RMC		QPSK, 20MHz BW 50RB, 50RB Offset		QPSK, 10MHz BW 25RB, 0RB Offset		QPSK, 10MHz BW 1RB, 0RB Offset	
Test position	Edge 1	Test position	Edge 1	Test position	Edge 1	Test position	Edge 1	Test position	Edge 1
Specing	0mm	Specing	0mm	Specing	0mm	Specing	0mm	Specing	0mm
Frequency (MHz)	1852.4	Frequency (MHz)	1752.6	Frequency (MHz)	1880	Frequency (MHz)	836.5	Frequency (MHz)	707.5
Channel	9262	Channel	1513	Channel	18900	Channel	20525	Channel	23095
Measured 1g SAR (W/kg)	0.825	Measured 1g SAR (W/kg)	0.669	Measured 1g SAR (W/kg)	0.892	Measured 1g SAR (W/kg)	0.512	Measured 1g SAR (W/kg)	0.397
Average Value of Time Swpp (W/kg)		Average Value of Time Swpp (W/kg)		Average Value of Time Swpp (W/kg)		Average Value of Time Swpp (W/kg)		Average Value of Time Swpp (W/kg)	
Auto-tune (State 0)	2.066	Auto-tune (State 0)	1.598	Auto-tune (State 0)	2.654	Auto-tune (State 109)	1.076	Auto-tune (State 108)	1.336
State		State		State		State		State	
0	1.983	0	1.573	0	2.597	0	0.667	0	0.908
1	1.980	1	1.557	1	2.589	1	0.840	1	1.137
2	1.979	2	1.547	2	2.576	2	0.879	2	1.147
3	1.964	3	1.524	3	2.564	3	0.951	3	1.129
4	1.961	4	1.523	4	2.559	4	0.995	4	1.083
5	1.930	5	1.465	5	2.509	5	0.980	5	0.810
6	1.793	6	1.304	6	2.351	6	0.579	6	0.314
7	1.536	7	1.057	7	2.057	7	0.265	7	0.137
8	1.265	8	0.834	8	1.726	8	0.139	8	0.073
9	1.917	9	1.547	9	2.513	9	0.473	9	0.742
10	1.922	10	1.547	10	2.508	10	0.559	10	0.941
11	1.924	11	1.542	11	2.519	11	0.632	11	0.955
12	1.931	12	1.532	12	2.522	12	0.684	12	0.925
13	1.931	13	1.529	13	2.523	13	0.707	13	0.866
14	1.914	14	1.495	14	2.519	14	0.663	14	0.621
15	1.818	15	1.366	15	2.419	15	0.338	15	0.230
16	1.586	16	1.132	16	2.157	16	0.149	16	0.099
17	1.309	17	0.896	17	1.819	17	0.080	17	0.053
18	1.807	18	1.493	18	2.412	18	0.362	18	0.589
19	1.831	19	1.511	19	2.437	19	0.455	19	0.744
20	1.845	20	1.510	20	2.451	20	0.476	20	0.768
21	1.849	21	1.508	21	2.459	21	0.505	21	0.725
22	1.849	22	1.504	22	2.469	22	0.503	22	0.666
23	1.845	23	1.487	23	2.489	23	0.443	23	0.461
24	1.766	24	1.369	24	2.410	24	0.202	24	0.165
25	1.519	25	1.129	25	2.112	25	0.089	25	0.071
26	1.220	26	0.882	26	1.736	26	0.048	26	0.039
27	1.655	27	1.403	27	2.210	27	0.280	27	0.493
28	1.658	28	1.420	28	2.254	28	0.351	28	0.622
29	1.657	29	1.431	29	2.278	29	0.365	29	0.624
30	1.680	30	1.442	30	2.301	30	0.379	30	0.589
31	1.675	31	1.435	31	2.304	31	0.376	31	0.531
32	1.693	32	1.432	32	2.339	32	0.315	32	0.360
33	1.629	33	1.337	33	2.300	33	0.137	33	0.127
34	1.385	34	1.100	34	2.010	34	0.061	34	0.055
35	1.092	35	0.847	35	1.618	35	0.033	35	0.030
36	1.818	36	1.478	36	2.421	36	0.726	36	0.986
37	1.803	37	1.448	37	2.404	37	0.882	37	1.167
38	1.802	38	1.427	38	2.395	38	0.912	38	1.172
39	1.764	39	1.384	39	2.372	39	0.962	39	1.120
40	1.758	40	1.377	40	2.361	40	0.989	40	1.040
41	1.693	41	1.296	41	2.276	41	0.936	41	0.764
42	1.493	42	1.078	42	2.039	42	0.528	42	0.303
43	1.197	43	0.826	43	1.668	43	0.249	43	0.137
44	0.929	44	0.624	44	1.331	44	0.134	44	0.073
45	1.820	45	1.491	45	2.430	45	0.538	45	0.775
46	1.816	46	1.472	46	2.431	46	0.652	46	0.915
47	1.815	47	1.464	47	2.423	47	0.676	47	0.907
48	1.802	48	1.435	48	2.406	48	0.629	48	0.860
49	1.797	49	1.430	49	2.397	49	0.632	49	0.795
50	1.749	50	1.361	50	2.338	50	0.622	50	0.566
51	1.572	51	1.171	51	2.143	51	0.306	51	0.216
52	1.277	52	0.908	52	1.778	52	0.139	52	0.097
53	0.985	53	0.683	53	1.414	53	0.075	53	0.053
54	1.833	54	1.509	54	2.447	54	0.357	54	0.611
55	1.842	55	1.507	55	2.458	55	0.445	55	0.712
56	1.848	56	1.501	56	2.461	56	0.454	56	0.706
57	1.835	57	1.480	57	2.456	57	0.460	57	0.655
58	1.830	58	1.474	58	2.451	58	0.450	58	0.590
59	1.785	59	1.412	59	2.410	59	0.373	59	0.415
60	1.592	60	1.211	60	2.202	60	0.170	60	0.154
61	1.239	61	0.919	61	1.770	61	0.078	61	0.069
62	0.917	62	0.675	62	1.351	62	0.043	62	0.038
63	1.764	63	1.473	63	2.364	63	0.283	63	0.510
64	1.786	64	1.475	64	2.400	64	0.338	64	0.583
65	1.805	65	1.479	65	2.423	65	0.343	65	0.575
66	1.782	66	1.473	66	2.425	66	0.341	66	0.521
67	1.790	67	1.471	67	2.415	67	0.329	67	0.466
68	1.759	68	1.320	68	2.416	68	0.263	68	0.316
69	1.553	69	1.138	69	2.196	69	0.117	69	0.117

70	1.177	70	0.850	70	1.722	70	0.054	70	0.053
71	0.845	71	0.609	71	1.260	71	0.030	71	0.030
72	0.277	72	0.291	72	0.314	72	0.980	72	1.203
73	0.278	73	0.305	73	0.350	73	1.036	73	1.076
74	0.299	74	0.293	74	0.343	74	1.036	74	1.006
75	0.300	75	0.274	75	0.328	75	0.947	75	0.831
76	0.301	76	0.280	76	0.346	76	0.872	76	0.727
77	0.274	77	0.240	77	0.317	77	0.618	77	0.473
78	0.212	78	0.166	78	0.254	78	0.246	78	0.183
79	0.128	79	0.094	79	0.162	79	0.107	79	0.085
80	0.073	80	0.054	80	0.096	80	0.056	80	0.047
81	0.274	81	0.289	81	0.311	81	0.796	81	1.000
82	0.312	82	0.310	82	0.355	82	0.741	82	0.867
83	0.308	83	0.303	83	0.349	83	0.739	83	0.800
84	0.302	84	0.291	84	0.342	84	0.633	84	0.651
85	0.318	85	0.298	85	0.361	85	0.553	85	0.549
86	0.299	86	0.268	86	0.343	86	0.365	86	0.347
87	0.245	87	0.194	87	0.294	87	0.138	87	0.135
88	0.469	88	0.111	88	0.192	88	0.061	88	0.064
89	0.082	89	0.067	89	0.112	89	0.032	89	0.036
90	0.300	90	0.316	90	0.334	90	0.576	90	0.798
91	0.356	91	0.357	91	0.402	91	0.532	91	0.651
92	0.357	92	0.352	92	0.402	92	0.493	92	0.595
93	0.356	93	0.343	93	0.403	93	0.405	93	0.473
94	0.380	94	0.358	94	0.430	94	0.343	94	0.397
95	0.372	95	0.328	95	0.426	95	0.218	95	0.248
96	0.306	96	0.236	96	0.378	96	0.083	96	0.097
97	0.170	97	0.127	97	0.232	97	0.038	97	0.048
98	0.086	98	0.066	98	0.123	98	0.021	98	0.029
99	0.297	99	0.320	99	0.329	99	0.460	99	0.651
100	0.371	100	0.377	100	0.412	100	0.371	100	0.514
101	0.411	101	0.378	101	0.421	101	0.339	101	0.468
102	0.425	102	0.380	102	0.434	102	0.269	102	0.370
103	0.453	103	0.399	103	0.471	103	0.226	103	0.306
104	0.461	104	0.380	104	0.493	104	0.142	104	0.194
105	0.387	105	0.276	105	0.463	105	0.056	105	0.078
106	0.193	106	0.139	106	0.260	106	0.026	106	0.039
107	0.088	107	0.068	107	0.125	107	0.015	107	0.023
108	0.265	108	0.258	108	0.290	108	0.991	108	1.285
109	0.286	109	0.269	109	0.319	109	1.039	109	1.089
110	0.279	110	0.261	110	0.313	110	1.027	110	1.006
111	0.270	111	0.244	111	0.301	111	0.961	111	0.818
112	0.278	112	0.250	112	0.316	112	0.841	112	0.690
113	0.253	113	0.220	113	0.292	113	0.573	113	0.437
114	0.198	114	0.150	114	0.235	114	0.215	114	0.167
115	0.120	115	0.086	115	0.151	115	0.092	115	0.080
116	0.069	116	0.050	116	0.090	116	0.048	116	0.043
117	0.252	117	0.257	117	0.283	117	0.806	117	1.024
118	0.283	118	0.275	118	0.318	118	0.788	118	0.838
119	0.279	119	0.269	119	0.315	119	0.741	119	0.766
120	0.274	120	0.258	120	0.309	120	0.614	120	0.608
121	0.287	121	0.266	121	0.325	121	0.527	121	0.501
122	0.274	122	0.239	122	0.311	122	0.332	122	0.615
123	0.226	123	0.175	123	0.269	123	0.121	123	0.121
124	0.139	124	0.100	124	0.178	124	0.053	124	0.058
125	0.078	125	0.056	125	0.106	125	0.028	125	0.033
126	0.271	126	0.280	126	0.302	126	0.631	126	0.824
127	0.321	127	0.314	127	0.357	127	0.524	127	0.630
128	0.322	128	0.312	128	0.356	128	0.479	128	0.600
129	0.323	129	0.306	129	0.360	129	0.381	129	0.440
130	0.343	130	0.318	130	0.385	130	0.316	130	0.359
131	0.338	131	0.294	131	0.385	131	0.195	131	0.224
132	0.285	132	0.214	132	0.348	132	0.071	132	0.088
133	0.162	133	0.115	133	0.217	133	0.033	133	0.043
134	0.085	134	0.060	134	0.116	134	0.018	134	0.025
135	0.268	135	0.279	135	0.298	135	0.490	135	0.668
136	0.331	136	0.330	136	0.369	136	0.375	136	0.497
137	0.336	137	0.331	137	0.375	137	0.338	137	0.440
138	0.350	138	0.334	138	0.390	138	0.261	138	0.338
139	0.374	139	0.352	139	0.421	139	0.214	139	0.281
140	0.394	140	0.341	140	0.446	140	0.131	140	0.174
141	0.345	141	0.253	141	0.430	141	0.049	141	0.070
142	0.172	142	0.127	142	0.247	142	0.022	142	0.035
143	0.077	143	0.061	143	0.119	143	0.012	143	0.022

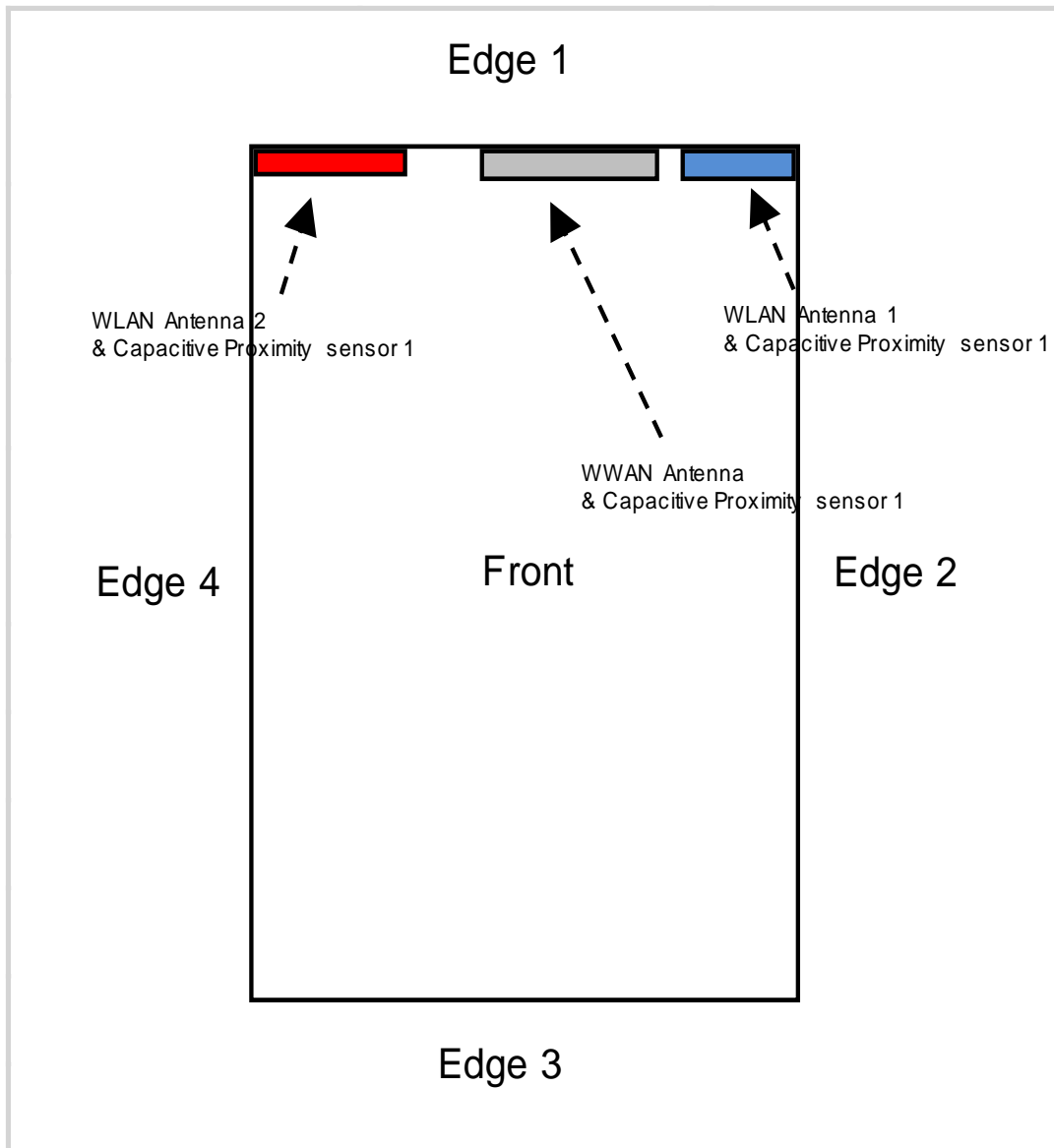
LTE Band 13		LTE Band 17		LTE Band 25		LTE Band 26		LTE Band 66	
QPSK, 10MHz BW 1RB, 49RB Offset		QPSK, 10MHz BW 25RB, 0RB Offset		QPSK, 20MHz BW 50RB, 50RB Offset		QPSK, 15MHz BW 36RB, 20RB Offset		QPSK, 20MHz BW 100RB, 0RB Offset	
Test position	Edge 1	Test position	Edge 1	Test position	Edge 1	Test position	Edge 1	Test position	Edge 1
Specing	0mm	Specing	0mm	Specing	0mm	Specing	0mm	Specing	0mm
Frequency (MHz)	782	Frequency (MHz)	710	Frequency (MHz)	1882.5	Frequency (MHz)	831.5	Frequency (MHz)	1745
Channel	23230	Channel	23790	Channel	26365	Channel	26865	Channel	132322
Measured 1g SAR (W/kg)	0.493	Measured 1g SAR (W/kg)	0.799	Measured 1g SAR (W/kg)	0.892	Measured 1g SAR (W/kg)	0.849	Measured 1g SAR (W/kg)	0.857
Average Value of Time Swwp (W/kg)		Average Value of Time Swwp (W/kg)		Average Value of Time Swwp (W/kg)		Average Value of Time Swwp (W/kg)		Average Value of Time Swwp (W/kg)	
Auto-tune (State 108)	1.385	Auto-tune (State 108)	2.302	Auto-tune (State 0)	2.535	Auto-tune (State 109)	2.355	Auto-tune (State 108)	2.432
State		State		State		State		State	
0	0.778	0	1.555	0	2.500	0	1.172	0	2.383
1	1.017	1	1.942	1	2.235	1	1.445	1	2.303
2	1.079	2	1.980	2	2.233	2	1.508	2	2.342
3	1.162	3	1.955	3	2.243	3	1.643	3	2.330
4	1.194	4	1.872	4	2.229	4	1.717	4	2.348
5	1.074	5	1.441	5	2.215	5	1.785	5	2.294
6	0.530	6	0.567	6	2.083	6	1.153	6	2.113
7	0.237	7	0.250	7	1.846	7	0.540	7	1.775
8	0.127	8	0.137	8	1.585	8	0.283	8	1.402
9	0.608	9	1.262	9	2.222	9	0.831	9	2.263
10	0.773	10	1.583	10	2.255	10	1.062	10	2.301
11	0.816	11	1.611	11	2.265	11	1.117	11	2.282
12	0.867	12	1.570	12	2.270	12	1.214	12	2.299
13	0.866	13	1.481	13	2.276	13	1.264	13	2.313
14	0.748	14	1.094	14	2.247	14	1.240	14	2.285
15	0.335	15	0.409	15	2.167	15	0.677	15	2.148
16	0.147	16	0.179	16	1.924	16	0.300	16	1.826
17	0.079	17	0.097	17	1.616	17	0.155	17	1.455
18	0.464	18	0.991	18	2.106	18	0.600	18	2.128
19	0.594	19	1.248	19	2.110	19	0.759	19	2.177
20	0.622	20	1.266	20	2.138	20	0.789	20	2.186
21	0.642	21	1.212	21	2.152	21	0.839	21	2.225
22	0.635	22	1.118	22	2.156	22	0.850	22	2.203
23	0.514	23	0.784	23	2.189	23	0.763	23	2.201
24	0.216	24	0.288	24	2.125	24	0.362	24	2.058
25	0.095	25	0.125	25	1.882	25	0.157	25	1.721
26	0.051	26	0.069	26	1.548	26	0.082	26	1.307
27	0.361	27	0.815	27	1.912	27	0.455	27	1.956
28	0.468	28	1.029	28	1.930	28	0.568	28	1.980
29	0.495	29	1.029	29	1.960	29	0.590	29	1.984
30	0.509	30	0.976	30	1.975	30	0.614	30	2.057
31	0.499	31	0.889	31	1.986	31	0.612	31	2.040
32	0.392	32	0.616	32	2.012	32	0.530	32	2.052
33	0.159	33	0.219	33	1.974	33	0.239	33	1.937
34	0.070	34	0.097	34	1.725	34	0.104	34	1.590
35	0.038	35	0.054	35	1.385	35	0.055	35	1.186
36	0.868	36	1.639	36	2.179	36	1.316	36	2.289
37	1.047	37	1.962	37	2.152	37	1.600	37	2.292
38	1.101	38	1.979	38	2.153	38	1.656	38	2.268
39	1.149	39	1.905	39	2.113	39	1.756	39	2.235
40	1.144	40	1.820	40	2.081	40	1.821	40	2.244
41	0.999	41	1.348	41	1.999	41	1.787	41	2.132
42	0.497	42	0.552	42	1.804	42	1.080	42	1.840
43	0.226	43	0.254	43	1.478	43	0.516	43	1.453
44	0.124	44	0.138	44	1.171	44	0.276	44	1.094
45	0.643	45	1.370	45	2.171	45	0.965	45	2.285
46	0.797	46	1.629	46	2.168	46	1.190	46	2.296
47	0.841	47	1.670	47	2.157	47	1.223	47	2.273
48	0.841	48	1.561	48	2.167	48	1.290	48	2.265
49	0.836	49	1.446	49	2.171	49	1.307	49	2.267
50	0.691	50	1.036	50	2.107	50	1.191	50	2.261
51	0.311	51	0.405	51	1.925	51	0.625	51	1.934
52	0.144	52	0.183	52	1.575	52	0.279	52	1.525
53	0.078	53	0.100	53	1.238	53	0.151	53	1.133
54	0.502	54	1.085	54	2.199	54	0.685	54	2.255
55	0.624	55	1.287	55	2.205	55	0.822	55	2.285
56	0.630	56	1.284	56	2.183	56	0.836	56	2.286
57	0.629	57	1.213	57	2.182	57	0.852	57	2.288
58	0.608	58	1.080	58	2.174	58	0.837	58	2.293
59	0.491	59	0.755	59	2.143	59	0.705	59	2.189
60	0.206	60	0.284	60	1.968	60	0.330	60	1.898
61	0.093	61	0.128	61	1.597	61	0.149	61	1.424
62	0.052	62	0.071	62	1.224	62	0.080	62	1.022
63	0.401	63	0.886	63	2.111	63	0.501	63	2.120
64	0.491	64	1.038	64	2.159	64	0.594	64	2.157
65	0.491	65	1.029	65	2.164	65	0.605	65	2.170
66	0.485	66	0.949	66	2.185	66	0.610	66	2.164
67	0.458	67	0.856	67	2.185	67	0.589	67	2.163
68	0.350	68	0.579	68	2.178	68	0.482	68	2.101
69	0.148	69	0.215	69	1.963	69	0.219	69	1.805

70	0.068	70	0.099	70	1.526	70	0.098	70	1.315
71	0.038	71	0.056	71	1.114	71	0.053	71	0.911
72	1.275	72	2.186	72	0.290	72	1.953	72	0.474
73	1.260	73	1.967	73	0.322	73	2.151	73	0.519
74	1.209	74	1.844	74	0.314	74	2.126	74	0.508
75	1.053	75	1.526	75	0.301	75	1.989	75	0.486
76	0.965	76	1.315	76	0.316	76	1.843	76	0.504
77	0.644	77	0.864	77	0.293	77	1.339	77	0.458
78	0.254	78	0.336	78	0.229	78	0.526	78	0.339
79	0.115	79	0.157	79	0.121	79	0.221	79	0.194
80	0.063	80	0.088	80	0.069	80	0.112	80	0.928
81	1.016	81	1.767	81	0.287	81	1.570	81	0.474
82	0.933	82	1.542	82	0.321	82	1.578	82	0.536
83	0.869	83	1.163	83	0.314	83	1.517	83	0.529
84	0.732	84	1.164	84	0.306	84	1.319	84	0.521
85	0.632	85	0.986	85	0.322	85	1.160	85	0.544
86	0.411	86	0.632	86	0.300	86	0.763	86	0.511
87	0.162	87	0.246	87	0.236	87	0.277	87	0.394
88	0.075	88	0.116	88	0.141	88	0.116	88	0.228
89	0.042	89	0.067	89	0.078	89	0.060	89	0.123
90	0.765	90	1.396	90	0.295	90	1.137	90	0.521
91	0.644	91	1.156	91	0.350	91	0.978	91	0.624
92	0.595	92	1.060	92	0.348	92	0.908	92	0.624
93	0.486	93	0.853	93	0.344	93	0.738	93	0.621
94	0.410	94	0.712	94	0.368	94	0.623	94	0.660
95	0.267	95	0.450	95	0.352	95	0.391	95	0.635
96	0.106	96	0.177	96	0.288	96	0.143	96	0.471
97	0.051	97	0.086	97	0.167	97	0.062	97	0.241
98	0.029	98	0.051	98	0.088	98	0.032	98	0.119
99	0.580	99	1.136	99	0.308	99	0.845	99	0.527
100	0.479	100	0.920	100	0.381	100	0.676	100	0.659
101	0.437	101	0.840	101	0.385	101	0.620	101	0.668
102	0.352	102	0.668	102	0.443	102	0.493	102	0.690
103	0.303	103	0.551	103	0.478	103	0.410	103	0.745
104	0.197	104	0.349	104	0.505	104	0.255	104	0.735
105	0.077	105	0.139	105	0.466	105	0.093	105	0.530
106	0.038	106	0.070	106	0.251	106	0.041	106	0.241
107	0.023	107	0.042	107	0.118	107	0.021	107	0.110
108	1.362	108	2.223	108	0.276	108	1.979	108	0.420
109	1.280	109	1.932	109	0.304	109	2.211	109	0.457
110	1.283	110	1.794	110	0.296	110	2.170	110	0.450
111	1.098	111	1.465	111	0.287	111	2.005	111	0.431
112	0.957	112	1.243	112	0.298	112	1.831	112	0.448
113	0.639	113	0.798	113	0.277	113	1.278	113	0.408
114	0.242	114	0.308	114	0.227	114	0.476	114	0.304
115	0.108	115	0.145	115	0.148	115	0.196	115	0.179
116	0.060	116	0.080	116	0.085	116	0.098	116	0.100
117	1.113	117	1.838	117	0.279	117	1.640	117	0.424
118	0.983	118	1.533	118	0.316	118	1.656	118	0.467
119	0.916	119	1.401	119	0.313	119	1.569	119	0.461
120	0.749	120	1.112	120	0.307	120	1.329	120	0.453
121	0.631	121	0.941	121	0.324	121	1.145	121	0.476
122	0.402	122	0.582	122	0.310	122	0.720	122	0.449
123	0.152	123	0.223	123	0.267	123	0.249	123	0.349
124	0.072	124	0.105	124	0.174	124	0.103	124	0.195
125	0.039	125	0.060	125	0.101	125	0.052	125	0.104
126	0.856	126	1.459	126	0.290	126	1.228	126	0.453
127	0.688	127	1.135	127	0.343	127	1.014	127	0.540
128	0.627	128	1.026	128	0.342	128	0.925	128	0.543
129	0.497	129	0.807	129	0.345	129	0.733	129	0.546
130	0.411	130	0.663	130	0.371	130	0.602	130	0.577
131	0.258	131	0.413	131	0.372	131	0.363	131	0.564
132	0.100	132	0.161	132	0.337	132	0.127	132	0.423
133	0.048	133	0.079	133	0.209	133	0.054	133	0.218
134	0.028	134	0.047	134	0.112	134	0.028	134	0.107
135	0.663	135	1.186	135	0.301	135	0.923	135	0.452
136	0.507	136	0.893	136	0.371	136	0.697	136	0.565
137	0.464	137	0.803	137	0.378	137	0.625	137	0.575
138	0.355	138	0.621	138	0.395	138	0.480	138	0.599
139	0.295	139	0.520	139	0.426	139	0.391	139	0.641
140	0.184	140	0.324	140	0.450	140	0.232	140	0.651
141	0.073	141	0.127	141	0.422	141	0.082	141	0.480
142	0.036	142	0.064	142	0.230	142	0.035	142	0.217
143	0.021	143	0.039	143	0.108	143	0.018	143	0.098

WCDMA Band V					
RMC					
Test position			Edge 1		
Specing			0mm		
Frequency (MHz)			836.6		
Channel			4183		
Measured 1g SAR (W/kg)			0.444		
Average Value of Time Swwp (W/kg)					
Auto-tune (State 109)			1.281		
State					
0	0.783	48	0.780	96	0.091
1	0.994	49	0.783	97	0.046
2	1.039	50	0.686	98	0.024
3	1.118	51	0.328	99	0.491
4	1.162	52	0.147	100	0.410
5	1.155	53	0.079	101	0.377
6	0.657	54	0.444	102	0.301
7	0.293	55	0.539	103	0.252
8	0.154	56	0.559	104	0.159
9	0.572	57	0.569	105	0.061
10	0.742	58	0.569	106	0.029
11	0.772	59	0.046	107	0.017
12	0.825	60	0.189	108	1.006
13	0.856	61	0.086	109	1.278
14	0.788	62	0.047	110	1.118
15	0.383	63	0.334	111	1.013
16	0.166	64	0.406	112	0.945
17	0.087	65	0.412	113	0.615
18	0.431	66	0.408	114	0.231
19	0.551	67	0.394	115	0.100
20	0.572	68	0.311	116	0.052
21	0.603	69	0.132	117	0.846
22	0.601	70	0.060	118	0.849
23	0.499	71	0.033	119	0.802
24	0.234	72	1.074	120	0.672
25	0.099	73	0.609	121	0.578
26	0.052	74	1.159	122	0.364
27	0.331	75	1.071	123	0.131
28	0.421	76	0.982	124	0.058
29	0.436	77	0.701	125	0.031
30	0.450	78	0.278	126	0.669
31	0.444	79	0.121	127	0.583
32	0.366	80	0.064	128	0.533
33	0.158	81	0.869	129	0.424
34	0.067	82	0.884	130	0.351
35	0.035	83	0.843	131	0.215
36	0.800	84	0.726	132	0.079
37	0.983	85	0.635	133	0.036
38	1.039	86	0.416	134	0.021
39	1.062	87	0.156	135	0.524
40	1.091	88	0.069	136	0.416
41	1.026	89	0.037	137	0.374
42	0.560	90	0.685	138	0.292
43	0.257	91	0.583	139	0.238
44	0.137	92	0.542	140	0.145
45	0.586	93	0.444	141	0.054
46	0.731	94	0.376	142	0.026
47	0.759	95	0.239	143	0.015

6.9 Proximity sensor feature

The DUT has three proximity sensors to reduce the output power. The position of the sensors and antenna are as shown in the graphic.

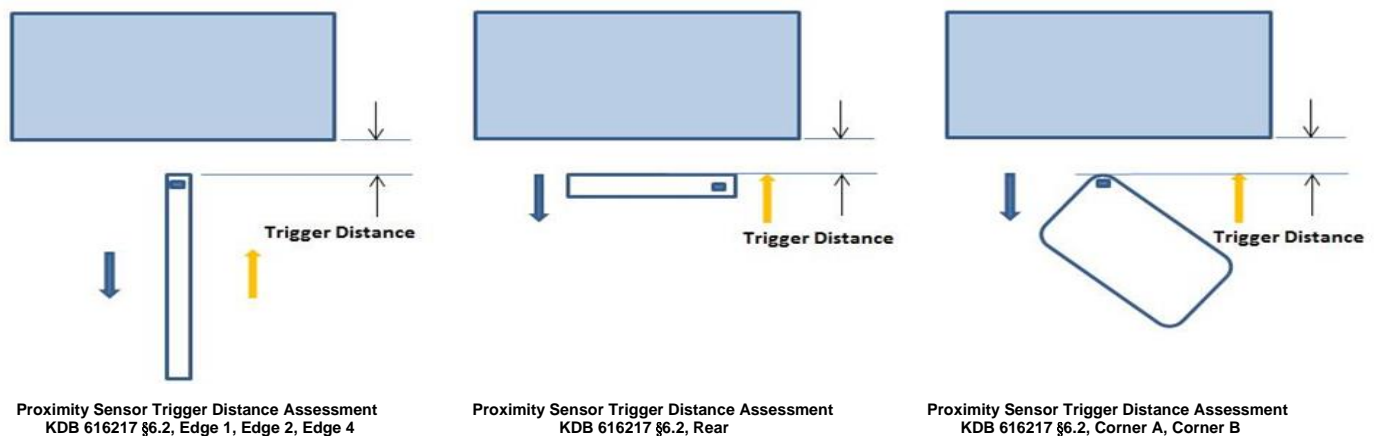


6.9.1 Proximity Sensor Triggering Distance (KDB 616217 §6.2)

Rear, Edge 1, Edge 2, Edge 4, Corner A (Side of between Edge 1 and Edge 2), Corner B (Side of between Edge 1 and Edge 4) of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger distance for resuming full power.

The DUT featured a visual indicator on its display that showed the status of the proximity sensor (Triggered or not triggered). This was used to determine the status of the sensor during the proximity sensor assessment as monitoring the output power directly was not practical without affecting the measurement.

It was confirmed separately that the output power was altered according to the proximity sensor status indication. This was achieved by observing the proximity sensor status at the same time as monitoring the conducted power. Section 9 contains both the full and reduced conducted power measurements.



LEGEND

- ➔ Direction of DUT travel for determination of power reduction triggering point
- ➔ Direction of DUT travel for determination of full power resumption triggering point

Summary of Trigger Distances

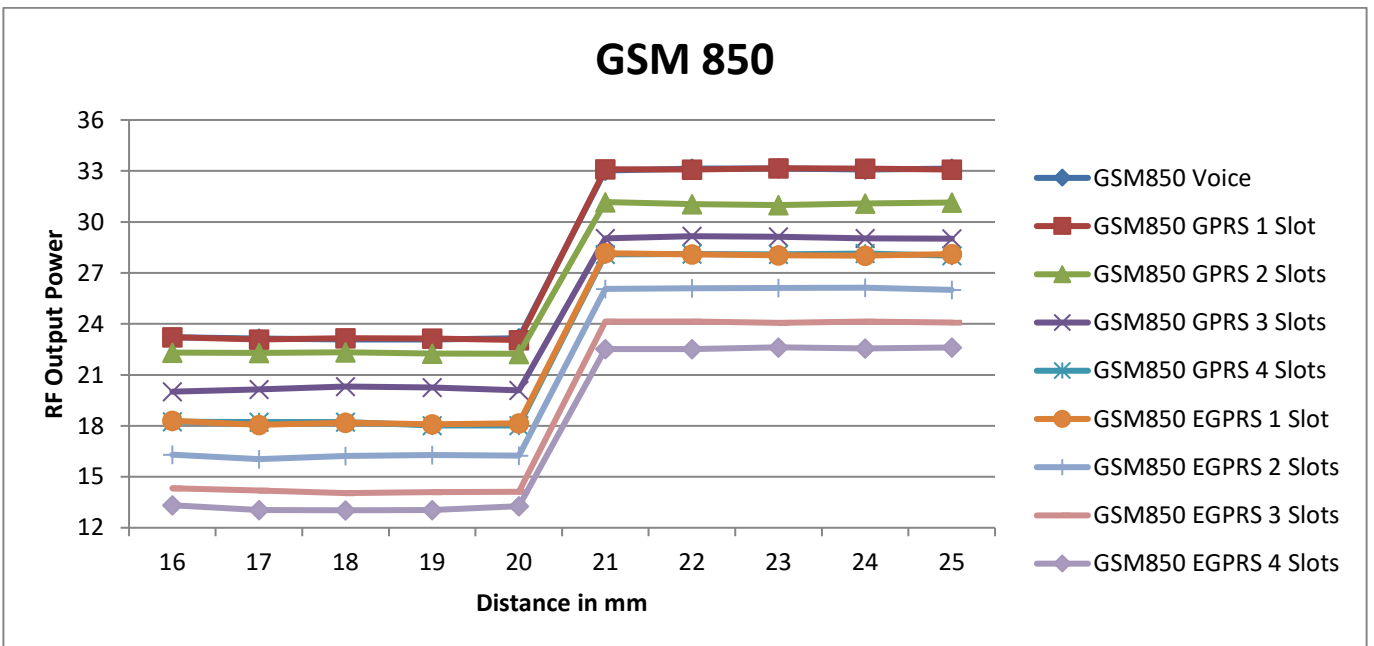
Antenna	Tissue simulating liquid	Trigger distance - Rear		Trigger distance - Edge 1		Trigger distance - Edge 2		Trigger distance - Edge 4		Trigger distance - Corner A		Trigger distance - Corner B	
		Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom
WWAN Ant.	750 Head	20 mm	20 mm	24 mm	24 mm	10 mm	10 mm	N/A	N/A	N/A	N/A	N/A	N/A
	850 Head	20 mm	20 mm	24 mm	24 mm	10 mm	10 mm	N/A	N/A	N/A	N/A	N/A	N/A
	1750 Head	20 mm	20 mm	24 mm	24 mm	10 mm	10 mm	N/A	N/A	N/A	N/A	N/A	N/A
	1900 Head	20 mm	20 mm	24 mm	24 mm	10 mm	10 mm	N/A	N/A	N/A	N/A	N/A	N/A
	2600 Head	20 mm	20 mm	24 mm	24 mm	10 mm	10 mm	N/A	N/A	N/A	N/A	N/A	N/A
WLAN Ant.	2450 Head Ant 1	18 mm	18 mm	21 mm	21 mm	10 mm	10 mm	N/A	N/A	16 mm	16 mm	N/A	N/A
	2450 Head Ant 2	17 mm	17 mm	20 mm	20 mm	N/A	N/A	7 mm	7 mm	N/A	N/A	14 mm	14 mm
	5000 Head Ant 1	18 mm	18 mm	21 mm	21 mm	10 mm	10 mm	N/A	N/A	16 mm	16 mm	N/A	N/A
	5000 Head Ant 2	17 mm	17 mm	20 mm	20 mm	N/A	N/A	7 mm	7 mm	N/A	N/A	14 mm	14 mm

Proximity Sensor Triggering Distance Measurement Results

GSM 850

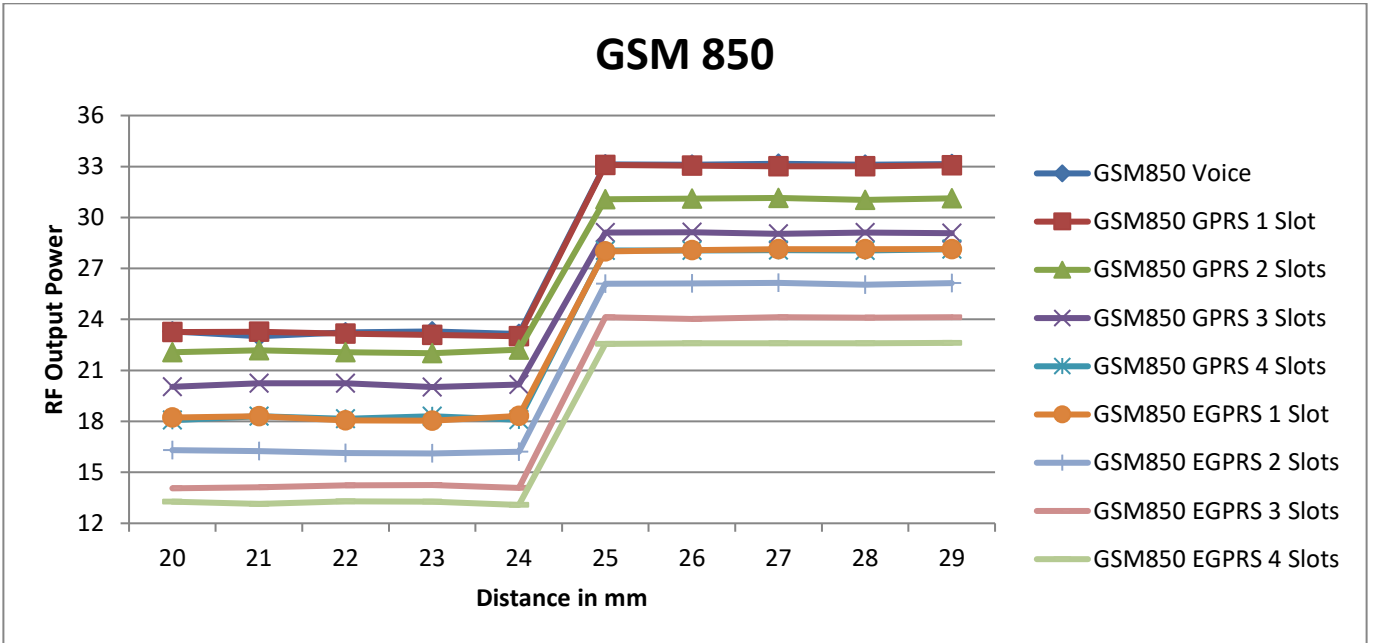
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	16	17	18	19	20	21	22	23	24	25
GSM850 Voice	23.2	23.1	23.1	23.1	23.2	33.0	33.1	33.2	33.1	33.1
GSM850 GPRS 1 Slot	23.2	23.1	23.2	23.1	23.1	33.1	33.1	33.2	33.1	33.1
GSM850 GPRS 2 Slots	22.3	22.3	22.3	22.3	22.2	31.2	31.0	31.0	31.1	31.1
GSM850 GPRS 3 Slots	20.0	20.1	20.3	20.3	20.1	29.0	29.2	29.1	29.0	29.0
GSM850 GPRS 4 Slots	18.2	18.2	18.2	18.0	18.0	28.1	28.1	28.1	28.1	28.0
GSM850 EGPRS 1 Slot	18.3	18.1	18.2	18.1	18.2	28.2	28.1	28.0	28.0	28.1
GSM850 EGPRS 2 Slots	16.3	16.0	16.2	16.3	16.2	26.1	26.1	26.1	26.1	26.0
GSM850 EGPRS 3 Slots	14.3	14.2	14.0	14.1	14.1	24.1	24.1	24.1	24.1	24.1
GSM850 EGPRS 4 Slots	13.3	13.0	13.0	13.0	13.3	22.5	22.5	22.6	22.6	22.6



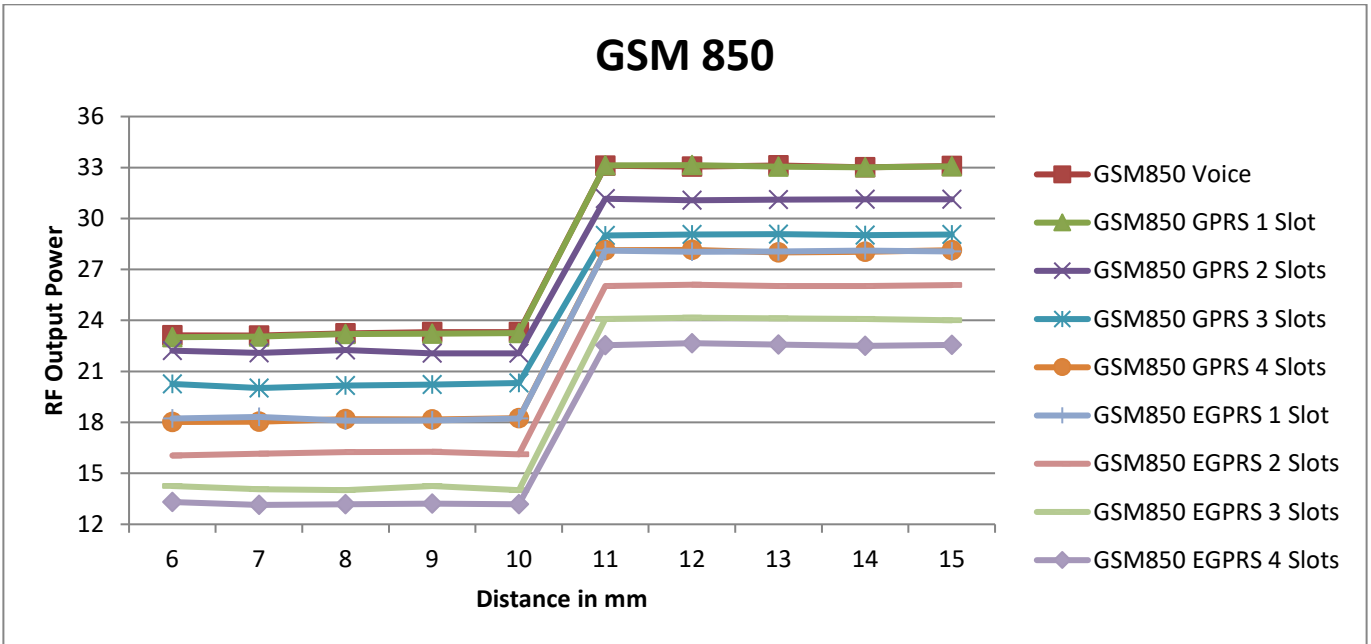
Edge 1, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	20	21	22	23	24	25	26	27	28	29
GSM850 Voice	23.3	23.0	23.2	23.3	23.1	33.1	33.1	33.2	33.1	33.2
GSM850 GPRS 1 Slot	23.3	23.3	23.2	23.1	23.0	33.1	33.0	33.0	33.0	33.1
GSM850 GPRS 2 Slots	22.1	22.2	22.1	22.0	22.2	31.1	31.1	31.2	31.0	31.1
GSM850 GPRS 3 Slots	20.0	20.3	20.3	20.0	20.2	29.1	29.1	29.0	29.1	29.1
GSM850 GPRS 4 Slots	18.1	18.3	18.2	18.3	18.1	28.1	28.1	28.1	28.1	28.1
GSM850 EGPRS 1 Slot	18.2	18.3	18.1	18.0	18.3	28.0	28.1	28.1	28.1	28.1
GSM850 EGPRS 2 Slots	16.3	16.3	16.1	16.1	16.2	26.1	26.1	26.2	26.0	26.1
GSM850 EGPRS 3 Slots	14.1	14.1	14.2	14.3	14.1	24.1	24.0	24.1	24.1	24.1
GSM850 EGPRS 4 Slots	13.3	13.1	13.3	13.3	13.1	22.6	22.6	22.6	22.6	22.6



Edge 2, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

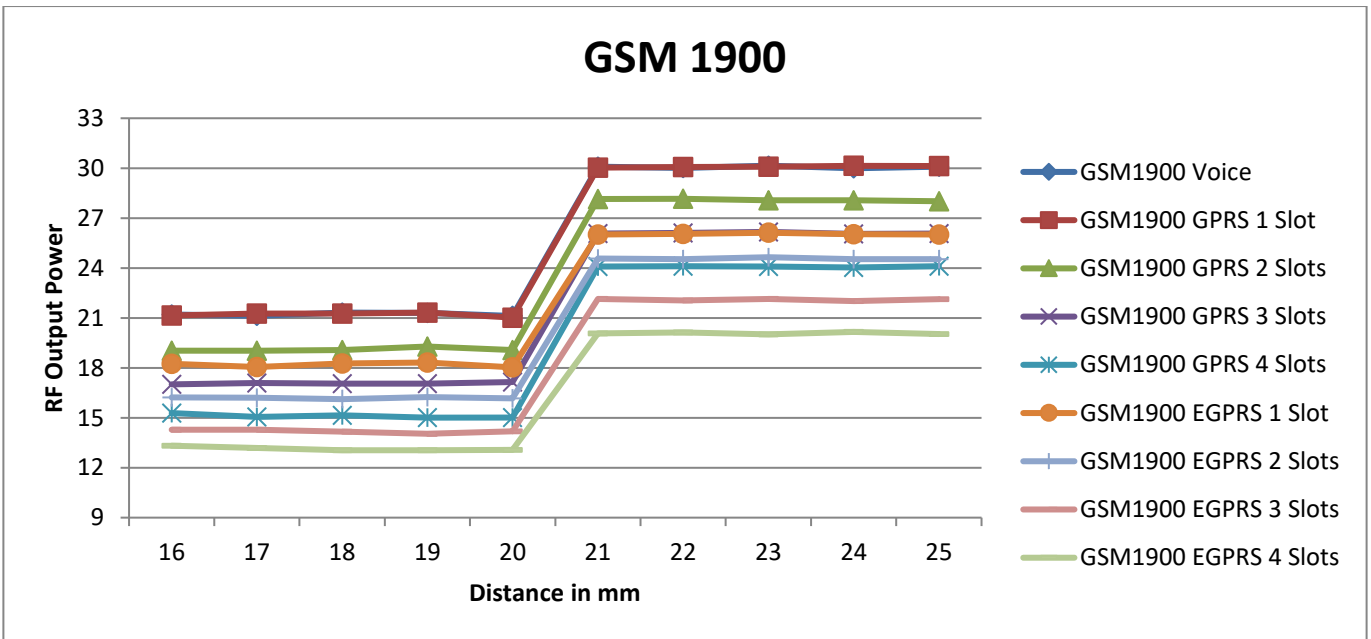
Distance to DUT vs. Output Power in dBm										
Distance (mm)	6	7	8	9	10	11	12	13	14	15
GSM850 Voice	23.1	23.1	23.2	23.3	23.3	33.1	33.1	33.1	33.0	33.1
GSM850 GPRS 1 Slot	23.0	23.0	23.2	23.2	23.3	33.1	33.1	33.1	33.0	33.1
GSM850 GPRS 2 Slots	22.2	22.1	22.3	22.1	22.1	31.2	31.1	31.1	31.1	31.1
GSM850 GPRS 3 Slots	20.3	20.0	20.2	20.2	20.3	29.0	29.1	29.1	29.0	29.1
GSM850 GPRS 4 Slots	18.0	18.0	18.2	18.2	18.3	28.1	28.2	28.0	28.0	28.1
GSM850 EGPRS 1 Slot	18.2	18.3	18.1	18.1	18.2	28.1	28.0	28.1	28.1	28.1
GSM850 EGPRS 2 Slots	16.1	16.2	16.2	16.3	16.1	26.0	26.1	26.0	26.0	26.1
GSM850 EGPRS 3 Slots	14.3	14.1	14.0	14.3	14.0	24.1	24.2	24.1	24.1	24.0
GSM850 EGPRS 4 Slots	13.3	13.1	13.2	13.2	13.2	22.5	22.7	22.6	22.5	22.6



GSM 1900

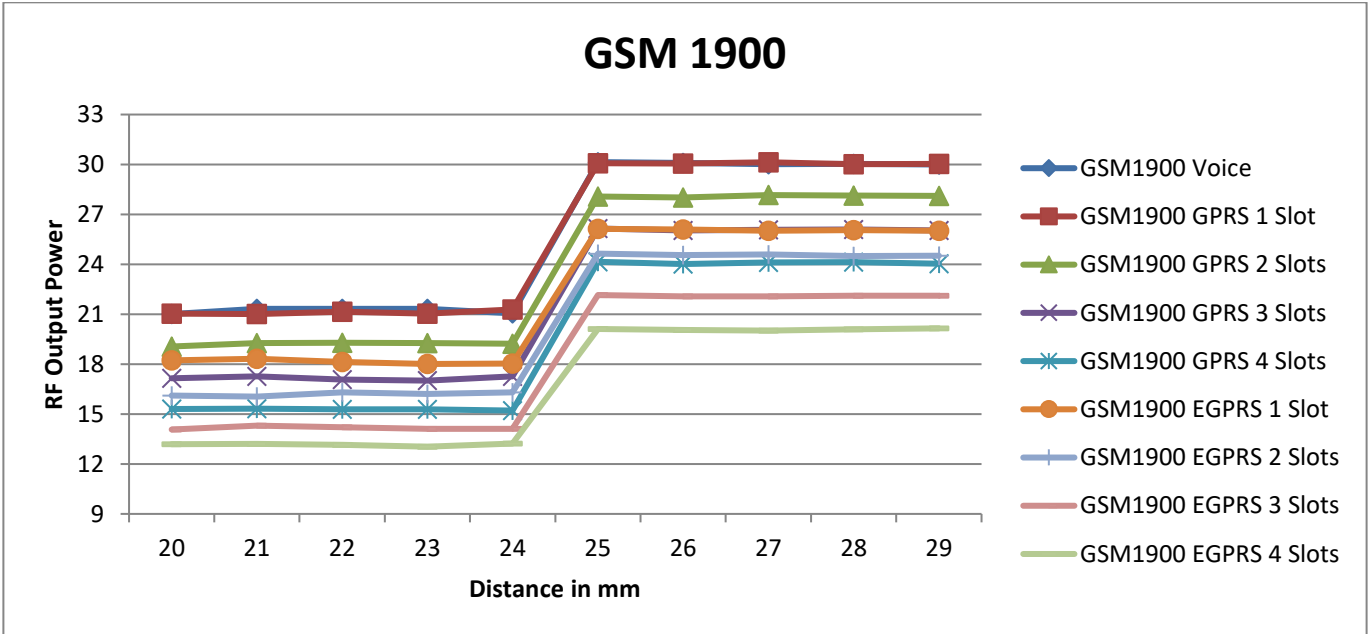
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	16	17	18	19	20	21	22	23	24	25
GSM1900 Voice	21.2	21.1	21.3	21.3	21.1	30.1	30.0	30.2	30.0	30.1
GSM1900 GPRS 1 Slot	21.1	21.3	21.3	21.3	21.0	30.0	30.1	30.1	30.1	30.1
GSM1900 GPRS 2 Slots	19.0	19.0	19.1	19.3	19.1	28.1	28.2	28.1	28.1	28.0
GSM1900 GPRS 3 Slots	17.0	17.1	17.1	17.1	17.1	26.1	26.1	26.2	26.1	26.1
GSM1900 GPRS 4 Slots	15.3	15.1	15.1	15.0	15.0	24.1	24.1	24.1	24.0	24.1
GSM1900 EGPRS 1 Slot	18.3	18.1	18.3	18.3	18.0	26.0	26.1	26.1	26.0	26.0
GSM1900 EGPRS 2 Slots	16.2	16.2	16.1	16.2	16.2	24.6	24.5	24.7	24.5	24.5
GSM1900 EGPRS 3 Slots	14.3	14.3	14.2	14.0	14.2	22.1	22.1	22.1	22.0	22.1
GSM1900 EGPRS 4 Slots	13.3	13.2	13.1	13.1	13.1	20.1	20.1	20.0	20.2	20.0



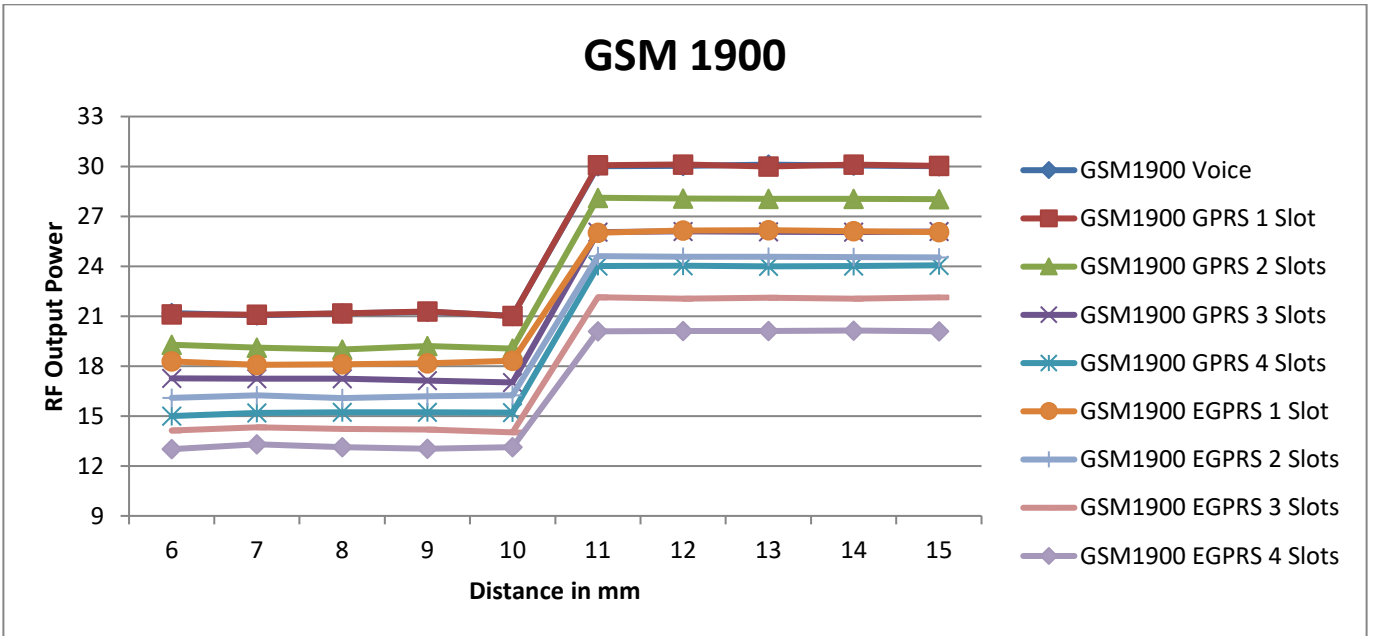
Edge 1, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	20	21	22	23	24	25	26	27	28	29
GSM1900 Voice	21.0	21.3	21.3	21.3	21.1	30.1	30.1	30.0	30.0	30.0
GSM1900 GPRS 1 Slot	21.0	21.0	21.2	21.0	21.3	30.1	30.1	30.1	30.0	30.0
GSM1900 GPRS 2 Slots	19.1	19.3	19.3	19.3	19.2	28.1	28.0	28.2	28.1	28.1
GSM1900 GPRS 3 Slots	17.2	17.3	17.1	17.0	17.3	26.2	26.0	26.1	26.1	26.0
GSM1900 GPRS 4 Slots	15.3	15.3	15.3	15.3	15.2	24.2	24.0	24.1	24.1	24.0
GSM1900 EGPRS 1 Slot	18.2	18.3	18.1	18.0	18.0	26.1	26.1	26.0	26.1	26.0
GSM1900 EGPRS 2 Slots	16.1	16.1	16.3	16.2	16.3	24.6	24.6	24.6	24.5	24.5
GSM1900 EGPRS 3 Slots	14.1	14.3	14.2	14.1	14.1	22.2	22.1	22.1	22.1	22.1
GSM1900 EGPRS 4 Slots	13.2	13.2	13.2	13.0	13.2	20.1	20.1	20.0	20.1	20.2



Edge 2, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

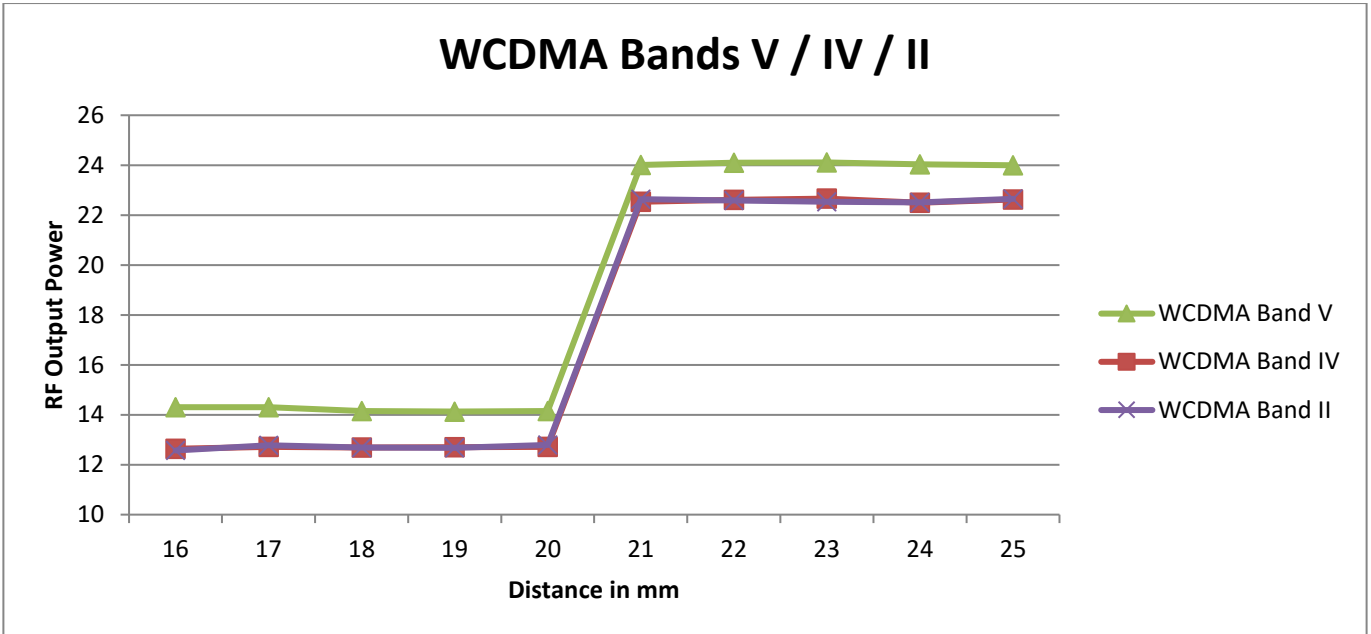
Distance to DUT vs. Output Power in dBm										
Distance (mm)	6	7	8	9	10	11	12	13	14	15
GSM1900 Voice	21.2	21.1	21.2	21.3	21.0	30.0	30.0	30.1	30.1	30.0
GSM1900 GPRS 1 Slot	21.1	21.1	21.2	21.3	21.0	30.1	30.1	30.0	30.1	30.0
GSM1900 GPRS 2 Slots	19.3	19.1	19.0	19.2	19.1	28.1	28.1	28.1	28.1	28.0
GSM1900 GPRS 3 Slots	17.3	17.2	17.3	17.1	17.0	26.1	26.1	26.1	26.1	26.1
GSM1900 GPRS 4 Slots	15.0	15.2	15.2	15.2	15.2	24.0	24.0	24.0	24.0	24.1
GSM1900 EGPRS 1 Slot	18.3	18.1	18.1	18.2	18.3	26.0	26.2	26.2	26.1	26.1
GSM1900 EGPRS 2 Slots	16.1	16.2	16.1	16.2	16.2	24.6	24.6	24.6	24.6	24.5
GSM1900 EGPRS 3 Slots	14.1	14.3	14.2	14.2	14.0	22.1	22.1	22.1	22.1	22.1
GSM1900 EGPRS 4 Slots	13.0	13.3	13.1	13.0	13.1	20.1	20.1	20.1	20.1	20.1



WCDMA Band II/IV/V

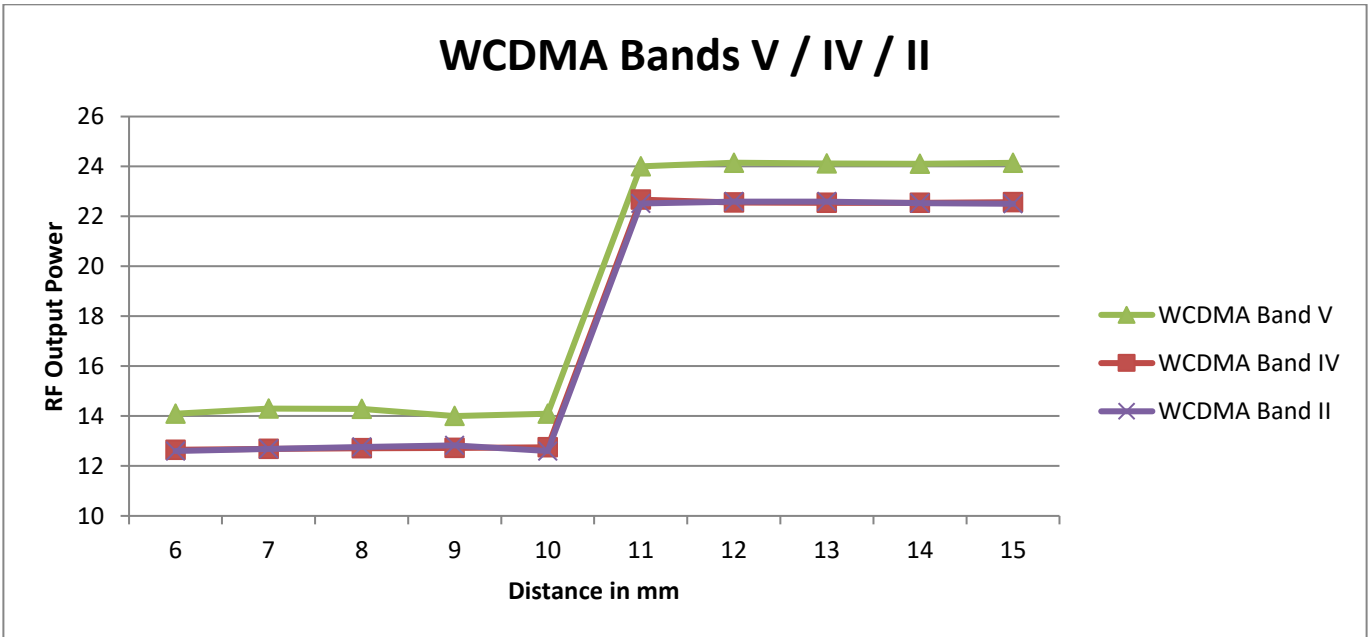
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	16	17	18	19	20	21	22	23	24	25
WCDMA Band V	14.3	14.3	14.2	14.1	14.2	24.0	24.1	24.1	24.0	24.0
WCDMA Band IV	12.6	12.7	12.7	12.7	12.7	22.5	22.6	22.7	22.5	22.6
WCDMA Band II	12.6	12.8	12.7	12.7	12.8	22.6	22.6	22.5	22.5	22.7



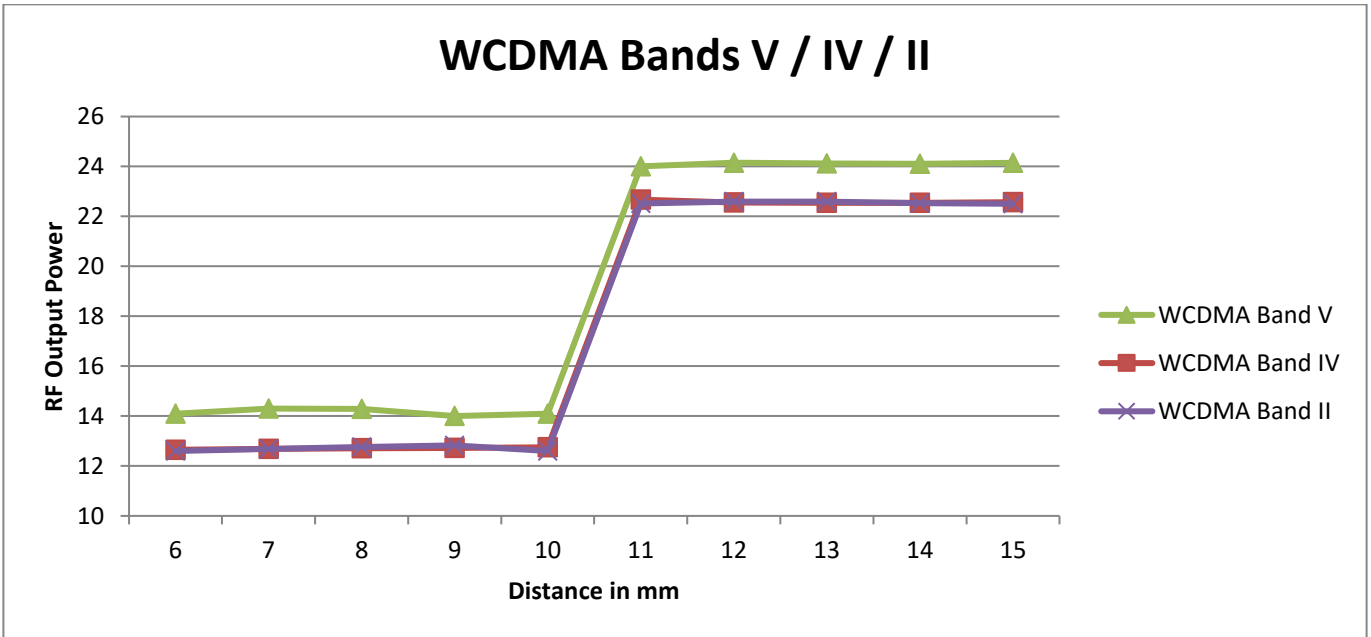
Edge 1, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	20	21	22	23	24	25	26	27	28	29
WCDMA Band V	14.2	14.3	14.3	14.2	14.3	24.1	24.2	24.1	24.1	24.0
WCDMA Band IV	12.6	12.6	12.7	12.8	12.7	22.5	22.6	22.6	22.6	22.6
WCDMA Band II	12.7	12.6	12.8	12.6	12.5	22.6	22.7	22.6	22.6	22.5



Edge 2, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

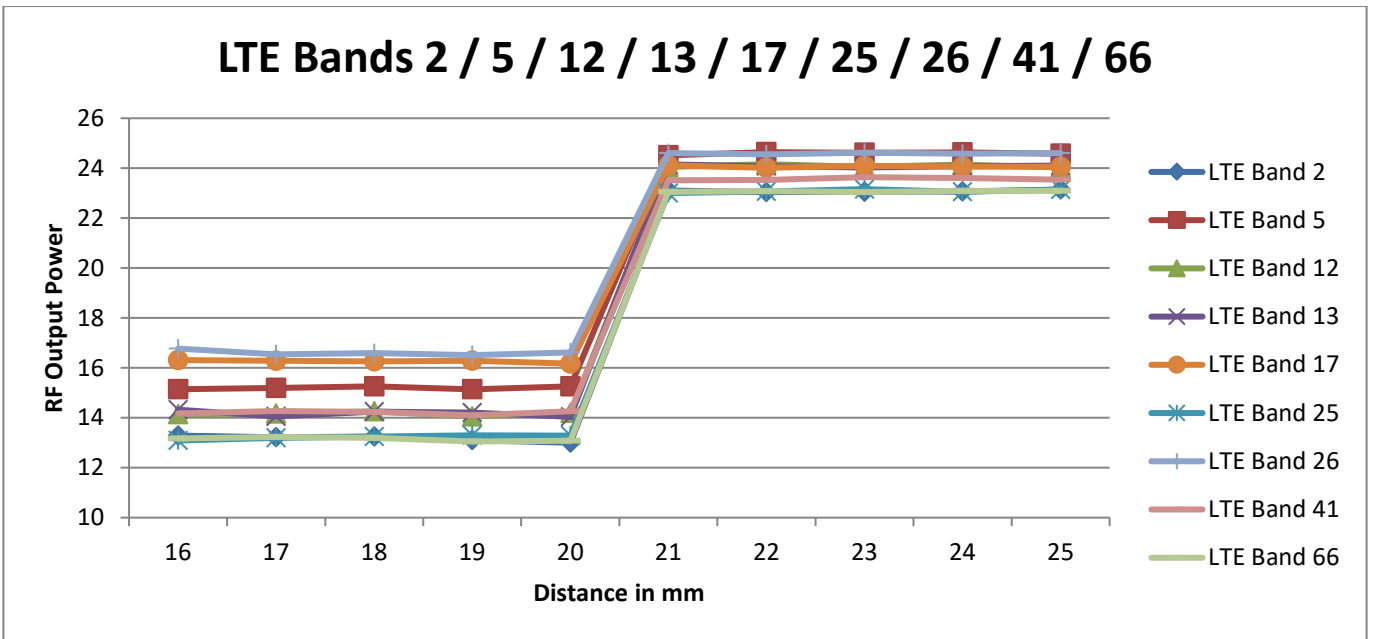
Distance to DUT vs. Output Power in dBm										
Distance (mm)	6	7	8	9	10	11	12	13	14	15
WCDMA Band V	14.1	14.3	14.3	14.0	14.1	24.0	24.2	24.1	24.1	24.1
WCDMA Band IV	12.7	12.7	12.7	12.7	12.8	22.7	22.6	22.5	22.5	22.6
WCDMA Band II	12.6	12.7	12.8	12.8	12.6	22.5	22.6	22.6	22.5	22.5



LTE Band 2/ 5/ 12/ 13/ 17/ 25/ 26/ 41/ 66

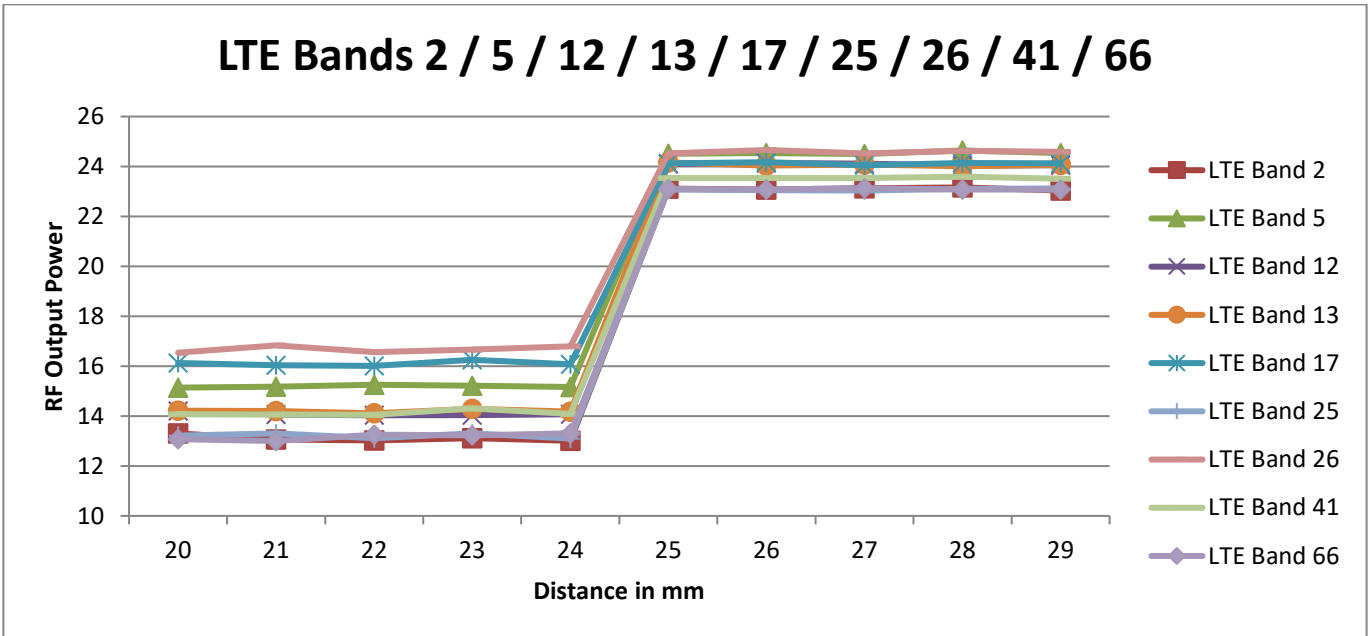
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	16	17	18	19	20	21	22	23	24	25
LTE Band 2	13.3	13.2	13.3	13.1	13.0	23.1	23.0	23.1	23.1	23.1
LTE Band 5	15.2	15.2	15.3	15.1	15.3	24.5	24.6	24.6	24.6	24.6
LTE Band 12	14.1	14.2	14.3	14.1	14.2	24.1	24.2	24.1	24.1	24.0
LTE Band 13	14.3	14.1	14.3	14.2	14.0	24.2	24.1	24.0	24.1	24.1
LTE Band 17	16.3	16.3	16.3	16.3	16.2	24.1	24.0	24.1	24.1	24.1
LTE Band 25	13.1	13.2	13.3	13.3	13.3	23.0	23.1	23.2	23.1	23.2
LTE Band 26	16.8	16.5	16.6	16.5	16.6	24.6	24.6	24.6	24.6	24.6
LTE Band 41	14.2	14.3	14.2	14.1	14.3	23.5	23.5	23.6	23.6	23.5
LTE Band 66	13.2	13.2	13.2	13.1	13.1	23.1	23.1	23.0	23.1	23.1



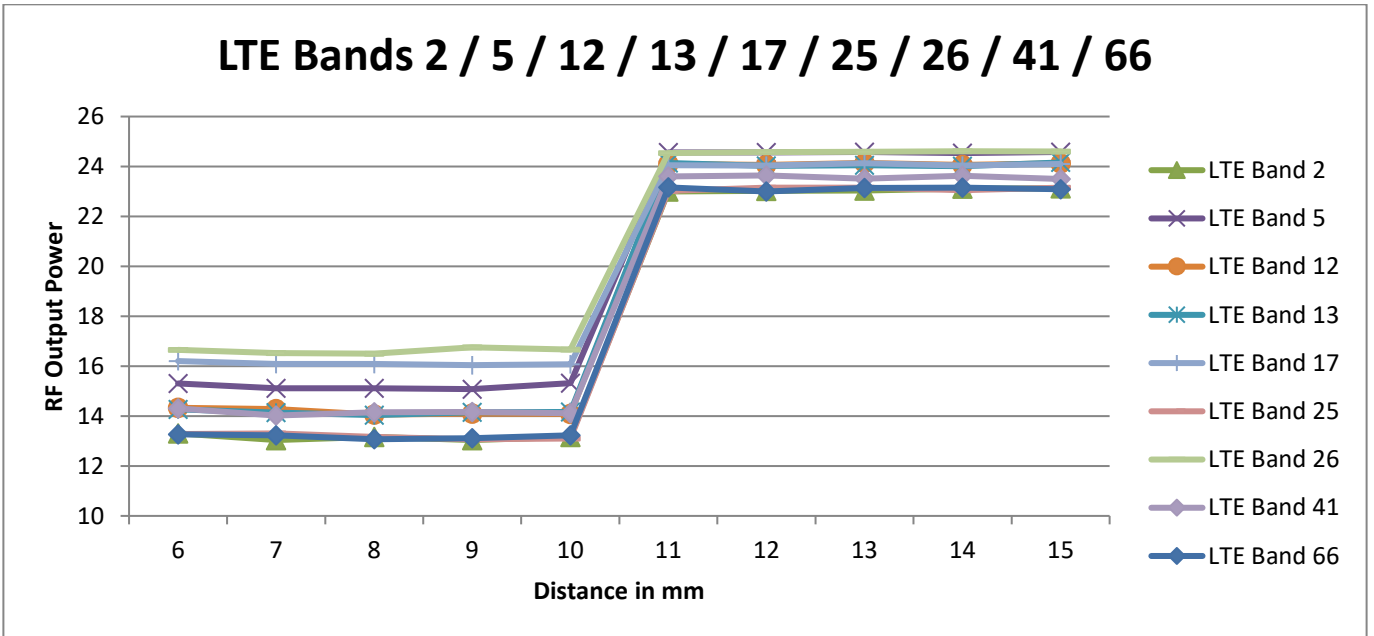
Edge 1, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	20	21	22	23	24	25	26	27	28	29
LTE Band 2	13.3	13.1	13.0	13.1	13.0	23.1	23.1	23.1	23.2	23.0
LTE Band 5	15.1	15.2	15.3	15.2	15.2	24.5	24.5	24.5	24.6	24.5
LTE Band 12	14.2	14.1	14.0	14.0	14.1	24.1	24.1	24.1	24.0	24.1
LTE Band 13	14.2	14.2	14.1	14.3	14.2	24.2	24.0	24.1	24.0	24.1
LTE Band 17	16.1	16.0	16.0	16.3	16.1	24.1	24.2	24.1	24.1	24.1
LTE Band 25	13.2	13.3	13.1	13.3	13.1	23.1	23.1	23.0	23.1	23.1
LTE Band 26	16.5	16.8	16.6	16.7	16.8	24.5	24.7	24.5	24.6	24.6
LTE Band 41	14.1	14.1	14.1	14.3	14.1	23.5	23.5	23.5	23.6	23.5
LTE Band 66	13.1	13.0	13.3	13.2	13.3	23.1	23.1	23.1	23.1	23.1



Edge 2, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	6	7	8	9	10	11	12	13	14	15
LTE Band 2	13.3	13.0	13.2	13.0	13.2	23.0	23.0	23.0	23.1	23.1
LTE Band 5	15.3	15.1	15.1	15.1	15.3	24.6	24.6	24.6	24.5	24.6
LTE Band 12	14.3	14.3	14.1	14.1	14.1	24.1	24.1	24.1	24.1	24.1
LTE Band 13	14.3	14.1	14.0	14.2	14.2	24.1	24.0	24.1	24.0	24.2
LTE Band 17	16.2	16.1	16.1	16.0	16.1	24.1	24.0	24.1	24.0	24.1
LTE Band 25	13.3	13.3	13.2	13.1	13.1	23.0	23.2	23.2	23.1	23.2
LTE Band 26	16.7	16.5	16.5	16.8	16.7	24.5	24.6	24.6	24.6	24.6
LTE Band 41	14.3	14.0	14.2	14.2	14.1	23.6	23.6	23.5	23.6	23.5
LTE Band 66	13.3	13.2	13.1	13.1	13.2	23.2	23.0	23.1	23.2	23.1



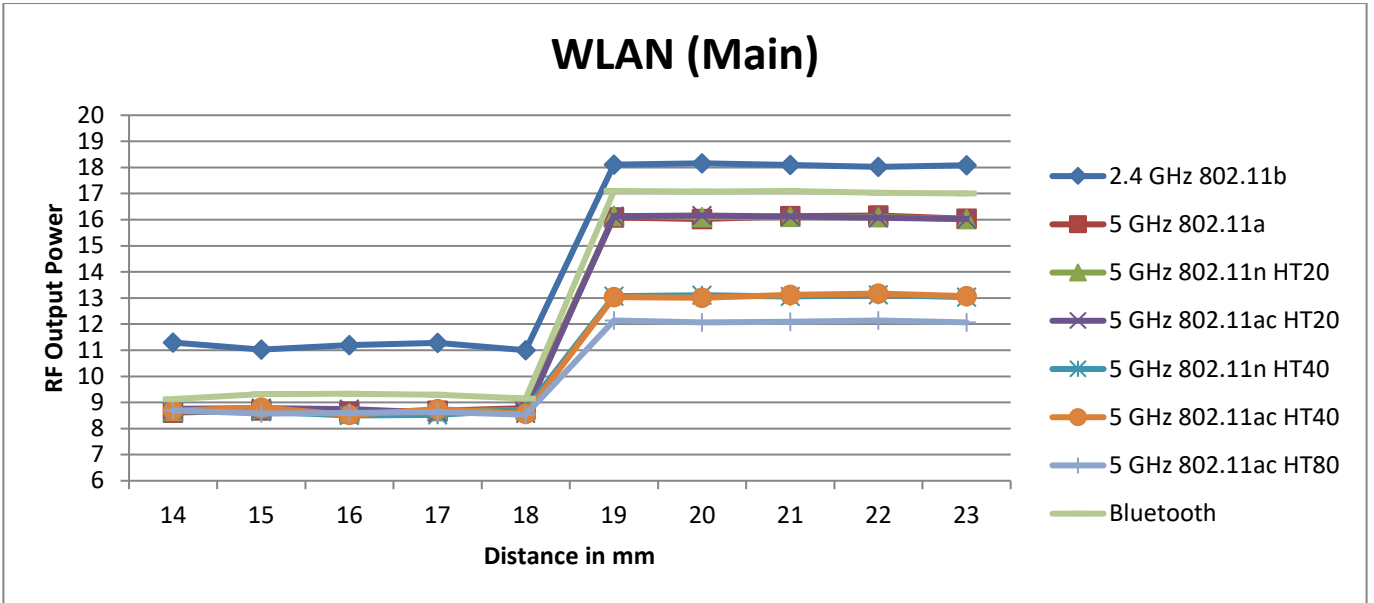
Note:

LTE Band 4(max power and reduction power) is covered by LTE Band 66.

WLAN 2.4GHz and 5GHz

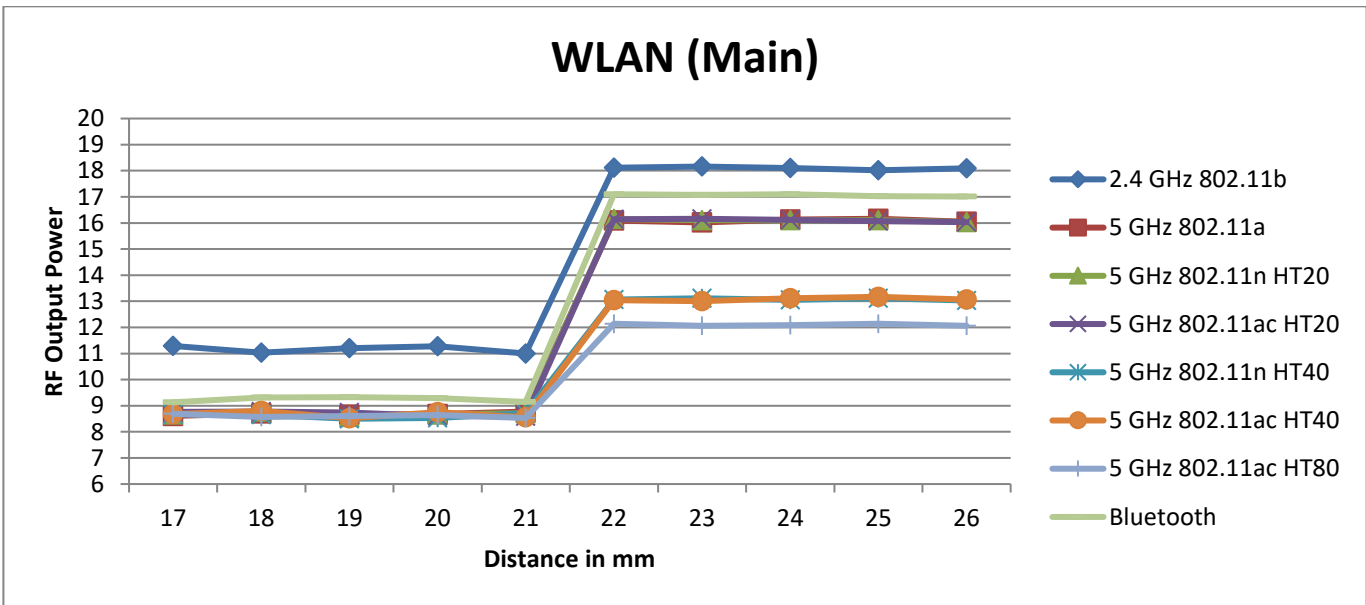
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm											
Antenna	Distance	14	15	16	17	18	19	20	21	22	23
Ant 1	2.4 GHz 802.11b	11.3	11.0	11.2	11.3	11.0	18.1	18.2	18.1	18.0	18.1
	5 GHz 802.11a	8.6	8.7	8.7	8.7	8.8	16.1	16.0	16.1	16.2	16.0
	5 GHz 802.11n HT20	8.7	8.8	8.6	8.7	8.7	16.2	16.1	16.1	16.1	16.0
	5 GHz 802.11n HT40	8.7	8.7	8.5	8.5	8.7	13.1	13.1	13.1	13.1	13.0
	5 GHz 802.11ac HT20	8.8	8.8	8.7	8.6	8.6	16.1	16.2	16.1	16.1	16.0
	5 GHz 802.11ac HT40	8.7	8.8	8.5	8.8	8.6	13.0	13.0	13.1	13.2	13.1
	5 GHz 802.11ac HT80	8.7	8.6	8.6	8.6	8.5	12.1	12.1	12.1	12.1	12.1
	Bluetooth	9.1	9.3	9.3	9.3	9.2	17.1	17.1	17.1	17.0	17.0



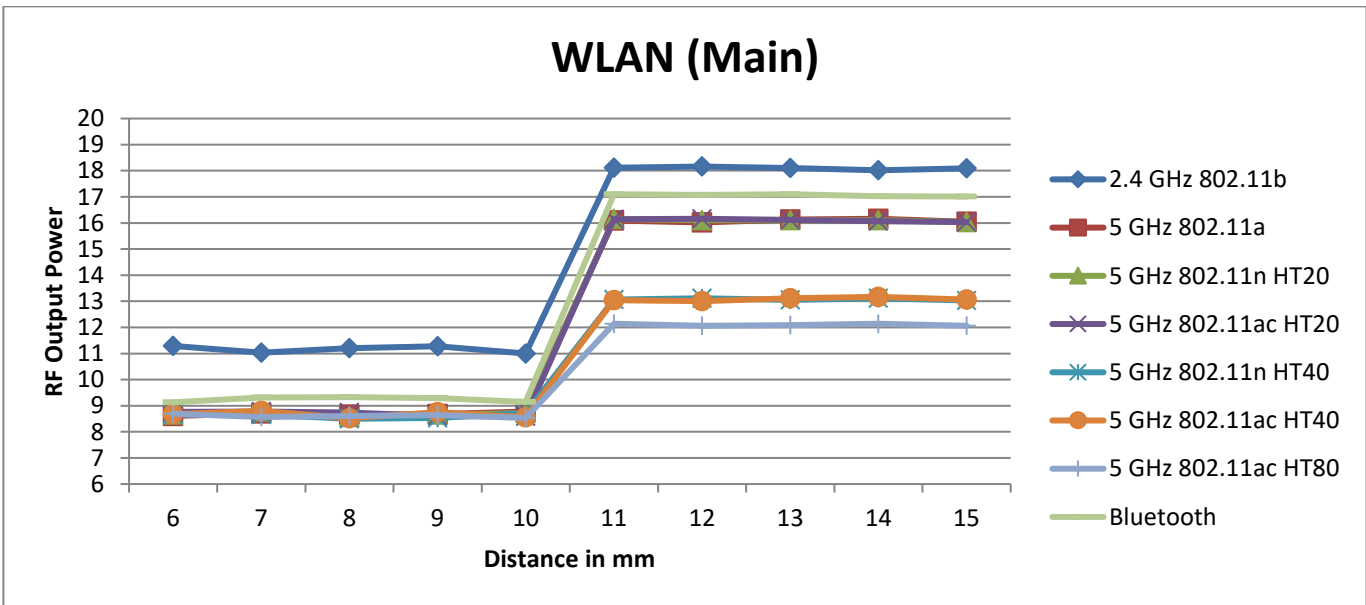
Edge 1, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm											
Antenna	Distance	17	18	19	20	21	22	23	24	25	26
Ant 1	2.4 GHz 802.11b	11.0	11.3	11.0	11.1	11.1	18.1	18.1	18.0	18.0	18.1
	5 GHz 802.11a	8.8	8.6	8.8	8.8	8.6	16.0	16.0	16.1	16.1	16.0
	5 GHz 802.11n HT20	8.8	8.6	8.8	8.5	8.6	16.1	16.0	16.0	16.0	16.1
	5 GHz 802.11n HT40	8.6	8.6	8.6	8.6	8.6	13.1	13.1	13.1	13.1	13.0
	5 GHz 802.11ac HT20	8.7	8.8	8.8	8.8	8.6	16.2	16.1	16.1	16.1	16.0
	5 GHz 802.11ac HT40	8.5	8.5	8.6	8.6	8.6	13.1	13.0	13.1	13.0	13.2
	5 GHz 802.11ac HT80	8.8	8.8	8.7	8.7	8.7	12.1	12.0	12.0	12.0	12.0
	Bluetooth	9.1	9.0	9.2	9.2	9.1	17.0	17.0	17.1	17.2	17.1



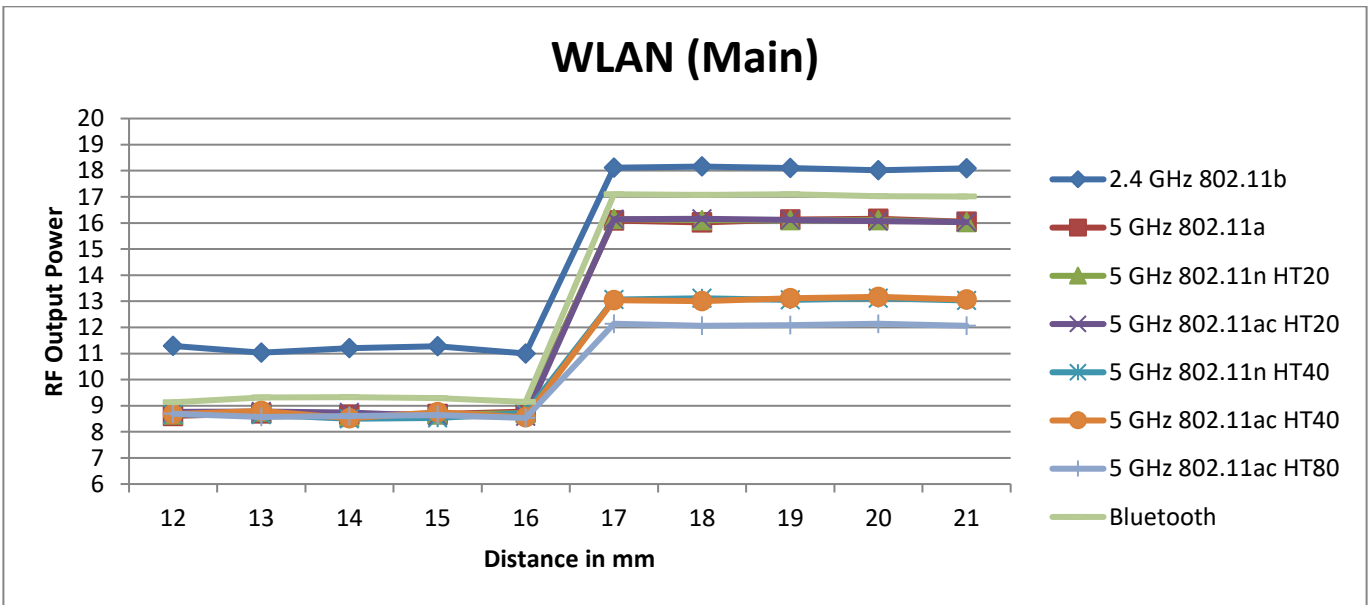
Edge 2, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm											
Antenna	Distance	6	7	8	9	10	11	12	13	14	15
Ant 1	2.4 GHz 802.11b	11.2	11.1	11.1	11.3	11.1	18.1	18.1	18.0	18.1	18.1
	5 GHz 802.11a	8.5	8.7	8.6	8.8	8.8	16.1	16.2	16.1	16.0	16.1
	5 GHz 802.11n HT20	8.8	8.7	8.5	8.6	8.7	16.2	16.0	16.1	16.1	16.0
	5 GHz 802.11n HT40	8.6	8.8	8.7	8.6	8.6	13.1	13.0	13.1	13.0	13.1
	5 GHz 802.11ac HT20	8.8	8.8	8.6	8.7	8.6	16.1	16.2	16.0	16.1	16.1
	5 GHz 802.11ac HT40	8.6	8.7	8.7	8.5	8.6	13.2	13.2	13.1	13.0	13.2
	5 GHz 802.11ac HT80	8.7	8.6	8.7	8.5	8.8	12.0	12.1	12.1	12.1	12.1
	Bluetooth	9.2	9.3	9.0	9.1	9.3	17.1	17.1	17.2	17.1	17.1



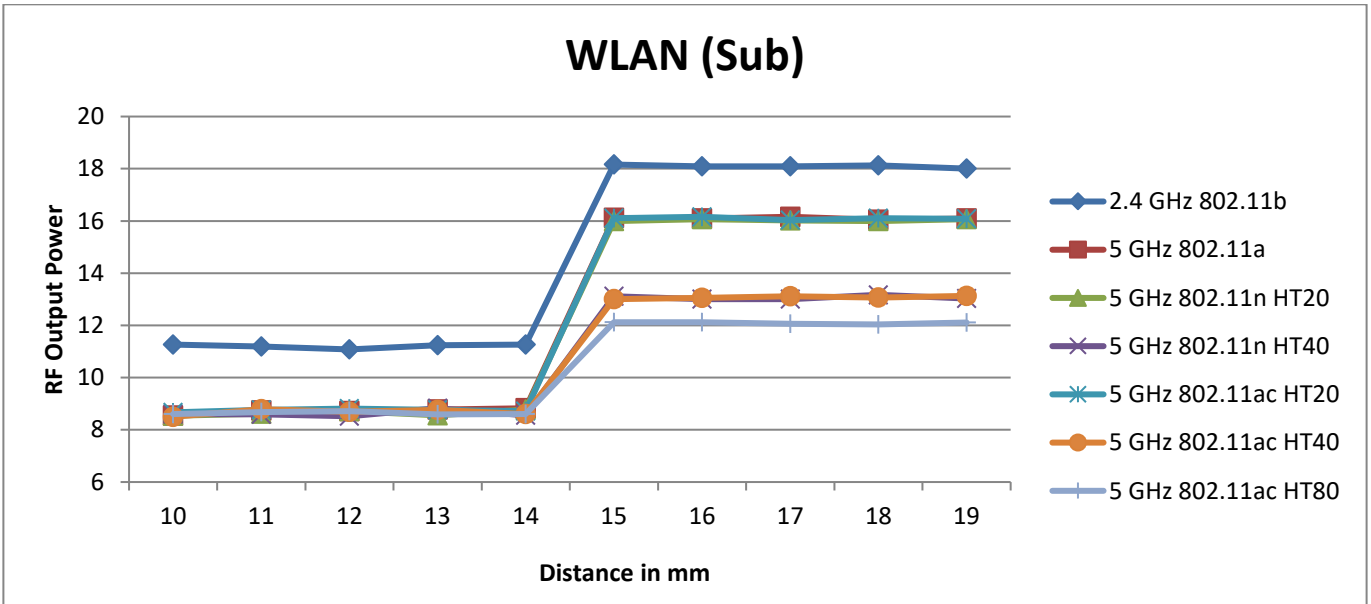
Corner A, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm											
Antenna	Distance	12	13	14	15	16	17	18	19	20	21
Ant 1	2.4 GHz 802.11b	11.2	11.2	11.0	11.0	11.3	18.0	18.0	18.1	18.1	18.1
	5 GHz 802.11a	8.8	8.7	8.8	8.6	8.5	16.1	16.0	16.1	16.1	16.1
	5 GHz 802.11n HT20	8.7	8.8	8.8	8.6	8.7	16.0	16.0	16.0	16.1	16.0
	5 GHz 802.11n HT40	8.6	8.6	8.5	8.8	8.6	13.1	13.1	13.1	13.1	13.0
	5 GHz 802.11ac HT20	8.8	8.6	8.6	8.6	8.6	16.0	16.1	16.2	16.2	16.1
	5 GHz 802.11ac HT40	8.7	8.8	8.7	8.5	8.8	13.0	13.1	13.1	13.1	13.1
	5 GHz 802.11ac HT80	8.8	8.6	8.7	8.8	8.6	12.1	12.1	12.1	12.1	12.2
	Bluetooth	9.3	9.2	9.3	9.2	9.1	17.1	17.0	17.1	17.1	17.1



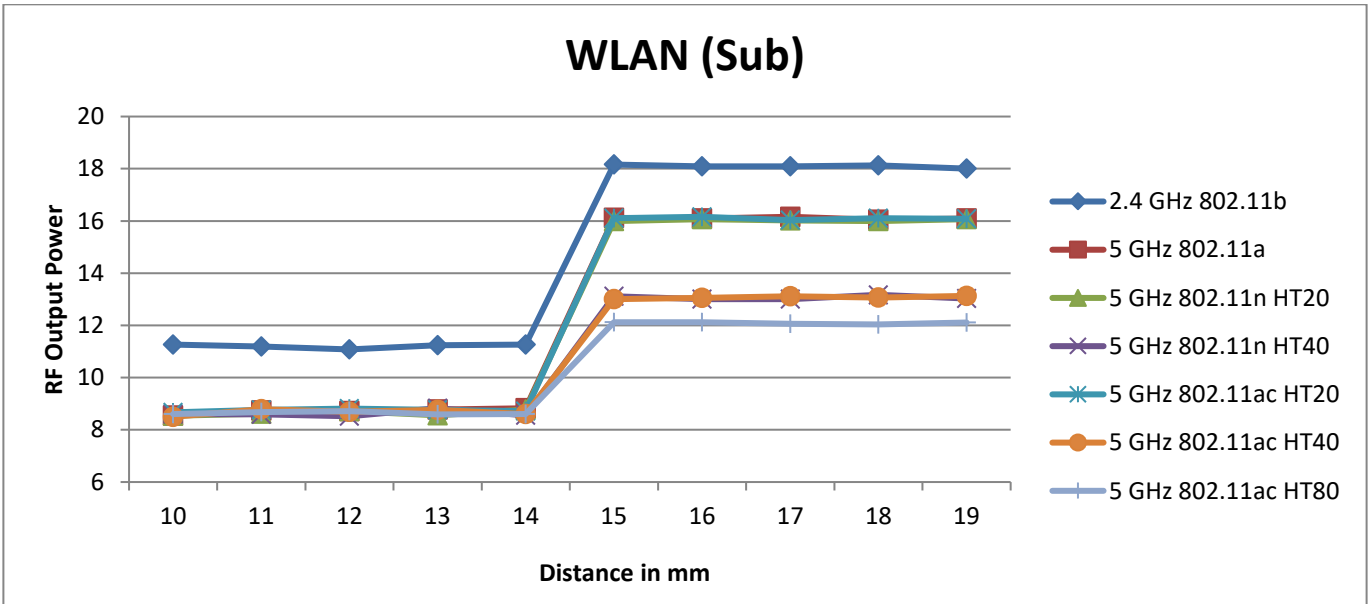
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm											
Antenna	Distance	13	14	15	16	17	18	19	20	21	22
Ant 2	2.4 GHz 802.11b	11.3	11.2	11.1	11.0	11.0	18.0	18.0	18.1	18.1	18.1
	5 GHz 802.11a	8.7	8.5	8.7	8.6	8.6	16.1	16.1	16.2	16.0	16.1
	5 GHz 802.11n HT20	8.8	8.7	8.6	8.6	8.6	16.1	16.1	16.1	16.1	16.1
	5 GHz 802.11n HT40	8.5	8.6	8.8	8.8	8.8	13.2	13.1	13.2	13.1	13.1
	5 GHz 802.11ac HT20	8.5	8.6	8.7	8.6	8.8	16.1	16.1	16.1	16.2	16.1
	5 GHz 802.11ac HT40	8.6	8.6	8.7	8.6	8.5	13.1	13.0	13.1	13.1	13.1
	5 GHz 802.11ac HT80	8.7	8.5	8.8	8.5	8.5	12.1	12.1	12.1	12.1	12.1



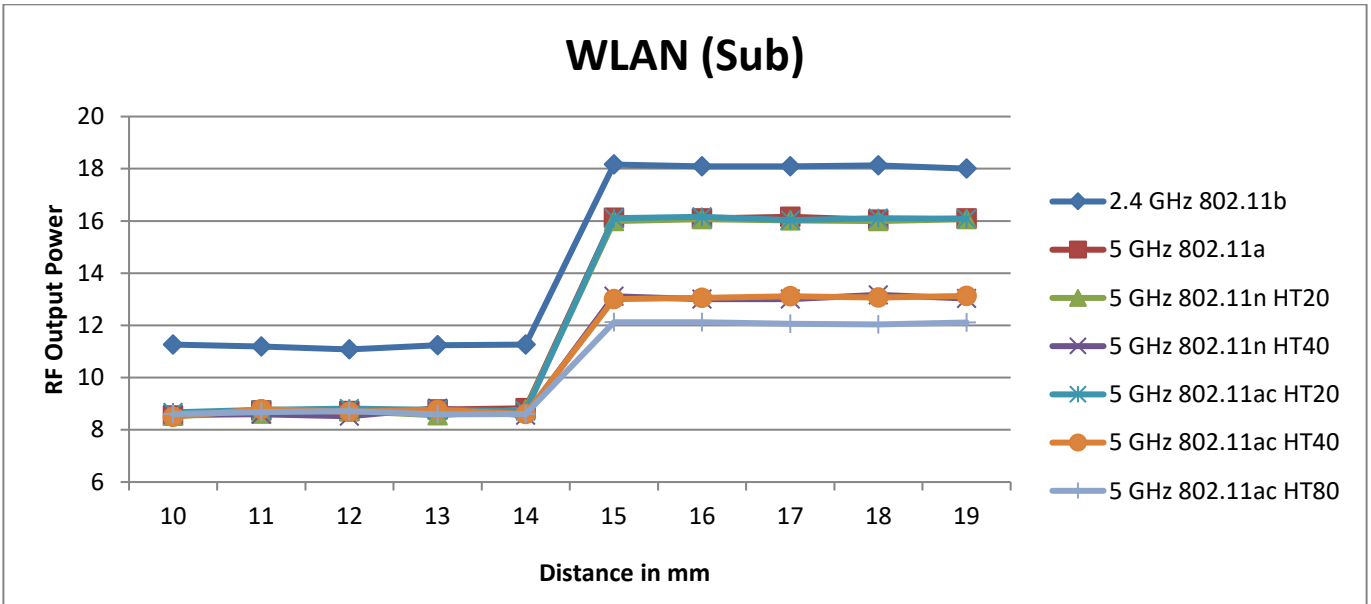
Edge 1, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm											
Antenna	Distance	16	17	18	19	20	21	22	23	24	25
Ant 2	2.4 GHz 802.11b	11.2	11.2	11.1	11.3	11.2	18.1	18.0	18.1	18.1	18.0
	5 GHz 802.11a	8.6	8.5	8.7	8.8	8.7	16.1	16.0	16.0	16.1	16.0
	5 GHz 802.11n HT20	8.7	8.6	8.7	8.6	8.8	16.1	16.1	16.0	16.1	16.1
	5 GHz 802.11n HT40	8.5	8.6	8.8	8.8	8.5	13.2	13.1	13.1	13.0	13.0
	5 GHz 802.11ac HT20	8.8	8.5	8.6	8.6	8.8	16.1	16.1	16.1	16.1	16.1
	5 GHz 802.11ac HT40	8.5	8.8	8.6	8.7	8.6	13.1	13.1	13.1	13.1	13.0
	5 GHz 802.11ac HT80	8.7	8.8	8.6	8.7	8.7	12.1	12.1	12.0	12.1	12.1



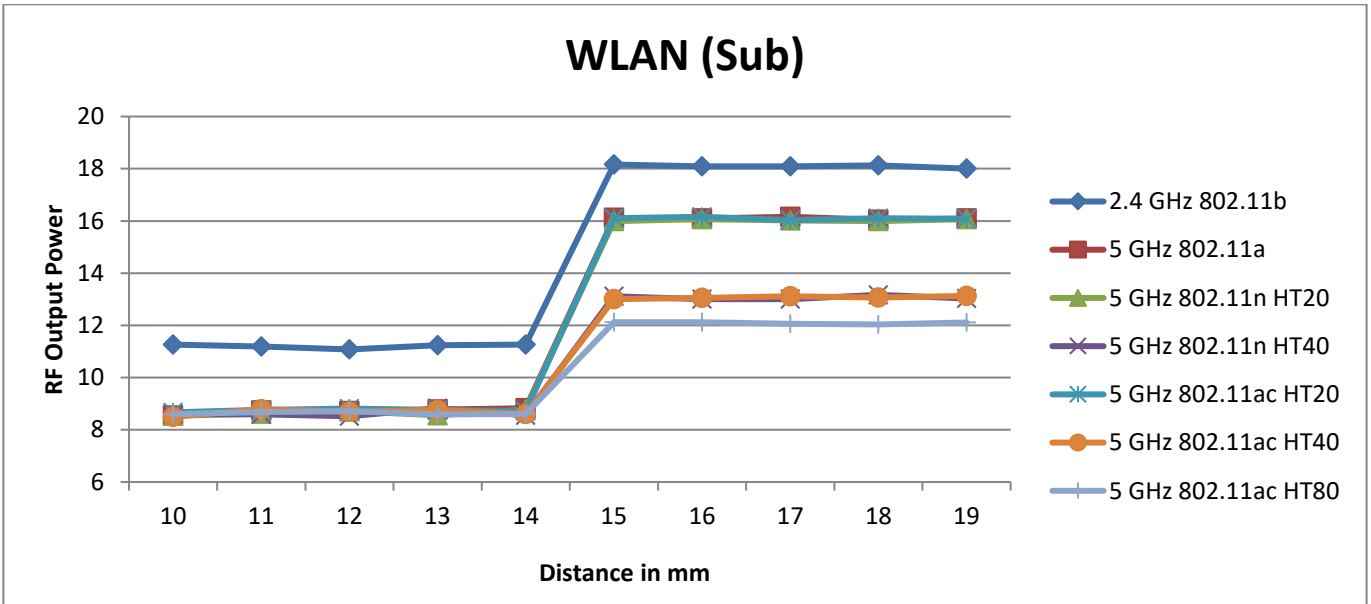
Edge 4, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm											
Antenna	Distance	3	4	5	6	7	8	9	10	11	12
Ant 2	2.4 GHz 802.11b	11.1	11.2	11.3	11.2	11.2	18.1	18.0	18.0	18.1	18.2
	5 GHz 802.11a	8.6	8.8	8.6	8.5	8.5	16.0	16.0	16.1	16.0	16.1
	5 GHz 802.11n HT20	8.8	8.7	8.8	8.8	8.5	16.1	16.0	16.0	16.1	16.2
	5 GHz 802.11n HT40	8.8	8.6	8.8	8.5	8.7	13.2	13.0	13.1	13.1	13.1
	5 GHz 802.11ac HT20	8.5	8.7	8.6	8.7	8.8	16.1	16.0	16.1	16.1	16.1
	5 GHz 802.11ac HT40	8.7	8.6	8.5	8.6	8.7	13.1	13.0	13.1	13.0	13.1
	5 GHz 802.11ac HT80	8.8	8.7	8.7	8.8	8.6	12.1	12.1	12.1	12.1	12.1



Corner B, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm											
Antenna	Distance	10	11	12	13	14	15	16	17	18	19
Ant 2	2.4 GHz 802.11b	11.3	11.2	11.1	11.2	11.3	18.2	18.1	18.1	18.1	18.0
	5 GHz 802.11a	8.5	8.7	8.7	8.8	8.8	16.1	16.1	16.2	16.0	16.1
	5 GHz 802.11n HT20	8.5	8.6	8.7	8.6	8.8	16.0	16.1	16.0	16.0	16.1
	5 GHz 802.11n HT40	8.6	8.6	8.5	8.8	8.6	13.1	13.0	13.0	13.2	13.0
	5 GHz 802.11ac HT20	8.7	8.8	8.8	8.8	8.7	16.1	16.2	16.0	16.1	16.1
	5 GHz 802.11ac HT40	8.5	8.8	8.7	8.8	8.6	13.0	13.1	13.1	13.1	13.1
	5 GHz 802.11ac HT80	8.6	8.7	8.7	8.6	8.6	12.1	12.1	12.1	12.0	12.1



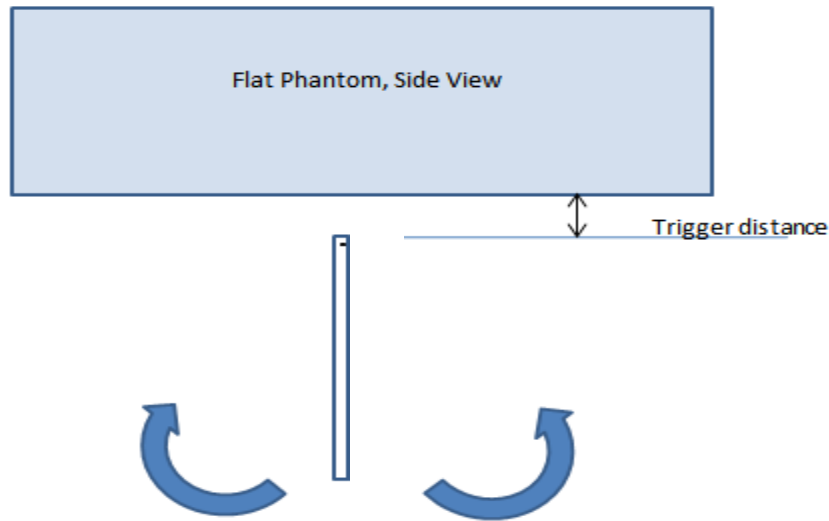
6.9.2 Proximity Sensor Coverage (KDB 616217 §6.3)

As there is no spatial offset between the antenna and the proximity sensor element, proximity sensor coverage did not need to be assessed.

6.9.3 Proximity Sensor Tilt Angle Assessment (KDB 616217 §6.4)

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Edge 1, Edge 2, Edge 4 parallel to the base of the flat phantom for each band.

The EUT was rotated about Edge 1, Edge 2, Edge 4 for angles up to +/- 45°. If the output power increased during the rotation the DUT was moved 1mm toward the phantom and the rotation repeated. This procedure was repeated until the power remained reduced for all angles up to +/- 45°.



Proximity sensor tilt angle assessment (Edge 1, Edge 2, Edge 4) KDB 616217 §6.4

Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering (Edge 1)

Band (MHz)	Minimum trigger distance measured according to KDB 616217 §6.2	Minimum distance at which power reduction was maintained over +/-45°	Power reduction status										
			-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°
750	24 mm	24 mm	On	On	On	On	On	On	On	On	On	On	On
850	24 mm	24 mm	On	On	On	On	On	On	On	On	On	On	On
1750	24 mm	24 mm	On	On	On	On	On	On	On	On	On	On	On
1900	24 mm	24 mm	On	On	On	On	On	On	On	On	On	On	On
2450 Ant 1	21 mm	21 mm	On	On	On	On	On	On	On	On	On	On	On
2450 Ant 2	20 mm	20 mm	On	On	On	On	On	On	On	On	On	On	On
2600	24 mm	24 mm	On	On	On	On	On	On	On	On	On	On	On
5000 Ant 1	21 mm	21 mm	On	On	On	On	On	On	On	On	On	On	On
5000 Ant 2	20 mm	20 mm	On	On	On	On	On	On	On	On	On	On	On

Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering (Edge 2)

Band (MHz)	Minimum trigger distance measured according to KDB 616217 §6.2	Minimum distance at which power reduction was maintained over +/-45°	Power reduction status										
			-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°
750	10 mm	10 mm	On	On	On	On	On	On	On	On	On	On	On
850	10 mm	10 mm	On	On	On	On	On	On	On	On	On	On	On
1750	10 mm	10 mm	On	On	On	On	On	On	On	On	On	On	On
1900	10 mm	10 mm	On	On	On	On	On	On	On	On	On	On	On
2450 Ant 1	10 mm	10 mm	On	On	On	On	On	On	On	On	On	On	On
2600	10 mm	10 mm	On	On	On	On	On	On	On	On	On	On	On
5000 Ant 1	10 mm	10 mm	On	On	On	On	On	On	On	On	On	On	On

Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering (Edge 4)

Band (MHz)	Minimum trigger distance measured according to KDB 616217 §6.2	Minimum distance at which power reduction was maintained over +/-45°	Power reduction status										
			-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°
2450 Ant 2	7 mm	7 mm	On	On	On	On	On	On	On	On	On	On	On
5000 Ant 2	7 mm	7 mm	On	On	On	On	On	On	On	On	On	On	On

6.9.4 Resulting test positions for SAR measurements

Wireless technologies	Position	§6.6.1 Triggering Distance	§6.6.2 Coverage	§6.6.3 Tilt Angle	Worst case distance for SAR
WWAN	Rear	20 mm	N/A	N/A	19 mm
	Edge 1	24 mm	N/A	24 mm	23 mm
	Edge 2	10 mm	N/A	10 mm	9 mm
WLAN Ant 1	Rear	18 mm	N/A	N/A	17 mm
	Edge 1	21 mm	N/A	21 mm	20 mm
	Edge 2	10 mm	N/A	10 mm	9 mm
	Corner A	16 mm	N/A	N/A	15 mm
WLAN Ant 2	Rear	17 mm	N/A	N/A	16 mm
	Edge 1	20 mm	N/A	13 mm	19 mm
	Edge 4	7 mm	N/A	7 mm	6 mm
	Corner B	14 mm	N/A	N/A	13 mm

7. RF Exposure Conditions (Test Configurations)

Refer to “SAR Photos and Ant locations” Appendix for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

7.1 Standalone SAR Test Exclusion Considerations

Since the *Dedicated Host Approach* is applied, the standalone SAR test exclusion procedure in KDB 447498 § 4.3.1 is applied in conjunction with KDB 616217 § 4.3 to determine the minimum test separation distance:

- When the separation distance from the antenna to an adjacent edge is ≤ 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.
- When the separation distance from the antenna to an adjacent edge is > 5 mm, the actual antenna-to-edge separation distance is applied to determine SAR test exclusion.

SAR Test Exclusion Calculations for WWAN

Antennas < 50mm to adjacent edges

Antenna	Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
			dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Full Power, Proximity Sensor Off																
Cellular	GPRS 4 Slots	848.8	29.00	397	0	0	48.5	283.7	71		73.2	73.2	7.5	> 50 mm	> 50 mm	
Cellular	GPRS 2 Slots	1909.8	29.00	199	0	0	48.5	283.7	71		55	55	5.6	> 50 mm	> 50 mm	
Cellular	W-CDMA 5	846.6	25.00	316	0	0	48.5	283.7	71		58.2	58.2	5.9	> 50 mm	> 50 mm	
Cellular	W-CDMA 4	1752.6	23.50	224	0	0	48.5	283.7	71		59.3	59.3	6.1	> 50 mm	> 50 mm	
Cellular	W-CDMA 2	1907.6	23.00	200	0	0	48.5	283.7	71		55.2	55.2	5.6	> 50 mm	> 50 mm	
Cellular	LTE Band 2	1900	24.00	251	0	0	48.5	283.7	71		69.2	69.2	7.1	> 50 mm	> 50 mm	
Cellular	LTE Band 4	1745	24.00	251	0	0	48.5	283.7	71		66.3	66.3	6.8	> 50 mm	> 50 mm	
Cellular	LTE Band 5	844	25.50	355	0	0	48.5	283.7	71		65.2	65.2	6.7	> 50 mm	> 50 mm	
Cellular	LTE Band 12	711	25.00	316	0	0	48.5	283.7	71		53.3	53.3	5.4	> 50 mm	> 50 mm	
Cellular	LTE Band 13	782	25.00	316	0	0	48.5	283.7	71		55.9	55.9	5.7	> 50 mm	> 50 mm	
Cellular	LTE Band 17	710	25.00	316	0	0	48.5	283.7	71		53.3	53.3	5.4	> 50 mm	> 50 mm	
Cellular	LTE Band 25	1905	24.00	251	0	0	48.5	283.7	71		69.3	69.3	7.1	> 50 mm	> 50 mm	
Cellular	LTE Band 26	841.5	25.50	355	0	0	48.5	283.7	71		65.1	65.1	6.6	> 50 mm	> 50 mm	
Cellular	LTE Band 41	2680	24.50	282	0	0	48.5	283.7	71		92.3	92.3	9.4	> 50 mm	> 50 mm	
Cellular	LTE Band 66	1770	24.00	251	0	0	48.5	283.7	71		66.8	66.8	6.8	> 50 mm	> 50 mm	
Power Back-off, Proximity Sensor On																
Cellular	GPRS 2 Slots	848.8	23.00	50	0	0	48.5				9.2	9.2	1			
Cellular	GPRS 2 Slots	1909.8	20.00	25	0	0	48.5				6.9	6.9	1			
Cellular	W-CDMA 5	846.6	15.00	32	0	0	48.5				5.9	5.9	1			
Cellular	W-CDMA 4	1752.6	13.50	22	0	0	48.5				5.8	5.8	1			
Cellular	W-CDMA 2	1907.6	13.50	22	0	0	48.5				6.1	6.1	1			
Cellular	LTE Band 2	1900	14.00	25	0	0	48.5				6.9	6.9	1			
Cellular	LTE Band 4	1745	14.00	25	0	0	48.5				6.6	6.6	1			
Cellular	LTE Band 5	844	16.00	40	0	0	48.5				7.3	7.3	1			
Cellular	LTE Band 12	711	15.00	32	0	0	48.5				5.4	5.4	1			
Cellular	LTE Band 13	782	15.00	32	0	0	48.5				5.7	5.7	1			
Cellular	LTE Band 17	710	17.00	50	0	0	48.5				8.4	8.4	1			
Cellular	LTE Band 25	1905	14.00	25	0	0	48.5				6.9	6.9	1			
Cellular	LTE Band 26	841.5	17.50	56	0	0	48.5				10.3	10.3	1			
Cellular	LTE Band 41	2680	15.00	32	0	0	48.5				10.5	10.5	1			
Cellular	LTE Band 66	1770	14.00	25	0	0	48.5				6.7	6.7	1			

Note(s):

1. According to KDB 447498, if the calculated threshold value is >3 then SAR testing is required.
2. For Edge 2, SAR measurement with back-off power due to the Proximity sensor back-off operation.

Antennas > 50mm to adjacent edges

Antenna	Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
			dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Full Power, Proximity Sensor Off																
Cellular	GPRS 4 Slots	848.8	29.00	397	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	1485.2 mW -EXEMPT-	281.6 mW -MEASURE-	
Cellular	GPRS 2 Slots	1909.8	29.00	199	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	2445.5 mW -EXEMPT-	318.6 mW -EXEMPT-	
Cellular	W-CDMA 5	846.6	25.00	316	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	1482 mW -EXEMPT-	281.5 mW -MEASURE-	
Cellular	W-CDMA 4	1752.6	23.50	224	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	2450.3 mW -EXEMPT-	323.3 mW -EXEMPT-	
Cellular	W-CDMA 2	1907.6	23.00	200	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	2445.6 mW -EXEMPT-	318.6 mW -EXEMPT-	
Cellular	LTE Band 2	1900	24.00	251	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	2445.8 mW -EXEMPT-	318.6 mW -EXEMPT-	
Cellular	LTE Band 4	1745	24.00	251	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	2450.6 mW -EXEMPT-	323.3 mW -EXEMPT-	
Cellular	LTE Band 5	844	25.50	355	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	1478.2 mW -EXEMPT-	281.4 mW -MEASURE-	
Cellular	LTE Band 12	711	25.00	316	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	1285.6 mW -EXEMPT-	277.4 mW -MEASURE-	
Cellular	LTE Band 13	782	25.00	316	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	1388 mW -EXEMPT-	279.1 mW -MEASURE-	
Cellular	LTE Band 17	710	25.00	316	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	1284.2 mW -EXEMPT-	277.4 mW -MEASURE-	
Cellular	LTE Band 25	1905	24.00	251	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	2445.7 mW -EXEMPT-	318.7 mW -EXEMPT-	
Cellular	LTE Band 26	841.5	25.50	355	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	1474.6 mW -EXEMPT-	281.3 mW -MEASURE-	
Cellular	LTE Band 41	2680	24.50	282	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	2428.6 mW -EXEMPT-	301.6 mW -EXEMPT-	
Cellular	LTE Band 66	1770	24.00	251	0	0	48.5	283.7	71		< 50 mm	< 50 mm	< 50 mm	2449.7 mW -EXEMPT-	322.7 mW -EXEMPT-	
Power Back-off, Proximity Sensor On																
Cellular	GPRS 2 Slots	848.8	23.00	50	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	GPRS 2 Slots	1909.8	20.00	25	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	W-CDMA 5	846.6	15.00	32	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	W-CDMA 4	1752.6	13.50	22	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	W-CDMA 2	1907.6	13.50	22	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	LTE Band 2	1900	14.00	25	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	LTE Band 4	1745	14.00	25	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	LTE Band 5	844	16.00	40	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	LTE Band 12	711	15.00	32	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	LTE Band 13	782	15.00	32	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	LTE Band 17	710	17.00	50	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	LTE Band 25	1905	14.00	25	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	LTE Band 26	841.5	17.50	56	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	LTE Band 41	2680	15.00	32	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			
Cellular	LTE Band 66	1770	14.00	25	0	0	48.5				< 50 mm	< 50 mm	< 50 mm			

Note(s):

1. According to KDB 447498, if the calculated Power threshold is less than the output power then SAR testing is required.

SAR Test Exclusion Calculations for WLAN

Antennas < 50mm to adjacent edges

SISO Max															
Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Wi-Fi Antenna 1															
Wi-Fi 2.4 GHz	2462	19.00	79	0	0	0	272.1	138		24.8	24.8	24.8	> 50 mm	> 50 mm	
Wi-Fi 5.3 GHz	5320	17.00	50	0	0	0	272.1	138		23.1	23.1	23.1	> 50 mm	> 50 mm	
Wi-Fi 5.5 GHz	5700	17.00	50	0	0	0	272.1	138		23.9	23.9	23.9	> 50 mm	> 50 mm	
Wi-Fi 5.8 GHz	5825	17.00	50	0	0	0	272.1	138		24.1	24.1	24.1	> 50 mm	> 50 mm	
Bluetooth	2480	18.00	63	0	0	0	272.1	138		19.8	19.8	19.8	> 50 mm	> 50 mm	
Wi-Fi Antenna 2															
Wi-Fi 2.4 GHz	2462	18.00	63	0	0	138	272.1	0		19.8	19.8	> 50 mm	> 50 mm	19.8	
Wi-Fi 5.3 GHz	5320	17.00	50	0	0	138	272.1	0		23.1	23.1	> 50 mm	> 50 mm	23.1	
Wi-Fi 5.5 GHz	5700	17.00	50	0	0	138	272.1	0		23.9	23.9	> 50 mm	> 50 mm	23.9	
Wi-Fi 5.8 GHz	5825	17.00	50	0	0	138	272.1	0		24.1	24.1	> 50 mm	> 50 mm	24.1	

SISO Reduce															
Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Wi-Fi Antenna 1															
Wi-Fi 2.4 GHz	2462	12.00	16	0	0	0				5	5	5			
Wi-Fi 5.3 GHz	5320	9.50	9	0	0	0				4.2	4.2	4.2			
Wi-Fi 5.5 GHz	5700	9.50	9	0	0	0				4.3	4.3	4.3			
Wi-Fi 5.8 GHz	5825	9.50	9	0	0	0				4.3	4.3	4.3			
Bluetooth	2480	10.00	10	0	0	0				3.1	3.1	3.1			
Wi-Fi Antenna 2															
Wi-Fi 2.4 GHz	2462	12.00	16	0	0			0		5	5			5	
Wi-Fi 5.3 GHz	5320	9.50	9	0	0			0		4.2	4.2			4.2	
Wi-Fi 5.5 GHz	5700	9.50	9	0	0			0		4.3	4.3			4.3	
Wi-Fi 5.8 GHz	5825	9.50	9	0	0			0		4.3	4.3			4.3	

MIMO Max															
Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Wi-Fi Antenna 1															
Wi-Fi 5.3 GHz	5320	17.00	50	0	0	0	272.1	138		23.1	23.1	23.1	> 50 mm	> 50 mm	
Wi-Fi 5.5 GHz	5700	17.00	50	0	0	0	272.1	138		23.9	23.9	23.9	> 50 mm	> 50 mm	
Wi-Fi 5.8 GHz	5825	17.00	50	0	0	0	272.1	138		24.1	24.1	24.1	> 50 mm	> 50 mm	
Wi-Fi Antenna 2															
Wi-Fi 5.3 GHz	5320	17.00	50	0	0	138	272.1	0		23.1	23.1	> 50 mm	> 50 mm	23.1	
Wi-Fi 5.5 GHz	5700	17.00	50	0	0	138	272.1	0		23.9	23.9	> 50 mm	> 50 mm	23.9	
Wi-Fi 5.8 GHz	5825	17.00	50	0	0	138	272.1	0		24.1	24.1	> 50 mm	> 50 mm	24.1	

MIMO Reduce															
Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Wi-Fi Antenna 1															
Wi-Fi 5.3 GHz	5320	9.50	9	0	0	0		138		4.2	4.2	4.2		> 50 mm	
Wi-Fi 5.5 GHz	5700	9.50	9	0	0	0		138		4.3	4.3	4.3		> 50 mm	
Wi-Fi 5.8 GHz	5825	9.50	9	0	0	0		138		4.3	4.3	4.3		> 50 mm	
Wi-Fi Antenna 2															
Wi-Fi 5.3 GHz	5320	9.50	9	0	0	138		0		4.2	4.2	> 50 mm		4.2	
Wi-Fi 5.5 GHz	5700	9.50	9	0	0	138		0		4.3	4.3	> 50 mm		4.3	
Wi-Fi 5.8 GHz	5825	9.50	9	0	0	138		0		4.3	4.3	> 50 mm		4.3	

Note(s):

1. According to KDB 447498, if the calculated threshold value is >3 then SAR testing is required.
2. MIMO UNII SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

Antennas > 50mm to adjacent edges

SISO Max															
Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Wi-Fi Antenna 1															
Wi-Fi 2.4 GHz	2462	19.00	79	0	0	0	272.1	138		< 50 mm	< 50 mm	< 50 mm	2316.6 mW -EXEMPT-	975.6 mW -EXEMPT-	
Wi-Fi 5.3 GHz	5320	17.00	50	0	0	0	272.1	138		< 50 mm	< 50 mm	< 50 mm	2286 mW -EXEMPT-	945 mW -EXEMPT-	
Wi-Fi 5.5 GHz	5700	17.00	50	0	0	0	272.1	138		< 50 mm	< 50 mm	< 50 mm	2283.8 mW -EXEMPT-	942.8 mW -EXEMPT-	
Wi-Fi 5.8 GHz	5825	17.00	50	0	0	0	272.1	138		< 50 mm	< 50 mm	< 50 mm	2283.2 mW -EXEMPT-	942.2 mW -EXEMPT-	
Bluetooth	2480	18.00	63	0	0	0	272.1	138		< 50 mm	< 50 mm	< 50 mm	2316.3 mW -EXEMPT-	975.3 mW -EXEMPT-	
Wi-Fi Antenna 2															
Wi-Fi 2.4 GHz	2462	18.00	63	0	0	138	282.1	0		< 50 mm	< 50 mm		975.6 mW -EXEMPT-	2416.6 mW -EXEMPT-	< 50 mm
Wi-Fi 5.3 GHz	5320	17.00	50	0	0	138	282.1	0		< 50 mm	< 50 mm		945 mW -EXEMPT-	2386 mW -EXEMPT-	< 50 mm
Wi-Fi 5.5 GHz	5700	17.00	50	0	0	138	282.1	0		< 50 mm	< 50 mm		942.8 mW -EXEMPT-	2383.8 mW -EXEMPT-	< 50 mm
Wi-Fi 5.8 GHz	5825	17.00	50	0	0	138	282.1	0		< 50 mm	< 50 mm		942.2 mW -EXEMPT-	2383.2 mW -EXEMPT-	< 50 mm
SISO Reduce															
Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Wi-Fi Antenna 1															
Wi-Fi 2.4 GHz	2462	12.00	16	0	0	0				< 50 mm	< 50 mm	< 50 mm			
Wi-Fi 5.3 GHz	5320	9.50	9	0	0	0				< 50 mm	< 50 mm	< 50 mm			
Wi-Fi 5.5 GHz	5700	9.50	9	0	0	0				< 50 mm	< 50 mm	< 50 mm			
Wi-Fi 5.8 GHz	5825	9.50	9	0	0	0				< 50 mm	< 50 mm	< 50 mm			
Bluetooth	2480	10.00	10	0	0	0				< 50 mm	< 50 mm	< 50 mm			
Wi-Fi Antenna 2															
Wi-Fi 2.4 GHz	2462	12.00	16	0	0			0		< 50 mm	< 50 mm				< 50 mm
Wi-Fi 5.3 GHz	5320	9.50	9	0	0			0		< 50 mm	< 50 mm				< 50 mm
Wi-Fi 5.5 GHz	5700	9.50	9	0	0			0		< 50 mm	< 50 mm				< 50 mm
Wi-Fi 5.8 GHz	5825	9.50	9	0	0			0		< 50 mm	< 50 mm				< 50 mm
MIMO Max															
Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Wi-Fi Antenna 1															
Wi-Fi 5.3 GHz	5320	17.00	50	0	0	0	272.1	138		< 50 mm	< 50 mm	< 50 mm	2286 mW -EXEMPT-	945 mW -EXEMPT-	
Wi-Fi 5.5 GHz	5700	17.00	50	0	0	0	272.1	138		< 50 mm	< 50 mm	< 50 mm	2283.8 mW -EXEMPT-	942.8 mW -EXEMPT-	
Wi-Fi 5.8 GHz	5825	17.00	50	0	0	0	272.1	138		< 50 mm	< 50 mm	< 50 mm	2283.2 mW -EXEMPT-	942.2 mW -EXEMPT-	
Wi-Fi Antenna 2															
Wi-Fi 5.3 GHz	5320	17.00	50	0	0	138	272.1	0		< 50 mm	< 50 mm		945 mW -EXEMPT-	2286 mW -EXEMPT-	< 50 mm
Wi-Fi 5.5 GHz	5700	17.00	50	0	0	138	272.1	0		< 50 mm	< 50 mm		942.8 mW -EXEMPT-	2283.8 mW -EXEMPT-	< 50 mm
Wi-Fi 5.8 GHz	5825	17.00	50	0	0	138	272.1	0		< 50 mm	< 50 mm		942.2 mW -EXEMPT-	2283.2 mW -EXEMPT-	< 50 mm
MIMO Reduce															
Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Wi-Fi Antenna 1															
Wi-Fi 5.3 GHz	5320	9.50	9	0	0	0		138		< 50 mm	< 50 mm	< 50 mm			945 mW -EXEMPT-
Wi-Fi 5.5 GHz	5700	9.50	9	0	0	0		138		< 50 mm	< 50 mm	< 50 mm			942.8 mW -EXEMPT-
Wi-Fi 5.8 GHz	5825	9.50	9	0	0	0		138		< 50 mm	< 50 mm	< 50 mm			942.2 mW -EXEMPT-
Wi-Fi Antenna 2															
Wi-Fi 5.3 GHz	5320	9.50	9	0	0	138		0		< 50 mm	< 50 mm		945 mW -EXEMPT-		< 50 mm
Wi-Fi 5.5 GHz	5700	9.50	9	0	0	138		0		< 50 mm	< 50 mm		942.8 mW -EXEMPT-		< 50 mm
Wi-Fi 5.8 GHz	5825	9.50	9	0	0	138		0		< 50 mm	< 50 mm		942.2 mW -EXEMPT-		< 50 mm

Note(s):

1. According to KDB 447498, if the calculated Power threshold is less than the output power then SAR testing is required.
2. MIMO UNII SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

7.2 Required Test Configurations

The table below identifies the standalone test configurations required for this device according to the findings in Section 7.1

Test Configurations	Pwr Back-off	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Corner A	Corner B
			(Top Edge)	(Right Edge)	(Bottom Edge)	(Left Edge)	Note 2	Note 3
GSM 850	OFF	Yes	Yes	Yes	No	Yes		
	ON	Yes	Yes	Yes	No	No		
GSM 1900	OFF	Yes	Yes	Yes	No	No		
	ON	Yes	Yes	Yes	No	No		
W-CDMA Band II	OFF	Yes	Yes	Yes	No	No		
	ON	Yes	Yes	Yes	No	No		
W-CDMA Band IV	OFF	Yes	Yes	Yes	No	No		
	ON	Yes	Yes	Yes	No	No		
W-CDMA Band V	OFF	Yes	Yes	Yes	No	Yes		
	ON	Yes	Yes	Yes	No	No		
LTE Band 2	OFF	Yes	Yes	Yes	No	No		
	ON	Yes	Yes	Yes	No	No		
LTE Band 4	OFF	Yes	Yes	Yes	No	No		
	ON	Yes	Yes	Yes	No	No		
LTE Band 5	OFF	Yes	Yes	Yes	No	Yes		
	ON	Yes	Yes	Yes	No	No		
LTE Band 12	OFF	Yes	Yes	Yes	No	Yes		
	ON	Yes	Yes	Yes	No	No		
LTE Band 13	OFF	Yes	Yes	Yes	No	Yes		
	ON	Yes	Yes	Yes	No	No		
LTE Band 17	OFF	Yes	Yes	Yes	No	Yes		
	ON	Yes	Yes	Yes	No	No		
LTE Band 25	OFF	Yes	Yes	Yes	No	No		
	ON	Yes	Yes	Yes	No	No		
LTE Band 26	OFF	Yes	Yes	Yes	No	Yes		
	ON	Yes	Yes	Yes	No	NO		
LTE Band 41	OFF	Yes	Yes	Yes	No	Yes		
	ON	Yes	Yes	Yes	No	NO		
LTE Band 66	OFF	Yes	Yes	Yes	No	Yes		
	ON	Yes	Yes	Yes	No	No		
Wi-Fi 2.4 GHz (Ant 1)	OFF	Yes	Yes	Yes	Yes	Yes	Yes	No
	ON	Yes	Yes	Yes	No	No	Yes	No
Wi-Fi 5 GHz (Ant 1)	OFF	Yes	Yes	Yes	No	No	Yes	No
	ON	Yes	Yes	Yes	No	No	Yes	No
Wi-Fi 2.4 GHz (Ant 2)	OFF	Yes	Yes	No	No	Yes	No	Yes
	ON	Yes	Yes	No	No	Yes	No	Yes
Wi-Fi 5 GHz (Ant 2)	OFF	Yes	Yes	No	No	Yes	No	Yes
	ON	Yes	Yes	No	No	Yes	No	Yes
Wi-Fi 5 GHz (MIMO)	OFF	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	ON	Yes	Yes	Yes	No	Yes	Yes	Yes
Bluetooth	OFF	Yes	Yes	Yes	Yes	Yes	Yes	No
	On	Yes	Yes	Yes	No	No	Yes	No

Note(s):

1. Yes = Testing is required. No = Testing is not required.
2. Corner A side is located between Edge 1 and Edge 2.
3. Corner B side is located between Edge 1 and Edge 4.
4. For Corner A and Corner B, Additional Corner side tests are evaluated for bands that support reduced power due to proximity sensor operation.
5. MIMO UNII SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.
6. SISO DTS Ant 1 & Bluetooth Edge 3,4 SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

8 Dielectric Property Measurements & System Check

8.1 Dielectric Property Measurements

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within $\pm 2^\circ\text{C}$ of the temperature when the tissue parameters are characterized.

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head	
	ϵ_r	σ (S/m)
150	52.3	0.76
300	45.3	0.87
450	43.5	0.87
835	41.5	0.90
900	41.5	0.97
915	41.5	0.98
1450	40.5	1.20
1610	40.3	1.29
1800 – 2000	40.0	1.40
2450	39.2	1.80
3000	38.5	2.40
5000	36.2	4.45
5100	36.1	4.55
5200	36.0	4.66
5300	35.9	4.76
5400	35.8	4.86
5500	35.6	4.96
5600	35.5	5.07
5700	35.4	5.17
5800	35.3	5.27

SAR test were performed in All RF exposure conditions using Head tissue according to TCB workshop note of April. 2019.

IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

Dielectric Property Measurements Results:

SAR 1 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
4-7-2021	Head 5250	e'	35.9000	Relative Permittivity (ε _r):	35.90	35.93	-0.09	5
		e"	16.0700	Conductivity (σ):	4.69	4.70	-0.23	5
	Head 5260	e'	35.9300	Relative Permittivity (ε _r):	35.93	35.92	0.02	5
		e"	16.1200	Conductivity (σ):	4.71	4.71	0.05	5
	Head 5600	e'	35.8600	Relative Permittivity (ε _r):	35.86	35.53	0.92	5
		e"	15.6900	Conductivity (σ):	4.89	5.06	-3.45	5
	Head 5750	e'	35.3900	Relative Permittivity (ε _r):	35.39	35.36	0.08	5
		e"	15.7100	Conductivity (σ):	5.02	5.21	-3.66	5
	Head 5825	e'	35.3500	Relative Permittivity (ε _r):	35.35	35.30	0.14	5
		e"	15.9200	Conductivity (σ):	5.16	5.27	-2.16	5

SAR 2 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
4-12-2021	Head 5250	e'	35.7400	Relative Permittivity (ε _r):	35.74	35.93	-0.54	5
		e"	15.5000	Conductivity (σ):	4.52	4.70	-3.77	5
	Head 5260	e'	35.7300	Relative Permittivity (ε _r):	35.73	35.92	-0.53	5
		e"	15.5100	Conductivity (σ):	4.54	4.71	-3.74	5
	Head 5600	e'	35.2200	Relative Permittivity (ε _r):	35.22	35.53	-0.88	5
		e"	15.7200	Conductivity (σ):	4.89	5.06	-3.27	5
	Head 5750	e'	35.0900	Relative Permittivity (ε _r):	35.09	35.36	-0.77	5
		e"	15.7500	Conductivity (σ):	5.04	5.21	-3.42	5
	Head 5825	e'	35.0000	Relative Permittivity (ε _r):	35.00	35.30	-0.85	5
		e"	15.7600	Conductivity (σ):	5.10	5.27	-3.14	5

SAR 3 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
3-21-2021	Head 835	e'	41.2200	Relative Permittivity (ϵ_r):	41.22	41.50	-0.67	5
		e"	19.9400	Conductivity (σ):	0.93	0.90	2.87	5
	Head 820	e'	41.2300	Relative Permittivity (ϵ_r):	41.23	41.60	-0.90	5
		e"	20.1700	Conductivity (σ):	0.92	0.90	2.36	5
	Head 850	e'	41.2300	Relative Permittivity (ϵ_r):	41.23	41.50	-0.65	5
		e"	19.6800	Conductivity (σ):	0.93	0.92	1.65	5
3-24-2021	Head 835	e'	42.1000	Relative Permittivity (ϵ_r):	42.10	41.50	1.45	5
		e"	20.0800	Conductivity (σ):	0.93	0.90	3.59	5
	Head 820	e'	42.1300	Relative Permittivity (ϵ_r):	42.13	41.60	1.27	5
		e"	20.2900	Conductivity (σ):	0.93	0.90	2.97	5
	Head 850	e'	42.0800	Relative Permittivity (ϵ_r):	42.08	41.50	1.40	5
		e"	19.8800	Conductivity (σ):	0.94	0.92	2.69	5
3-29-2021	Head 1750	e'	38.7500	Relative Permittivity (ϵ_r):	38.75	40.08	-3.33	5
		e"	13.8500	Conductivity (σ):	1.35	1.37	-1.56	5
	Head 1710	e'	38.7600	Relative Permittivity (ϵ_r):	38.76	40.15	-3.45	5
		e"	13.9300	Conductivity (σ):	1.32	1.35	-1.63	5
	Head 1755	e'	38.7500	Relative Permittivity (ϵ_r):	38.75	40.08	-3.31	5
		e"	13.8300	Conductivity (σ):	1.35	1.37	-1.62	5
3-29-2021	Head 1900	e'	38.5500	Relative Permittivity (ϵ_r):	38.55	40.00	-3.63	5
		e"	13.6400	Conductivity (σ):	1.44	1.40	2.93	5
	Head 1850	e'	38.6100	Relative Permittivity (ϵ_r):	38.61	40.00	-3.48	5
		e"	13.7400	Conductivity (σ):	1.41	1.40	0.96	5
	Head 1910	e'	38.5200	Relative Permittivity (ϵ_r):	38.52	40.00	-3.70	5
		e"	13.6100	Conductivity (σ):	1.45	1.40	3.24	5
3-31-2021	Head 1750	e'	39.0400	Relative Permittivity (ϵ_r):	39.04	40.08	-2.61	5
		e"	13.8100	Conductivity (σ):	1.34	1.37	-1.84	5
	Head 1710	e'	39.1600	Relative Permittivity (ϵ_r):	39.16	40.15	-2.46	5
		e"	13.8700	Conductivity (σ):	1.32	1.35	-2.05	5
	Head 1755	e'	39.0300	Relative Permittivity (ϵ_r):	39.03	40.08	-2.61	5
		e"	13.7900	Conductivity (σ):	1.35	1.37	-1.90	5
3-31-2021	Head 1900	e'	38.8400	Relative Permittivity (ϵ_r):	38.84	40.00	-2.90	5
		e"	13.3900	Conductivity (σ):	1.41	1.40	1.04	5
	Head 1850	e'	38.9000	Relative Permittivity (ϵ_r):	38.90	40.00	-2.75	5
		e"	13.5200	Conductivity (σ):	1.39	1.40	-0.66	5
	Head 1910	e'	38.8200	Relative Permittivity (ϵ_r):	38.82	40.00	-2.95	5
		e"	13.3600	Conductivity (σ):	1.42	1.40	1.35	5
4-4-2021	Head 835	e'	40.8100	Relative Permittivity (ϵ_r):	40.81	41.50	-1.66	5
		e"	19.8900	Conductivity (σ):	0.92	0.90	2.61	5
	Head 820	e'	40.8600	Relative Permittivity (ϵ_r):	40.86	41.60	-1.78	5
		e"	20.1200	Conductivity (σ):	0.92	0.90	2.10	5
	Head 850	e'	40.7700	Relative Permittivity (ϵ_r):	40.77	41.50	-1.76	5
		e"	19.6500	Conductivity (σ):	0.93	0.92	1.50	5
4-4-2021	Head 1900	e'	38.5800	Relative Permittivity (ϵ_r):	38.58	40.00	-3.55	5
		e"	13.6700	Conductivity (σ):	1.44	1.40	3.16	5
	Head 1850	e'	38.6400	Relative Permittivity (ϵ_r):	38.64	40.00	-3.40	5
		e"	13.7200	Conductivity (σ):	1.41	1.40	0.81	5
	Head 1910	e'	38.5600	Relative Permittivity (ϵ_r):	38.56	40.00	-3.60	5
		e"	13.6600	Conductivity (σ):	1.45	1.40	3.62	5
4-6-2021	Head 2450	e'	40.2400	Relative Permittivity (ϵ_r):	40.24	39.20	2.65	5
		e"	13.0400	Conductivity (σ):	1.78	1.80	-1.31	5
	Head 2400	e'	40.3200	Relative Permittivity (ϵ_r):	40.32	39.30	2.60	5
		e"	13.0100	Conductivity (σ):	1.74	1.75	-0.88	5
	Head 2480	e'	40.2000	Relative Permittivity (ϵ_r):	40.20	39.16	2.65	5
		e"	13.0800	Conductivity (σ):	1.80	1.83	-1.57	5

SAR 3 Room (continued)

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
4-6-2021	Head 5250	e'	35.5200	Relative Permittivity (ϵ_r):	35.52	35.93	-1.15	5
		e"	16.1700	Conductivity (σ):	4.72	4.70	0.39	5
	Head 5260	e'	35.5000	Relative Permittivity (ϵ_r):	35.50	35.92	-1.17	5
		e"	16.1800	Conductivity (σ):	4.73	4.71	0.42	5
	Head 5600	e'	34.8100	Relative Permittivity (ϵ_r):	34.81	35.53	-2.04	5
		e"	16.3700	Conductivity (σ):	5.10	5.06	0.73	5
	Head 5750	e'	34.4500	Relative Permittivity (ϵ_r):	34.45	35.36	-2.58	5
		e"	16.5000	Conductivity (σ):	5.28	5.21	1.18	5
	Head 5825	e'	34.3400	Relative Permittivity (ϵ_r):	34.34	35.30	-2.72	5
		e"	16.5400	Conductivity (σ):	5.36	5.27	1.65	5
4-15-2021	Head 1750	e'	38.8700	Relative Permittivity (ϵ_r):	38.87	40.08	-3.03	5
		e"	13.7800	Conductivity (σ):	1.34	1.37	-2.05	5
	Head 1710	e'	38.8800	Relative Permittivity (ϵ_r):	38.88	40.15	-3.15	5
		e"	13.8100	Conductivity (σ):	1.31	1.35	-2.48	5
	Head 1755	e'	38.8700	Relative Permittivity (ϵ_r):	38.87	40.08	-3.01	5
		e"	13.7800	Conductivity (σ):	1.34	1.37	-1.98	5
4-19-2021	Head 2450	e'	40.7200	Relative Permittivity (ϵ_r):	40.72	39.20	3.88	5
		e"	13.2600	Conductivity (σ):	1.81	1.80	0.35	5
	Head 2400	e'	40.7700	Relative Permittivity (ϵ_r):	40.77	39.30	3.75	5
		e"	13.2200	Conductivity (σ):	1.76	1.75	0.72	5
	Head 2480	e'	40.6900	Relative Permittivity (ϵ_r):	40.69	39.16	3.90	5
		e"	13.2700	Conductivity (σ):	1.83	1.83	-0.14	5
4-19-2021	Head 5250	e'	36.1900	Relative Permittivity (ϵ_r):	36.19	35.93	0.71	5
		e"	15.6000	Conductivity (σ):	4.55	4.70	-3.15	5
	Head 5260	e'	36.1700	Relative Permittivity (ϵ_r):	36.17	35.92	0.69	5
		e"	15.5900	Conductivity (σ):	4.56	4.71	-3.24	5
	Head 5600	e'	35.5300	Relative Permittivity (ϵ_r):	35.53	35.53	-0.01	5
		e"	15.9100	Conductivity (σ):	4.95	5.06	-2.10	5
	Head 5750	e'	35.3000	Relative Permittivity (ϵ_r):	35.30	35.36	-0.18	5
		e"	16.0700	Conductivity (σ):	5.14	5.21	-1.45	5
	Head 5825	e'	35.1900	Relative Permittivity (ϵ_r):	35.19	35.30	-0.31	5
		e"	16.0900	Conductivity (σ):	5.21	5.27	-1.11	5
4-21-2021	Head 1900	e'	39.1300	Relative Permittivity (ϵ_r):	39.13	40.00	-2.17	5
		e"	13.5800	Conductivity (σ):	1.43	1.40	2.48	5
	Head 1850	e'	39.2600	Relative Permittivity (ϵ_r):	39.26	40.00	-1.85	5
		e"	13.6100	Conductivity (σ):	1.40	1.40	0.00	5
	Head 1910	e'	39.1000	Relative Permittivity (ϵ_r):	39.10	40.00	-2.25	5
		e"	13.5800	Conductivity (σ):	1.44	1.40	3.02	5

SAR 4 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
3-29-2021	Head 2600	e'	37.9600	Relative Permittivity (ϵ_r):	37.96	39.01	-2.69	5
		e"	13.0800	Conductivity (σ):	1.89	1.96	-3.63	5
	Head 2500	e'	38.2900	Relative Permittivity (ϵ_r):	38.29	39.14	-2.16	5
		e"	12.9300	Conductivity (σ):	1.80	1.85	-3.06	5
	Head 2700	e'	37.6000	Relative Permittivity (ϵ_r):	37.60	38.88	-3.30	5
e"		13.2900	Conductivity (σ):	2.00	2.07	-3.63	5	
4-5-2021	Head 2450	e'	37.7600	Relative Permittivity (ϵ_r):	37.76	39.20	-3.67	5
		e"	13.7000	Conductivity (σ):	1.87	1.80	3.68	5
	Head 2400	e'	37.9500	Relative Permittivity (ϵ_r):	37.95	39.30	-3.43	5
		e"	13.6200	Conductivity (σ):	1.82	1.75	3.76	5
	Head 2480	e'	37.6500	Relative Permittivity (ϵ_r):	37.65	39.16	-3.86	5
		e"	13.7300	Conductivity (σ):	1.89	1.83	3.32	5

SAR 5 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
3-23-2021	Head 750	e'	41.7000	Relative Permittivity (ϵ_r):	41.70	41.96	-0.62	5
		e"	22.0900	Conductivity (σ):	0.92	0.89	3.15	5
	Head 700	e'	41.8500	Relative Permittivity (ϵ_r):	41.85	42.22	-0.87	5
		e"	23.1800	Conductivity (σ):	0.90	0.89	1.46	5
	Head 790	e'	41.5900	Relative Permittivity (ϵ_r):	41.59	41.76	-0.40	5
		e"	21.3100	Conductivity (σ):	0.94	0.90	4.45	5
3-29-2021	Head 835	e'	41.6400	Relative Permittivity (ϵ_r):	41.64	41.50	0.34	5
		e"	19.8400	Conductivity (σ):	0.92	0.90	2.35	5
	Head 820	e'	41.6700	Relative Permittivity (ϵ_r):	41.67	41.60	0.16	5
		e"	20.0100	Conductivity (σ):	0.91	0.90	1.55	5
	Head 850	e'	41.6100	Relative Permittivity (ϵ_r):	41.61	41.50	0.27	5
		e"	19.6200	Conductivity (σ):	0.93	0.92	1.34	5
4-14-2021	Head 750	e'	43.8200	Relative Permittivity (ϵ_r):	43.82	41.96	4.43	5
		e"	21.1500	Conductivity (σ):	0.88	0.89	-1.24	5
	Head 680	e'	44.0400	Relative Permittivity (ϵ_r):	44.04	42.32	4.06	5
		e"	22.7100	Conductivity (σ):	0.86	0.89	-3.27	5
	Head 795	e'	43.7200	Relative Permittivity (ϵ_r):	43.72	41.73	4.77	5
		e"	20.3400	Conductivity (σ):	0.90	0.90	0.29	5
4-14-2021	Head 2450	e'	39.5500	Relative Permittivity (ϵ_r):	39.55	39.20	0.89	5
		e"	13.3800	Conductivity (σ):	1.82	1.80	1.26	5
	Head 2400	e'	39.6400	Relative Permittivity (ϵ_r):	39.64	39.30	0.87	5
		e"	13.4200	Conductivity (σ):	1.79	1.75	2.24	5
	Head 2480	e'	39.5100	Relative Permittivity (ϵ_r):	39.51	39.16	0.89	5
		e"	13.3400	Conductivity (σ):	1.84	1.83	0.39	5
4-19-2021	Head 835	e'	41.5000	Relative Permittivity (ϵ_r):	41.50	41.50	0.00	5
		e"	19.4600	Conductivity (σ):	0.90	0.90	0.39	5
	Head 820	e'	41.5200	Relative Permittivity (ϵ_r):	41.52	41.60	-0.20	5
		e"	19.6700	Conductivity (σ):	0.90	0.90	-0.18	5
	Head 850	e'	41.4900	Relative Permittivity (ϵ_r):	41.49	41.50	-0.02	5
		e"	19.2600	Conductivity (σ):	0.91	0.92	-0.52	5
4-19-2021	Head 1900	e'	39.2300	Relative Permittivity (ϵ_r):	39.23	40.00	-1.93	5
		e"	13.7200	Conductivity (σ):	1.45	1.40	3.53	5
	Head 1850	e'	39.3200	Relative Permittivity (ϵ_r):	39.32	40.00	-1.70	5
		e"	13.7900	Conductivity (σ):	1.42	1.40	1.32	5
	Head 1910	e'	39.2100	Relative Permittivity (ϵ_r):	39.21	40.00	-1.98	5
		e"	13.7100	Conductivity (σ):	1.46	1.40	4.00	5
4-19-2021	Head 2600	e'	38.1000	Relative Permittivity (ϵ_r):	38.10	39.01	-2.33	5
		e"	13.4300	Conductivity (σ):	1.94	1.96	-1.05	5
	Head 2500	e'	38.2500	Relative Permittivity (ϵ_r):	38.25	39.14	-2.27	5
		e"	13.3700	Conductivity (σ):	1.86	1.85	0.24	5
	Head 2700	e'	37.9200	Relative Permittivity (ϵ_r):	37.92	38.88	-2.48	5
		e"	13.4600	Conductivity (σ):	2.02	2.07	-2.39	5
4-20-2021	Head 5180	e'	37.0600	Relative Permittivity (ϵ_r):	37.06	36.01	2.91	5
		e"	15.8500	Conductivity (σ):	4.57	4.63	-1.41	5
	Head 5200	e'	37.0100	Relative Permittivity (ϵ_r):	37.01	35.99	2.83	5
		e"	15.8700	Conductivity (σ):	4.59	4.65	-1.34	5
	Head 5600	e'	36.2600	Relative Permittivity (ϵ_r):	36.26	35.53	2.04	5
		e"	16.1900	Conductivity (σ):	5.04	5.06	-0.38	5
	Head 5800	e'	35.8800	Relative Permittivity (ϵ_r):	35.88	35.30	1.64	5
		e"	16.3400	Conductivity (σ):	5.27	5.27	-0.01	5
	Head 5825	e'	35.8300	Relative Permittivity (ϵ_r):	35.83	35.30	1.50	5
		e"	16.3400	Conductivity (σ):	5.29	5.27	0.42	5

8.2 System Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are re-measured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ± 0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
- Distance between probe sensors and phantom surface was set to 2.5 mm.
For 5 GHz band - Distance between probe sensors and phantom surface was set to 1.4 mm
- The dipole input power (forward power) was 100 mW.
- The results are normalized to 1 W input power.

Reference Target SAR Values

The reference SAR values can be obtained from the calibration certificate of system validation dipoles

System Dipole	Serial No.	Cal. Date	Freq. (MHz)	Target SAR Values (W/kg)	
				1g/10g	Head
D750V3	1122	2-24-2020	750	1g	8.54
				10g	5.59
D835V2	4d194	3-20-2020	835	1g	9.76
				10g	6.42
D1750V2	1125	2-21-2020	1750	1g	36.50
				10g	19.20
D1900V2	5d199	3-19-2020	1900	1g	40.50
				10g	21.00
D2450V2	939	7-25-2019	2450	1g	53.20
				10g	25.10
D2600V2	1097	9-19-2019	2600	1g	57.30
				10g	25.70
D5GHzV2	1209	2-27-2020	5250	1g	79.90
				10g	22.60
			5600	1g	83.60
				10g	23.60
			5750	1g	80.20
				10g	22.60

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations
(D750(SN : 1122), D835(SN : 4d194), D1750(SN : 1125), D1900(SN : 5d199), D2450(SN : 939), D2600(SN : 1097) D5GHz(SN : 1209))

System Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within 10% of the manufacturer calibrated dipole SAR target.

SAR 1 Room

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
4-7-2021	D5GHzV2	1209	Head	1g	7.58	75.80	79.90	-5.13	
				10g	2.15	21.50	22.60	-4.87	
4-7-2021	D5GHzV2	1209	Head	1g	7.83	78.30	83.60	-6.34	1, 2
				10g	2.20	22.00	23.60	-6.78	
4-7-2021	D5GHzV2	1209	Head	1g	7.53	75.30	80.20	-6.11	
				10g	2.13	21.30	22.60	-5.75	

SAR 2 Room

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
4-12-2021	D5GHzV2	1209	Head	1g	8.20	82.0	79.90	2.63	
				10g	2.31	23.1	22.60	2.21	
4-12-2021	D5GHzV2	1209	Head	1g	8.91	89.1	83.60	6.58	3, 4
				10g	2.50	25.0	23.60	5.93	
4-12-2021	D5GHzV2	1209	Head	1g	8.09	80.9	80.20	0.87	
				10g	2.28	22.8	22.60	0.88	

SAR 3 Room

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
3-21-2021	D835V2	4d194	Head	1g	0.94	9.4	9.76	-4.00	
				10g	0.58	5.8	6.42	-9.03	
3-24-2021	D835V2	4d194	Head	1g	0.94	9.4	9.76	-3.69	
				10g	0.62	6.2	6.42	-2.80	
3-29-2021	D1750V2	1125	Head	1g	3.66	36.6	36.50	0.27	
				10g	1.95	19.5	19.20	1.56	
3-29-2021	D1900V2	5d199	Head	1g	4.03	40.3	40.50	-0.49	
				10g	2.10	21.0	21.00	0.00	
3-31-2021	D1750V2	1125	Head	1g	3.43	34.3	36.50	-6.03	5, 6
				10g	1.83	18.3	19.20	-4.69	
3-31-2021	D1900V2	5d199	Head	1g	4.01	40.1	40.50	-0.99	
				10g	2.10	21.0	21.00	0.00	
4-4-2021	D835V2	4d194	Head	1g	0.93	9.3	9.76	-4.30	
				10g	0.62	6.2	6.42	-3.58	
4-4-2021	D1900V2	5d199	Head	1g	4.10	41.0	40.50	1.23	
				10g	2.15	21.5	21.00	2.38	
4-6-2021	D2450V2	939	Head	1g	5.72	57.2	53.20	7.52	7, 8
				10g	2.68	26.8	25.10	6.77	
4-6-2021	D5GHzV2	1209	Head	1g	7.74	77.4	79.90	-3.13	
				10g	2.22	22.2	22.60	-1.77	
4-6-2021	D5GHzV2	1209	Head	1g	8.52	85.2	83.60	1.91	
				10g	2.41	24.1	23.60	2.12	
4-6-2021	D5GHzV2	1209	Head	1g	8.45	84.5	80.20	5.36	
				10g	2.41	24.1	22.60	6.64	
4-15-2021	D1750V2	1125	Head	1g	3.75	37.5	36.50	2.74	
				10g	2.02	20.2	19.20	5.21	
4-19-2021	D2450V2	939	Head	1g	5.48	54.8	53.20	3.01	
				10g	2.60	26.0	25.10	3.59	
4-19-2021	D5GHzV2	1209	Head	1g	8.04	80.4	79.90	0.63	
				10g	2.32	23.2	22.60	2.65	
4-19-2021	D5GHzV2	1209	Head	1g	8.75	87.5	83.60	4.67	
				10g	2.51	25.1	23.60	6.36	
4-19-2021	D5GHzV2	1209	Head	1g	8.14	81.4	80.20	1.50	
				10g	2.36	23.6	22.60	4.42	
4-21-2021	D1900V2	5d199	Head	1g	4.24	42.4	40.50	4.69	
				10g	2.23	22.3	21.00	6.19	

SAR 4 Room

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
3-29-2021	D2600V2	1097	Head	1g	5.45	54.5	57.30	-4.89	9, 10
				10g	2.39	23.9	25.70	-7.00	
4-5-2021	D2450V2	939	Head	1g	5.29	52.9	53.20	-0.56	
				10g	2.42	24.2	25.10	-3.59	

SAR 5 Room

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
3-23-2021	D750V3	1122	Head	1g	0.84	8.4	8.54	-1.76	
				10g	0.55	5.5	5.59	-1.43	
3-29-2021	D835V2	4d194	Head	1g	0.93	9.3	9.76	-4.30	11, 12
				10g	0.62	6.2	6.42	-4.21	
4-14-2021	D750V3	1122	Head	1g	0.81	8.1	8.54	-5.15	13, 14
				10g	0.54	5.4	5.59	-3.76	
4-14-2021	D2450V2	939	Head	1g	5.22	52.2	53.20	-1.88	
				10g	2.45	24.5	25.10	-2.39	
4-19-2021	D835V2	4d194	Head	1g	0.95	9.5	9.76	-2.97	
				10g	0.63	6.3	6.42	-2.02	
4-19-2021	D1900V2	5d199	Head	1g	3.84	38.4	40.50	-5.19	15, 16
				10g	2.01	20.1	21.00	-4.29	
4-19-2021	D2600V2	1097	Head	1g	5.77	57.7	57.30	0.70	
				10g	2.63	26.3	25.70	2.33	
4-20-2021	D5GHzV2	1209	Head	1g	7.70	77.0	79.90	-3.63	
				10g	2.24	22.4	22.60	-0.88	
4-20-2021	D5GHzV2	1209	Head	1g	8.60	86.0	83.60	2.87	
				10g	2.49	24.9	23.60	5.51	
4-20-2021	D5GHzV2	1209	Head	1g	8.35	83.5	80.20	4.11	
				10g	2.41	24.1	22.60	6.64	

9 Conducted Output Power Measurements

Conducted output power were measured according to guide of both ANSI C63.26-2015 & KDB 971168 D01 Power Meas License Digital System v03r01.

9.1 GSM

Per KDB 941225 D01 3G SAR Procedures:

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

GSM850 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)				Reduced Average Power (dBm) Proximity sensor back-off			
					Measured		Tune-up Limit		Measured		Tune-up Limit	
					Burst Pw r	Frame Pw r	Burst Pw r	Frame Pw r	Burst Pw r	Frame Pw r	Burst Pw r	Frame Pw r
GSM (Voice)	CS1	1	128	824.2	32.5	23.4	34.0	25.0	22.5	13.5	24.0	15.0
			190	836.6	32.7	23.7			22.4	13.4		
			251	848.8	32.6	23.6			22.3	13.2		
GPRS (GMSK)	CS1	1	128	824.2	32.4	23.3	34.0	25.0	22.5	13.5	24.0	15.0
			190	836.6	33.4	24.4			22.4	13.3		
			251	848.8	33.3	24.3			22.2	13.2		
		2	128	824.2	31.3	25.2	32.0	26.0	21.3	15.3	23.0	17.0
			190	836.6	31.3	25.2			21.8	15.8		
			251	848.8	31.1	25.0			21.7	15.7		
		3	128	824.2	29.5	25.2	30.0	25.7	19.6	15.4	21.0	16.7
			190	836.6	29.2	24.9			19.6	15.4		
			251	848.8	29.1	24.8			19.5	15.3		
		4	128	824.2	27.7	24.7	29.0	26.0	17.5	14.5	19.0	16.0
			190	836.6	27.7	24.7			17.6	14.6		
			251	848.8	27.6	24.6			17.4	14.4		
EGPRS (8PSK)	MCS5	1	128	824.2	27.2	18.2	29.0	20.0	17.6	8.6	19.0	10.0
			190	836.6	27.3	18.3			17.6	8.6		
			251	848.8	27.5	18.4			17.5	8.5		
		2	128	824.2	26.2	20.2	27.0	21.0	15.9	9.9	17.0	11.0
			190	836.6	26.2	20.1			15.9	9.9		
			251	848.8	25.9	19.9			15.8	9.8		
		3	128	824.2	24.3	20.1	25.0	20.7	13.7	9.4	15.0	10.7
			190	836.6	24.1	19.9			13.9	9.7		
			251	848.8	24.1	19.9			13.8	9.6		
		4	128	824.2	22.4	19.4	23.5	20.5	12.7	9.7	14.0	11.0
			190	836.6	22.4	19.4			12.7	9.7		
			251	848.8	22.1	19.1			12.7	9.6		

Notes:

The worst-case configuration and mode for SAR testing is determined to be as follows:

- GMSK (GPRS) mode with 4 time slots for Max power and 2 time slots for Reduced power, based on the Tune-up Procedure. Refer to §6.3.
- SAR is not required for EGPRS (8PSK) mode because the maximum output power and tune-up limit is ≤ 1/4dB higher than GMSK GPRS or the adjusted SAR of the highest reported SAR of GMSK GPRS is ≤ 1.2W/kg.

GSM1900 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)				Reduced Average Power (dBm) Proximity sensor back-off			
					Measured		Tune-up Limit		Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	512	1850.2	30.2	21.1	31.0	22.0	21.2	12.1	22.0	13.0
			661	1880.0	30.2	21.1			21.2	12.2		
			810	1909.8	30.1	21.0			21.1	12.1		
GPRS (GMSK)	CS1	1	512	1850.2	30.1	21.1	31.0	22.0	21.1	12.1	22.0	13.0
			661	1880.0	30.0	21.0			21.2	12.1		
			810	1909.8	29.9	20.9			21.1	12.0		
		2	512	1850.2	28.2	22.1	29.0	23.0	19.4	13.4	20.0	14.0
			661	1880.0	28.3	22.3			19.4	13.4		
			810	1909.8	28.4	22.4			19.3	13.2		
		3	512	1850.2	26.3	22.1	27.0	22.7	17.4	13.2	18.0	13.7
			661	1880.0	26.5	22.2			17.4	13.2		
			810	1909.8	26.3	22.1			17.2	13.0		
		4	512	1850.2	24.5	21.4	25.0	22.0	15.3	12.3	16.0	13.0
			661	1880.0	24.5	21.5			15.4	12.4		
			810	1909.8	24.3	21.3			15.3	12.2		
EGPRS (8PSK)	MCS5	1	512	1850.2	26.4	17.4	27.0	18.0	18.6	9.5	19.0	10.0
			661	1880.0	26.6	17.6			18.6	9.5		
			810	1909.8	26.4	17.4			18.4	9.4		
		2	512	1850.2	24.5	18.5	25.5	19.5	16.6	10.5	17.0	11.0
			661	1880.0	24.7	18.7			16.5	10.5		
			810	1909.8	24.3	18.3			16.4	10.4		
		3	512	1850.2	22.5	18.3	23.0	18.7	14.4	10.2	15.0	10.7
			661	1880.0	22.5	18.3			14.5	10.3		
			810	1909.8	22.3	18.0			14.3	10.1		
		4	512	1850.2	20.6	17.6	21.0	18.0	13.3	10.3	14.0	11.0
			661	1880.0	20.6	17.6			13.4	10.4		
			810	1909.8	20.5	17.5			13.3	10.3		

Notes:

The worst-case configuration and mode for SAR testing is determined to be as follows:

- GMSK (GPRS) mode with 2 time slots for Max power and 2 time slots for Reduced power, based on the Tune-up Procedure. Refer to §6.3.
- SAR is not required for EGPRS (8PSK) mode because the maximum output power and tune-up limit is ≤ 1/4dB higher than GMSK GPRS or the adjusted SAR of the highest reported SAR of GMSK GPRS is ≤ 1.2W/kg.

9.2 W-CDMA

Release 99 Setup Procedures used to establish the test signals

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 2
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	β_c/β_d	8/15

HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
W-CDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set 1			
	Power Control Algorithm	Algorithm 2			
	β_c	2/15	11/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	11/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
MPR (dB)	0	0	0.5	0.5	
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	$A_{hs}=\beta_{hs}/\beta_c$	30/15			

HSPA (HSDPA & HSUPA) Setup Procedures used to establish the test signals

The following 5 Sub-tests were completed according to Release 6 procedures in table C,11.1.3 of 3GPP TS 34.121-1 v13. A summary of these settings are illustrated below:

	Mode	HSPA				
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2 kbps RMC				
	HSDPA FRC	H-Set 1				
	HSUPA Test	HSPA				
	Power Control Algorithm	Algorithm 2				Algorithm 1
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	0
	β_{ec}	209/225	12/15	30/15	2/15	5/15
	β_c/β_d	11/15	6/15	15/9	2/15	-
	β_{hs}	22/15	12/15	30/15	4/15	5/15
	β_{ed}	1309/225	94/75	47/15	56/75	47/15
CM (dB)	1	3	2	3	1	
MPR (dB)	0	2	1	2	0	
HSDPA Specific Settings	DACK	8				0
	DNAK	8				0
	DCQI	8				0
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	A _{hs} = β_{hs}/β_c	30/15				
HSUPA Specific Settings	E-DPDCH	6	8	8	5	0
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	12
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	67
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E-TFCIs	5	5	2	5	1
	Reference E-TFCI	11	11	11	11	67
	Reference E-TFCI PO	4	4	4	4	18
	Reference E-TFCI	67	67	92	67	67
	Reference E-TFCI PO	18	18	18	18	18
	Reference E-TFCI	71	71	71	71	71
	Reference E-TFCI PO	23	23	23	23	23
	Reference E-TFCI	75	75	75	75	75
	Reference E-TFCI PO	26	26	26	26	26
	Reference E-TFCI	81	81	81	81	81
Reference E-TFCI PO	27	27	27	27	27	
Maximum Channelization Codes	2xSF2				SF4	

DC-HSDPA Setup Procedures used to establish the test signals

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS34.108 v9.5.0. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Table E.5.0: Levels for HSDPA connection setup

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

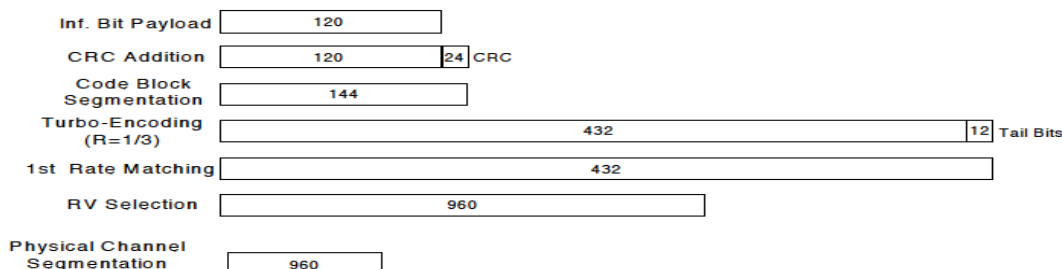


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 8 procedures in section 5.2 of 3GPP TS34.121. A summary of subtest settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set 12			
	Power Control Algorithm	Algorithm2			
	β_c	2/15	11/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	β_d (SF)	64			
	β_c/β_d	2/15	11/15	15/8	15/4
HSDPA Specific Settings	β_{hs}	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack Repetition factor	3			
	CQI Feedback	4ms			
CQI Repetition Factor	2				
$A_{hs} = \beta_{hs} / \beta_c$	30/15				

HSPA+

HSPA+ is only support to down link. Therefore, the RF conducted power is not measured.

WCDMA Band II Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	22.8	NA	23.5	13.0	NA	13.5
		9400	1880.0	22.9			13.0		
		9538	1907.6	22.7			12.8		
HSDPA	Subtest 1	9262	1852.4	21.8	0	22.5	12.0	0	12.5
		9400	1880.0	21.9			12.0		
		9538	1907.6	21.7			11.8		
	Subtest 2	9262	1852.4	21.8	0	22.5	11.9	0	12.5
		9400	1880.0	21.9			12.0		
		9538	1907.6	21.7			11.8		
	Subtest 3	9262	1852.4	21.3	0.5	22.0	11.5	0.5	12.0
		9400	1880.0	21.4			11.6		
		9538	1907.6	21.2			11.3		
	Subtest 4	9262	1852.4	21.3	0.5	22.0	11.5	0.5	12.0
		9400	1880.0	21.3			11.5		
		9538	1907.6	21.2			11.3		
HSUPA	Subtest 1	9262	1852.4	21.8	0	22.5	11.9	0	12.5
		9400	1880.0	21.8			12.0		
		9538	1907.6	21.6			11.8		
	Subtest 2	9262	1852.4	19.8	2	20.5	10.0	2	10.5
		9400	1880.0	19.8			10.0		
		9538	1907.6	19.6			9.8		
	Subtest 3	9262	1852.4	20.8	1	21.5	10.9	1	11.5
		9400	1880.0	21.0			11.0		
		9538	1907.6	20.9			10.8		
	Subtest 4	9262	1852.4	20.0	2	20.5	10.0	2	10.5
		9400	1880.0	20.1			10.0		
		9538	1907.6	19.9			9.8		
	Subtest 5	9262	1852.4	22.0	0	22.5	12.0	0	12.5
		9400	1880.0	22.1			12.1		
		9538	1907.6	21.9			11.8		
DC-HSDPA	Subtest 1	9262	1852.4	21.7	0	22.5	11.9	0	12.5
		9400	1880.0	21.9			12.1		
		9538	1907.6	21.7			11.9		
	Subtest 2	9262	1852.4	21.8	0	22.5	11.9	0	12.5
		9400	1880.0	21.9			12.0		
		9538	1907.6	21.7			11.8		
	Subtest 3	9262	1852.4	21.3	0.5	22.0	11.5	0.5	12.0
		9400	1880.0	21.4			11.5		
		9538	1907.6	21.2			11.4		
	Subtest 4	9262	1852.4	21.3	0.5	22.0	11.4	0.5	12.0
		9400	1880.0	21.4			11.5		
		9538	1907.6	21.2			11.3		

WCDMA Band IV Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	22.7	N/A	23.5	12.9	N/A	13.5
		1413	1732.6	23.0			13.1		
		1513	1752.6	22.8			13.0		
HSDPA	Subtest 1	1312	1712.4	21.7	0	22.5	11.9	0	12.5
		1413	1732.6	22.0			12.1		
		1513	1752.6	21.8			12.0		
	Subtest 2	1312	1712.4	21.7	0	22.5	11.9	0	12.5
		1413	1732.6	21.9			12.0		
		1513	1752.6	21.8			12.0		
	Subtest 3	1312	1712.4	21.1	0.5	22.0	11.4	0.5	12.0
		1413	1732.6	21.5			11.6		
		1513	1752.6	21.3			11.5		
	Subtest 4	1312	1712.4	21.2	0.5	22.0	11.4	0.5	12.0
		1413	1732.6	21.5			11.6		
		1513	1752.6	21.4			11.5		
HSUPA	Subtest 1	1312	1712.4	21.9	0	22.5	11.9	0	12.5
		1413	1732.6	22.0			12.1		
		1513	1752.6	22.1			12.1		
	Subtest 2	1312	1712.4	19.9	1	21.5	9.9	2	10.5
		1413	1732.6	20.0			10.0		
		1513	1752.6	19.9			10.0		
	Subtest 3	1312	1712.4	20.9	0	22.5	10.8	1	11.5
		1413	1732.6	21.2			11.0		
		1513	1752.6	21.0			11.0		
	Subtest 4	1312	1712.4	19.9	1	21.5	9.8	2	10.5
		1413	1732.6	20.1			10.1		
		1513	1752.6	20.0			10.0		
	Subtest 5	1312	1712.4	21.9	0	22.5	11.9	0	12.5
		1413	1732.6	22.1			12.1		
		1513	1752.6	22.1			12.0		
DC-HSDPA	Subtest 1	1312	1712.4	21.7	0	22.5	12.0	0	12.5
		1413	1732.6	22.0			12.1		
		1513	1752.6	21.8			12.0		
	Subtest 2	1312	1712.4	21.8	0	22.5	12.0	0	12.5
		1413	1732.6	22.0			12.1		
		1513	1752.6	21.8			12.0		
	Subtest 3	1312	1712.4	21.2	0.5	22.0	11.5	0.5	12.0
		1413	1732.6	21.5			11.6		
		1513	1752.6	21.3			11.5		
	Subtest 4	1312	1712.4	21.2	0.5	22.0	11.5	0.5	12.0
		1413	1732.6	21.5			11.6		
		1513	1752.6	21.3			11.5		

WCDMA Band V Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	4132	826.4	23.9	N/A	25.0	14.4	N/A	15.0
		4183	836.6	24.0			14.4		
		4233	846.6	23.9			14.3		
HSDPA	Subtest 1	4132	826.4	22.9	0	24.0	13.4	0	14.0
		4183	836.6	23.0			13.4		
		4233	846.6	22.9			13.4		
	Subtest 2	4132	826.4	22.9	0	24.0	13.4	0	14.0
		4183	836.6	23.0			13.4		
		4233	846.6	22.9			13.4		
	Subtest 3	4132	826.4	22.4	0.5	23.5	12.9	0.5	13.5
		4183	836.6	22.5			12.9		
		4233	846.6	22.4			12.9		
	Subtest 4	4132	826.4	22.4	0.5	23.5	12.9	0.5	13.5
		4183	836.6	22.5			12.9		
		4233	846.6	22.4			12.9		
HSUPA	Subtest 1	4132	826.4	22.9	0	24.0	13.4	0	14.0
		4183	836.6	23.0			13.5		
		4233	846.6	22.9			13.4		
	Subtest 2	4132	826.4	20.9	2	22.0	11.4	2	12.0
		4183	836.6	21.0			11.5		
		4233	846.6	20.9			11.4		
	Subtest 3	4132	826.4	21.9	1	23.0	12.4	1	13.0
		4183	836.6	22.0			12.5		
		4233	846.6	21.9			12.4		
	Subtest 4	4132	826.4	20.9	2	22.0	11.4	2	12.0
		4183	836.6	21.0			11.4		
		4233	846.6	20.9			11.4		
	Subtest 5	4132	826.4	22.5	0	24.0	13.3	0	14.0
		4183	836.6	22.5			13.4		
		4233	846.6	22.5			13.4		
DC-HSDPA	Subtest 1	4132	826.4	23.0	0	24.0	13.4	0	14.0
		4183	836.6	23.0			13.4		
		4233	846.6	22.9			13.4		
	Subtest 2	4132	826.4	23.0	0	24.0	13.4	0	14.0
		4183	836.6	23.0			13.4		
		4233	846.6	22.9			13.4		
	Subtest 3	4132	826.4	22.5	0.5	23.5	12.9	0.5	13.5
		4183	836.6	22.5			13.0		
		4233	846.6	22.4			12.9		
	Subtest 4	4132	826.4	22.5	0.5	23.5	12.9	0.5	13.5
		4183	836.6	22.5			12.9		
		4233	846.6	22.4			12.9		

9.3 LTE

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3

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

The allowed A-MPR values specified below in Table 6.2.4-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (subclause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	N/A

Maximum Output Power (Tune-up Limit) for LTE

According to April 2015 TCB workshop, SAR test exclusion can be applied for testing overlapping LTE bands as follows :

- a) The maximum output power, including tolerance, for the smaller band must be ≤ the larger band to qualify for the SAR test exclusion.
- b) The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.
 - LTE Band 4 (1710 – 1755 MHz) is covered by LTE Band 66 (1710 – 1780 MHz)
 - LTE Band 17 (704 – 716 MHz) is covered by LTE Band 12 (699 – 716 MHz) in Max Power

Maximum bandwidth does not support at least three non-overlapping channels in certain channel bandwidths.

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 per KDB 941225 D05 SAR for LTE Devices.

LTE QPSK configuration has the highest maximum average output power per 3GPP standard.

SAR measurement is not required for Higher order modulations . When the highest maximum output power for Higher order modulations are ≤ 0.5 dB higher than the QPSK or when the reported SAR for QPSK configuration is ≤ 1.45 W/kg.

LTE Band 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pw r (dBm)			MPR	Tune-up Limit	Measured Pw r (dBm)			MPR	Tune-up Limit
				18700 1860 MHz	18900 1880 MHz	19100 1900 MHz			18700 1860 MHz	18900 1880 MHz	19100 1900 MHz		
20 MHz	QPSK	1	0	22.7	22.8	22.7	0.0	24.0	13.1	13.1	13.0	0.0	14.0
		1	49	22.7	22.8	22.7	0.0	24.0	13.1	13.2	13.0	0.0	14.0
		1	99	22.8	22.8	22.7	0.0	24.0	13.1	13.2	13.0	0.0	14.0
		50	0	21.7	21.7	21.6	1.0	23.0	13.0	13.0	13.0	0.0	14.0
		50	24	21.9	21.8	21.8	1.0	23.0	13.2	13.2	13.1	0.0	14.0
		50	50	21.9	21.9	21.8	1.0	23.0	13.2	13.2	13.1	0.0	14.0
	16QAM	100	0	21.8	21.7	21.7	1.0	23.0	13.1	13.1	13.1	0.0	14.0
		1	0	22.4	22.3	22.1	1.0	23.0	13.6	13.5	13.5	0.0	14.0
		1	49	22.2	22.4	22.1	1.0	23.0	13.6	13.6	13.4	0.0	14.0
		1	99	22.3	22.4	22.1	1.0	23.0	13.7	13.6	13.4	0.0	14.0
		50	0	20.7	20.7	20.6	2.0	22.0	13.1	13.1	13.0	0.0	14.0
		50	24	20.9	20.8	20.7	2.0	22.0	13.2	13.2	13.1	0.0	14.0
	64QAM	50	50	20.9	20.9	20.8	2.0	22.0	13.2	13.3	13.1	0.0	14.0
		100	0	20.8	20.8	20.7	2.0	22.0	13.2	13.1	13.1	0.0	14.0
		1	0	21.1	21.1	21.4	2.0	22.0	13.6	13.4	13.4	0.0	14.0
		1	49	21.0	21.1	21.4	2.0	22.0	13.7	13.5	13.3	0.0	14.0
		1	99	21.0	21.1	21.4	2.0	22.0	13.7	13.5	13.3	0.0	14.0
		50	0	19.7	19.8	19.7	3.0	21.0	13.1	13.1	13.0	0.0	14.0
15 MHz	QPSK	50	24	19.9	19.9	19.8	3.0	21.0	13.2	13.3	13.2	0.0	14.0
		50	50	19.9	19.9	19.8	3.0	21.0	13.2	13.3	13.1	0.0	14.0
		100	0	19.8	19.8	19.7	3.0	21.0	13.1	13.1	13.1	0.0	14.0
		1	0	22.6	22.8	22.7	0.0	24.0	12.9	13.1	13.0	0.0	14.0
		1	37	22.8	22.8	22.7	0.0	24.0	13.0	13.1	13.0	0.0	14.0
		1	74	22.8	22.8	22.7	0.0	24.0	13.1	13.1	13.0	0.0	14.0
	16QAM	36	0	21.8	21.8	21.7	1.0	23.0	13.1	13.1	13.0	0.0	14.0
		36	20	21.9	21.8	21.9	1.0	23.0	13.1	13.2	13.1	0.0	14.0
		36	39	21.9	21.9	21.8	1.0	23.0	13.2	13.2	13.0	0.0	14.0
		75	0	21.8	21.8	21.8	1.0	23.0	13.1	13.1	13.0	0.0	14.0
		1	0	22.1	21.8	22.2	1.0	23.0	13.3	13.1	13.4	0.0	14.0
		1	37	22.3	21.8	22.1	1.0	23.0	13.5	13.1	13.4	0.0	14.0
	64QAM	1	74	22.2	21.8	22.1	1.0	23.0	13.5	13.1	13.4	0.0	14.0
		36	0	20.8	20.7	20.8	2.0	22.0	13.1	13.1	13.1	0.0	14.0
		36	20	20.9	20.8	20.9	2.0	22.0	13.2	13.2	13.1	0.0	14.0
		36	39	20.9	20.9	20.9	2.0	22.0	13.2	13.3	13.1	0.0	14.0
		75	0	20.9	20.8	20.8	2.0	22.0	13.1	13.1	13.1	0.0	14.0
		1	0	20.8	21.4	21.0	2.0	22.0	13.1	13.7	13.4	0.0	14.0
10 MHz	QPSK	1	37	20.9	21.4	21.0	2.0	22.0	13.2	13.7	13.3	0.0	14.0
		1	74	20.9	21.4	21.0	2.0	22.0	13.2	13.7	13.3	0.0	14.0
		36	0	19.9	19.7	19.7	3.0	21.0	13.2	13.1	13.1	0.0	14.0
		36	20	20.0	19.8	19.9	3.0	21.0	13.2	13.2	13.1	0.0	14.0
		36	39	20.0	19.9	19.9	3.0	21.0	13.3	13.3	13.2	0.0	14.0
		75	0	19.9	19.8	19.8	3.0	21.0	13.2	13.2	13.1	0.0	14.0
	16QAM	1	0	21.7	21.6	22.4	1.0	23.0	13.0	13.0	13.7	0.0	14.0
		1	25	22.0	22.0	22.4	1.0	23.0	13.3	13.3	13.6	0.0	14.0
		1	49	21.8	21.7	22.4	1.0	23.0	13.0	13.0	13.6	0.0	14.0
		25	0	21.1	20.9	20.8	2.0	22.0	13.4	13.3	13.1	0.0	14.0
		25	12	21.2	21.0	20.9	2.0	22.0	13.5	13.4	13.3	0.0	14.0
		25	25	21.1	21.0	20.9	2.0	22.0	13.4	13.4	13.2	0.0	14.0
	64QAM	50	0	21.0	20.9	20.8	2.0	22.0	13.3	13.3	13.2	0.0	14.0
		1	0	20.8	20.9	21.2	2.0	22.0	13.1	13.2	13.6	0.0	14.0
		1	25	21.2	21.4	21.3	2.0	22.0	13.4	13.6	13.5	0.0	14.0
		1	49	20.9	21.0	21.3	2.0	22.0	13.2	13.3	13.5	0.0	14.0
		25	0	20.1	20.0	19.9	3.0	21.0	13.4	13.4	13.2	0.0	14.0
		25	12	20.2	20.1	20.0	3.0	21.0	13.5	13.5	13.3	0.0	14.0
10 MHz	QPSK	25	25	20.1	20.1	19.9	3.0	21.0	13.3	13.4	13.2	0.0	14.0
		50	0	20.0	19.9	19.8	3.0	21.0	13.3	13.3	13.2	0.0	14.0
		1	0	22.7	22.7	23.0	0.0	24.0	12.9	12.9	13.2	0.0	14.0
		1	25	23.0	23.0	23.0	0.0	24.0	13.2	13.3	13.2	0.0	14.0
		1	49	22.8	22.8	23.0	0.0	24.0	13.0	13.0	13.2	0.0	14.0
		25	0	22.0	21.9	21.8	1.0	23.0	13.2	13.2	13.1	0.0	14.0
	16QAM	25	12	22.1	22.0	21.9	1.0	23.0	13.3	13.3	13.2	0.0	14.0
		25	25	22.0	22.0	21.9	1.0	23.0	13.2	13.3	13.1	0.0	14.0
		1	0	21.7	21.6	22.4	1.0	23.0	13.0	13.0	13.7	0.0	14.0
		1	25	22.0	22.0	22.4	1.0	23.0	13.3	13.3	13.6	0.0	14.0
		1	49	21.8	21.7	22.4	1.0	23.0	13.0	13.0	13.6	0.0	14.0
		25	0	21.1	20.9	20.8	2.0	22.0	13.4	13.3	13.1	0.0	14.0
	64QAM	25	12	21.2	21.0	20.9	2.0	22.0	13.5	13.4	13.3	0.0	14.0
		25	25	21.1	21.0	20.9	2.0	22.0	13.4	13.4	13.2	0.0	14.0
		50	0	21.0	20.9	20.8	2.0	22.0	13.3	13.3	13.2	0.0	14.0
		1	0	20.8	20.9	21.2	2.0	22.0	13.1	13.2	13.6	0.0	14.0
		1	25	21.2	21.4	21.3	2.0	22.0	13.4	13.6	13.5	0.0	14.0
		1	49	20.9	21.0	21.3	2.0	22.0	13.2	13.3	13.5	0.0	14.0

LTE Band 2 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pw r (dBm)			MPR	Tune-up Limit	Measured Pw r (dBm)			MPR	Tune-up Limit
				18625	18900	19175			18625	18900	19175		
				1852.5 MHz	1880 MHz	1907.5 MHz			1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	23.0	23.0	22.9	0.0	24.0	13.3	13.3	13.1	0.0	14.0
		1	12	23.0	23.1	23.0	0.0	24.0	13.3	13.4	13.2	0.0	14.0
		1	24	23.0	23.0	22.8	0.0	24.0	13.2	13.3	13.0	0.0	14.0
		12	0	22.1	22.1	22.0	1.0	23.0	13.4	13.4	13.2	0.0	14.0
		12	7	22.2	22.1	22.0	1.0	23.0	13.4	13.3	13.3	0.0	14.0
		12	13	22.1	22.1	22.0	1.0	23.0	13.3	13.4	13.2	0.0	14.0
		25	0	22.1	22.0	22.0	1.0	23.0	13.3	13.3	13.2	0.0	14.0
	16QAM	1	0	22.2	22.1	22.5	1.0	23.0	13.4	13.5	13.7	0.0	14.0
		1	12	22.3	22.3	22.6	1.0	23.0	13.6	13.6	13.7	0.0	14.0
		1	24	22.2	22.1	22.4	1.0	23.0	13.4	13.5	13.6	0.0	14.0
		12	0	21.2	21.1	21.1	2.0	22.0	13.4	13.5	13.4	0.0	14.0
		12	7	21.2	21.2	21.1	2.0	22.0	13.5	13.5	13.4	0.0	14.0
		12	13	21.2	21.1	21.1	2.0	22.0	13.4	13.5	13.3	0.0	14.0
		25	0	21.1	21.0	21.0	2.0	22.0	13.3	13.4	13.3	0.0	14.0
	64QAM	1	0	21.4	21.2	20.9	2.0	22.0	13.7	13.6	13.1	0.0	14.0
		1	12	21.4	21.4	20.9	2.0	22.0	13.7	13.7	13.2	0.0	14.0
		1	24	21.4	21.3	20.8	2.0	22.0	13.6	13.6	13.1	0.0	14.0
		12	0	20.1	20.1	20.1	3.0	21.0	13.4	13.5	13.3	0.0	14.0
		12	7	20.1	20.1	20.1	3.0	21.0	13.4	13.5	13.3	0.0	14.0
		12	13	20.0	20.1	20.0	3.0	21.0	13.3	13.5	13.2	0.0	14.0
25		0	20.0	20.0	20.0	3.0	21.0	13.3	13.4	13.2	0.0	14.0	
3 MHz	QPSK	1	0	23.0	23.0	23.0	0.0	24.0	13.3	13.3	13.2	0.0	14.0
		1	8	23.0	23.0	23.0	0.0	24.0	13.2	13.3	13.2	0.0	14.0
		1	14	23.0	22.9	22.9	0.0	24.0	13.2	13.3	13.1	0.0	14.0
		8	0	22.1	22.0	22.0	1.0	23.0	13.3	13.4	13.2	0.0	14.0
		8	4	22.1	22.1	22.0	1.0	23.0	13.4	13.4	13.2	0.0	14.0
		8	7	22.1	22.1	22.0	1.0	23.0	13.4	13.4	13.2	0.0	14.0
	16QAM	15	0	22.1	22.1	22.0	1.0	23.0	13.3	13.4	13.2	0.0	14.0
		1	0	22.2	22.0	22.4	1.0	23.0	13.4	13.3	13.6	0.0	14.0
		1	8	22.1	22.0	22.4	1.0	23.0	13.4	13.3	13.6	0.0	14.0
		1	14	22.1	21.9	22.4	1.0	23.0	13.3	13.3	13.5	0.0	14.0
		8	0	21.2	21.2	21.1	2.0	22.0	13.4	13.5	13.3	0.0	14.0
		8	4	21.2	21.2	21.1	2.0	22.0	13.4	13.5	13.3	0.0	14.0
64QAM	8	7	21.2	21.2	21.1	2.0	22.0	13.4	13.6	13.3	0.0	14.0	
	15	0	21.1	21.0	21.0	2.0	22.0	13.3	13.4	13.3	0.0	14.0	
	1	0	21.2	21.4	21.4	2.0	22.0	13.5	13.6	13.6	0.0	14.0	
	1	8	21.2	21.3	21.3	2.0	22.0	13.5	13.6	13.5	0.0	14.0	
	1	14	21.1	21.3	21.3	2.0	22.0	13.4	13.6	13.5	0.0	14.0	
	8	0	20.2	20.0	20.0	3.0	21.0	13.4	13.4	13.3	0.0	14.0	
1.4 MHz	QPSK	8	4	20.2	20.0	20.1	3.0	21.0	13.5	13.4	13.3	0.0	14.0
		8	7	20.2	20.1	20.1	3.0	21.0	13.5	13.4	13.4	0.0	14.0
		15	0	20.1	20.1	20.0	3.0	21.0	13.4	13.4	13.2	0.0	14.0
		1	0	22.9	23.0	22.8	0.0	24.0	13.1	13.3	13.0	0.0	14.0
		3	0	23.0	23.0	22.9	0.0	24.0	13.2	13.3	13.1	0.0	14.0
		3	3	23.0	23.0	22.9	0.0	24.0	13.2	13.3	13.1	0.0	14.0
	16QAM	6	0	22.0	22.0	21.9	1.0	23.0	13.3	13.3	13.1	0.0	14.0
		1	0	22.1	22.2	22.4	1.0	23.0	13.4	13.5	13.5	0.0	14.0
		1	3	22.1	22.3	22.4	1.0	23.0	13.4	13.6	13.6	0.0	14.0
		1	5	22.0	22.2	22.3	1.0	23.0	13.3	13.4	13.5	0.0	14.0
		3	0	22.2	22.0	22.1	1.0	23.0	13.5	13.4	13.4	0.0	14.0
		3	1	22.3	22.1	22.1	1.0	23.0	13.5	13.4	13.4	0.0	14.0
64QAM	3	3	22.3	22.1	22.1	1.0	23.0	13.5	13.5	13.3	0.0	14.0	
	6	0	21.2	21.2	20.8	2.0	22.0	13.4	13.5	13.1	0.0	14.0	
	1	0	21.5	21.1	21.3	2.0	22.0	13.6	13.5	13.4	0.0	14.0	
	1	3	21.6	21.2	21.3	2.0	22.0	13.7	13.6	13.4	0.0	14.0	
	1	5	21.4	21.1	21.3	2.0	22.0	13.7	13.4	13.4	0.0	14.0	
	3	0	21.4	21.2	20.9	2.0	22.0	13.7	13.5	13.1	0.0	14.0	
64QAM	3	1	21.5	21.2	21.0	2.0	22.0	13.7	13.6	13.2	0.0	14.0	
	3	3	21.5	21.2	21.0	2.0	22.0	13.7	13.5	13.2	0.0	14.0	
	6	0	20.0	20.3	20.0	3.0	21.0	13.3	13.7	13.2	0.0	14.0	

LTE Band 4 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pw r (dBm)			MPR	Tune-up Limit	Measured Pw r (dBm)			MPR	Tune-up Limit
				20050	20175	20300			20050	20175	20300		
				1720 MHz	1732.5 MHz	1745 MHz			1720 MHz	1732.5 MHz	1745 MHz		
20 MHz	QPSK	1	0	22.8	22.8	22.8	0.0	24.0	12.9	12.9	13.0	0.0	14.0
		1	49	23.1	23.1	23.0	0.0	24.0	13.2	13.3	13.2	0.0	14.0
		1	99	22.9	22.8	22.8	0.0	24.0	13.0	13.0	13.0	0.0	14.0
		50	0	22.0	22.0	22.0	1.0	23.0	13.1	13.2	13.1	0.0	14.0
		50	24	22.2	22.1	22.1	1.0	23.0	13.3	13.3	13.3	0.0	14.0
		50	50	22.2	22.1	22.1	1.0	23.0	13.3	13.3	13.2	0.0	14.0
	16QAM	100	0	22.1	22.1	22.0	1.0	23.0	13.2	13.2	13.2	0.0	14.0
		1	0	22.4	22.3	22.2	1.0	23.0	13.5	13.5	13.4	0.0	14.0
		1	49	22.7	22.7	22.4	1.0	23.0	13.8	13.7	13.6	0.0	14.0
		1	99	22.5	22.4	22.2	1.0	23.0	13.6	13.5	13.4	0.0	14.0
		50	0	21.0	21.1	21.0	2.0	22.0	13.2	13.2	13.2	0.0	14.0
		50	24	21.2	21.2	21.1	2.0	22.0	13.4	13.3	13.3	0.0	14.0
	64QAM	50	50	21.2	21.2	21.0	2.0	22.0	13.3	13.3	13.2	0.0	14.0
		100	0	21.2	21.1	21.0	2.0	22.0	13.3	13.2	13.3	0.0	14.0
		1	0	21.0	21.4	21.2	2.0	22.0	13.2	13.6	13.2	0.0	14.0
		1	49	21.4	21.8	21.4	2.0	22.0	13.6	13.7	13.5	0.0	14.0
		1	99	21.2	21.6	21.2	2.0	22.0	13.4	13.7	13.3	0.0	14.0
		50	0	20.0	20.1	20.1	3.0	21.0	13.2	13.3	13.2	0.0	14.0
15 MHz	QPSK	50	24	20.2	20.2	20.2	3.0	21.0	13.4	13.4	13.4	0.0	14.0
		50	50	20.2	20.2	20.2	3.0	21.0	13.3	13.4	13.3	0.0	14.0
		100	0	20.1	20.1	20.1	3.0	21.0	13.3	13.2	13.3	0.0	14.0
		1	0	22.6	22.7	22.7	0.0	24.0	13.0	13.0	13.1	0.0	14.0
		1	37	22.9	22.9	22.9	0.0	24.0	13.2	13.2	13.2	0.0	14.0
		1	74	22.8	22.8	22.8	0.0	24.0	13.1	13.1	13.1	0.0	14.0
	16QAM	36	0	21.8	21.9	21.9	1.0	23.0	13.1	13.2	13.2	0.0	14.0
		36	20	21.9	21.9	22.0	1.0	23.0	13.3	13.3	13.3	0.0	14.0
		36	39	21.9	22.0	21.9	1.0	23.0	13.3	13.3	13.3	0.0	14.0
		75	0	21.9	21.9	21.9	1.0	23.0	13.2	13.2	13.2	0.0	14.0
		1	0	22.0	22.2	21.7	1.0	23.0	13.4	13.0	13.4	0.0	14.0
		1	37	22.2	22.4	21.9	1.0	23.0	13.6	13.2	13.6	0.0	14.0
	64QAM	1	74	22.2	22.2	21.8	1.0	23.0	13.5	13.1	13.5	0.0	14.0
		36	0	20.8	20.9	20.9	2.0	22.0	13.2	13.2	13.2	0.0	14.0
		36	20	21.0	20.9	20.9	2.0	22.0	13.3	13.3	13.4	0.0	14.0
		36	39	20.9	21.0	20.9	2.0	22.0	13.3	13.4	13.4	0.0	14.0
		75	0	20.9	20.9	20.9	2.0	22.0	13.2	13.2	13.3	0.0	14.0
		1	0	20.7	21.3	21.0	2.0	22.0	13.5	13.4	13.1	0.0	14.0
10 MHz	QPSK	1	37	21.0	21.5	21.2	2.0	22.0	13.8	13.6	13.3	0.0	14.0
		1	74	20.9	21.4	21.1	2.0	22.0	13.8	13.5	13.3	0.0	14.0
		36	0	19.9	19.9	19.9	3.0	21.0	13.1	13.3	13.3	0.0	14.0
		36	20	20.0	20.0	20.0	3.0	21.0	13.3	13.4	13.4	0.0	14.0
		36	39	20.0	20.0	19.9	3.0	21.0	13.3	13.4	13.3	0.0	14.0
		75	0	19.9	19.9	19.9	3.0	21.0	13.3	13.3	13.3	0.0	14.0
	16QAM	1	0	22.7	22.8	22.7	0.0	24.0	13.0	13.0	13.1	0.0	14.0
		1	25	23.0	23.1	23.0	0.0	24.0	13.3	13.4	13.4	0.0	14.0
		1	49	22.7	22.8	22.7	0.0	24.0	13.0	13.1	13.1	0.0	14.0
		25	0	21.9	22.0	22.0	1.0	23.0	13.2	13.3	13.3	0.0	14.0
		25	12	22.1	22.1	22.1	1.0	23.0	13.4	13.4	13.4	0.0	14.0
		25	25	21.9	22.1	22.0	1.0	23.0	13.3	13.4	13.3	0.0	14.0
	64QAM	50	0	22.0	22.0	22.0	1.0	23.0	13.3	13.3	13.4	0.0	14.0
		1	0	22.1	21.8	21.8	1.0	23.0	13.1	13.1	13.4	0.0	14.0
		1	25	22.4	22.1	22.1	1.0	23.0	13.4	13.4	13.8	0.0	14.0
		1	49	22.1	21.8	21.8	1.0	23.0	13.1	13.1	13.5	0.0	14.0
		25	0	20.9	21.1	21.0	2.0	22.0	13.4	13.4	13.3	0.0	14.0
		25	12	21.1	21.2	21.1	2.0	22.0	13.5	13.5	13.5	0.0	14.0
QPSK	25	25	21.0	21.2	21.0	2.0	22.0	13.4	13.4	13.4	0.0	14.0	
	50	0	21.0	21.0	21.0	2.0	22.0	13.4	13.3	13.4	0.0	14.0	
	1	0	20.8	21.0	21.1	2.0	22.0	13.2	13.4	13.1	0.0	14.0	
	1	25	21.1	21.4	21.3	2.0	22.0	13.6	13.8	13.5	0.0	14.0	
	1	49	20.9	21.1	21.0	2.0	22.0	13.3	13.5	13.3	0.0	14.0	
	25	0	20.0	20.1	20.0	3.0	21.0	13.4	13.4	13.4	0.0	14.0	
16QAM	25	12	20.2	20.2	20.1	3.0	21.0	13.5	13.5	13.5	0.0	14.0	
	25	25	20.0	20.1	20.0	3.0	21.0	13.4	13.5	13.4	0.0	14.0	
	50	0	20.0	20.0	20.0	3.0	21.0	13.4	13.4	13.4	0.0	14.0	
	1	0	20.8	21.0	21.1	2.0	22.0	13.2	13.4	13.1	0.0	14.0	
	1	25	21.1	21.4	21.3	2.0	22.0	13.6	13.8	13.5	0.0	14.0	
	1	49	20.9	21.1	21.0	2.0	22.0	13.3	13.5	13.3	0.0	14.0	
64QAM	25	12	20.2	20.2	20.1	3.0	21.0	13.5	13.5	13.5	0.0	14.0	
	25	25	20.0	20.1	20.0	3.0	21.0	13.4	13.4	13.4	0.0	14.0	
	50	0	20.0	20.0	20.0	3.0	21.0	13.4	13.4	13.4	0.0	14.0	
	1	0	20.8	21.0	21.1	2.0	22.0	13.2	13.4	13.1	0.0	14.0	
	1	25	21.1	21.4	21.3	2.0	22.0	13.6	13.8	13.5	0.0	14.0	
	1	49	20.9	21.1	21.0	2.0	22.0	13.3	13.5	13.3	0.0	14.0	

LTE Band 4 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pw r (dBm)			MPR	Tune-up Limit	Measured Pw r (dBm)			MPR	Tune-up Limit
				19975	20175	20375			19975	20175	20375		
				1712.5 MHz	1732.5 MHz	1752.5 MHz			1712.5 MHz	1732.5 MHz	1752.5 MHz		
5 MHz	QPSK	1	0	22.8	23.1	23.1	0.0	24.0	13.3	13.5	13.4	0.0	14.0
		1	12	23.0	23.1	23.1	0.0	24.0	13.4	13.5	13.2	0.0	14.0
		1	24	22.9	23.0	23.0	0.0	24.0	13.3	13.4	13.3	0.0	14.0
		12	0	22.0	22.2	22.1	1.0	23.0	13.4	13.4	13.4	0.0	14.0
		12	7	22.1	22.2	22.1	1.0	23.0	13.4	13.5	13.4	0.0	14.0
		12	13	22.0	22.1	22.0	1.0	23.0	13.4	13.4	13.4	0.0	14.0
		25	0	22.0	22.1	22.1	1.0	23.0	13.3	13.4	13.8	0.0	14.0
	16QAM	1	0	22.4	22.2	22.2	1.0	23.0	13.4	13.6	13.8	0.0	14.0
		1	12	22.6	22.3	22.3	1.0	23.0	13.5	13.7	13.8	0.0	14.0
		1	24	22.5	22.2	22.1	1.0	23.0	13.5	13.5	13.5	0.0	14.0
		12	0	21.1	21.2	21.2	2.0	22.0	13.5	13.5	13.6	0.0	14.0
		12	7	21.2	21.3	21.2	2.0	22.0	13.5	13.6	13.5	0.0	14.0
		12	13	21.1	21.2	21.2	2.0	22.0	13.4	13.5	13.5	0.0	14.0
		25	0	21.1	21.0	21.1	2.0	22.0	13.4	13.4	13.6	0.0	14.0
	64QAM	1	0	21.3	21.4	21.0	2.0	22.0	13.5	13.3	13.7	0.0	14.0
		1	12	21.4	21.5	21.1	2.0	22.0	13.7	13.4	13.7	0.0	14.0
		1	24	21.3	21.4	20.9	2.0	22.0	13.6	13.3	13.7	0.0	14.0
		12	0	19.9	20.2	20.2	3.0	21.0	13.5	13.5	13.4	0.0	14.0
		12	7	20.0	20.3	20.2	3.0	21.0	13.5	13.5	13.5	0.0	14.0
		12	13	20.0	20.2	20.1	3.0	21.0	13.5	13.5	13.4	0.0	14.0
25		0	20.0	20.2	20.0	3.0	21.0	13.4	13.4	13.4	0.0	14.0	
3 MHz	QPSK	1	0	22.9	23.1	23.0	0.0	24.0	13.2	13.4	13.4	0.0	14.0
		1	8	22.9	23.0	22.9	0.0	24.0	13.2	13.4	13.4	0.0	14.0
		1	14	23.0	23.0	23.0	0.0	24.0	13.2	13.4	13.3	0.0	14.0
		8	0	22.0	22.2	22.1	1.0	23.0	13.4	13.5	13.4	0.0	14.0
		8	4	22.1	22.2	22.1	1.0	23.0	13.4	13.5	13.4	0.0	14.0
		8	7	22.1	22.2	22.1	1.0	23.0	13.4	13.5	13.4	0.0	14.0
	16QAM	15	0	22.0	22.2	22.1	1.0	23.0	13.4	13.4	13.4	0.0	14.0
		1	0	22.4	22.2	22.1	1.0	23.0	13.4	13.4	13.8	0.0	14.0
		1	8	22.5	22.2	22.0	1.0	23.0	13.4	13.4	13.8	0.0	14.0
		1	14	22.4	22.1	22.0	1.0	23.0	13.4	13.4	13.8	0.0	14.0
		8	0	21.1	21.2	21.2	2.0	22.0	13.5	13.6	13.5	0.0	14.0
		8	4	21.1	21.3	21.2	2.0	22.0	13.5	13.6	13.6	0.0	14.0
	64QAM	8	7	21.2	21.3	21.2	2.0	22.0	13.5	13.6	13.6	0.0	14.0
		15	0	21.1	21.1	21.1	2.0	22.0	13.4	13.5	13.5	0.0	14.0
		1	0	21.1	21.5	21.5	2.0	22.0	13.6	13.8	13.6	0.0	14.0
1		8	21.2	21.4	21.4	2.0	22.0	13.5	13.8	13.5	0.0	14.0	
1		14	21.1	21.5	21.4	2.0	22.0	13.6	13.8	13.5	0.0	14.0	
8		0	20.1	20.2	20.1	3.0	21.0	13.4	13.6	13.5	0.0	14.0	
1.4 MHz	QPSK	8	4	20.1	20.2	20.2	3.0	21.0	13.4	13.6	13.5	0.0	14.0
		8	7	20.1	20.2	20.2	3.0	21.0	13.4	13.6	13.5	0.0	14.0
		15	0	20.1	20.3	20.1	3.0	21.0	13.4	13.5	13.5	0.0	14.0
		1	0	22.9	23.0	22.9	0.0	24.0	13.1	13.4	13.3	0.0	14.0
		1	3	23.0	23.2	22.9	0.0	24.0	13.3	13.4	13.4	0.0	14.0
		1	5	22.9	23.0	22.9	0.0	24.0	13.2	13.4	13.3	0.0	14.0
	16QAM	3	0	22.9	23.1	22.9	0.0	24.0	13.2	13.2	13.3	0.0	14.0
		3	1	22.9	23.1	22.9	0.0	24.0	13.2	13.3	13.4	0.0	14.0
		3	3	22.9	23.1	22.9	0.0	24.0	13.3	13.4	13.3	0.0	14.0
		6	0	21.9	22.1	21.9	1.0	23.0	13.3	13.4	13.4	0.0	14.0
		1	0	22.0	22.5	22.0	1.0	23.0	13.3	13.5	13.8	0.0	14.0
		1	3	22.2	22.6	22.1	1.0	23.0	13.4	13.6	13.8	0.0	14.0
		1	5	22.1	22.5	22.0	1.0	23.0	13.3	13.6	13.7	0.0	14.0
		3	0	22.0	22.3	22.1	1.0	23.0	13.5	13.5	13.6	0.0	14.0
		3	1	22.0	22.3	22.2	1.0	23.0	13.5	13.5	13.6	0.0	14.0
64QAM	3	3	22.0	22.3	22.2	1.0	23.0	13.5	13.5	13.6	0.0	14.0	
	6	0	21.1	21.0	21.2	2.0	22.0	13.5	13.5	13.3	0.0	14.0	
	1	0	21.4	21.2	21.3	2.0	22.0	13.5	13.8	13.5	0.0	14.0	
	1	3	21.5	21.3	21.4	2.0	22.0	13.6	13.8	13.6	0.0	14.0	
	1	5	21.4	21.2	21.4	2.0	22.0	13.6	13.8	13.4	0.0	14.0	
	3	0	21.4	21.3	21.0	2.0	22.0	13.3	13.7	13.5	0.0	14.0	
64QAM	3	1	21.4	21.3	21.0	2.0	22.0	13.3	13.7	13.5	0.0	14.0	
	3	3	21.4	21.3	21.0	2.0	22.0	13.4	13.8	13.6	0.0	14.0	
	6	0	20.0	20.4	20.1	3.0	21.0	13.4	13.4	13.7	0.0	14.0	

LTE Band 5 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				Reduced Average Power (dBm) Proximity sensor back-off					
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20525	836.5 MHz				20525	836.5 MHz			
10 MHz	QPSK	1	0	24.0			0.0	25.5	15.4			0.0	16.0
		1	25	23.9			0.0	25.5	15.3			0.0	16.0
		1	49	24.0			0.0	25.5	15.3			0.0	16.0
		25	0	23.0			1.0	24.5	15.4			0.0	16.0
		25	12	23.0			1.0	24.5	15.4			0.0	16.0
		25	25	23.0			1.0	24.5	15.3			0.0	16.0
	50	0	22.9			1.0	24.5	15.2			0.0	16.0	
	16QAM	1	0	23.0			1.0	24.5	15.3			0.0	16.0
		1	25	23.0			1.0	24.5	15.3			0.0	16.0
		1	49	22.9			1.0	24.5	15.4			0.0	16.0
		25	0	22.0			2.0	23.5	15.4			0.0	16.0
		25	12	22.1			2.0	23.5	15.5			0.0	16.0
		25	25	22.1			2.0	23.5	15.5			0.0	16.0
	50	0	22.0			2.0	23.5	15.3			0.0	16.0	
	64QAM	1	0	22.4			2.0	23.5	15.6			0.0	16.0
		1	25	22.2			2.0	23.5	15.6			0.0	16.0
		1	49	22.4			2.0	23.5	15.7			0.0	16.0
		25	0	21.0			3.0	22.5	15.3			0.0	16.0
		25	12	21.1			3.0	22.5	15.4			0.0	16.0
		25	25	21.1			3.0	22.5	15.5			0.0	16.0
	50	0	20.9			3.0	22.5	15.2			0.0	16.0	
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20425	20525	20625			20425	20525	20625		
				826.5 MHz	836.5 MHz	846.5 MHz	826.5 MHz	836.5 MHz	846.5 MHz				
5 MHz	QPSK	1	0	23.9	24.0	24.0	0.0	25.5	15.4	15.4	15.4	0.0	16.0
		1	12	23.9	24.0	24.1	0.0	25.5	15.5	15.4	15.4	0.0	16.0
		1	24	23.9	24.0	24.1	0.0	25.5	15.4	15.5	15.4	0.0	16.0
		12	0	23.0	23.0	23.0	1.0	24.5	15.5	15.3	15.4	0.0	16.0
		12	7	23.1	23.0	23.0	1.0	24.5	15.5	15.4	15.4	0.0	16.0
		12	13	23.0	23.0	23.0	1.0	24.5	15.5	15.5	15.5	0.0	16.0
	25	0	23.0	23.1	23.0	1.0	24.5	15.5	15.4	15.4	0.0	16.0	
	16QAM	1	0	23.0	23.0	23.5	1.0	24.5	15.4	15.4	15.8	0.0	16.0
		1	12	23.1	23.2	23.5	1.0	24.5	15.4	15.5	15.8	0.0	16.0
		1	24	23.1	23.2	23.6	1.0	24.5	15.4	15.5	15.9	0.0	16.0
		12	0	22.1	22.0	22.1	2.0	23.5	15.4	15.3	15.4	0.0	16.0
		12	7	22.1	22.1	22.2	2.0	23.5	15.4	15.5	15.5	0.0	16.0
		12	13	22.1	22.1	22.1	2.0	23.5	15.5	15.5	15.4	0.0	16.0
	25	0	22.0	22.1	22.1	2.0	23.5	15.3	15.4	15.4	0.0	16.0	
	64QAM	1	0	22.2	21.9	22.3	2.0	23.5	15.6	15.2	15.6	0.0	16.0
		1	12	22.2	22.1	22.2	2.0	23.5	15.6	15.3	15.5	0.0	16.0
		1	24	22.2	22.0	22.4	2.0	23.5	15.6	15.3	15.6	0.0	16.0
		12	0	21.1	21.0	20.9	3.0	22.5	15.4	15.3	15.2	0.0	16.0
		12	7	21.2	21.2	21.0	3.0	22.5	15.5	15.4	15.3	0.0	16.0
		12	13	21.1	21.1	21.0	3.0	22.5	15.5	15.4	15.3	0.0	16.0
	25	0	21.1	21.0	21.0	3.0	22.5	15.4	15.3	15.3	0.0	16.0	

LTE Band 5 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20415	20525	20635			20415	20525	20635		
				825.5 MHz	836.5 MHz	847.5 MHz			825.5 MHz	836.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	23.9	23.9	23.9	0.0	25.5	15.4	15.2	15.3	0.0	16.0
		1	8	23.8	23.9	23.9	0.0	25.5	15.3	15.3	15.4	0.0	16.0
		1	14	23.9	24.0	24.0	0.0	25.5	15.4	15.4	15.4	0.0	16.0
		8	0	23.0	23.0	22.9	1.0	24.5	15.4	15.3	15.4	0.0	16.0
		8	4	23.1	23.1	22.9	1.0	24.5	15.5	15.5	15.4	0.0	16.0
		8	7	23.1	23.1	23.0	1.0	24.5	15.6	15.5	15.5	0.0	16.0
	16QAM	15	0	23.0	23.0	22.9	1.0	24.5	15.5	15.4	15.4	0.0	16.0
		1	0	23.0	22.9	23.3	1.0	24.5	15.4	15.1	15.6	0.0	16.0
		1	8	22.9	23.0	23.4	1.0	24.5	15.4	15.2	15.6	0.0	16.0
		1	14	22.9	23.0	23.4	1.0	24.5	15.4	15.3	15.7	0.0	16.0
		8	0	22.1	22.1	22.0	2.0	23.5	15.4	15.4	15.3	0.0	16.0
		8	4	22.1	22.2	22.1	2.0	23.5	15.4	15.5	15.3	0.0	16.0
	64QAM	8	7	22.2	22.2	22.1	2.0	23.5	15.4	15.5	15.4	0.0	16.0
		15	0	22.0	22.1	22.0	2.0	23.5	15.3	15.4	15.3	0.0	16.0
		1	0	22.2	22.3	22.1	2.0	23.5	15.4	15.5	15.5	0.0	16.0
		1	8	22.2	22.4	22.1	2.0	23.5	15.4	15.5	15.5	0.0	16.0
		1	14	22.2	22.4	22.2	2.0	23.5	15.5	15.6	15.6	0.0	16.0
		8	0	21.0	21.1	21.0	3.0	22.5	15.4	15.3	15.3	0.0	16.0
1.4 MHz	QPSK	8	4	21.1	21.2	21.1	3.0	22.5	15.4	15.4	15.4	0.0	16.0
		15	0	21.2	21.1	21.0	3.0	22.5	15.4	15.4	15.3	0.0	16.0
		1	0	23.9	24.0	23.9	0.0	25.5	15.4	15.3	15.3	0.0	16.0
		1	3	24.0	24.1	24.0	0.0	25.5	15.2	15.2	15.3	0.0	16.0
		1	5	23.9	24.0	23.9	0.0	25.5	15.3	15.3	15.3	0.0	16.0
		3	0	23.9	23.9	23.9	0.0	25.5	15.4	15.4	15.3	0.0	16.0
	16QAM	3	1	23.9	24.0	23.9	0.0	25.5	15.4	15.4	15.3	0.0	16.0
		3	3	23.9	24.0	23.9	0.0	25.5	15.4	15.4	15.4	0.0	16.0
		6	0	23.0	23.0	22.9	1.0	24.5	15.3	15.3	15.3	0.0	16.0
		1	0	23.1	23.4	22.9	1.0	24.5	15.2	15.3	15.2	0.0	16.0
		1	3	23.2	23.5	23.0	1.0	24.5	15.2	15.2	15.2	0.0	16.0
		1	5	23.2	23.4	23.0	1.0	24.5	15.3	15.2	15.3	0.0	16.0
	64QAM	3	0	23.0	23.2	23.2	1.0	24.5	15.6	15.6	15.7	0.0	16.0
		3	1	23.0	23.2	23.2	1.0	24.5	15.6	15.6	15.6	0.0	16.0
		3	3	23.0	23.2	23.2	1.0	24.5	15.6	15.6	15.6	0.0	16.0
		6	0	22.1	21.9	22.1	2.0	23.5	15.4	15.4	15.4	0.0	16.0
		1	0	22.3	22.1	22.2	2.0	23.5	15.6	15.4	15.4	0.0	16.0
		1	3	22.4	22.2	22.2	2.0	23.5	15.8	15.5	15.4	0.0	16.0
1.4 MHz	64QAM	1	5	22.3	22.1	22.3	2.0	23.5	15.6	15.4	15.4	0.0	16.0
		3	0	22.4	22.1	21.9	2.0	23.5	15.6	15.4	15.2	0.0	16.0
		3	1	22.4	22.2	22.0	2.0	23.5	15.7	15.4	15.3	0.0	16.0
		3	3	22.4	22.2	22.0	2.0	23.5	15.7	15.4	15.2	0.0	16.0
		6	0	21.0	21.3	21.1	3.0	22.5	15.3	15.6	15.3	0.0	16.0

LTE Band 12 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) Proximity sensor back-off					
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit	
				23035 701.5 MHz	23095 707.5 MHz	23155 713.5 MHz			23035 701.5 MHz	23095 707.5 MHz	23155 713.5 MHz			
10 MHz	QPSK	1	0	23.8	23.8	23.8	0.0	25.0	14.2	14.2	14.2	0.0	15.0	
		1	25	23.8	23.8	23.8	0.0	25.0	14.1	14.1	14.1	0.0	15.0	
		1	49	23.8	23.8	23.8	0.0	25.0	14.1	14.1	14.1	0.0	15.0	
		25	0	22.7	22.7	22.7	1.0	24.0	14.1	14.1	14.1	0.0	15.0	
		25	12	22.9	22.9	22.9	1.0	24.0	14.3	14.3	14.3	0.0	15.0	
		25	25	22.8	22.8	22.8	1.0	24.0	14.2	14.2	14.2	0.0	15.0	
	16QAM	50	0	22.8	22.8	22.8	1.0	24.0	14.2	14.2	14.2	0.0	15.0	
		1	0	23.3	23.3	23.3	1.0	24.0	14.3	14.3	14.3	0.0	15.0	
		1	25	23.2	23.2	23.2	1.0	24.0	14.2	14.2	14.2	0.0	15.0	
		1	49	23.2	23.2	23.2	1.0	24.0	14.1	14.1	14.1	0.0	15.0	
		25	0	21.8	21.8	21.8	2.0	23.0	14.2	14.2	14.2	0.0	15.0	
		25	12	21.9	21.9	21.9	2.0	23.0	14.4	14.4	14.4	0.0	15.0	
	64QAM	25	25	21.8	21.8	21.8	2.0	23.0	14.3	14.3	14.3	0.0	15.0	
		50	0	21.8	21.8	21.8	2.0	23.0	14.2	14.2	14.2	0.0	15.0	
		1	0	22.1	22.1	22.1	2.0	23.0	14.5	14.5	14.5	0.0	15.0	
		1	25	22.1	22.1	22.1	2.0	23.0	14.5	14.5	14.5	0.0	15.0	
		1	49	22.1	22.1	22.1	2.0	23.0	14.5	14.5	14.5	0.0	15.0	
		25	0	20.8	20.8	20.8	3.0	22.0	14.2	14.2	14.2	0.0	15.0	
	5 MHz	QPSK	25	12	20.9	20.9	20.9	3.0	22.0	14.3	14.3	14.3	0.0	15.0
			25	25	20.8	20.8	20.8	3.0	22.0	14.2	14.2	14.2	0.0	15.0
1			0	20.8	20.8	20.8	3.0	22.0	14.2	14.2	14.2	0.0	15.0	
1			12	20.8	20.8	20.8	3.0	22.0	14.2	14.2	14.2	0.0	15.0	
1			24	20.8	20.8	20.8	3.0	22.0	14.2	14.2	14.2	0.0	15.0	
12			0	20.9	20.9	20.9	3.0	22.0	14.2	14.2	14.2	0.0	15.0	
16QAM		12	7	20.9	20.9	20.9	3.0	22.0	14.2	14.2	14.2	0.0	15.0	
		12	13	20.9	20.9	20.9	3.0	22.0	14.2	14.2	14.2	0.0	15.0	
		25	0	20.9	20.9	20.9	3.0	22.0	14.1	14.1	14.1	0.0	15.0	
		1	0	22.0	22.0	22.0	2.0	23.0	14.3	14.3	14.3	0.0	15.0	
		1	12	22.0	22.0	22.0	2.0	23.0	14.3	14.3	14.3	0.0	15.0	
		1	24	22.1	22.1	22.1	2.0	23.0	14.3	14.3	14.3	0.0	15.0	
64QAM		12	0	20.9	20.9	20.9	3.0	22.0	14.2	14.2	14.2	0.0	15.0	
		12	7	20.9	20.9	20.9	3.0	22.0	14.2	14.2	14.2	0.0	15.0	
		12	13	20.9	20.9	20.9	3.0	22.0	14.2	14.2	14.2	0.0	15.0	
		25	0	20.9	20.9	20.9	3.0	22.0	14.2	14.2	14.2	0.0	15.0	
		1	0	20.9	20.9	20.9	3.0	22.0	14.2	14.2	14.2	0.0	15.0	
		1	12	20.9	20.9	20.9	3.0	22.0	14.2	14.2	14.2	0.0	15.0	

LTE Band 12 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pw r (dBm)			MPR	Tune-up Limit	Measured Pw r (dBm)			MPR	Tune-up Limit
				23025	23095	23165			23025	23095	23165		
				700.5 MHz	707.5 MHz	714.5 MHz			700.5 MHz	707.5 MHz	714.5 MHz		
3 MHz	QPSK	1	0	23.8	23.7	23.7	0.0	25.0	14.1	14.1	14.1	0.0	15.0
		1	8	23.8	23.7	23.7	0.0	25.0	14.1	14.1	14.1	0.0	15.0
		1	14	23.8	23.7	23.7	0.0	25.0	14.0	14.1	14.1	0.0	15.0
		8	0	22.8	22.8	22.7	1.0	24.0	14.2	14.2	14.1	0.0	15.0
		8	4	22.8	22.8	22.8	1.0	24.0	14.2	14.2	14.2	0.0	15.0
		8	7	22.8	22.8	22.8	1.0	24.0	14.2	14.2	14.2	0.0	15.0
	16QAM	15	0	22.8	22.8	22.7	1.0	24.0	14.2	14.2	14.1	0.0	15.0
		1	0	23.2	22.9	22.7	1.0	24.0	14.2	14.1	14.5	0.0	15.0
		1	8	23.1	22.8	22.6	1.0	24.0	14.2	14.0	14.4	0.0	15.0
		1	14	23.2	22.8	22.6	1.0	24.0	14.2	14.0	14.5	0.0	15.0
		8	0	21.9	21.9	21.9	2.0	23.0	14.3	14.3	14.2	0.0	15.0
		8	4	21.9	21.9	21.8	2.0	23.0	14.3	14.3	14.2	0.0	15.0
	64QAM	8	7	21.9	21.9	21.9	2.0	23.0	14.3	14.3	14.3	0.0	15.0
		15	0	21.9	21.8	21.8	2.0	23.0	14.2	14.2	14.2	0.0	15.0
		1	0	21.9	22.1	22.1	2.0	23.0	14.2	14.3	14.3	0.0	15.0
		1	8	21.9	22.1	22.1	2.0	23.0	14.2	14.3	14.3	0.0	15.0
		1	14	21.9	22.1	22.1	2.0	23.0	14.2	14.3	14.3	0.0	15.0
		8	0	20.8	20.8	20.8	3.0	22.0	14.2	14.1	14.1	0.0	15.0
1.4 MHz	QPSK	8	4	20.9	20.8	20.8	3.0	22.0	14.2	14.1	14.2	0.0	15.0
		8	7	20.9	20.8	20.9	3.0	22.0	14.2	14.1	14.2	0.0	15.0
		15	0	20.8	20.9	20.7	3.0	22.0	14.2	14.2	14.1	0.0	15.0
		1	0	23.5	23.7	23.6	0.0	25.0	14.0	14.0	14.1	0.0	15.0
		1	3	23.7	23.8	23.7	0.0	25.0	14.1	14.1	14.1	0.0	15.0
		1	5	23.7	23.7	23.6	0.0	25.0	14.1	14.0	14.0	0.0	15.0
	16QAM	3	0	23.7	23.7	23.7	0.0	25.0	14.1	14.0	14.0	0.0	15.0
		3	1	23.7	23.7	23.7	0.0	25.0	14.1	14.1	14.0	0.0	15.0
		3	3	23.7	23.7	23.7	0.0	25.0	14.1	14.1	14.0	0.0	15.0
		6	0	22.7	22.7	22.7	1.0	24.0	14.1	14.1	14.1	0.0	15.0
		1	0	22.7	22.9	23.1	1.0	24.0	14.4	14.1	14.2	0.0	15.0
		1	3	22.8	23.0	23.2	1.0	24.0	14.5	14.2	14.3	0.0	15.0
	64QAM	1	5	22.8	22.9	23.1	1.0	24.0	14.5	14.2	14.2	0.0	15.0
		3	0	22.9	22.8	22.9	1.0	24.0	14.3	14.3	14.1	0.0	15.0
		3	1	23.0	22.8	22.9	1.0	24.0	14.4	14.3	14.1	0.0	15.0
		3	3	23.0	22.8	22.9	1.0	24.0	14.3	14.3	14.2	0.0	15.0
		6	0	21.9	21.9	21.7	2.0	23.0	14.0	14.3	14.2	0.0	15.0
		1	0	22.1	21.8	21.9	2.0	23.0	14.1	14.1	14.4	0.0	15.0
64QAM	1	3	22.2	22.0	22.0	2.0	23.0	14.2	14.2	14.4	0.0	15.0	
	1	5	22.1	21.9	22.0	2.0	23.0	14.1	14.2	14.4	0.0	15.0	
	3	0	22.1	21.9	21.7	2.0	23.0	14.1	14.0	14.3	0.0	15.0	
	3	1	22.2	21.9	21.7	2.0	23.0	14.2	14.1	14.4	0.0	15.0	
	3	3	22.2	22.0	21.7	2.0	23.0	14.2	14.1	14.4	0.0	15.0	
	6	0	20.8	21.1	20.8	3.0	22.0	14.3	14.2	14.0	0.0	15.0	

LTE Band 13 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				Reduced Average Power (dBm) Proximity sensor back-off			
				Measured Pwr (dBm)		MPR	Tune-up Limit	Measured Pwr (dBm)		MPR	Tune-up Limit
				23230	782 MHz			23230	782 MHz		
10 MHz	QPSK	1	0	24.2		0.0	25.0	14.1		0.0	15.0
		1	25	24.1		0.0	25.0	14.2		0.0	15.0
		1	49	24.2		0.0	25.0	14.2		0.0	15.0
		25	0	23.1		1.0	24.0	14.3		0.0	15.0
		25	12	23.2		1.0	24.0	14.2		0.0	15.0
		25	25	23.2		1.0	24.0	14.3		0.0	15.0
	16QAM	50	0	23.1		1.0	24.0	14.1		0.0	15.0
		1	0	23.7		1.0	24.0	14.3		0.0	15.0
		1	25	23.5		1.0	24.0	14.1		0.0	15.0
		1	49	23.6		1.0	24.0	14.2		0.0	15.0
		25	0	22.2		2.0	23.0	14.3		0.0	15.0
		25	12	22.2		2.0	23.0	14.3		0.0	15.0
	64QAM	25	25	22.2		2.0	23.0	14.3		0.0	15.0
		50	0	22.1		2.0	23.0	14.2		0.0	15.0
		1	0	22.4		2.0	23.0	14.6		0.0	15.0
		1	25	22.2		2.0	23.0	14.5		0.0	15.0
		1	49	22.4		2.0	23.0	14.6		0.0	15.0
		25	0	21.3		3.0	22.0	14.4		0.0	15.0
		25	12	21.2		3.0	22.0	14.3		0.0	15.0
		25	25	21.2		3.0	22.0	14.3		0.0	15.0
50	0	21.1		3.0	22.0	14.2		0.0	15.0		
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				Reduced Average Power (dBm) Proximity sensor back-off			
				Measured Pwr (dBm)		MPR	Tune-up Limit	Measured Pwr (dBm)		MPR	Tune-up Limit
				23230	782 MHz			23230	782 MHz		
5 MHz	QPSK	1	0	24.1		0.0	25.0	14.4		0.0	15.0
		1	12	24.0		0.0	25.0	14.4		0.0	15.0
		1	24	24.1		0.0	25.0	14.2		0.0	15.0
		12	0	23.1		1.0	24.0	14.2		0.0	15.0
		12	7	23.1		1.0	24.0	14.2		0.0	15.0
		12	13	23.1		1.0	24.0	14.2		0.0	15.0
	16QAM	25	0	23.1		1.0	24.0	14.2		0.0	15.0
		1	0	23.3		1.0	24.0	14.5		0.0	15.0
		1	12	23.3		1.0	24.0	14.4		0.0	15.0
		1	24	23.3		1.0	24.0	14.4		0.0	15.0
		12	0	22.2		2.0	23.0	14.3		0.0	15.0
		12	7	22.2		2.0	23.0	14.3		0.0	15.0
	64QAM	12	13	22.2		2.0	23.0	14.3		0.0	15.0
		25	0	22.0		2.0	23.0	14.2		0.0	15.0
		1	0	22.1		2.0	23.0	14.3		0.0	15.0
		1	12	22.1		2.0	23.0	14.3		0.0	15.0
		1	24	22.0		2.0	23.0	14.2		0.0	15.0
		12	0	21.2		3.0	22.0	14.4		0.0	15.0
		12	7	21.1		3.0	22.0	14.3		0.0	15.0
		12	13	21.2		3.0	22.0	14.3		0.0	15.0
25	0	21.0		3.0	22.0	14.2		0.0	15.0		

LTE Band 17 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)		MPR	Tune-up Limit	Measured Pwr (dBm)		MPR	Tune-up Limit	
				23790	710 MHz			23790	710 MHz			
10 MHz	QPSK	1	0	23.7		0.0	25.0	16.1		0.0	17.0	
		1	25	23.7		0.0	25.0	16.1		0.0	17.0	
		1	49	23.7		0.0	25.0	16.1		0.0	17.0	
		25	0	22.8		1.0	24.0	16.2		0.0	17.0	
		25	12	22.7		1.0	24.0	16.2		0.0	17.0	
		25	25	22.8		1.0	24.0	16.2		0.0	17.0	
	16QAM	50	0	22.8		1.0	24.0	16.2		0.0	17.0	
		1	0	22.9		1.0	24.0	16.1		0.0	17.0	
		1	25	22.7		1.0	24.0	16.1		0.0	17.0	
		1	49	22.8		1.0	24.0	16.0		0.0	17.0	
		25	0	21.8		2.0	23.0	16.2		0.0	17.0	
		25	12	21.8		2.0	23.0	16.1		0.0	17.0	
	64QAM	25	25	21.8		2.0	23.0	16.2		0.0	17.0	
		50	0	21.8		2.0	23.0	16.2		0.0	17.0	
		1	0	22.1		2.0	23.0	16.5		0.0	17.0	
		1	25	22.2		2.0	23.0	16.6		0.0	17.0	
		1	49	22.1		2.0	23.0	16.4		0.0	17.0	
		25	0	20.8		3.0	22.0	16.2		0.0	17.0	
	5 MHz	QPSK	25	12	20.9		3.0	22.0	16.2		0.0	17.0
			25	25	20.8		3.0	22.0	16.3		0.0	17.0
50			0	20.8		3.0	22.0	16.2		0.0	17.0	
1			0	23.7		0.0	25.0	16.2		0.0	17.0	
1			12	23.8		0.0	25.0	16.2		0.0	17.0	
1			24	23.8		0.0	25.0	16.2		0.0	17.0	
16QAM		12	0	22.8		1.0	24.0	16.2		0.0	17.0	
		12	7	22.8		1.0	24.0	16.2		0.0	17.0	
		12	13	22.8		1.0	24.0	16.2		0.0	17.0	
		25	0	22.8		1.0	24.0	16.2		0.0	17.0	
		1	0	23.3		1.0	24.0	16.3		0.0	17.0	
		1	12	23.4		1.0	24.0	16.3		0.0	17.0	
64QAM		1	24	23.4		1.0	24.0	16.4		0.0	17.0	
		12	0	21.9		2.0	23.0	16.3		0.0	17.0	
		12	7	22.0		2.0	23.0	16.3		0.0	17.0	
		12	13	22.0		2.0	23.0	16.3		0.0	17.0	
		25	0	21.9		2.0	23.0	16.2		0.0	17.0	
		1	0	22.1		2.0	23.0	16.1		0.0	17.0	
QPSK		1	12	22.2		2.0	23.0	16.2		0.0	17.0	
		1	24	22.2		2.0	23.0	16.1		0.0	17.0	
	12	0	20.8		3.0	22.0	16.2		0.0	17.0		
	12	7	20.8		3.0	22.0	16.3		0.0	17.0		
	12	13	20.8		3.0	22.0	16.2		0.0	17.0		
	25	0	20.8		3.0	22.0	16.2		0.0	17.0		

LTE Band 25 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26140 1860 MHz	26365 1882.5 MHz	26590 1905 MHz			26140 1860 MHz	26365 1882.5 MHz	26590 1905 MHz		
20 MHz	QPSK	1	0	23.0	23.0	23.0	0.0	24.0	13.1	13.2	13.1	0.0	14.0
		1	49	22.9	23.0	22.9	0.0	24.0	13.1	13.3	13.1	0.0	14.0
		1	99	22.9	23.0	23.0	0.0	24.0	13.2	13.3	13.1	0.0	14.0
		50	0	22.0	22.0	21.9	1.0	23.0	13.2	13.2	13.2	0.0	14.0
		50	24	22.0	22.0	22.0	1.0	23.0	13.2	13.2	13.2	0.0	14.0
		50	50	22.0	22.0	22.0	1.0	23.0	13.2	13.3	13.2	0.0	14.0
	16QAM	100	0	21.9	21.9	21.9	1.0	23.0	13.1	13.1	13.1	0.0	14.0
		1	0	22.6	22.6	22.4	1.0	23.0	13.6	13.7	13.6	0.0	14.0
		1	49	22.5	22.6	22.3	1.0	23.0	13.5	13.7	13.5	0.0	14.0
		1	99	22.5	22.5	22.3	1.0	23.0	13.6	13.7	13.6	0.0	14.0
		50	0	21.0	21.0	20.9	2.0	22.0	13.2	13.2	13.2	0.0	14.0
		50	24	21.0	21.0	21.0	2.0	22.0	13.2	13.2	13.2	0.0	14.0
	64QAM	50	50	21.0	21.0	21.0	2.0	22.0	13.2	13.3	13.2	0.0	14.0
		100	0	21.0	20.9	20.9	2.0	22.0	13.1	13.1	13.1	0.0	14.0
		1	0	21.2	21.7	21.2	2.0	22.0	13.7	13.4	13.4	0.0	14.0
		1	49	21.2	21.6	21.2	2.0	22.0	13.7	13.4	13.5	0.0	14.0
		1	99	21.2	21.6	21.3	2.0	22.0	13.8	13.5	13.5	0.0	14.0
		50	0	20.0	20.0	20.0	3.0	21.0	13.3	13.2	13.2	0.0	14.0
15 MHz	QPSK	50	24	20.0	20.0	20.1	3.0	21.0	13.3	13.2	13.3	0.0	14.0
		50	50	20.0	20.0	20.1	3.0	21.0	13.2	13.3	13.2	0.0	14.0
		100	0	19.9	19.9	20.0	3.0	21.0	13.1	13.1	13.2	0.0	14.0
		1	0	22.7	23.0	23.0	0.0	24.0	12.9	13.2	13.0	0.0	14.0
		1	37	23.0	23.0	22.9	0.0	24.0	13.2	13.2	13.0	0.0	14.0
		1	74	22.9	23.0	22.9	0.0	24.0	13.1	13.2	13.0	0.0	14.0
	16QAM	36	0	21.9	21.9	21.8	1.0	23.0	13.1	13.1	13.0	0.0	14.0
		36	20	22.0	22.0	21.9	1.0	23.0	13.2	13.2	13.1	0.0	14.0
		36	39	22.0	22.1	22.0	1.0	23.0	13.2	13.3	13.1	0.0	14.0
		75	0	21.9	21.9	21.9	1.0	23.0	13.1	13.1	13.0	0.0	14.0
		1	0	22.1	22.4	22.0	1.0	23.0	13.3	13.6	13.1	0.0	14.0
		1	37	22.3	22.4	22.0	1.0	23.0	13.5	13.6	13.0	0.0	14.0
	64QAM	1	74	22.2	22.4	22.0	1.0	23.0	13.5	13.6	13.0	0.0	14.0
		36	0	20.9	20.9	20.8	2.0	22.0	13.2	13.1	13.0	0.0	14.0
		36	20	21.0	20.9	20.9	2.0	22.0	13.3	13.1	13.1	0.0	14.0
		36	39	21.1	21.0	21.0	2.0	22.0	13.3	13.2	13.1	0.0	14.0
		75	0	20.9	20.9	20.9	2.0	22.0	13.2	13.1	13.0	0.0	14.0
		1	0	20.9	21.6	21.2	2.0	22.0	13.0	13.7	13.4	0.0	14.0
10 MHz	QPSK	1	37	21.1	21.6	21.3	2.0	22.0	13.2	13.7	13.4	0.0	14.0
		1	74	21.0	21.7	21.3	2.0	22.0	13.2	13.7	13.4	0.0	14.0
		36	0	20.0	19.9	19.8	3.0	21.0	13.2	13.1	13.0	0.0	14.0
		36	20	20.1	20.0	20.0	3.0	21.0	13.3	13.2	13.1	0.0	14.0
		36	39	20.1	20.1	20.0	3.0	21.0	13.3	13.3	13.2	0.0	14.0
		75	0	20.0	20.0	19.9	3.0	21.0	13.2	13.2	13.0	0.0	14.0
	16QAM	1	0	22.8	22.8	23.0	0.0	24.0	13.0	13.0	13.1	0.0	14.0
		1	25	23.1	23.1	23.0	0.0	24.0	13.2	13.2	13.1	0.0	14.0
		1	49	22.8	22.9	23.0	0.0	24.0	13.0	13.0	13.1	0.0	14.0
		25	0	22.0	22.0	21.9	1.0	23.0	13.3	13.2	13.0	0.0	14.0
		25	12	22.1	22.1	22.1	1.0	23.0	13.3	13.3	13.2	0.0	14.0
		25	25	22.1	22.1	22.0	1.0	23.0	13.3	13.3	13.2	0.0	14.0
	64QAM	50	0	22.1	22.0	22.0	1.0	23.0	13.3	13.2	13.1	0.0	14.0
		1	0	22.2	21.9	22.1	1.0	23.0	13.4	13.1	13.2	0.0	14.0
		1	25	22.4	22.1	22.1	1.0	23.0	13.6	13.3	13.1	0.0	14.0
		1	49	22.2	21.8	22.0	1.0	23.0	13.5	13.1	13.1	0.0	14.0
		25	0	21.0	21.1	20.9	2.0	22.0	13.3	13.3	13.1	0.0	14.0
		25	12	21.2	21.2	21.1	2.0	22.0	13.4	13.4	13.2	0.0	14.0
64QAM	25	25	21.1	21.2	21.1	2.0	22.0	13.3	13.4	13.3	0.0	14.0	
	50	0	21.1	21.0	21.0	2.0	22.0	13.3	13.2	13.1	0.0	14.0	
	1	0	21.0	21.0	21.3	2.0	22.0	13.1	13.2	13.4	0.0	14.0	
	1	25	21.2	21.4	21.3	2.0	22.0	13.3	13.5	13.5	0.0	14.0	
	1	49	21.0	21.1	21.4	2.0	22.0	13.2	13.2	13.5	0.0	14.0	
	25	0	20.1	20.1	20.0	3.0	21.0	13.3	13.3	13.1	0.0	14.0	
64QAM	25	12	20.2	20.2	20.1	3.0	21.0	13.4	13.4	13.2	0.0	14.0	
	25	25	20.2	20.2	20.1	3.0	21.0	13.4	13.3	13.2	0.0	14.0	
	50	0	20.1	20.0	20.0	3.0	21.0	13.3	13.2	13.1	0.0	14.0	

LTE Band 25 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26065	26365	26665			26065	26365	26665		
				1852.5 MHz	1882.5 MHz	1912.5 MHz			1852.5 MHz	1882.5 MHz	1912.5 MHz		
5 MHz	QPSK	1	0	23.0	23.0	23.1	0.0	24	13.2	13.2	13.3	0.0	14
		1	12	23.1	23.1	23.1	0.0	24	13.3	13.4	13.3	0.0	14
		1	24	23.1	23.2	23.1	0.0	24	13.3	13.4	13.3	0.0	14
		12	0	22.1	22.1	22.0	1.0	23	13.3	13.3	13.2	0.0	14
		12	7	22.2	22.2	22.1	1.0	23	13.4	13.3	13.3	0.0	14
		12	13	22.2	22.2	22.1	1.0	23	13.4	13.4	13.3	0.0	14
		25	0	22.1	22.1	22.1	1.0	23	13.4	13.3	13.3	0.0	14
	16QAM	1	0	22.6	22.2	22.2	1.0	23	13.7	13.4	13.4	0.0	14
		1	12	22.7	22.3	22.3	1.0	23	13.7	13.4	13.4	0.0	14
		1	24	22.7	22.3	22.3	1.0	23	13.8	13.5	13.4	0.0	14
		12	0	21.2	21.1	21.1	2.0	22	13.4	13.3	13.3	0.0	14
		12	7	21.3	21.2	21.2	2.0	22	13.5	13.4	13.4	0.0	14
		12	13	21.3	21.2	21.2	2.0	22	13.5	13.5	13.3	0.0	14
		25	0	21.2	21.1	21.1	2.0	22	13.4	13.2	13.2	0.0	14
	64QAM	1	0	21.5	21.3	20.9	2.0	22	13.6	13.5	13.2	0.0	14
		1	12	21.4	21.4	21.0	2.0	22	13.6	13.6	13.2	0.0	14
		1	24	21.5	21.4	21.0	2.0	22	13.6	13.7	13.2	0.0	14
		12	0	20.0	20.1	20.1	3.0	21	13.3	13.3	13.3	0.0	14
		12	7	20.1	20.2	20.2	3.0	21	13.3	13.4	13.3	0.0	14
		12	13	20.1	20.3	20.2	3.0	21	13.3	13.5	13.3	0.0	14
		25	0	20.1	20.2	20.1	3.0	21	13.3	13.3	13.2	0.0	14
3 MHz	QPSK	1	0	23.0	22.9	23.0	0.0	24	13.3	13.2	13.1	0.0	14
		1	8	23.1	23.0	23.0	0.0	24	13.3	13.2	13.1	0.0	14
		1	14	23.1	23.1	23.0	0.0	24	13.3	13.3	13.2	0.0	14
8		0	22.1	22.1	22.0	1.0	23	13.3	13.3	13.2	0.0	14	
8		4	22.1	22.2	22.1	1.0	23	13.3	13.4	13.2	0.0	14	
8		7	22.1	22.2	22.1	1.0	23	13.4	13.4	13.3	0.0	14	
15		0	22.1	22.1	22.1	1.0	23	13.3	13.3	13.2	0.0	14	
16QAM	1	0	22.5	22.1	22.0	1.0	23	13.7	13.3	13.1	0.0	14	
	1	8	22.5	22.1	22.0	1.0	23	13.7	13.4	13.1	0.0	14	
	1	14	22.6	22.2	22.1	1.0	23	13.7	13.4	13.2	0.0	14	
	8	0	21.2	21.1	21.2	2.0	22	13.4	13.3	13.3	0.0	14	
	8	4	21.2	21.2	21.2	2.0	22	13.4	13.4	13.3	0.0	14	
	8	7	21.2	21.2	21.3	2.0	22	13.5	13.4	13.4	0.0	14	
	15	0	21.2	21.1	21.1	2.0	22	13.4	13.2	13.2	0.0	14	
64QAM	1	0	21.2	21.4	21.5	2.0	22	13.4	13.5	13.5	0.0	14	
	1	8	21.2	21.3	21.4	2.0	22	13.4	13.5	13.5	0.0	14	
	1	14	21.2	21.5	21.5	2.0	22	13.5	13.6	13.6	0.0	14	
	8	0	20.1	20.0	20.1	3.0	21	13.3	13.2	13.2	0.0	14	
	8	4	20.2	20.1	20.2	3.0	21	13.4	13.3	13.3	0.0	14	
	8	7	20.2	20.1	20.2	3.0	21	13.4	13.4	13.3	0.0	14	
	15	0	20.2	20.2	20.1	3.0	21	13.4	13.3	13.2	0.0	14	
1.4 MHz	QPSK	1	0	22.9	23.0	22.9	0.0	24	13.1	13.2	13.1	0.0	14
		1	3	23.0	23.0	23.1	0.0	24	13.2	13.3	13.2	0.0	14
		1	5	23.0	23.0	23.0	0.0	24	13.1	13.2	13.1	0.0	14
3		0	22.9	23.0	22.9	0.0	24	13.2	13.2	13.1	0.0	14	
3		1	23.0	23.0	23.0	0.0	24	13.2	13.2	13.1	0.0	14	
3		3	23.0	23.0	23.0	0.0	24	13.2	13.3	13.2	0.0	14	
6		0	22.0	22.1	22.0	1.0	23	13.2	13.3	13.2	0.0	14	
16QAM	1	0	22.0	22.2	22.4	1.0	23	13.2	13.4	13.5	0.0	14	
	1	3	22.1	22.2	22.5	1.0	23	13.3	13.4	13.6	0.0	14	
	1	5	22.1	22.2	22.4	1.0	23	13.3	13.4	13.5	0.0	14	
	3	0	22.2	22.1	22.2	1.0	23	13.4	13.3	13.4	0.0	14	
	3	1	22.3	22.1	22.2	1.0	23	13.4	13.3	13.4	0.0	14	
	3	3	22.3	22.1	22.2	1.0	23	13.5	13.4	13.4	0.0	14	
	6	0	21.2	21.2	20.9	2.0	22	13.4	13.4	13.1	0.0	14	
64QAM	1	0	21.4	21.5	21.1	2.0	22	13.6	13.4	13.4	0.0	14	
	1	3	21.4	21.6	21.2	2.0	22	13.7	13.5	13.4	0.0	14	
	1	5	21.4	21.5	21.1	2.0	22	13.7	13.4	13.4	0.0	14	
	3	0	21.0	21.4	21.1	2.0	22	13.6	13.4	13.2	0.0	14	
	3	1	21.0	21.5	21.2	2.0	22	13.6	13.5	13.2	0.0	14	
	3	3	21.0	21.5	21.2	2.0	22	13.6	13.5	13.2	0.0	14	
6	0	20.1	20.1	20.3	3.0	21	13.2	13.6	13.2	0.0	14		

LTE Band 26 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26740	26865	26990			26865	831.5 MHz	844 MHz		
15 MHz	QPSK	1	0	24.1	24.1	24.1	0.0	25.5	16.1	16.1	16.1	0.0	17.5
		1	37	24.1	24.1	24.1	0.0	25.5	16.0	16.0	16.0	0.0	17.5
		1	74	24.1	24.1	24.1	0.0	25.5	16.0	16.0	16.0	0.0	17.5
		36	0	23.0	23.0	23.0	1.0	24.5	15.9	15.9	15.9	0.0	17.5
		36	20	23.1	23.1	23.1	1.0	24.5	16.2	16.2	16.2	0.0	17.5
		36	39	23.1	23.1	23.1	1.0	24.5	16.0	16.0	16.0	0.0	17.5
		75	0	23.1	23.1	23.1	1.0	24.5	15.9	15.9	15.9	0.0	17.5
	16QAM	1	0	23.5	23.5	23.5	1.0	24.5	16.4	16.4	16.4	0.0	17.5
		1	37	23.4	23.4	23.4	1.0	24.5	16.4	16.4	16.4	0.0	17.5
		1	74	23.5	23.5	23.5	1.0	24.5	16.4	16.4	16.4	0.0	17.5
		36	0	22.1	22.1	22.1	2.0	23.5	16.0	16.0	16.0	0.0	17.5
		36	20	22.2	22.2	22.2	2.0	23.5	16.0	16.0	16.0	0.0	17.5
		36	39	22.2	22.2	22.2	2.0	23.5	16.1	16.1	16.1	0.0	17.5
		75	0	22.1	22.1	22.1	2.0	23.5	16.0	16.0	16.0	0.0	17.5
	64QAM	1	0	22.4	22.4	22.4	2.0	23.5	16.2	16.2	16.2	0.0	17.5
		1	37	22.4	22.4	22.4	2.0	23.5	16.1	16.1	16.1	0.0	17.5
		1	74	22.4	22.4	22.4	2.0	23.5	16.1	16.1	16.1	0.0	17.5
		36	0	21.2	21.2	21.2	3.0	22.5	16.0	16.0	16.0	0.0	17.5
		36	20	21.2	21.2	21.2	3.0	22.5	16.1	16.1	16.1	0.0	17.5
		36	39	21.2	21.2	21.2	3.0	22.5	16.1	16.1	16.1	0.0	17.5
		75	0	21.1	21.1	21.1	3.0	22.5	16.0	16.0	16.0	0.0	17.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					Measured Pwr (dBm)				
				26740	26865	26990	MPR	Tune-up Limit	26740	26865	26990	MPR	Tune-up Limit
				819 MHz	831.5 MHz	844 MHz			819 MHz	831.5 MHz	844 MHz		
10 MHz	QPSK	1	0	24.3	24.1	24.3	0.0	25.5	16.2	16.2	16.2	0.0	17.5
		1	25	23.3	24.1	24.3	0.0	25.5	16.2	16.2	16.1	0.0	17.5
		1	49	23.4	24.2	24.3	0.0	25.5	16.2	16.2	16.1	0.0	17.5
		25	0	23.4	23.2	23.2	1.0	24.5	16.2	16.1	16.1	0.0	17.5
		25	12	23.3	23.3	23.3	1.0	24.5	16.3	16.2	16.2	0.0	17.5
		25	25	23.5	23.3	23.3	1.0	24.5	16.3	16.2	16.2	0.0	17.5
		50	0	23.4	23.2	23.2	1.0	24.5	16.2	16.1	16.1	0.0	17.5
	16QAM	1	0	23.3	23.5	23.7	1.0	24.5	16.3	16.3	16.3	0.0	17.5
		1	25	22.4	23.5	23.7	1.0	24.5	16.3	16.3	16.2	0.0	17.5
		1	49	22.5	23.5	23.8	1.0	24.5	16.2	16.3	16.1	0.0	17.5
		25	0	22.5	22.3	22.2	2.0	23.5	16.3	16.2	16.2	0.0	17.5
		25	12	22.4	22.4	22.3	2.0	23.5	16.4	16.3	16.3	0.0	17.5
		25	25	22.5	22.4	22.3	2.0	23.5	16.3	16.3	16.2	0.0	17.5
		50	0	22.4	22.2	22.2	2.0	23.5	16.3	16.1	16.1	0.0	17.5
	64QAM	1	0	22.7	22.9	22.8	2.0	23.5	16.5	16.6	16.5	0.0	17.5
		1	25	22.7	22.8	22.7	2.0	23.5	16.5	16.6	16.6	0.0	17.5
		1	49	22.8	22.7	22.7	2.0	23.5	16.5	16.5	16.5	0.0	17.5
		25	0	21.4	21.3	21.3	3.0	22.5	16.2	16.2	16.2	0.0	17.5
		25	12	21.5	21.4	21.4	3.0	22.5	16.4	16.3	16.3	0.0	17.5
		25	25	21.4	21.4	21.3	3.0	22.5	16.3	16.3	16.3	0.0	17.5
		50	0	21.4	21.2	21.2	3.0	22.5	16.3	16.1	16.2	0.0	17.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					Measured Pwr (dBm)				
				26715	26865	27015	MPR	Tune-up Limit	26715	26865	27015	MPR	Tune-up Limit
				816.5 MHz	831.5 MHz	846.5 MHz			816.5 MHz	831.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	24.3	24.3	24.5	0.0	25.5	16.2	16.2	16.2	0.0	17.5
		1	12	24.3	24.4	24.3	0.0	25.5	16.3	16.3	16.2	0.0	17.5
		1	24	24.4	24.4	24.4	0.0	25.5	16.3	16.3	16.2	0.0	17.5
		12	0	23.4	23.3	23.3	1.0	24.5	16.3	16.2	16.2	0.0	17.5
		12	7	23.5	23.3	23.3	1.0	24.5	16.3	16.3	16.3	0.0	17.5
		12	13	23.4	23.4	23.3	1.0	24.5	16.3	16.3	16.2	0.0	17.5
		25	0	23.4	23.3	23.3	1.0	24.5	16.3	16.2	16.2	0.0	17.5
	16QAM	1	0	23.4	23.5	23.8	1.0	24.5	16.3	16.4	16.4	0.0	17.5
		1	12	23.5	23.5	23.8	1.0	24.5	16.4	16.4	16.3	0.0	17.5
		1	24	23.5	23.5	23.8	1.0	24.5	16.4	16.5	16.4	0.0	17.5
		12	0	22.5	22.3	22.4	2.0	23.5	16.3	16.2	16.3	0.0	17.5
		12	7	22.5	22.4	22.5	2.0	23.5	16.4	16.3	16.3	0.0	17.5
		12	13	22.5	22.4	22.4	2.0	23.5	16.4	16.3	16.3	0.0	17.5
		25	0	22.3	22.3	22.3	2.0	23.5	16.3	16.2	16.2	0.0	17.5
	64QAM	1	0	22.6	22.6	22.3	2.0	23.5	16.2	16.3	16.2	0.0	17.5
		1	12	22.6	22.6	22.3	2.0	23.5	16.3	16.3	16.1	0.0	17.5
		1	24	22.7	22.7	22.3	2.0	23.5	16.2	16.2	16.1	0.0	17.5
		12	0	21.4	21.4	21.3	3.0	22.5	16.3	16.3	16.3	0.0	17.5
		12	7	21.4	21.4	21.4	3.0	22.5	16.4	16.3	16.3	0.0	17.5
		12	13	21.4	21.4	21.4	3.0	22.5	16.4	16.3	16.3	0.0	17.5
		25	0	21.4	21.3	21.3	3.0	22.5	16.3	16.2	16.2	0.0	17.5

LTE Band 26 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pw r (dBm)			MPR	Tune-up Limit	Measured Pw r (dBm)			MPR	Tune-up Limit
				26705	26865	27025			26705	26865	27025		
				815.5 MHz	831.5 MHz	847.5 MHz			815.5 MHz	831.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	24.3	24.3	24.3	0.0	25.5	16.2	16.1	16.1	0.0	17.5
		1	8	24.3	24.1	24.2	0.0	25.5	16.1	16.1	16.0	0.0	17.5
		1	14	24.3	24.2	24.3	0.0	25.5	16.2	16.2	16.1	0.0	17.5
		8	0	23.4	23.2	23.2	1.0	24.5	16.3	16.2	16.2	0.0	17.5
		8	4	23.4	23.3	23.3	1.0	24.5	16.3	16.2	16.2	0.0	17.5
		8	7	23.4	23.4	23.3	1.0	24.5	16.3	16.3	16.2	0.0	17.5
		15	0	23.4	23.3	23.3	1.0	24.5	16.3	16.2	16.2	0.0	17.5
	16QAM	1	0	23.4	23.1	23.7	1.0	24.5	16.3	16.3	16.3	0.0	17.5
		1	8	23.3	23.1	23.6	1.0	24.5	16.3	16.3	16.2	0.0	17.5
		1	14	23.3	23.2	23.7	1.0	24.5	16.3	16.3	16.2	0.0	17.5
		8	0	22.4	22.4	22.3	2.0	23.5	16.4	16.3	16.2	0.0	17.5
		8	4	22.5	22.4	22.4	2.0	23.5	16.4	16.3	16.3	0.0	17.5
		8	7	22.5	22.5	22.4	2.0	23.5	16.4	16.3	16.3	0.0	17.5
		15	0	22.3	22.3	22.3	2.0	23.5	16.3	16.2	16.2	0.0	17.5
	64QAM	1	0	22.5	22.5	22.7	2.0	23.5	16.4	16.6	16.5	0.0	17.5
		1	8	22.5	22.5	22.6	2.0	23.5	16.6	16.6	16.4	0.0	17.5
		1	14	22.5	22.6	22.6	2.0	23.5	16.3	16.4	16.5	0.0	17.5
		8	0	21.5	21.3	21.3	3.0	22.5	16.4	16.3	16.3	0.0	17.5
		8	4	21.5	21.3	21.4	3.0	22.5	16.5	16.3	16.3	0.0	17.5
		8	7	21.5	21.4	21.4	3.0	22.5	16.5	16.4	16.3	0.0	17.5
		15	0	21.4	21.4	21.3	3.0	22.5	16.3	16.2	16.2	0.0	17.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pw r (dBm)			MPR	Tune-up Limit	Measured Pw r (dBm)			MPR	Tune-up Limit
				26697	26865	27033			26697	26865	27033		
				814.7 MHz	831.5 MHz	848.3 MHz			814.7 MHz	831.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	24.4	24.3	24.2	0.0	25.5	16.1	16.0	16.0	0.0	17.5
		1	3	24.4	24.3	24.3	0.0	25.5	16.2	16.2	16.1	0.0	17.5
		1	5	24.4	24.3	24.2	0.0	25.5	16.1	16.1	16.0	0.0	17.5
		3	0	24.3	24.3	24.1	0.0	25.5	16.1	16.0	16.0	0.0	17.5
		3	1	24.3	24.3	24.2	0.0	25.5	16.2	16.1	16.1	0.0	17.5
		3	3	24.4	24.3	24.2	0.0	25.5	16.2	16.1	16.1	0.0	17.5
		6	0	23.3	23.3	23.2	1.0	24.5	16.2	16.2	16.1	0.0	17.5
	16QAM	1	0	23.4	23.5	23.5	1.0	24.5	16.3	16.1	16.1	0.0	17.5
		1	3	23.4	23.6	23.7	1.0	24.5	16.3	16.3	16.2	0.0	17.5
		1	5	23.4	23.6	23.5	1.0	24.5	16.3	16.2	16.2	0.0	17.5
		3	0	23.6	23.3	23.4	1.0	24.5	16.4	16.3	16.3	0.0	17.5
		3	1	23.7	23.4	23.5	1.0	24.5	16.4	16.4	16.3	0.0	17.5
		3	3	23.6	23.4	23.5	1.0	24.5	16.4	16.4	16.3	0.0	17.5
		6	0	22.5	22.4	22.1	2.0	23.5	16.4	16.4	16.3	0.0	17.5
	64QAM	1	0	22.5	22.6	22.4	2.0	23.5	16.4	16.5	16.5	0.0	17.5
		1	3	22.6	22.8	22.5	2.0	23.5	16.4	16.5	16.6	0.0	17.5
		1	5	22.6	22.7	22.3	2.0	23.5	16.4	16.5	16.5	0.0	17.5
		3	0	22.2	22.7	22.4	2.0	23.5	16.6	16.5	16.5	0.0	17.5
		3	1	22.3	22.7	22.5	2.0	23.5	16.5	16.6	16.5	0.0	17.5
		3	3	22.3	22.8	22.5	2.0	23.5	16.5	16.5	16.5	0.0	17.5
		6	0	21.5	21.3	21.6	3.0	22.5	16.2	16.2	16.1	0.0	17.5

LTE Band 66 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572			132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	22.7	22.8	23.0	0.0	24	12.8	12.9	13.1	0.0	14
		1	49	23.0	23.1	22.9	0.0	24	13.1	13.2	13.0	0.0	14
		1	99	22.8	22.8	22.8	0.0	24	12.9	12.9	13.0	0.0	14
		50	0	22.0	22.1	22.0	1.0	23	13.1	13.2	13.1	0.0	14
		50	24	22.1	22.2	22.0	1.0	23	13.2	13.3	13.2	0.0	14
		50	50	22.1	22.0	21.8	1.0	23	13.2	13.1	13.0	0.0	14
	16QAM	100	0	22.0	22.1	22.0	1.0	23	13.2	13.2	13.1	0.0	14
	16QAM	1	0	22.3	22.4	22.4	1.0	23	13.4	13.4	13.6	0.0	14
		1	49	22.6	22.7	22.3	1.0	23	13.7	13.7	13.5	0.0	14
		1	99	22.4	22.4	22.2	1.0	23	13.5	13.4	13.4	0.0	14
		50	0	21.0	21.1	21.0	2.0	22	13.2	13.2	13.1	0.0	14
		50	24	21.1	21.2	21.0	2.0	22	13.3	13.3	13.1	0.0	14
		50	50	21.0	21.1	20.8	2.0	22	13.2	13.2	13.0	0.0	14
	64QAM	100	0	21.1	21.1	21.0	2.0	22	13.2	13.2	13.1	0.0	14
	64QAM	1	0	21.3	21.1	21.3	2.0	22	13.5	13.3	13.4	0.0	14
		1	49	21.7	21.4	21.2	2.0	22	13.7	13.6	13.3	0.0	14
		1	99	21.5	21.1	21.0	2.0	22	13.6	13.3	13.1	0.0	14
		50	0	20.0	20.1	20.0	3.0	21	13.2	13.3	13.1	0.0	14
50		24	20.2	20.2	20.1	3.0	21	13.3	13.3	13.2	0.0	14	
50		50	20.1	20.1	19.8	3.0	21	13.2	13.2	13.0	0.0	14	
100	0	20.1	20.1	20.0	3.0	21	13.2	13.2	13.1	0.0	14		
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132047	132322	132597			132047	132322	132597		
				1717.5 MHz	1745 MHz	1772.5 MHz			1717.5 MHz	1745 MHz	1772.5 MHz		
				15 MHz	QPSK	1	0	22.9	22.9	23.0	0.0	24	13.0
1	37	23.0	23.1			22.9	0.0	24	13.1	13.2	13.0	0.0	14
1	74	22.9	22.9			22.8	0.0	24	13.0	13.0	13.0	0.0	14
36	0	22.0	22.1			22.0	1.0	23	13.1	13.2	13.2	0.0	14
36	20	22.1	22.1			22.0	1.0	23	13.3	13.2	13.1	0.0	14
36	39	22.1	22.1			21.9	1.0	23	13.2	13.1	13.1	0.0	14
75	0	22.1	22.0		22.0	1.0	23	13.2	13.1	13.1	0.0	14	
16QAM	1	0	22.3		21.9	22.4	1.0	23	13.4	13.0	13.5	0.0	14
	1	37	22.5		22.1	22.3	1.0	23	13.5	13.1	13.4	0.0	14
	1	74	22.3		21.9	22.2	1.0	23	13.4	12.9	13.4	0.0	14
	36	0	21.0		21.1	21.1	2.0	22	13.1	13.2	13.2	0.0	14
	36	20	21.1		21.1	21.1	2.0	22	13.2	13.2	13.2	0.0	14
	36	39	21.0		21.0	21.0	2.0	22	13.2	13.2	13.2	0.0	14
75	0	21.0	21.0		21.0	2.0	22	13.2	13.2	13.1	0.0	14	
64QAM	1	0	21.0		21.3	21.6	2.0	22	13.1	13.6	13.5	0.0	14
	1	37	21.2		21.4	21.5	2.0	22	13.3	13.7	13.4	0.0	14
	1	74	21.1		21.2	21.4	2.0	22	13.1	13.6	13.2	0.0	14
	36	0	20.1		20.2	20.0	3.0	21	13.2	13.2	13.2	0.0	14
	36	20	20.2	20.2	20.0	3.0	21	13.3	13.2	13.2	0.0	14	
	36	39	20.2	20.1	20.0	3.0	21	13.3	13.2	13.1	0.0	14	
75	0	20.1	20.1	20.0	3.0	21	13.2	13.2	13.1	0.0	14		
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622			132022	132322	132622		
				1715 MHz	1745 MHz	1775 MHz			1715 MHz	1745 MHz	1775 MHz		
				10 MHz	QPSK	1	0	22.8	22.9	22.8	0.0	24	12.9
1	25	23.1	23.2			23.1	0.0	24	13.2	13.3	13.2	0.0	14
1	49	22.9	23.0			22.8	0.0	24	13.0	13.0	13.0	0.0	14
25	0	22.1	22.2			22.1	1.0	23	13.1	13.3	13.2	0.0	14
25	12	22.2	22.3			22.1	1.0	23	13.3	13.3	13.2	0.0	14
25	25	22.1	22.2			22.0	1.0	23	13.2	13.3	13.1	0.0	14
50	0	22.2	22.2		22.1	1.0	23	13.3	13.3	13.1	0.0	14	
16QAM	1	0	21.9		22.0	22.2	1.0	23	13.0	13.0	13.3	0.0	14
	1	25	22.2		22.3	22.5	1.0	23	13.3	13.3	13.6	0.0	14
	1	49	21.9		22.0	22.2	1.0	23	13.1	13.1	13.3	0.0	14
	25	0	21.2		21.2	21.1	2.0	22	13.3	13.3	13.2	0.0	14
	25	12	21.4		21.3	21.1	2.0	22	13.4	13.4	13.3	0.0	14
	25	25	21.3		21.2	21.0	2.0	22	13.4	13.3	13.2	0.0	14
50	0	21.2	21.2		21.0	2.0	22	13.3	13.3	13.2	0.0	14	
64QAM	1	0	21.1		21.2	21.1	2.0	22	13.0	13.2	13.2	0.0	14
	1	25	21.3		21.6	21.3	2.0	22	13.4	13.5	13.5	0.0	14
	1	49	21.1		21.3	21.0	2.0	22	13.2	13.3	13.2	0.0	14
	25	0	20.2		20.2	20.1	3.0	21	13.3	13.4	13.2	0.0	14
	25	12	20.3	20.3	20.2	3.0	21	13.4	13.4	13.3	0.0	14	
	25	25	20.2	20.2	20.1	3.0	21	13.3	13.4	13.2	0.0	14	
50	0	20.2	20.2	20.1	3.0	21	13.3	13.2	13.2	0.0	14		

LTE Band 66 Measured Results (continued)

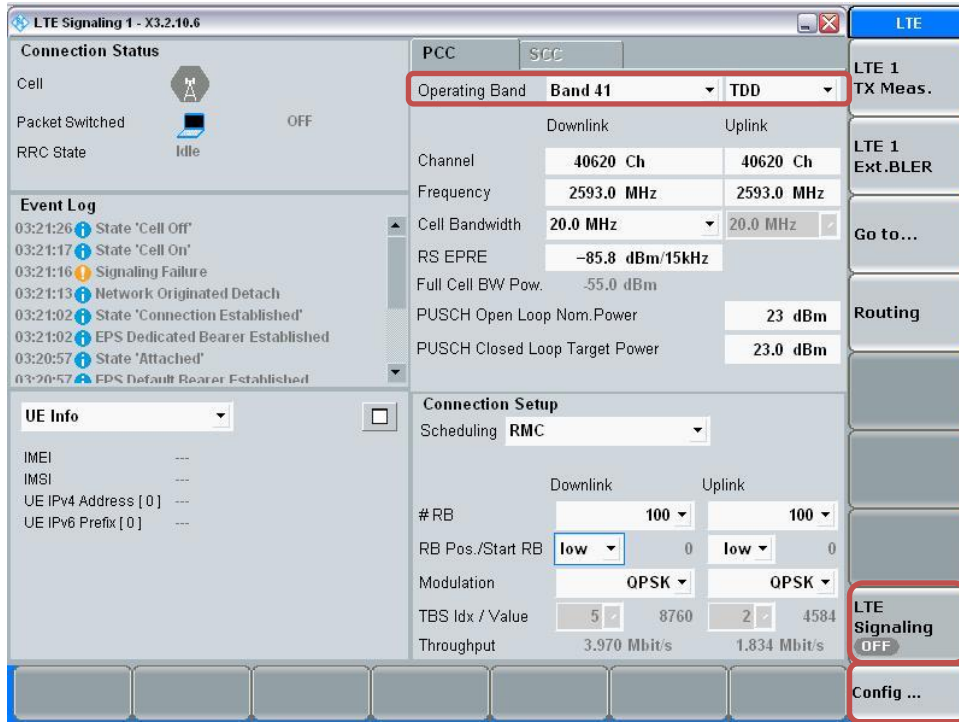
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pw r (dBm)			MPR	Tune-up Limit	Measured Pw r (dBm)			MPR	Tune-up Limit	
				131997	132322	132647			131997	132322	132647			
				1712.5 MHz	1745 MHz	1777.5 MHz			1712.5 MHz	1745 MHz	1777.5 MHz			
5 MHz	QPSK	1	0	23.1	23.3	23.0	0.0	24	13.2	13.3	13.2	0.0	14	
		1	12	23.1	23.3	23.1	0.0	24	13.3	13.4	13.2	0.0	14	
		1	24	23.1	23.3	22.9	0.0	24	13.2	13.3	13.1	0.0	14	
		12	0	22.3	22.3	22.1	1.0	23	13.4	13.4	13.2	0.0	14	
		12	7	22.3	22.3	22.1	1.0	23	13.3	13.4	13.2	0.0	14	
		12	13	22.2	22.3	22.0	1.0	23	13.3	13.4	13.1	0.0	14	
		25	0	22.2	22.3	22.1	1.0	23	13.3	13.3	13.2	0.0	14	
	16QAM	1	0	22.3	22.4	22.6	1.0	23	13.4	13.5	13.7	0.0	14	
		1	12	22.4	22.5	22.6	1.0	23	13.4	13.5	13.7	0.0	14	
		1	24	22.3	22.4	22.5	1.0	23	13.4	13.5	13.6	0.0	14	
		12	0	21.3	21.4	21.3	2.0	22	13.4	13.4	13.4	0.0	14	
		12	7	21.3	21.4	21.2	2.0	22	13.4	13.5	13.4	0.0	14	
		12	13	21.3	21.4	21.2	2.0	22	13.3	13.5	13.3	0.0	14	
		25	0	21.2	21.3	21.1	2.0	22	13.3	13.3	13.2	0.0	14	
	64QAM	1	0	21.5	21.2	21.3	2.0	22	13.6	13.6	13.1	0.0	14	
		1	12	21.5	21.3	21.3	2.0	22	13.6	13.6	13.1	0.0	14	
		1	24	21.5	21.2	21.3	2.0	22	13.6	13.6	13.0	0.0	14	
		12	0	20.2	20.3	20.2	3.0	21	13.3	13.5	13.3	0.0	14	
		12	7	20.2	20.4	20.2	3.0	21	13.3	13.5	13.3	0.0	14	
		12	13	20.1	20.3	20.1	3.0	21	13.3	13.5	13.2	0.0	14	
		25	0	20.2	20.2	20.1	3.0	21	13.3	13.4	13.1	0.0	14	
	3 MHz	QPSK	1	0	23.1	23.2	23.1	0.0	24	13.2	13.3	13.2	0.0	14
			1	8	23.1	23.2	23.0	0.0	24	13.1	13.3	13.2	0.0	14
			1	14	23.1	23.2	23.0	0.0	24	13.2	13.3	13.1	0.0	14
	8		0	22.3	22.3	22.1	1.0	23	13.3	13.4	13.2	0.0	14	
8	4		22.3	22.3	22.1	1.0	23	13.3	13.4	13.2	0.0	14		
8	7		22.3	22.4	22.1	1.0	23	13.3	13.4	13.2	0.0	14		
15	0		22.2	22.3	22.0	1.0	23	13.3	13.3	13.2	0.0	14		
16QAM	1	0	22.3	22.3	22.5	1.0	23	13.4	13.3	13.6	0.0	14		
	1	8	22.2	22.3	22.4	1.0	23	13.3	13.3	13.5	0.0	14		
	1	14	22.2	22.2	22.4	1.0	23	13.3	13.3	13.5	0.0	14		
	8	0	21.3	21.4	21.1	2.0	22	13.4	13.5	13.3	0.0	14		
	8	4	21.3	21.4	21.2	2.0	22	13.4	13.5	13.3	0.0	14		
	8	7	21.3	21.5	21.2	2.0	22	13.4	13.5	13.3	0.0	14		
	15	0	21.2	21.3	21.1	2.0	22	13.3	13.4	13.3	0.0	14		
64QAM	1	0	21.3	21.7	21.5	2.0	22	13.4	13.6	13.5	0.0	14		
	1	8	21.3	21.6	21.4	2.0	22	13.4	13.6	13.4	0.0	14		
	1	14	21.3	21.6	21.3	2.0	22	13.4	13.5	13.4	0.0	14		
	8	0	20.3	20.3	20.1	3.0	21	13.4	13.3	13.3	0.0	14		
	8	4	20.3	20.3	20.1	3.0	21	13.4	13.3	13.3	0.0	14		
	8	7	20.3	20.4	20.1	3.0	21	13.4	13.4	13.3	0.0	14		
	15	0	20.3	20.3	20.1	3.0	21	13.4	13.4	13.2	0.0	14		
1.4 MHz	QPSK	1	0	23.0	23.2	23.0	0.0	24	13.1	13.3	13.1	0.0	14	
		1	3	23.2	23.1	23.0	0.0	24	13.2	13.3	13.2	0.0	14	
		1	5	23.1	23.1	22.9	0.0	24	13.1	13.3	13.0	0.0	14	
3		0	23.1	23.2	22.9	0.0	24	13.1	13.2	13.1	0.0	14		
3		1	23.1	23.2	23.0	0.0	24	13.2	13.3	13.1	0.0	14		
3		3	23.1	23.2	23.0	0.0	24	13.2	13.3	13.1	0.0	14		
6		0	22.2	22.2	22.0	1.0	23	13.2	13.3	13.1	0.0	14		
16QAM	1	0	22.5	22.3	22.2	1.0	23	13.2	13.5	13.5	0.0	14		
	1	3	22.6	22.3	22.3	1.0	23	13.3	13.5	13.6	0.0	14		
	1	5	22.5	22.2	22.1	1.0	23	13.3	13.4	13.4	0.0	14		
	3	0	22.4	22.4	22.0	1.0	23	13.5	13.4	13.3	0.0	14		
	3	1	22.4	22.5	22.1	1.0	23	13.5	13.4	13.4	0.0	14		
	3	3	22.4	22.5	22.1	1.0	23	13.5	13.4	13.3	0.0	14		
	6	0	21.1	21.4	21.2	2.0	22	13.4	13.5	13.0	0.0	14		
64QAM	1	0	21.1	21.4	22.0	2.0	22	13.4	13.7	13.2	0.0	14		
	1	3	21.2	21.5	21.2	2.0	22	13.5	13.7	13.3	0.0	14		
	1	5	21.2	21.5	21.1	2.0	22	13.4	13.7	13.2	0.0	14		
	3	0	21.1	21.0	21.0	2.0	22	13.2	13.7	13.2	0.0	14		
	3	1	21.1	21.0	21.1	2.0	22	13.3	13.7	13.3	0.0	14		
	3	3	21.1	21.0	21.0	2.0	22	13.2	13.7	13.3	0.0	14		
6	0	21.0	20.9	20.9	3.0	21	13.4	13.3	13.4	0.0	14			

LTE Band TDD Measured Results

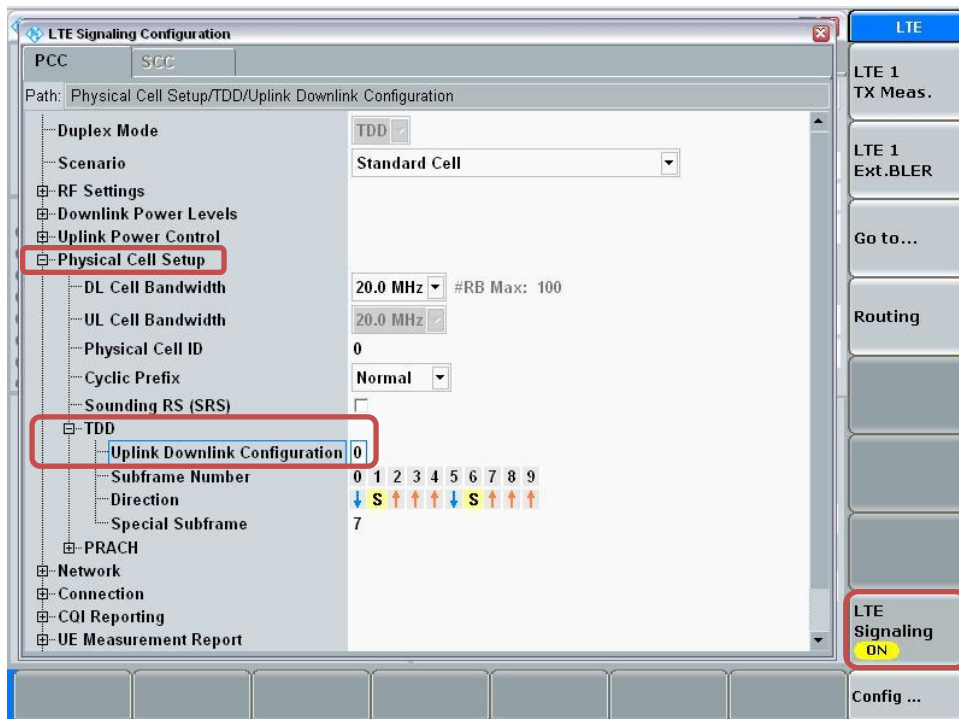
Procedure used to establish SAR test signal for LTE TDD Band

Set to CMW-500 with following parameters:

- Turn the LTE Signaling off using “ON | OFF” key
- Operating Band: Select Band 41 and TDD
- Go to “Config...”

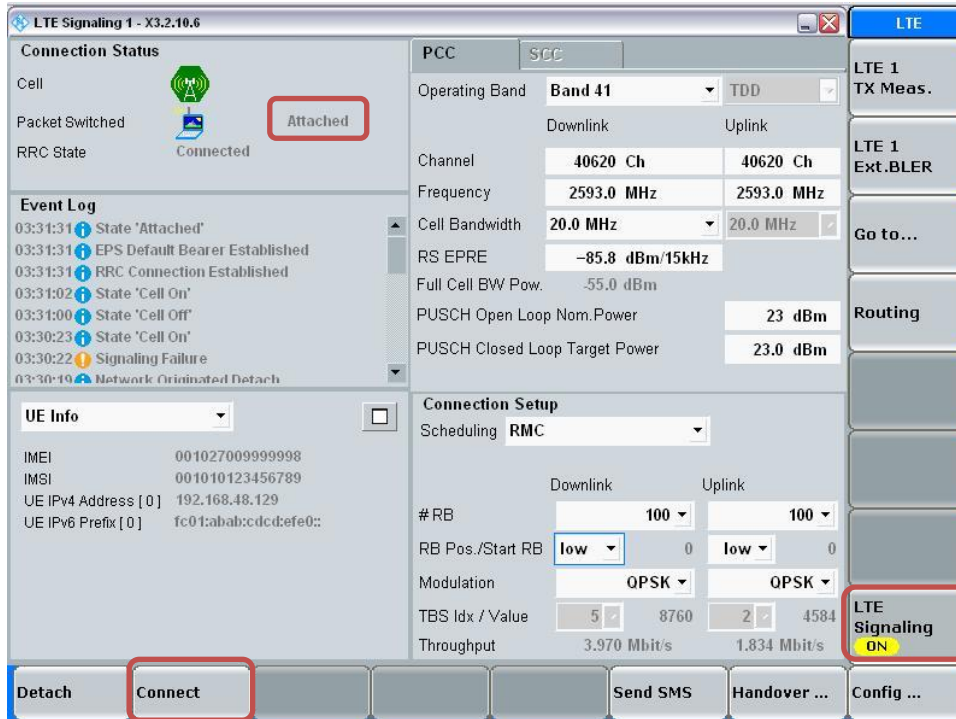


- Go to “Physical Cell Setup”
- Select “TDD” and Set “Uplink Downlink Configuration” to “0”
- Turn the cell on using “ON | OFF” key



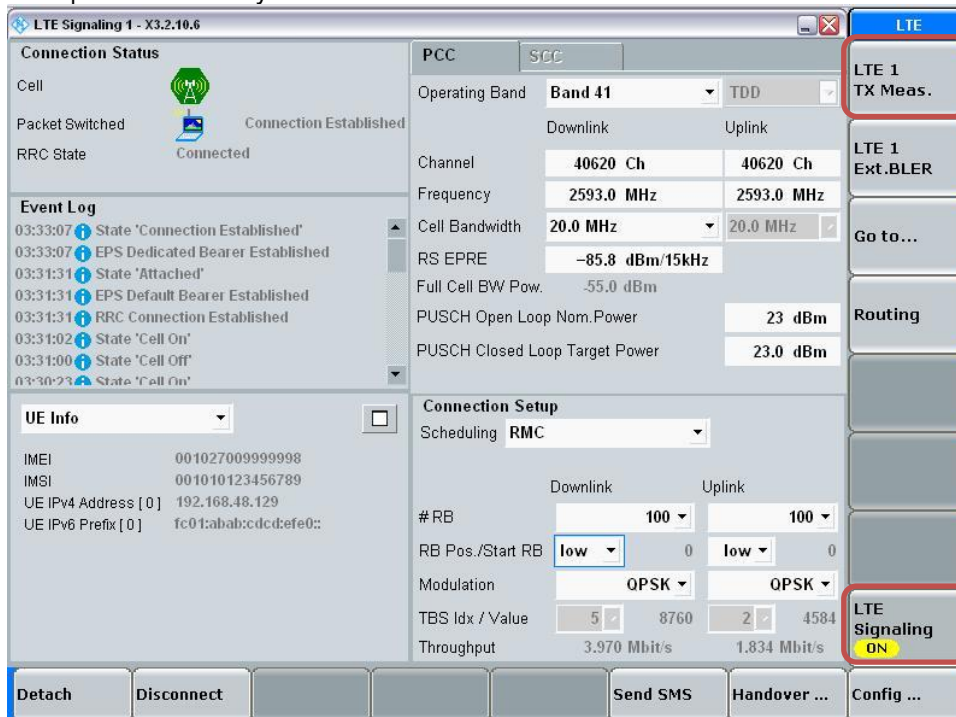
Connect to EUT

- Turn the cell on using “ON | OFF” key
- After EUT is Attached
- Select “Connect”

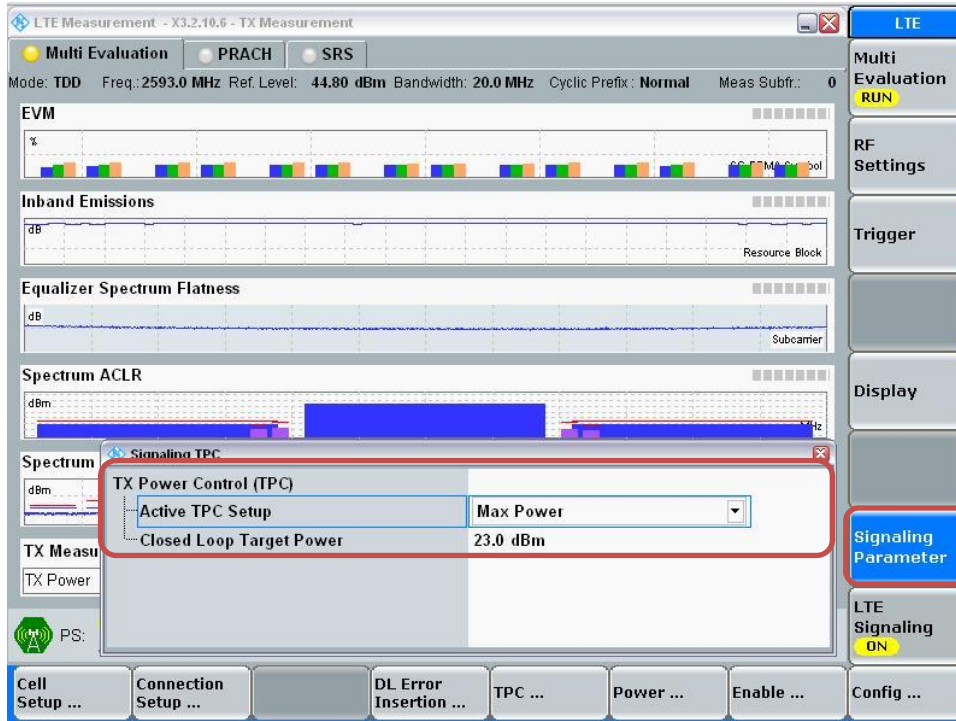


Max Power Setting

- Select “LTE 1 TX Meas.”
- Press “RESTART | STOP” Soft key



- Select “Signaling Parameter”
- Select “TX Power Control (TPC)” > Select “Active TPC Setup” to “Max Power” > Set “Closed Loop Target Power” to “23 dBm”



View TX Power

- Go to “Display”
- Select “Select View...”
- Select “Spectrum Emission Mask”



LTE Band 41 Measured Results Max Power

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)						
				Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz						
20 MHz	QPSK	1	0	23.9	23.9	23.7	23.7	23.5	0.0	24.5
		1	49	23.8	23.9	24.1	24.1	23.8	0.0	24.5
		1	99	23.9	24.0	23.8	23.5	23.8	0.0	24.5
		50	0	22.8	22.8	23.0	22.9	22.7	1.0	23.5
		50	24	22.9	22.9	23.1	23.1	22.9	1.0	23.5
		50	50	22.9	22.9	23.1	22.9	22.9	1.0	23.5
	16QAM	1	0	22.8	22.7	22.8	22.6	22.2	1.0	23.5
		1	49	22.8	22.6	23.2	22.9	22.6	1.0	23.5
		1	99	22.8	22.7	22.9	22.5	22.6	1.0	23.5
		50	0	21.8	21.8	22.0	21.9	21.7	2.0	22.5
		50	24	21.9	21.9	22.2	22.0	21.9	2.0	22.5
		50	50	21.8	21.9	22.2	21.9	21.9	2.0	22.5
	64QAM	100	0	21.8	21.8	22.0	21.9	21.8	2.0	22.5
		1	0	22.2	21.7	21.7	22.1	21.2	2.0	22.5
		1	49	22.2	21.7	22.1	22.3	21.6	2.0	22.5
		1	99	22.2	21.7	21.8	21.9	21.6	2.0	22.5
		50	0	20.9	20.8	21.0	20.9	20.7	3.0	21.5
		50	24	20.9	20.9	21.2	21.1	20.9	3.0	21.5
		50	50	20.9	20.9	21.2	20.9	20.9	3.0	21.5
		100	0	20.8	20.8	21.1	20.9	20.8	3.0	21.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
15 MHz	QPSK	1	0	23.9	23.7	23.8	23.9	23.5	0.0	24.5
		1	37	23.9	23.8	24.0	24.0	23.7	0.0	24.5
		1	74	23.9	23.6	23.9	23.7	23.8	0.0	24.5
		36	0	22.9	22.8	23.0	22.9	22.9	1.0	23.5
		36	20	23.0	23.0	23.2	23.0	22.9	1.0	23.5
		36	39	23.0	22.9	23.2	23.0	22.9	1.0	23.5
	16QAM	75	0	22.9	22.9	23.1	22.9	22.9	1.0	23.5
		1	0	23.0	22.7	22.8	22.9	22.6	1.0	23.5
		1	37	23.0	22.9	23.1	23.1	22.8	1.0	23.5
		1	74	22.9	22.7	22.9	22.8	22.8	1.0	23.5
		36	0	21.9	21.8	22.0	22.0	21.8	2.0	22.5
		36	20	22.0	22.0	22.1	22.1	22.0	2.0	22.5
	64QAM	36	39	22.0	21.9	22.2	22.0	22.0	2.0	22.5
		75	0	21.9	21.9	22.0	22.0	21.9	2.0	22.5
		1	0	21.3	21.4	22.1	21.3	21.3	2.0	22.5
		1	37	21.4	21.6	22.4	21.5	21.0	2.0	22.5
		1	74	21.4	21.4	22.2	21.2	21.2	2.0	22.5
		36	0	21.0	20.8	21.0	21.1	20.2	3.0	21.5
		36	20	21.1	20.9	21.2	21.1	20.1	3.0	21.5
		36	39	21.0	20.8	21.2	21.1	20.1	3.0	21.5
		75	0	20.9	20.9	21.0	21.0	20.2	3.0	21.5

LTE Band 41 Measured Results Max Power (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	24.0	23.7	23.9	23.9	23.6	0.0	24.5
		1	25	24.0	24.0	24.2	24.1	23.8	0.0	24.5
		1	49	24.0	23.7	24.0	23.8	23.6	0.0	24.5
		25	0	23.1	23.0	23.2	23.1	23.0	1.0	23.5
		25	12	23.2	23.1	23.4	23.2	22.9	1.0	23.5
		25	25	23.1	23.1	23.4	23.2	23.0	1.0	23.5
	16QAM	1	0	23.2	22.7	22.9	23.0	22.7	1.0	23.5
		1	25	23.1	23.0	23.2	23.3	22.8	1.0	23.5
		1	49	23.2	22.8	22.9	23.0	22.7	1.0	23.5
		25	0	22.0	22.0	22.2	22.1	22.0	2.0	22.5
		25	12	22.2	22.1	22.3	22.2	22.0	2.0	22.5
		25	25	22.1	22.1	22.3	22.1	22.0	2.0	22.5
	64QAM	1	0	22.2	21.8	22.2	21.3	21.8	2.0	22.5
		1	25	22.2	22.1	22.5	21.6	21.3	2.0	22.5
		1	49	22.3	21.8	22.2	21.3	21.6	2.0	22.5
		25	0	21.1	21.0	21.2	21.1	20.2	3.0	21.5
		25	12	21.2	21.1	21.3	21.2	20.1	3.0	21.5
		25	25	21.1	20.9	21.2	21.2	20.2	3.0	21.5
50	0	21.0	21.1	21.2	21.1	20.3	3.0	21.5		
5 MHz	QPSK	1	0	24.0	23.9	24.1	24.1	23.9	0.0	24.5
		1	12	23.9	24.0	24.3	24.1	23.7	0.0	24.5
		1	24	24.1	23.9	24.2	24.2	23.8	0.0	24.5
		12	0	23.0	23.1	23.3	23.2	22.8	1.0	23.5
		12	7	23.1	23.2	23.4	23.2	22.8	1.0	23.5
		12	13	23.1	23.1	23.4	23.2	22.8	1.0	23.5
	16QAM	25	0	23.1	23.1	23.4	23.2	22.8	1.0	23.5
		1	0	23.1	22.9	23.2	23.2	22.9	1.0	23.5
		1	12	23.2	23.1	23.3	23.4	22.7	1.0	23.5
		1	24	23.2	23.0	23.2	23.3	22.9	1.0	23.5
		12	0	22.1	22.1	22.2	22.2	21.9	2.0	22.5
		12	7	22.2	22.1	22.3	22.3	21.9	2.0	22.5
	64QAM	12	13	22.2	22.1	22.3	22.3	22.0	2.0	22.5
		25	0	22.1	22.1	22.4	22.2	21.9	2.0	22.5
		1	0	22.0	22.2	22.4	22.1	21.5	2.0	22.5
		1	12	22.1	21.8	22.4	22.2	20.9	2.0	22.5
		1	24	22.0	21.7	22.4	22.1	21.1	2.0	22.5
		12	0	21.1	21.1	21.2	21.2	20.2	3.0	21.5
12	7	21.2	21.2	21.3	21.3	20.2	3.0	21.5		
12	13	21.2	21.1	21.3	21.3	20.2	3.0	21.5		
25	0	21.1	21.2	21.3	21.1	20.2	3.0	21.5		

LTE Band 41 Measured Results Proximity sensor back-off Power

BW (MHz)	Mode	RB Allocation	RB offset	"Reduced Average Power (dBm) Proximity sensor back-off"							
				Measured Pwr (dBm)					MPR	Tune-up Limit	
				39750 2506 MHz	40185 2549.5 MHz	40620 2593 MHz	41055 2636.5 MHz	41490 2680 MHz			
20 MHz	QPSK	1	0	14.2	14.2	13.9	13.9	13.6	0.0	15.0	
		1	49	14.1	14.2	14.3	14.3	14.1	0.0	15.0	
		1	99	14.1	14.2	14.1	13.7	14.0	0.0	15.0	
		50	0	14.1	14.1	14.2	14.1	13.9	0.0	15.0	
		50	24	14.2	14.1	14.4	14.4	14.1	0.0	15.0	
		50	50	14.2	14.2	14.4	14.1	14.0	0.0	15.0	
	16QAM	1	0	14.1	14.0	14.0	13.8	13.4	0.0	15.0	
		1	49	14.0	13.9	14.4	14.1	13.8	0.0	15.0	
		1	99	14.0	14.0	14.2	13.6	13.8	0.0	15.0	
		50	0	14.1	14.1	14.3	14.1	13.9	0.0	15.0	
		50	24	14.1	14.2	14.4	14.2	14.1	0.0	15.0	
		50	50	14.2	14.2	14.4	14.1	14.1	0.0	15.0	
	64QAM	1	0	14.1	14.1	14.2	14.1	14.0	0.0	15.0	
		1	49	14.4	13.9	13.8	14.2	13.4	0.0	15.0	
		1	99	14.4	13.9	14.2	14.5	13.8	0.0	15.0	
		1	99	14.4	13.9	14.0	14.1	13.7	0.0	15.0	
		50	0	14.1	14.0	14.1	14.1	13.9	0.0	15.0	
		50	24	14.2	14.1	14.3	14.1	14.0	0.0	15.0	
	15 MHz	QPSK	1	0	14.0	13.8	14.0	13.9	13.6	0.0	15.0
			1	37	13.9	13.9	14.3	14.0	13.8	0.0	15.0
			1	74	14.0	13.7	14.2	13.8	13.8	0.0	15.0
36			0	14.1	13.9	14.2	14.1	13.9	0.0	15.0	
36			20	14.1	14.1	14.4	14.1	14.0	0.0	15.0	
36			39	14.1	14.0	14.4	14.1	14.0	0.0	15.0	
16QAM		75	0	14.0	14.0	14.3	14.0	13.9	0.0	15.0	
		1	0	14.1	13.7	14.2	13.9	13.6	0.0	15.0	
		1	37	14.1	14.0	14.5	14.1	13.9	0.0	15.0	
		1	74	14.0	13.7	14.2	13.8	13.8	0.0	15.0	
		36	0	14.1	13.9	14.2	14.1	13.8	0.0	15.0	
		36	20	14.1	14.1	14.4	14.1	14.0	0.0	15.0	
64QAM		36	39	14.1	14.0	14.4	14.1	14.0	0.0	15.0	
		75	0	14.1	14.0	14.2	14.0	13.9	0.0	15.0	
		1	0	13.5	13.6	14.2	13.5	13.5	0.0	15.0	
		1	37	13.5	13.8	14.5	13.6	13.7	0.0	15.0	
		1	74	13.5	13.6	14.4	13.4	13.7	0.0	15.0	
		36	0	14.0	13.9	14.2	14.1	13.8	0.0	15.0	
		36	20	14.1	14.0	14.3	14.2	13.9	0.0	15.0	
		36	39	14.1	13.9	14.4	14.1	13.9	0.0	15.0	
		75	0	14.0	14.0	14.2	14.1	13.9	0.0	15.0	

LTE Band 41 Measured Results Proximity sensor back-off Power (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	14.2	13.9	14.1	14.0	13.7	0.0	15.0
		1	25	14.1	14.1	14.3	14.2	14.0	0.0	15.0
		1	49	14.1	13.9	14.1	13.9	13.7	0.0	15.0
		25	0	14.2	14.1	14.4	14.2	14.0	0.0	15.0
		25	12	14.3	14.3	14.6	14.3	14.1	0.0	15.0
		25	25	14.3	14.2	14.5	14.2	14.0	0.0	15.0
	16QAM	1	0	14.3	13.8	14.0	14.1	13.7	0.0	15.0
		1	25	14.2	14.0	14.3	14.4	13.9	0.0	15.0
		1	49	14.2	13.9	14.1	14.1	13.7	0.0	15.0
		25	0	14.2	14.2	14.3	14.2	14.0	0.0	15.0
		25	12	14.3	14.3	14.5	14.3	14.1	0.0	15.0
		25	25	14.3	14.2	14.5	14.3	14.1	0.0	15.0
	64QAM	1	0	14.3	13.4	14.2	14.3	13.3	0.0	15.0
		1	25	14.3	13.7	14.4	14.5	13.6	0.0	15.0
		1	49	14.3	13.5	14.2	14.3	13.4	0.0	15.0
		25	0	14.1	14.1	14.3	14.1	14.0	0.0	15.0
		25	12	14.2	14.3	14.4	14.2	14.2	0.0	15.0
		25	25	14.2	14.2	14.3	14.2	14.1	0.0	15.0
5 MHz	QPSK	1	0	14.2	13.9	13.9	13.9	13.5	0.0	15.0
		1	12	14.1	14.1	14.1	14.1	13.7	0.0	15.0
		1	24	14.2	14.2	14.2	14.2	13.8	0.0	15.0
		12	0	14.0	14.0	14.0	13.9	13.6	0.0	15.0
		12	7	14.0	14.0	14.0	14.0	13.6	0.0	15.0
		12	13	14.1	14.1	14.1	14.0	13.7	0.0	15.0
	16QAM	25	0	14.0	14.1	14.1	14.0	13.7	0.0	15.0
		1	0	13.9	13.8	13.8	13.7	13.6	0.0	15.0
		1	12	14.1	14.0	14.0	13.8	13.7	0.0	15.0
		1	24	14.2	14.1	14.1	13.9	13.9	0.0	15.0
		12	0	14.1	13.9	13.9	14.0	13.7	0.0	15.0
		12	7	14.2	14.0	14.0	14.1	13.7	0.0	15.0
	64QAM	12	13	14.2	14.0	14.0	14.1	13.8	0.0	15.0
		25	0	14.0	14.0	14.0	14.0	13.7	0.0	15.0
		1	0	14.5	13.8	14.5	14.6	13.8	0.0	15.0
		1	12	14.6	13.9	14.5	14.6	13.8	0.0	15.0
		1	24	14.6	13.8	14.5	14.7	13.7	0.0	15.0
		12	0	14.3	14.2	14.3	14.3	14.1	0.0	15.0
5 MHz	64QAM	12	7	14.3	14.3	14.4	14.4	14.1	0.0	15.0
		12	13	14.3	14.2	14.4	14.4	14.1	0.0	15.0
		25	0	14.1	14.2	14.4	14.2	14.1	0.0	15.0
		12	7	14.3	14.3	14.4	14.4	14.1	0.0	15.0
		12	13	14.3	14.2	14.4	14.4	14.1	0.0	15.0
		25	0	14.1	14.2	14.4	14.2	14.1	0.0	15.0

9.3.1 LTE Rel. 10 Carrier Aggregation

LTE Carrier Aggregation Down Link Combinations;

The DL CA power measurement conditions for various CC's combinations were determined according LTE DL CA SAR Test Exclusion guidance in TCB workshop note (April 2018). Only yellow highlighted cells need power measurement. The following power measurements were performed with a single carrier uplink; CA for this particular project only supports one (1) uplink and up to four (3) downlinks.

LTE Release 10 Carrier Aggregation

Index	2CC	Restriction	Covered By Superset	Reverse
2CC #1	CA_2A-2A			
2CC #2	CA_2C			
2CC #3	CA_2A-4A		3CC #1	O
2CC #4	CA_2A-5A			O
2CC #5	CA_2A-12A			O
2CC #6	CA_2A-66A			O
2CC #7	CA_4A-4A		3CC #2	
2CC #8	CA_4A-5A			O
2CC #9	CA_4A-13A		3CC #1	O
2CC #10	CA_4A-17A			O
2CC #11	CA_41A-41A			
2CC #12	CA_41C		3CC #3	
2CC #13	CA_66A-66A			
2CC #14	CA_66B			
2CC #15	CA_66C			

Index	3CC	Restriction	Covered By Superset	Reverse
3CC #1	CA_2A-4A-13A			O
3CC #2	CA_4A-4A-12A			O
3CC #3	CA_41A-41C			O
3CC #4	CA_41D		4CC #1	O

Index	4CC	Restriction	Completely Covered by Measurement	Reverse
4CC #1	CA_41A-41D			O
4CC #2	CA_41C-41C			

LTE Release 10 Carrier Aggregation with 4x4 MIMO

Index	2CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
2CC #1	2A-[66A]			O
2CC #2	[41A]-[41A]			
2CC #2	[41C]		3CC #2	
2CC #2	[66A]-[66A]			
2CC #2	[66B]			
2CC #2	[66C]			

Index	3CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
3CC #1	CA_[41A]-[41C]			O
3CC #2	CA_[41D]		4CC #1	

Index	4CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
4CC #1	CA_[41A]-[41D]			O

Note:

Only yellow highlight cells need power measurement according to LTE DL CA SAR test Exclusion in TCB workshop (April.2018). [*] is 4X4 MIMO configuration.

1. DL CA output power results

E-UTRA CA configuration (BCS)	Bands				UL					DL									LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta						
	PCC		SCC3		PCC					SCC1			SCC2			SCC3											
	1st	2nd	3rd	4th	Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)				BW (MHz)	Channel	Freq. (MHz)			
2A-5A	2A	5A			QPSK	20	18900	1880.0	1/49	20	900	1960.0	10	2525	881.5							22.8	22.9	0.06			
	5A	2A			QPSK	10	20525	836.5	1/0	10	2525	881.5	20	900	1960.0								24.0	24.0	0.01		
2A-12A	2A	12A			QPSK	20	18900	1880.0	1/49	20	900	1960.0	10	5095	737.5							22.8	22.9	-0.08			
	12A	2A			QPSK	10	23095	707.5	1/0	10	5095	737.5	20	900	1960.0							23.8	23.8	-0.09			
2A-66A	2A	66A			QPSK	20	18900	1880.0	1/49	20	900	1960.0	20	66786	2145.0							22.8	22.8	0.03			
	66A	2A			QPSK	20	132322	1745.0	1/49	20	66786	2145.0	20	900	1960.0							23.1	23.1	0.04			
4A-5A	4A	5A			QPSK	20	20175	1732.5	1/49	20	2175	2132.5	10	2525	881.5							23.1	23.1	0.06			
	5A	4A			QPSK	10	20525	836.5	1/0	10	2525	881.5	20	2175	2132.5							24.0	24.1	0.10			
4A-17A	4A	17A			QPSK	10	20350	1750.0	1/25	10	2350	2150.0	10	5790	740.0							23.0	23.0	-0.02			
	17A	4A			QPSK	10	23790	710.0	1/0	10	5790	740.0	10	2175	2132.5							23.7	23.7	0.02			
2A-4A-13A	2A	4A	13A		QPSK	20	18900	1880.0	1/49	20	900	1960.0	20	2175	2132.5	10	5230	751.0	20	5230	751.0		22.8	22.7	-0.08		
	4A	13A	2A		QPSK	20	20175	1732.5	1/49	20	2175	2132.5	10	5230	751.0	20	900	1960.0				23.1	23.0	-0.07			
	13A	2A	4A		QPSK	10	23230	782.0	1/49	10	5230	751.0	20	900	1960.0	20	2175	2132.5				24.2	24.1	-0.10			
4A-4A-12A	4A	4A	12A		QPSK	20	20300	1745.0	1/49	20	2300	2145.0	20	2050	2120.0	10	5095	737.5				23.0	22.9	-0.14			
	12A	4A	4A		QPSK	10	23095	707.5	1/0	10	5095	737.5	20	2300	2145.0	20	2050	2120.0				23.8	23.7	-0.11			
2A-2A	2A	2A			QPSK	20	18900	1880.0	1/49	20	900	1960.0	20	1100	1980.0							22.8	22.9	0.06			
66A-66A	66A	66A			QPSK	20	132322	1745.0	1/49	20	66786	2145.0	20	67036	2170							23.1	23.0	-0.06			
41A-41A	41A	41A			QPSK	20	41055	2636.5	1/49	20	41055	2636.5	20	39750	2506							24.1	24.1	-0.03			
41A-41C	41A	41C	41C		QPSK	20	41055	2636.5	1/49	20	41055	2636.5	20	40620	2593	20	40422	2573.2				24.1	24.1	-0.05			
	41C	41C	41A		QPSK	20	41055	2636.5	1/49	20	41055	2636.5	20	41253	2656.3	20	40620	2593				24.1	24.0	-0.08			
41C-41C	41C	41C	41C	41C	QPSK	20	41055	2636.5	1/49	20	41055	2636.5	20	41253	2656.3	20	39750	2506	20	39948	2525.8	20	39948	2525.8	24.1	24.1	0.00
41A-41D	41A	41D	41D	41D	QPSK	20	41055	2636.5	1/49	20	41055	2636.5	20	39750	2506	20	39948	2525.8	20	40146	2545.6	20	40146	2545.6	24.1	24.1	-0.02
	41D	41D	41D	41A	QPSK	20	41055	2636.5	1/49	20	41055	2636.5	20	41253	2656.3	20	41451	2676.1	20	39750	2506		24.1	24.0	-0.06		
2C	2C	2C			QPSK	20	18900	1880.0	1/49	20	900	1960.0	20	1098	1979.8							22.8	22.8	0.03			
66B	66B	66B			QPSK	15	132322	1745.0	1/37	15	66786	2145.0	5	66879	2154.3							23.1	23.0	-0.09			
66C	66C	66C			QPSK	20	132322	1745.0	1/49	20	66786	2145.0	20	66984	2164.8							23.1	23.1	-0.04			

2. DL CA with downlink 4x4 MIMO output power results

E-UTRA CA configuration (BCS)	Bands				UL					DL									LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta			
	PCC		SCC3		PCC					SCC1			SCC2			SCC3								
	1st	2nd	3rd	4th	Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)				BW (MHz)	Channel	Freq. (MHz)
2A-[66A]	2A	[66A]			QPSK	20	18900	1880.0	1/49	20	900	1960.0	20	66786	2145.0							22.8	22.8	0.01
	[66A]	2A			QPSK	20	132322	1745.0	1/49	20	66786	2145.0	20	900	1960.0							23.1	23.1	-0.01
[41A]-[41A]	[41A]	[41A]			QPSK	20	41055	2636.5	1/49	20	41055	2636.5	20	39750	2506							24.1	24.1	-0.02
[66A]-[66A]	[66A]	[66A]			QPSK	20	132322	1745.0	1/49	20	66786	2145.0	20	67036	2170							23.1	23.1	0.04
[41A]-[41C]	[41A]	[41C]	[41C]		QPSK	20	41055	2636.5	1/49	20	41055	2636.5	20	39750	2506	20	39948	2525.8				24.1	24.1	0.00
	[41C]	[41C]	[41A]		QPSK	20	41055	2636.5	1/49	20	41055	2636.5	20	41253	2656.3	20	39750	2506				24.1	24.1	-0.02
[41A]-[41D]	[41A]	41D	41D	41D	QPSK	20	41055	2636.5	1/49	20	41055	2636.5	20	39750	2506	20	39948	2525.8	20	40146	2545.6	24.1	24.1	-0.02
	41D	41D	41D	[41A]	QPSK	20	41055	2636.5	1/49	20	41055	2636.5	20	41253	2656.3	20	41451	2676.1	20	39750	2506	24.1	24.1	-0.01
[66B]	[66B]	[66B]			QPSK	15	132322	1745.0	1/37	15	66786	2145.0	5	66879	2154.3							23.1	23.1	-0.02
[66C]	[66C]	[66C]			QPSK	20	132322	1745.0	1/49	20	66786	2145.0	20	66984	2164.8							23.1	23.1	-0.02
[41D]	[41D]	[41D]	[41D]		QPSK	20	41055	2636.5	1/49	20	41055	2636.5	20	41253	2656.3	20	41451	2676.1				24.1	24.1	0.00

Note:

1_Per KDB 941225 D05A LTE Rel. 10 KDB Inquiry Sheet: SAR is excluded for Carrier Aggregation when measured power does not exceed LTE Release 8 by more than a 1/4 dB.

2_ When the same frequency band is used for both contiguous and non-contiguous in DL CA Intra band, power was measured using the configuration with the largest aggregated bandwidth and maximum output power among the contiguous and non-contiguous in DL CA Intra band configurations

9.4 Wi-Fi 2.4GHz (DTS Band)

Measured Results

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.			Reduction Pwr.		
					Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
2.4 SISO Ant 1	802.11b	1 Mbps	1	2412	18.2	19.0	Yes	11.1	12.0	Yes
			6	2437	18.5	19.0		11.0	12.0	
			11	2462	18.3	19.0		11.8	12.0	
			12	2467	Not Require	5.0		Not Require	5.0	
			13	2472		2.0			2.0	
	802.11g	6 Mbps	1	2412	Not Require	16.0	No	Not Require	12.0	No
			6	2437		19.0			12.0	
			11	2462		16.0			12.0	
			12	2467		5.0			5.0	
			13	2472		2.0			2.0	
	802.11n (HT20)	6.5 Mbps	1	2412	Not Require	16.0	No	Not Require	12.0	No
			6	2437		18.0			12.0	
			11	2462		16.0			12.0	
			12	2467		5.0			5.0	
			13	2472		2.0			2.0	
2.4 SISO Ant 2	802.11b	1 Mbps	1	2412	17.6	19.0	Yes	10.4	12.0	Yes
			6	2437	18.2	19.0		10.9	12.0	
			11	2462	17.9	19.0		11.5	12.0	
			12	2467	Not Require	5.0		Not Require	5.0	
			13	2472		2.0			2.0	
	802.11g	6 Mbps	1	2412	Not Require	16.0	No	Not Require	12.0	No
			6	2437		19.0			12.0	
			11	2462		16.0			12.0	
			12	2467		5.0			5.0	
			13	2472		2.0			2.0	
	802.11n (HT20)	6.5 Mbps	1	2412	Not Require	16.0	No	Not Require	12.0	No
			6	2437		18.0			12.0	
			11	2462		16.0			12.0	
			12	2467		5.0			5.0	
			13	2472		2.0			2.0	

Note(s):

- SAR is not required for 802.11g/n modes when the adjusted SAR for 802.11b is < 1.2 W/kg.
- For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11n/g mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.

9.5 Wi-Fi 5GHz (U-NII Bands)

Measured Results

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.			Reduction Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
SISO Ant.1	5.3 (U-NII 2A)	802.11a	6 Mbps	52	5260.0	17.0	17.0	Yes	Not Required	9.5	No
				56	5280.0	16.4			Not Required		
				60	5300.0	16.1			Not Required		
				64	5320.0	16.1			Not Required		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	9.5	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	9.5	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	9.5	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
	802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	9.5	No	
			62	5310.0	Not Required			Not Required			
	802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	13.0	No	9.0	9.5	Yes	
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	16.9	17.0	Yes	Not Required	9.5	No
				120	5600.0	16.8			Not Required		
				124	5620.0	16.7			Not Required		
				144	5720.0	16.6			Not Required		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	17.0	No	Not Required	9.5	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	102	5510.0	Not Required	14.0	No	Not Required	9.5	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	17.0	No	Not Required	9.5	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
802.11ac (VHT40)		13.5 Mbps	102	5510.0	Not Required	14.0	No	Not Required	9.5	No	
			118	5590.0	Not Required			Not Required			
			126	5630.0	Not Required			Not Required			
802.11ac (VHT80)		29.3 Mbps	106	5530.0	Not Required	13.0	No	8.7	9.5	Yes	
			122	5610.0	Not Required			8.5			
			138	5690.0	Not Required			8.3			
5.8 (U-NII 3)		802.11a	6 Mbps	149	5745.0	16.9	17.0	Yes	Not Required	9.5	No
				157	5785.0	16.6			Not Required		
				165	5825.0	16.8			Not Required		
	802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	9.5	No	
			157	5785.0	Not Required			Not Required			
			165	5825.0	Not Required			Not Required			
	802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	9.5	No	
			159	5795.0	Not Required			Not Required			
	802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	9.5	No	
			157	5785.0	Not Required			Not Required			
	802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	9.5	No	
			159	5795.0	Not Required			Not Required			
802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	13.0	No	8.3	9.5	Yes		

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pw r.			Reduction Pw r.			
						Avg Pw r (dBm)	Max Output Pow er (dBm)	SAR Test (Yes/No)	Avg Pw r (dBm)	Max Output Pow er (dBm)	SAR Test (Yes/No)	
SISO Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	15.5	17.0	Yes	Not Required	9.5	No	
				56	5280.0	15.5			Not Required			
				60	5300.0	15.4			Not Required			
				64	5320.0	15.3			Not Required			
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	9.5	No	
				56	5280.0	Not Required			Not Required			
				60	5300.0	Not Required			Not Required			
				64	5320.0	Not Required			Not Required			
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	9.5	No	
				62	5310.0	Not Required			Not Required			
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	9.5	No	
				56	5280.0	Not Required			Not Required			
	60			5300.0	Not Required	Not Required						
	802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	9.5	No		
			62	5310.0	Not Required			Not Required				
	802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	13.0	No	8.5	9.5	Yes		
	SISO Ant.2	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	15.5	17.0	Yes	Not Required	9.5	No
					120	5600.0	15.6			Not Required		
					124	5620.0	15.5			Not Required		
					144	5720.0	15.4			Not Required		
			802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	17.0	No	Not Required	9.5	No
					120	5600.0	Not Required			Not Required		
					124	5620.0	Not Required			Not Required		
					144	5720.0	Not Required			Not Required		
802.11n (HT40)			13.5 Mbps	102	5510.0	Not Required	14.0	No	Not Required	9.5	No	
				118	5590.0	Not Required			Not Required			
				126	5630.0	Not Required			Not Required			
802.11ac (VHT20)			6.5 Mbps	100	5500.0	Not Required	17.0	No	Not Required	9.5	No	
		120		5600.0	Not Required	Not Required						
		124		5620.0	Not Required	Not Required						
		144		5720.0	Not Required	Not Required						
802.11ac (VHT40)		13.5 Mbps	102	5510.0	Not Required	14.0	No	Not Required	9.5	No		
			118	5590.0	Not Required			Not Required				
			126	5630.0	Not Required			Not Required				
802.11ac (VHT80)		29.3 Mbps	106	5530.0	Not Required	13.0	No	8.4	9.5	Yes		
			122	5610.0	Not Required			8.6				
			138	5690.0	Not Required			8.5				
5.8 (U-NII 3)		802.11a	6 Mbps	149	5745.0	15.1	17.0	Yes	Not Required	9.5	No	
				157	5785.0	15.0			Not Required			
				165	5825.0	14.7			Not Required			
	802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	9.5	No		
			157	5785.0	Not Required			Not Required				
			165	5825.0	Not Required			Not Required				
	802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	9.5	No		
			159	5795.0	Not Required			Not Required				
	802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	9.5	No		
			157	5785.0	Not Required			Not Required				
	802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	9.5	No		
			159	5795.0	Not Required			Not Required				
802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	13.0	No	8.1	9.5	Yes			

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pw r.			Reduction Pw r.		
						Avg Pw r (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pw r (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
MIMO Ant.1	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	16.3	17.0	Yes	Not Required	9.5	No
				56	5280.0	16.2			Not Required		
				60	5300.0	15.9			Not Required		
				64	5320.0	15.9			Not Required		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	9.5	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	9.5	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	9.5	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	9.5	No
	62			5310.0	Not Required	Not Required					
	802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	13.0	No	8.9	9.5	Yes	
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	15.7	17.0	Yes	Not Required	9.5	No
				120	5600.0	15.8			Not Required		
				124	5620.0	15.9			Not Required		
				144	5720.0	15.5			Not Required		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	17.0	No	Not Required	9.5	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	102	5510.0	Not Required	14.0	No	Not Required	9.5	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
802.11ac (VHT20)		6.5 Mbps	100	5500.0	Not Required	17.0	No	Not Required	9.5	No	
			120	5600.0	Not Required			Not Required			
			124	5620.0	Not Required			Not Required			
			144	5720.0	Not Required			Not Required			
802.11ac (VHT40)		13.5 Mbps	102	5510.0	Not Required	14.0	No	Not Required	9.5	No	
			118	5590.0	Not Required			Not Required			
			126	5630.0	Not Required			Not Required			
			142	5710.0	Not Required			Not Required			
802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	13.0	No	8.6	9.5	Yes		
		122	5610.0	Not Required			8.7				
		138	5690.0	Not Required			8.2				
5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	15.5	17.0	Yes	Not Required	9.5	No	
			157	5785.0	15.6			Not Required			
			165	5825.0	15.5			Not Required			
	802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	9.5	No	
			157	5785.0	Not Required			Not Required			
			165	5825.0	Not Required			Not Required			
	802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	9.5	No	
			159	5795.0	Not Required			Not Required			
	802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	9.5	No	
			157	5785.0	Not Required			Not Required			
			165	5825.0	Not Required			Not Required			
	802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	9.5	No	
159			5795.0	Not Required	Not Required						
802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	13.0	No	8.0	9.5	Yes		

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pw r.			Reduction Pw r.		
						Avg Pw r (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pw r (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
MIMO Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	15.6	17.0	Yes	Not Required	9.5	No
				56	5280.0	15.6			Not Required		
				60	5300.0	15.6			Not Required		
				64	5320.0	15.4			Not Required		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	9.5	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	9.5	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	17.0	No	Not Required	9.5	No
				56	5280.0	Not Required			Not Required		
	60			5300.0	Not Required	Not Required					
	802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	14.0	No	Not Required	9.5	No	
			62	5310.0	Not Required			Not Required			
	802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	13.0	No	8.6	9.5	Yes	
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	15.7	17.0	Yes	Not Required	9.5	No
				120	5600.0	15.7			Not Required		
				124	5620.0	15.6			Not Required		
				144	5720.0	15.5			Not Required		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	17.0	No	Not Required	9.5	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
802.11n (HT40)		13.5 Mbps	102	5510.0	Not Required	14.0	No	Not Required	9.5	No	
			118	5590.0	Not Required			Not Required			
			126	5630.0	Not Required			Not Required			
802.11ac (VHT20)		6.5 Mbps	100	5500.0	Not Required	17.0	No	Not Required	9.5	No	
			120	5600.0	Not Required			Not Required			
			124	5620.0	Not Required			Not Required			
			144	5720.0	Not Required			Not Required			
802.11ac (VHT40)		13.5 Mbps	102	5510.0	Not Required	14.0	No	Not Required	9.5	No	
			118	5590.0	Not Required			Not Required			
			126	5630.0	Not Required			Not Required			
802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	13.0	No	8.5	9.5	Yes		
		122	5610.0	Not Required			8.7				
		138	5690.0	Not Required			8.6				
5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	15.3	17.0	Yes	Not Required	9.5	No	
			157	5785.0	15.1			Not Required			
			165	5825.0	15.0			Not Required			
	802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	9.5	No	
			157	5785.0	Not Required			Not Required			
			165	5825.0	Not Required			Not Required			
	802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	9.5	No	
			159	5795.0	Not Required			Not Required			
	802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	17.0	No	Not Required	9.5	No	
			157	5785.0	Not Required			Not Required			
	802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	14.0	No	Not Required	9.5	No	
			159	5795.0	Not Required			Not Required			
802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	13.0	No	8.0	9.5	Yes		

Note(s):

1. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power
2. When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac modes, the channel in the lower order/sequence 802.11 mode (i.e. a, g, n then ac) is selected.
3. When the specified maximum output power is the same for both UNII band I and UNII band 2A, begin SAR measurement in UNII band 2A; and if the highest reported SAR for UNII band 2A is
 - ≤ 1.2 W/kg, SAR is not required for UNII band I
 - > 1.2 W/kg, both bands should be tested independently for SAR.
4. MIMO UNII SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

9.6 Bluetooth

Average Power Measured Results

Band (GHz)	Mode	Ch #	Freq. (MHz)	Maximun Average Power (dBm)		Reduced Average Power (dBm)	
				Meas. Pwr	Tune-up Limit	Meas. Pwr	Tune-up Limit
2.4	GFSK	0	2402	16.1	18.0	8.6	10.0
		39	2441	17.6		9.3	
		78	2480	16.1		9.3	
	EDR, 8-DPSK	0	2402	13.5	16.0	7.9	10.0
		39	2441	15.6		8.5	
		78	2480	14.5		8.6	
	LE, GFSK-1M (37 pkt)	0	2402	5.5	8.0	5.5	8.0
		39	2441	6.4		6.4	
		78	2480	6.4		6.4	
	LE, GFSK-2M (37 pkt)	0	2402	5.3	8.0	5.3	8.0
		19	2440	6.2		6.2	
		39	2480	6.2		6.2	

Note(s):

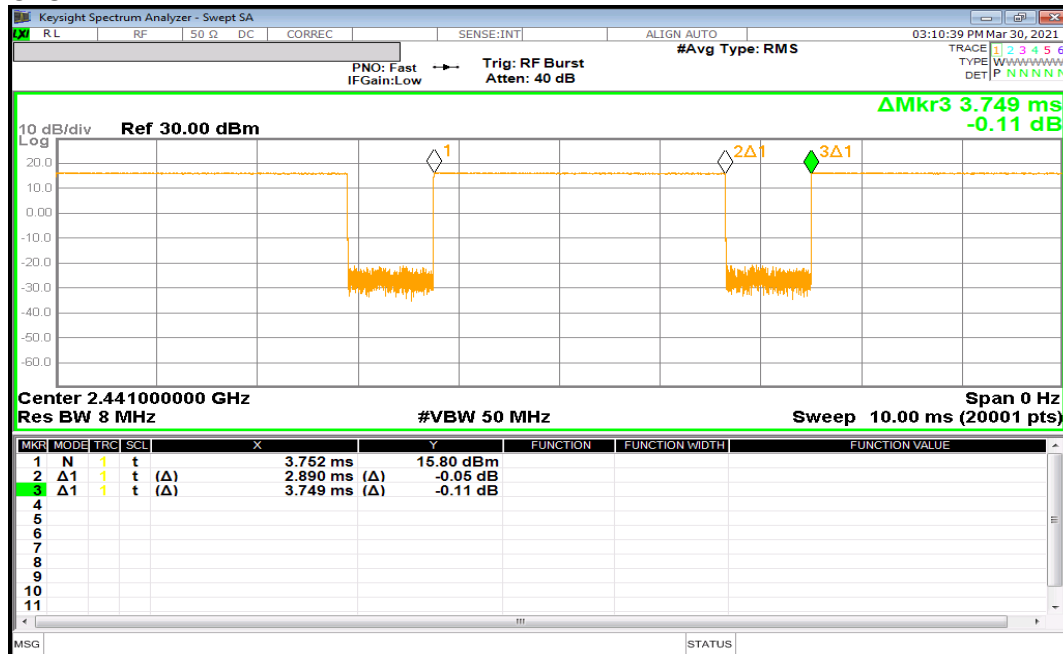
SAR test is evaluated at GFSK mode in Bluetooth

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
GFSK	DH5	2.890	3.749	77.1%	1.30

Duty Cycle plots

GFSK



10 Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

- Reported SAR(W/kg) for WWAN= Measured SAR *Tune-up Scaling Factor
- Reported SAR(W/kg) for Wi-Fi and Bluetooth= Measured SAR * Tune-up scaling factor * Duty Cycle scaling factor
- Duty Cycle scaling factor = 1 / Duty cycle (%)

KDB 447498 D01 General RF Exposure Guidance:

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

KDB 941225 D01 SAR test for 3G devices:

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

KDB 941225 D05 SAR for LTE Devices:

SAR must be measured with the maximum TTI(transmit time interval) supported by the device in each LTE configuration.

SAR test reduction is applied using the following criteria:

- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.
- When the reported SAR is > 0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.
- Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are > 0.8 W/kg. Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg.
- Testing for 16-QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of QPSK.
- Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.
- For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. 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; therefore, the requirement for H, M and L channels may not fully apply.

KDB 248227 D01 SAR meas for 802.11:

SAR test reduction for 802.11 Wi-Fi transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions. An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.

The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the initial test position(s) by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The initial test position(s) is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s). When the reported SAR for the initial test position is:

- ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.
- > 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions are tested.
 - For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
 - When it is unclear, all equivalent conditions must be tested.
- For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required test channels are considered.
 - The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction.
- When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.
- When the specified maximum output power is different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤ 1.2 W/kg, testing for the band with the lower specified output power is not required; otherwise test the remaining bands independently for SAR.

To determine the initial test position, Area Scans were performed to determine the position with the *Maximum Value of SAR (measured)*. The position that produced the highest *Maximum Value of SAR* is considered the worst case position; thus used as the initial test position.

Spot-Check Verification Procedures :

Spot-check verification proceeds as follows, as suggested by the manufacturer.

Spot-check verification perform using Variant model at the highest configurations in each RF exposure conditions in Reference model.

Condition.1 If Highest SAR value is less than 0.4 or 1.0 W/kg (1-g or 10-g respectively) in RF exposure condition, then Spot check perform at highest configuration in RF exposure condition. and If SAR measured values are less than 0.4 W/kg, no further tests are performed even if the deviation was more than 30%.

Condition.2 If Highest SAR value is same or greater than 0.4 or 1.0 W/kg (1-g or 10-g respectively) in RF exposure condition, Spot check perform in All positions above 0.4 or 1.0 W/kg (1-g or 10-g respectively).

Condition.3 For some test positions in condition.2, If Variant model's SAR level deviated higher than 30% from Reference model's SAR level according to Spot-check results, Additional SAR test perform for other configurations at the position.

10.1 GSM 850**Data referencing from Reference model**

RF Exposure Conditions	Mode	Pwr back Off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)	
							Tune-up limit	Meas.	Meas.	Scaled
Standalone	GPRS 4 Slots	Off	19	Rear	128	824.2	29.0	28.2	0.495	0.595
			23	Edge 1	128	824.2	29.0	28.2	0.361	0.434
			9	Edge 2	128	824.2	29.0	28.2	0.073	0.087
			0	Edge 4	128	824.2	29.0	28.2	0.117	0.141
	GPRS 2 Slots	On	0	Rear	190	836.6	23.0	22.0	0.362	0.456
				Edge 1	190	836.6	23.0	22.0	0.428	0.540
Edge 2				190	836.6	23.0	22.0	0.034	0.043	

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	GPRS 4 Slots	Off	19	Rear	128	824.2	29.0	27.7	0.473	0.636	1
				23	Edge 1	128	824.4	29.0	27.7	0.284	0.382	
		GPRS 2 Slots	On	0	Rear	190	836.6	23.0	21.8	0.298	0.391	
					Edge 1	190	836.6	23.0	21.8	0.342	0.449	

10.2 GSM 1900**Data referencing from Reference model**

RF Exposure Conditions	Mode	Pwr back Off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)	
							Tune-up limit	Meas.	Meas.	Scaled
Standalone	GPRS 2 Slots	Off	19	Rear	661	1880.0	29.0	28.5	0.161	0.181
			23	Edge 1	661	1880.0	29.0	28.5	0.145	0.163
			9	Edge 2	661	1880.0	29.0	28.5	0.076	0.086
	GPRS 2 Slots	On	0	Rear	661	1880.0	20.0	19.4	0.434	0.493
				Edge 1	512	1850.2	20.0	19.2	0.773	0.939
					661	1880.0	20.0	19.4	0.908	1.031
					810	1909.8	20.0	19.2	0.851	1.015
				Edge 2	661	1880.0	20.0	19.4	0.047	0.053

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	GPRS 2 Slots	On	0	Rear	661	1880.0	20.0	19.4	0.373	0.430	
					Edge 1	512	1850.2	20.0	19.4	0.589	0.672	
						661	1880.0	20.0	19.4	0.610	0.704	
						810	1909.8	20.0	19.3	0.637	0.755	2

10.3 W-CDMA Band II

Data referencing from Reference model

RF Exposure Conditions	Mode	Pwr back Off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)	
							Tune-up limit	Meas.	Meas.	Scaled
Standalone	Rel 99 RMC	Off	19	Rear	9400	1880.0	23.5	22.0	0.293	0.414
			23	Edge 1	9400	1880.0	23.5	22.0	0.237	0.335
			9	Edge 2	9400	1880.0	23.5	22.0	0.107	0.151
	Rel 99 RMC	On	0	Rear	9400	1880.0	13.5	12.7	0.410	0.493
				Edge 1	9262	1852.4	13.5	12.2	0.815	1.092
					9400	1880.0	13.5	12.7	0.864	1.039
					9538	1907.6	13.5	12.6	0.823	1.017
				Edge 2	9400	1880.0	13.5	12.7	0.032	0.039

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	Rel 99 RMC 12.2 kbps	Off	19	Rear	9400	1880.0	23.5	22.9	0.316	0.365	
					Rear	9400	1880.0	13.5	13.0	0.385	0.427	
			On	0	Edge 1	9262	1852.4	13.5	13.0	0.824	0.930	3
						9400	1880.0	13.5	13.0	0.819	0.909	
						9538	1907.6	13.5	12.8	0.798	0.929	

10.4 W-CDMA Band IV

Data referencing from Reference model

RF Exposure Conditions	Mode	Pwr back Off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)	
							Tune-up limit	Meas.	Meas.	Scaled
Standalone	Rel 99 RMC	Off	19	Rear	1513	1752.6	23.5	22.9	0.262	0.303
			23	Edge 1	1513	1752.6	23.5	22.9	0.224	0.259
			9	Edge 2	1513	1752.6	23.5	22.9	0.137	0.158
	Rel 99 RMC	On	0	Rear	1513	1752.6	13.5	12.8	0.469	0.548
				Edge 1	1312	1712.4	13.5	12.3	0.559	0.732
					1413	1732.6	13.5	12.5	0.597	0.755
					1513	1752.6	13.5	12.8	0.687	0.803
				Edge 2	1513	1752.6	13.5	12.8	0.040	0.047

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	Rel 99 RMC 12.2 kbps	On	0	Rear	1513	1752.6	13.5	13.0	0.367	0.413	
					Edge 1	1312	1712.4	13.5	12.9	0.580	0.663	
						1413	1732.6	13.5	13.1	0.641	0.711	
						1513	1752.6	13.5	13.0	0.669	0.753	4

10.5 W-CDMA Band V**Data referencing from Reference model**

RF Exposure Conditions	Mode	Pwr back Off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)	
							Tune-up limit	Meas.	Meas.	Scaled
Standalone	Rel 99 RMC	Off	19	Rear	4183	836.6	25.0	24.4	0.278	0.319
			23	Edge 1	4183	836.6	25.0	24.4	0.287	0.329
			9	Edge 2	4183	836.6	25.0	24.4	0.089	0.102
			0	Edge 4	4183	836.6	25.0	24.4	0.081	0.093
	Rel 99 RMC	On	0	Rear	4183	836.6	15.0	14.9	0.446	0.455
				Edge 1	4183	836.6	15.0	14.9	0.660	0.673
Edge 2				4183	836.6	15.0	14.9	0.018	0.018	

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	Rel 99 RMC 12.2 kbps	On	0	Rear	4183	836.6	15.0	14.4	0.305	0.346	5
					Edge 1	4183	836.6	15.0	14.4	0.444	0.504	

10.6 LTE Band 2 (20MHz Bandwidth)

Data referencing from Reference model

RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)	
									Tune-up limit	Meas.	Meas.	Scaled
Standalone	QPSK	Off	19	Rear	18900	1880.0	1	49	24.0	22.7	0.319	0.427
							50	50	23.0	21.8	0.255	0.334
			23	Edge 1	18900	1880.0	1	49	24.0	22.7	0.234	0.313
							50	50	23.0	21.8	0.182	0.238
			9	Edge 2	18900	1880.0	1	49	24.0	22.7	0.091	0.122
							50	50	23.0	21.8	0.071	0.093
	QPSK	On	0	Rear	18900	1880.0	1	49	14.0	12.8	0.460	0.602
							50	50	14.0	13.0	0.457	0.580
				Edge 1	18700	1860.0	1	49	14.0	12.4	0.719	1.030
							50	50	14.0	12.7	0.737	1.005
					18900	1880.0	1	49	14.0	12.8	0.878	1.150
							50	50	14.0	13.0	0.912	1.157
				19100	1900.0	1	49	14.0	12.7	0.739	0.997	
						50	50	14.0	12.8	0.751	0.992	
				Edge 2	18900	1880.0	1	49	14.0	12.8	0.739	0.981
							100	0	14.0	12.8	0.739	0.981
1	49	14.0	12.8	0.030	0.039							
50	50	14.0	13.0	0.023	0.029							

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	QPSK	On	0	Rear	18900	1880.0	1	49	24.0	22.8	0.235	0.310	
								50	50	14.0	13.2	0.431	0.516	
					Edge 1	18700	1860.0	1	49	14.0	13.1	0.848	1.054	
								50	50	14.0	13.2	0.864	1.048	
						18900	1880.0	1	49	14.0	13.2	0.858	1.027	
								50	50	14.0	13.2	0.892	1.070	
					19100	1900.0	1	49	14.0	13.0	0.828	1.048		
							50	50	14.0	13.1	0.847	1.043		
					100	0	14.0	13.1	0.840	1.023				

Additional Test Accessory SAR

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	QPSK	On	0	Edge 1	18900	1880.0	50	50	14.0	13.2	0.504	0.604	

Note(s):

In the case of Accessory SAR, the highest reported SAR by frequency was further measured in the band.

10.7 LTE Band 5 (10MHz Bandwidth)

Data referencing from Reference model

RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)	
									Tune-up limit	Meas.	Meas.	Scaled
Standalone	QPSK	Off	19	Rear	20525	836.5	1	0	25.5	24.6	0.360	0.440
							25	0	24.5	23.9	0.297	0.345
			23	Edge 1	20525	836.5	1	0	25.5	24.6	0.285	0.348
							25	0	24.5	23.9	0.243	0.282
			9	Edge 2	20525	836.5	1	0	25.5	24.6	0.089	0.109
							25	0	24.5	23.9	0.082	0.095
	0	Edge 4	20525	836.5	1	0	25.5	24.6	0.092	0.112		
					25	0	24.5	23.9	0.074	0.086		
	QPSK	On	0	Rear	20525	836.5	1	0	16.0	15.7	0.401	0.429
							25	0	16.0	15.8	0.428	0.444
				Edge 1	20525	836.5	1	0	16.0	15.7	0.716	0.765
							25	0	16.0	15.8	0.601	0.623
Edge 2				20525	836.5	1	0	16.0	15.7	0.034	0.037	
						25	0	16.0	15.8	0.035	0.036	

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	QPSK	Off	19	Rear	20525	836.5	1	0	25.5	24.0	0.309	0.441	
								1	0	16.0	15.4	0.422	0.489	
			On	0	Rear	20525	836.5	25	0	16.0	15.4	0.464	0.536	
								1	0	16.0	15.4	0.497	0.576	
			Edge 1	20525	836.5	1	0	16.0	15.4	0.512	0.591	7		
						25	0	16.0	15.4	0.512	0.591	7		

10.8 LTE Band 12 (10MHz Bandwidth)

Data referencing from Reference model

RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)	
									Tune-up limit	Meas.	Meas.	Scaled
Standalone	QPSK	Off	19	Rear	23095	707.5	1	0	25.0	23.9	0.286	0.372
							25	12	24.0	22.8	0.226	0.296
			23	Edge 1	23095	707.5	1	0	25.0	23.9	0.231	0.300
							25	12	24.0	22.8	0.191	0.250
			9	Edge 2	23095	707.5	1	0	25.0	23.9	0.038	0.050
							25	12	24.0	22.8	0.028	0.037
	0	Edge 4	23095	707.5	1	0	25.0	23.9	0.055	0.072		
					25	12	24.0	22.8	0.055	0.072		
	QPSK	On	0	Rear	23095	707.5	1	0	15.0	14.0	0.235	0.293
							25	12	15.0	14.2	0.233	0.282
				Edge 1	23095	707.5	1	0	15.0	14.0	0.469	0.586
							25	12	15.0	14.2	0.466	0.564
Edge 2				23095	707.5	1	0	15.0	14.0	0.009	0.011	
						25	12	15.0	14.2	0.009	0.011	

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	QPSK	On	0	Edge 1	23095	707.5	1	0	15.0	14.2	0.397	0.477	8
								25	12	15.0	14.3	0.401	0.471	

10.9 LTE Band 13 (10MHz Bandwidth)

Data referencing from Reference model

RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)	
									Tune-up limit	Meas.	Meas.	Scaled
Standalone	QPSK	Off	19	Rear	23230	782.0	1	49	25.0	24.7	0.436	0.472
							25	25	24.0	23.6	0.343	0.376
			23	Edge 1	23230	782.0	1	49	25.0	24.7	0.292	0.316
							25	25	24.0	23.6	0.222	0.243
			9	Edge 2	23230	782.0	1	49	25.0	24.7	0.054	0.059
							25	25	24.0	23.6	0.046	0.050
	0	Edge 4	23230	782.0	1	49	25.0	24.7	0.095	0.103		
					25	25	24.0	23.6	0.072	0.078		
	QPSK	On	0	Rear	23230	782.0	1	49	15.0	14.7	0.408	0.434
							25	25	15.0	14.8	0.410	0.428
				Edge 1	23230	782.0	1	49	15.0	14.7	0.437	0.465
							25	25	15.0	14.8	0.469	0.490
Edge 2				23230	782.0	1	49	15.0	14.7	0.014	0.015	
						25	25	15.0	14.8	0.015	0.016	

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	QPSK	Off	19	Rear	23230	782.0	1	49	25.0	24.2	0.343	0.411	
								1	49	15.0	14.2	0.294	0.350	
			On	0	Rear	23230	782.0	25	25	15.0	14.3	0.308	0.361	
								1	49	15.0	14.2	0.493	0.587	9
			Edge 1	23230	782.0	1	49	15.0	14.3	0.482	0.565			
						25	25	15.0	14.3	0.482	0.565			

10.10 LTE Band 17 (10MHz Bandwidth)**Data referencing from Reference model**

RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)	
									Tune-up limit	Meas.	Meas.	Scaled
Standalone	QPSK	On	0	Rear	23790	710.0	1	0	17.0	16.0	0.345	0.431
							25	0	17.0	16.2	0.341	0.414
				Edge 1	23790	710.0	1	0	17.0	16.0	0.655	0.819
							25	0	17.0	16.2	0.661	0.803
				Edge 2	23790	710.0	1	0	17.0	16.0	0.014	0.017
							25	0	17.0	16.2	0.015	0.018

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	QPSK	On	0	Rear	23790	710.0	1	0	17.0	16.1	0.370	0.450	
								25	0	17.0	16.2	0.357	0.432	
					Edge 1	23790	710.0	1	0	17.0	16.1	0.756	0.920	
								25	0	17.0	16.2	0.799	0.967	10
							50	0	17.0	16.2	0.587	0.702		

Additional Test Accessory SAR

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	QPSK	On	0	Rear	23790	710.0	25	0	17.0	16.2	0.484	0.586	

Note(s):

In the case of Accessory SAR, the highest reported SAR by frequency was further measured in the band.

10.11 LTE Band 25 (20MHz Bandwidth)

Data referencing from Reference model

RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)	
									Tune-up limit	Meas.	Meas.	Scaled
Standalone	QPSK	Off	19	Rear	26365	1882.5	1	49	24.0	22.7	0.326	0.438
							50	50	23.0	21.7	0.260	0.347
			23	Edge 1	26365	1882.5	1	49	24.0	22.7	0.241	0.324
							50	50	23.0	21.7	0.187	0.250
			9	Edge 2	26365	1882.5	1	49	24.0	22.7	0.089	0.120
							50	50	23.0	21.7	0.068	0.091
	QPSK	On	0	Rear	26365	1882.5	1	49	14.0	13.0	0.475	0.605
							50	50	14.0	13.0	0.478	0.606
				Edge 1	26140	1860.0	1	49	14.0	12.3	0.671	0.998
							50	50	14.0	12.5	0.685	0.976
					26365	1882.5	1	49	14.0	13.0	0.907	1.155
							50	50	14.0	13.1	0.930	1.157
				26590	1905.0	1	49	14.0	12.7	0.705	0.959	
						50	50	14.0	12.7	0.710	0.959	
						100	0	14.0	12.6	0.690	0.959	
						1	49	14.0	13.0	0.029	0.037	
Edge 2	26365	1882.5	1	49	14.0	13.0	0.029	0.037				
			50	50	14.0	13.0	0.029	0.037				

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	QPSK	On	0	Rear	26365	1882.5	1	49	24.0	23.0	0.246	0.310	
								50	50	14.0	13.3	0.416	0.492	
					Edge 1	26140	1860.0	1	49	14.0	13.1	0.856	1.059	
								50	50	14.0	13.2	0.860	1.022	
						26365	1882.5	1	49	14.0	13.3	0.875	1.035	
								50	50	14.0	13.3	0.892	1.060	
					16590	1905.0	1	49	14.0	13.1	0.847	1.048		
							50	50	14.0	13.2	0.863	1.039		
					100	0	14.0	13.1	0.846	1.031				

10.12 LTE Band 26 (15MHz Bandwidth)

Data referencing from Reference model

RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)	
									Tune-up limit	Meas.	Meas.	Scaled
Standalone	QPSK	Off	19	Rear	26865	831.5	1	0	25.5	24.6	0.520	0.643
							36	20	24.5	23.5	0.394	0.494
			23	Edge 1	26865	831.5	1	0	25.5	24.6	0.425	0.525
							36	20	24.5	23.5	0.337	0.422
			9	Edge 2	26865	831.5	1	0	25.5	24.6	0.105	0.130
							36	20	24.5	23.5	0.069	0.087
			0	Edge 4	26865	831.5	1	0	25.5	24.6	0.126	0.156
							36	20	24.5	23.5	0.105	0.132
	QPSK	On	0	Rear	26865	831.5	1	0	17.5	16.6	0.667	0.817
							36	20	17.5	16.6	0.655	0.813
							75	0	17.5	16.5	0.649	0.817
				Edge 1	26865	831.5	1	0	17.5	16.6	0.913	1.118
							36	20	17.5	16.6	0.919	1.140
							75	0	17.5	16.5	0.909	1.144
Edge 2	26865	831.5	1	0	17.5	16.6	0.024	0.029				
			36	20	17.5	16.6	0.025	0.032				

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.	
										Tune-up limit	Meas.	Meas.	Scaled		
Main 1 Ant.1	Standalone	QPSK	Off	19	Rear	26865	831.5	1	0	25.5	24.1	0.309	0.425		
								36	20	24.5	23.1	0.254	0.348		
				23	Edge 1	26865	831.5	1	0	25.5	24.1	0.464	0.638		
								36	20	24.5	23.1	0.367	0.503		
				On	0	Rear	26865	831.5	1	0	17.5	16.1	0.512	0.712	
									36	20	17.5	16.2	0.506	0.676	
			Edge 1			26865	831.5	1	0	17.5	15.9	0.547	0.784		
								36	20	17.5	16.1	0.753	1.047		
			Edge 1	26865	831.5	36	20	17.5	16.2	0.849	1.135	12			
						75	0	17.5	15.9	0.763	1.093				

Additional Test Accessory SAR

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1	Standalone	QPSK	On	0	Edge 1	26865	831.5	36	20	17.5	16.2	0.590	0.789	

Note(s):

In the case of Accessory SAR, the highest reported SAR by frequency was further measured in the band.

10.13 LTE Band 41 (20MHz Bandwidth)

Data referencing from Reference model

RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)	
									Tune-up limit	Meas.	Meas.	Scaled
Standalone	QPSK	Off	19	Rear	41055	2636.5	1	49	24.5	23.9	0.133	0.153
							50	24	23.5	22.9	0.104	0.121
			23	Edge 1	41055	2636.5	1	49	24.5	23.9	0.128	0.147
							50	24	23.5	22.9	0.105	0.122
			9	Edge 2	41055	2636.5	1	49	24.5	23.9	0.124	0.142
							50	24	23.5	22.9	0.096	0.111
	QPSK	On	0	Rear	41055	2636.5	1	49	15.0	14.0	0.326	0.409
							50	24	15.0	14.1	0.322	0.399
				Edge 1	39750	2506.0	1	49	15.0	13.6	0.505	0.704
							50	24	15.0	13.6	0.517	0.706
				40185	2549.5	2593.0	1	49	15.0	13.5	0.537	0.751
							50	24	15.0	13.5	0.549	0.773
				40620	2593.0	2636.5	1	49	15.0	13.7	0.629	0.855
							50	24	15.0	13.7	0.630	0.849
				41055	2636.5	2680.0	1	49	15.0	14.0	0.509	0.638
							50	24	15.0	14.1	0.517	0.641
				41490	2680.0	2636.5	100	0	15.0	13.9	0.506	0.651
							1	49	15.0	13.9	0.449	0.585
				Edge 2	41055	2636.5	50	24	15.0	13.9	0.466	0.607
							1	49	15.0	14.0	0.046	0.057
50	24	15.0	14.1	0.046	0.057							

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	QPSK	On	0	Rear	41055	2636.5	1	49	15.0	14.3	0.453	0.529	
								50	24	15.0	14.4	0.447	0.512	
					Edge 1	39750	2506.0	1	49	15.0	14.1	0.590	0.718	
								50	24	15.0	14.2	0.606	0.726	
					40185	2549.5	2593.0	1	49	15.0	14.2	0.596	0.721	
								50	24	15.0	14.1	0.606	0.738	
					40620	2593.0	2636.5	1	49	15.0	14.3	0.651	0.762	13
								50	24	15.0	14.4	0.660	0.760	
					41055	2636.5	2680.0	1	49	15.0	14.3	0.537	0.627	
								50	24	15.0	14.4	0.536	0.614	
					41490	2680.0	2636.5	100	0	15.0	14.3	0.591	0.689	
								1	49	15.0	14.1	0.539	0.670	
					50	24	15.0	14.1	0.547	0.678				

Additional Test Accessory SAR

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1	Standalone	QPSK	On	0	Edge 1	40620	2593.0	1	49	15.0	14.3	0.499	0.584	

Note(s):

In the case of Accessory SAR, the highest reported SAR by frequency was further measured in the band.

10.14 LTE Band 66 (20MHz Bandwidth)

Data referencing from Reference model

RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)	
									Tune-up limit	Meas.	Meas.	Scaled
Standalone	QPSK	Off	19	Rear	132322	1745.0	1	49	24.0	23.1	0.272	0.335
							50	24	23.0	22.1	0.217	0.266
			23	Edge 1	132322	1745.0	1	49	24.0	23.1	0.199	0.245
							50	24	23.0	22.1	0.156	0.191
			9	Edge 2	132322	1745.0	1	49	24.0	23.1	0.131	0.161
							50	24	23.0	22.1	0.103	0.126
	QPSK	On	0	Rear	132322	1745.0	1	49	14.0	13.0	0.471	0.587
							50	24	14.0	13.1	0.469	0.578
				Edge 1	132072	1720.0	1	49	14.0	12.7	0.773	1.051
							50	24	14.0	12.8	0.815	1.069
					132322	1745.0	1	49	14.0	13.0	0.888	1.106
							50	24	14.0	13.1	0.876	1.080
				132572	1770.0	1	49	14.0	12.9	0.840	1.078	
						50	24	14.0	13.0	0.844	1.057	
				Edge 2	132322	1745.0	1	49	14.0	13.0	0.035	0.044
							50	24	14.0	13.1	0.035	0.043

Spot check results for Variant model

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.1	Standalone	QPSK	On	0	Rear	132322	1745.0	1	49	14.0	13.2	0.387	0.468	
								50	24	14.0	13.3	0.391	0.464	
					Edge 1	132072	1720.0	1	49	14.0	13.1	0.793	0.971	
								50	24	14.0	13.2	0.814	0.968	
						132322	1745.0	1	49	14.0	13.2	0.818	0.990	
								50	24	14.0	13.3	0.832	0.987	
					132572	1770.0	100	0	14.0	13.2	0.857	1.035	14	
							1	49	14.0	13.0	0.813	1.015		
					50	24	14.0	13.2	0.844	1.019				

Additional Test Accessory SAR

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1	Standalone	QPSK	On	0	Edge 1	132322	1745.0	100	0	14.0	13.2	0.497	0.600	

Note(s):

In the case of Accessory SAR, the highest reported SAR by frequency was further measured in the band.

10.15 Wi-Fi (DTS Band)**Data referencing from Reference model**

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note
										Tune-up limit	Meas.	Meas.	Scaled	
2.4GHz SISO Ant 1	802.11b 1 Mbps	Standalone	Off	17	Rear	6	2437.0	0.176	98.9%	19.0	17.9	0.101	0.132	2
				20	Edge 1	6	2437.0	0.110	98.9%	19.0	17.9	0.078	0.102	4
				9	Edge 2	6	2437.0	0.484	98.9%	19.0	17.9	0.331	0.431	
				0	Edge 3	6	2437.0	0.148	98.9%	19.0	17.9	0.086	0.112	4
				0	Edge 4	6	2437.0	0.032	98.9%	19.0	17.9	0.020	0.026	4
				15	Corner A	6	2437.0	0.123	98.8%	19.0	17.9			
			On	0	Rear	6	2437.0	0.742	98.9%	12.0	11.7	0.357	0.387	
					Edge 1	6	2437.0	0.415	98.9%	12.0	11.7	0.245	0.266	4
					Edge 2	6	2437.0	0.476	98.9%	12.0	11.7	0.245	0.266	2
					Corner A	6	2437.0	0.144	98.8%	12.0	11.7			
2.4GHz SISO Ant 2	802.11b 1 Mbps	Standalone	Off	16	Rear	6	2437.0	0.106	98.8%	19.0	18.3	0.072	0.085	2
				19	Edge 1	6	2437.0	0.031	98.8%	19.0	18.3	0.020	0.023	4
				6	Edge 4	6	2437.0	0.829	98.8%	19.0	18.3	0.491	0.579	
				13	Corner B	6	2437.0	0.025	98.8%	19.0	18.3			
			On	0	Rear	6	2437.0	0.181	98.8%	12.0	11.6	0.098	0.109	4
					Edge 1	6	2437.0	0.035	98.8%	12.0	11.6	0.038	0.042	4
					Edge 4	6	2437.0	0.363	98.8%	12.0	11.6	0.233	0.259	1
					Corner B	6	2437.0	0.094	98.8%	12.0	11.6			

Spot check results for Variant model

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
2.4GHz SISO Ant 1	802.11b 1 Mbps	Standalone	Off	9	Edge 2	6	2437.0	0.446	98.8%	19.0	18.5	0.268	0.308	15
			On	0	Rear	6	2437.0	0.394	98.8%	12.0	11.8	0.217	0.233	
2.4GHz SISO Ant 2	802.11b 1 Mbps	Standalone	Off	16	Rear	6	2437.0	0.082	98.8%	19.0	18.2	0.059	0.072	
			6	Edge 4	6	2437.0	0.371	98.8%	19.0	18.2	0.431	0.521	16	
			On	0	Edge 4	11	2462.0	0.360	98.8%	12.0	11.5	0.172	0.195	

Additional Test Accessory SAR

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
2.4GHz SISO Ant 1	802.11b 1 Mbps	Standalone	On	0	Edge 2	6	2437.0	0.286	98.8%	19.0	18.5	0.189	0.217	
2.4GHz SISO Ant 2	802.11b 1 Mbps	Standalone	On	0	Edge 4	6	2437.0	0.120	98.8%	19.0	18.2	0.078	0.095	

Note(s):

- Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.
- Testing for a second channel was required because the reported SAR for this test position was > 0.8 or 2.0 W/kg (1-g or 10-g respectively).
- Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
- SAR testing is not required for OFDM mode(s) when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
- In the case of Accessory SAR, the highest reported SAR by frequency was further measured in the band.

10.16 Bluetooth

Data referencing from Reference model

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note
									Tune-up limit	Meas.	Meas.	Scaled	
2.4GHz	GFSK	Standalone	Off	17	Rear	39	2441.0	77.1%	18.0	17.3	0.030	0.047	
				20	Edge 1	39	2441.0	77.1%	18.0	17.3	0.025	0.038	
				9	Edge 2	39	2441.0	77.1%	18.0	17.3	0.144	0.221	
				0	Edge 3	39	2441.0	77.1%	18.0	17.3	0.024	0.036	2
				0	Edge 4	39	2441.0	77.1%	18.0	17.3	0.003	0.005	2
				15	Corner A	39	2441.0	77.1%	18.0	17.3	0.034	0.052	
			On	0	Rear	39	2441.0	77.1%	10.0	9.9	0.179	0.236	
				0	Edge 1	39	2441.0	77.1%	10.0	9.9	0.121	0.160	
				0	Edge 2	39	2441.0	77.1%	10.0	9.9	0.144	0.190	
				0	Corner A	39	2441.0	77.1%	10.0	9.9	0.085	0.113	

Spot check results for Variant model

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
2.4GHz	GFSK	Standalone	On	0	Rear	39	2441.0	77.1%	10.0	9.3	0.174	0.266	17

Note(s):

1. Bluetooth SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.
2. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

10.17 Wi-Fi (U-NII Band)

Data referencing from Reference model

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note
										Tune-up limit	Meas.	Meas.	Scaled	
5.3 GHz U-NII 2A SISO Ant 1	802.11a 6 Mbps	Standalone	Off	17	Rear	52	5260.0	0.150	98.7%	17.0	16.3	0.074	0.089	4
				20	Edge 1	52	5260.0	0.140	98.7%	17.0	16.3	0.065	0.079	4
				9	Edge 2	52	5260.0	1.364	98.7%	17.0	16.3	0.602	0.723	
				15	Corner A	52	5260.0	0.396	98.7%	17.0	16.3	0.190	0.228	2
	802.11ac (VHT80) MCS0		On	0	Rear	58	5290.0	1.497	98.6%	9.5	8.4	0.571	0.746	4
				0	Edge 1	58	5290.0	0.300	98.6%	9.5	8.4	0.182	0.238	4
				0	Edge 2	58	5290.0	2.600	98.6%	9.5	8.4	0.914	1.194	
				0	Corner A	58	5290.0	1.821	98.6%	9.5	8.4	0.610	0.797	2
5.3 GHz U-NII 2A SISO Ant 2	802.11a 6 Mbps	Standalone	Off	16	Rear	56	5280.0	0.104	98.7%	17.0	16.2	0.053	0.065	4
				19	Edge 1	56	5280.0	0.156	98.7%	17.0	16.2	0.084	0.103	4
				6	Edge 4	56	5280.0	0.946	98.7%	17.0	16.2	0.361	0.443	
				13	Corner B	56	5280.0	0.178	98.7%	17.0	16.2	0.091	0.111	2
	802.11ac (VHT80) MCS0		On	0	Rear	58	5290.0	1.686	98.6%	9.5	8.6	0.495	0.622	
				0	Edge 1	58	5290.0	0.482	98.6%	9.5	8.6	0.274	0.344	4
				0	Edge 4	58	5290.0	1.077	98.6%	9.5	8.6	0.469	0.589	2
				0	Corner B	58	5290.0	0.290	98.6%	9.5	8.6			
5.3 GHz U-NII 2A MIMO Ant 1	802.11a 6 Mbps	Standalone	Off	16	Rear	52	5260.0	0.188	98.7%	17.0	16.3	0.089	0.107	4
				19	Edge 1	52	5260.0	0.170	98.7%	17.0	16.3	0.071	0.086	4
				9	Edge 2	52	5260.0	1.780	98.7%	17.0	16.3	0.781	0.941	
						56	5280.0	0.892	98.7%	17.0	16.2	0.416	0.509	3
				0	Edge 3	52	5260.0	0.089	98.7%	17.0	16.3	0.044	0.053	4
				6	Edge 4	52	5260.0	0.854	98.7%	17.0	16.3			
	802.11ac (VHT80) MCS0		On	15	Corner A	52	5260.0	0.578	98.7%	17.0	16.3			
				13	Corner B	52	5260.0	0.188	98.7%	17.0	16.3			
				0	Rear	58	5290.0	1.654	97.3%	9.5	8.8	0.396	0.478	4
				0	Edge 1	58	5290.0	0.483	97.3%	9.5	8.8	0.315	0.381	4
				0	Edge 2	58	5290.0	2.876	97.3%	9.5	8.8	0.954	1.152	
				0	Edge 4	58	5290.0	1.060	97.3%	9.5	8.8			
5.3 GHz U-NII 2A MIMO Ant 2	802.11a 6 Mbps	Standalone	Off	0	Corner A	58	5290.0	2.054	97.3%	9.5	8.8	0.638	0.771	2
				0	Corner B	58	5290.0	0.264	97.3%	9.5	8.8			
				16	Rear	52	5260.0	0.188	98.7%	17.0	16.1			
				19	Edge 1	52	5260.0	0.170	98.7%	17.0	16.1	0.089	0.110	4
				9	Edge 2	52	5260.0	1.780	98.7%	17.0	16.1			
						56	5280.0	0.892	98.7%	17.0	16.1			
	0		Edge 3	52	5260.0	0.089	98.7%	17.0	16.1					
	6		Edge 4	52	5260.0	0.854	98.7%	17.0	16.1	0.377	0.467	2		
	802.11ac (VHT80) MCS0		On	15	Corner A	52	5260.0	0.578	98.7%	17.0	16.1			
				13	Corner B	52	5260.0	0.188	98.7%	17.0	16.1			
				0	Rear	58	5290.0	1.654	97.3%	9.5	8.3	0.480	0.645	4
				0	Edge 1	58	5290.0	0.483	97.3%	9.5	8.3	0.265	0.356	4
0		Edge 2		58	5290.0	2.876	97.3%	9.5	8.3					
0		Edge 4		58	5290.0	1.060	97.3%	9.5	8.3	0.470	0.631	4		

Spot check results for Variant model

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
5.3 GHz U-NII 2A SISO Ant 1	802.11a 6 Mbps	Standalone	Off	9	Edge 2	52	5260.0	1.305	98.7%	17.0	17.0	0.576	0.587	
				15	Corner A	52	5260.0	0.368	98.7%	17.0	17.0	0.179	0.182	
	802.11ac (VHT80) MCS0		On	0	Rear	58	5290.0	0.715	98.6%	9.5	9.0	0.325	0.373	
				0	Edge 2	58	5290.0	2.464	98.6%	9.5	9.0	0.828	0.951	18
				0	Corner A	58	5290.0	1.002	98.6%	9.5	9.0	0.387	0.445	
5.3 GHz U-NII 2A SISO Ant 2	802.11a 6 Mbps	Standalone	Off	6	Edge 4	56	5280.0	0.691	98.7%	17.0	15.5	0.311	0.448	
				13	Corner B	56	5280.0	0.187	98.7%	17.0	15.5	0.087	0.126	
	802.11ac (VHT80) MCS0		On	0	Rear	58	5290.0	1.328	98.6%	9.5	8.5	0.391	0.496	
				0	Edge 4	58	5290.0	0.915	98.6%	9.5	8.5	0.415	0.526	19
5.3 GHz U-NII 2A MIMO Ant 1	802.11a 6 Mbps	Standalone	Off	9	Edge 2	52	5260.0	1.310	98.7%	17.0	16.3	0.585	0.704	
				56		5280.0	1.469	98.7%	17.0	16.2	0.735	0.897	20	
				6	Edge 4	52	5260.0	0.679	98.7%	17.0	16.3			
	802.11ac (VHT80) MCS0		On	0	Rear	58	5290.0	1.071	97.3%	9.5	8.9	0.316	0.370	
				0	Edge 2	58	5290.0	1.352	97.3%	9.5	8.9	0.712	0.835	
				0	Edge 4	58	5290.0	0.391	97.3%	9.5	8.9			
				0	Corner A	58	5290.0	1.341	97.3%	9.5	8.9	0.431	0.505	
5.3 GHz U-NII 2A MIMO Ant 2	802.11a 6 Mbps	Standalone	Off	9	Edge 2	52	5260.0	1.310	98.7%	17.0	15.6			
				52		5260.0	1.469	98.7%	17.0	15.6				
				6	Edge 4	52	5260.0	0.679	98.7%	17.0	15.6	0.313	0.440	
	802.11ac (VHT80) MCS0		On	0	Rear	58	5290.0	1.071	97.3%	9.5	8.6	0.449	0.568	
				0	Edge 2	58	5290.0	1.352	97.3%	9.5	8.6			
				0	Edge 4	58	5290.0	0.391	97.3%	9.5	8.6	0.309	0.391	
				0	Corner A	58	5290.0	1.341	97.3%	9.5	8.6			

Note(s):

- Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.
- Testing for a second channel was required because the reported SAR for this test position was > 0.8 or 2.0 W/kg (1-g or 10-g respectively).
- Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
- MIMO SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

Data referencing from Reference model

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	
										Tune-up limit	Meas.	Meas.	Scaled		
5.5 GHz U-NII 2C SISO Ant 1	802.11a 6 Mbps	Standalone	Off	17	Rear	100	5500.0	0.206	98.7%	17.0	16.0	0.094	0.122	4	
				20	Edge 1	100	5500.0	0.200	98.7%	17.0	16.0	0.094	0.121	4	
				9	Edge 2	100	5500.0	1.038	98.7%	17.0	16.0	0.439	0.566		
				15	Corner A	100	5500.0	0.438	98.7%	17.0	16.0	0.203	0.262	2	
	802.11ac (VHT80) MCS0		On	0	Rear	106	5530.0	1.367	98.6%	9.5	8.6	0.582	0.731	2	
				0	Edge 1	106	5530.0	0.380	98.6%	9.5	8.6	0.220	0.276	4	
				0	Edge 2	106	5530.0	2.400	98.6%	9.5	8.6	0.809	1.017	3	
						122	5610.0	2.668	98.6%	9.5	8.5	0.896	1.155		
				0	Corner A	106	5530.0	1.221	98.6%	9.5	8.6				
5.5 GHz U-NII 2C SISO Ant 2	802.11a 6 Mbps	Standalone	Off	16	Rear	120	5600.0	0.104	98.7%	17.0	16.6	0.049	0.055	4	
				19	Edge 1	120	5600.0	0.193	98.7%	17.0	16.6	0.098	0.110	4	
				6	Edge 4	120	5600.0	0.946	98.7%	17.0	16.6	0.387	0.433		
				13	Corner B	120	5600.0	0.210	98.7%	17.0	16.6	0.096	0.108	2	
	802.11ac (VHT80) MCS0		On	0	Rear	122	5610.0	1.711	98.6%	9.5	8.6	0.448	0.554		
				0	Edge 1	122	5610.0	0.539	98.6%	9.5	8.6	0.324	0.401	4	
				0	Edge 4	122	5610.0	0.801	98.6%	9.5	8.6	0.299	0.370	2	
				0	Corner B	122	5610.0	0.453	98.6%	9.5	8.6				
5.5 GHz U-NII 2C MIMO Ant 1	802.11a 6 Mbps	Standalone	Off	16	Rear	124	5620.0	0.217	98.7%	17.0	15.7	0.102	0.138	4	
				19	Edge 1	124	5620.0	0.218	98.7%	17.0	15.7	0.093	0.126	4	
				9	Edge 2	120	5600.0	1.084	98.7%	17.0	15.9	0.486	0.637	3	
						124	5620.0	1.516	98.7%	17.0	15.7	0.776	1.053		
				0	Edge 3	124	5620.0	0.120	98.7%	17.0	15.7				
				6	Edge 4	124	5620.0	0.953	98.7%	17.0	15.7				
				15	Corner A	124	5620.0	0.394	98.7%	17.0	15.7				
				13	Corner B	124	5620.0	0.152	98.7%	17.0	15.7				
	802.11ac (VHT80) MCS0		On	0	Rear	122	5610.0	1.885	97.3%	9.5	8.6	0.585	0.749	2	
				0	Edge 1	122	5610.0	0.545	97.3%	9.5	8.6	0.277	0.354	4	
				0	Edge 2	106	5530.0	2.869	97.3%	9.5	8.5	0.933	1.197		
						122	5610.0	2.140	97.3%	9.5	8.6	0.739	0.946	3	
				0	Edge 4	122	5610.0	0.792	97.3%	9.5	8.6				
				0	Corner A	122	5610.0	0.855	97.3%	9.5	8.6				
0	Corner B	122	5610.0	0.363	97.3%	9.5	8.6								
5.5 GHz U-NII 2C MIMO Ant 2	802.11a 6 Mbps	Standalone	Off	16	Rear	124	5620.0	0.217	98.7%	17.0	16.5				
				19	Edge 1	124	5620.0	0.218	98.7%	17.0	16.5	0.113	0.130	4	
				9	Edge 2	120	5600.0	1.084	98.7%	17.0	16.5				
						124	5620.0	1.516	98.7%	17.0	16.5				
				0	Edge 3	124	5620.0	0.120	98.7%	17.0	16.5	0.059	0.068	4	
				6	Edge 4	124	5620.0	0.953	98.7%	17.0	16.5	0.383	0.440	2	
				15	Corner A	124	5620.0	0.394	98.7%	17.0	16.5				
				13	Corner B	124	5620.0	0.152	98.7%	17.0	16.5				
	802.11ac (VHT80) MCS0		On	0	Rear	122	5610.0	1.885	97.3%	9.5	8.2	0.426	0.598	2	
				0	Edge 1	122	5610.0	0.545	97.3%	9.5	8.2	0.321	0.450	4	
				0	Edge 2	106	5530.0	2.869	97.3%	9.5	8.1				
						122	5610.0	2.140	97.3%	9.5	8.2				
				0	Edge 4	122	5610.0	0.792	97.3%	9.5	8.2	0.294	0.413	4	
				0	Corner A	122	5610.0	0.855	97.3%	9.5	8.2				
0	Corner B	122	5610.0	0.363	97.3%	9.5	8.2								

Spot check results for Variant model

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
5.5 GHz U-NII 2C SISO Ant 1	802.11a 6 Mbps	Standalone	Off	9	Edge 2	100	5500.0	1.211	98.7%	17.0	16.9	0.515	0.540	
				15	Corner A	100	5500.0	0.423	98.7%	17.0	16.9	0.202	0.212	
	On		0	Rear	106	5530.0	1.295	98.6%	9.5	8.7	0.440	0.539		
			0	Edge 2	106	5530.0	1.967	98.6%	9.5	8.7	0.703	0.861		
	802.11ac (VHT80) MCS0				122	5610.0	2.176	98.6%	9.5	8.5	0.764	0.982	21	
5.5 GHz U-NII 2C SISO Ant 2	802.11a 6 Mbps	Standalone	Off	6	Edge 4	120	5600.0	0.570	98.7%	17.0	15.6	0.236	0.334	
	802.11ac (VHT80) MCS0		On	0	Rear	122	5610.0	1.275	98.6%	9.5	8.6	0.357	0.451	22
			0	Edge 1	122	5610.0	0.243	98.6%	9.5	8.6	0.111	0.140		
5.5 GHz U-NII 2C MIMO Ant 1	802.11a 6 Mbps	Standalone	Off	9	Edge 2	120	5600.0	1.776	98.7%	17.0	15.8	0.776	1.041	
					124	5620.0	1.497	98.7%	17.0	15.9	0.658	0.869		
				6	Edge 4	124	5620.0	0.719	98.7%	17.0	15.9			
	802.11ac (VHT80) MCS0		On	0	Rear	106	5530.0	1.503	97.3%	9.5	8.6	0.662	0.837	
					122	5610.0	1.732	97.3%	9.5	8.7	0.672	0.840		
				0	Edge 1	122	5610.0	0.763	97.3%	9.5	8.7			
				0	Edge 2	106	5530.0	2.991	97.3%	9.5	8.6	0.925	1.170	23
				0	Edge 2	122	5610.0	2.068	97.3%	9.5	8.7	0.714	0.893	
0	Edge 4	122	5610.0	1.054	97.3%	9.5	8.7							
5.5 GHz U-NII 2C MIMO Ant 2	802.11a 6 Mbps	Standalone	Off	9	Edge 2	120	5600.0	1.776	98.7%	17.0	15.7			
					124	5620.0	1.497	98.7%	17.0	15.6				
				6	Edge 4	124	5620.0	0.719	98.7%	17.0	15.6	0.310	0.432	
	802.11ac (VHT80) MCS0		On	0	Rear	106	5530.0	1.503	97.3%	9.5	8.5			
					122	5610.0	1.732	97.3%	9.5	8.7				
				0	Edge 1	122	5610.0	0.763	97.3%	9.5	8.7	0.257	0.321	
				0	Edge 2	106	5530.0	1.900	97.3%	9.5	8.5			
				0	Edge 2	122	5610.0	2.068	97.3%	9.5	8.7			
0	Edge 4	122	5610.0	1.054	97.3%	9.5	8.7	0.301	0.376					

Note(s):

- Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.
- Testing for a second channel was required because the reported SAR for this test position was > 0.8 or 2.0 W/kg (1-g or 10-g respectively).
- Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
- MIMO SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

Data referencing from Reference model

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note
										Tune-up limit	Meas.	Meas.	Scaled	
5.8 GHz U-NII 3 SISO Ant 1	802.11a 6 Mbps	Standalone	Off	17	Rear	149	5745.0	0.163	98.7%	17.0	16.0	0.080	0.102	4
				20	Edge 1	149	5745.0	0.188	98.7%	17.0	16.0	0.087	0.110	4
				9	Edge 2	149	5745.0	1.584	98.7%	17.0	16.0	0.668	0.850	
						165	5825.0	1.256	98.7%	17.0	15.9	0.532	0.693	3
	15		Corner A	149	5745.0	0.466	98.7%	17.0	16.0	0.208	0.265	2		
	802.11ac (VHT80) MCS0		On	0	Rear	155	5775.0	1.128	98.6%	9.5	8.4	0.358	0.466	2
				0	Edge 1	155	5775.0	0.243	98.6%	9.5	8.4	0.132	0.172	4
				0	Edge 2	155	5775.0	2.568	98.6%	9.5	8.4	0.738	0.960	
0		Corner A		155	5775.0	1.349	98.6%	9.5	8.4	0.629	0.818			
5.8 GHz U-NII 3 SISO Ant 2	802.11a 6 Mbps	Standalone	Off	16	Rear	149	5745.0	0.072	98.7%	17.0	16.1	0.036	0.046	4
				19	Edge 1	149	5745.0	0.125	98.7%	17.0	16.1	0.059	0.074	4
				6	Edge 4	149	5745.0	1.007	98.7%	17.0	16.1	0.379	0.477	
				13	Corner B	149	5745.0	0.238	98.7%	17.0	16.1	0.108	0.136	2
	802.11ac (VHT80) MCS0		On	0	Rear	155	5775.0	1.124	98.6%	9.5	7.7	0.473	0.726	
				0	Edge 1	155	5775.0	0.353	98.6%	9.5	7.7	0.187	0.287	4
				0	Edge 4	155	5775.0	0.686	98.6%	9.5	7.7	0.198	0.304	2
				0	Corner B	155	5775.0	0.662	98.6%	9.5	7.7			
5.8 GHz U-NII 3 MIMO Ant 1	802.11a 6 Mbps	Standalone	Off	16	Rear	157	5785.0	0.160	98.7%	17.0	15.5	0.068	0.097	4
				19	Edge 1	157	5785.0	0.117	98.7%	17.0	15.5	0.049	0.071	4
				9	Edge 2	157	5785.0	1.589	98.7%	17.0	15.5	0.667	0.952	
						165	5825.0	0.818	98.7%	17.0	15.7	0.354	0.488	3
				0	Edge 3	157	5785.0	0.114	98.7%	17.0	15.5			
				6	Edge 4	157	5785.0	0.823	98.7%	17.0	15.5			
	15		Corner A	157	5785.0	0.396	98.7%	17.0	15.5					
	13		Corner B	157	5785.0	0.394	98.7%	17.0	15.5					
	802.11ac (VHT80) MCS0		On	0	Rear	155	5775.0	1.337	97.3%	9.5	8.1	0.461	0.662	
				0	Edge 1	155	5775.0	0.354	97.3%	9.5	8.1	0.167	0.240	4
				0	Edge 2	155	5775.0	2.413	97.3%	9.5	8.1	0.749	1.075	
				0	Edge 4	155	5775.0	0.823	97.3%	9.5	8.1			
0		Corner A		155	5775.0	1.197	97.3%	9.5	8.1	0.495	0.711	2		
0		Corner B		155	5775.0	0.635	97.3%	9.5	8.1					
5.8 GHz U-NII 3 MIMO Ant 2	802.11a 6 Mbps	Standalone	Off	16	Rear	157	5785.0	0.160	98.7%	17.0	16.0			
				19	Edge 1	157	5785.0	0.117	98.7%	17.0	16.0	0.082	0.105	4
				9	Edge 2	157	5785.0	1.589	98.7%	17.0	16.0			
						157	5785.0	0.818	98.7%	17.0	16.0			
				0	Edge 3	157	5785.0	0.114	98.7%	17.0	16.0	0.060	0.077	4
				6	Edge 4	157	5785.0	0.823	98.7%	17.0	16.0	0.411	0.527	2
	15		Corner A	157	5785.0	0.396	98.7%	17.0	16.0					
	13		Corner B	157	5785.0	0.394	98.7%	17.0	16.0					
	802.11ac (VHT80) MCS0		On	0	Rear	155	5775.0	1.337	97.3%	9.5	7.5	0.524	0.850	
				0	Edge 1	155	5775.0	0.354	97.3%	9.5	7.5	0.186	0.302	4
				0	Edge 2	155	5775.0	2.413	97.3%	9.5	7.5			
				0	Edge 4	155	5775.0	0.823	97.3%	9.5	7.5	0.274	0.444	4
0		Corner A		155	5775.0	1.197	97.3%	9.5	7.5					
0		Corner B		155	5775.0	0.635	97.3%	9.5	7.5					

Spot check results for Variant model

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
5.8 GHz U-NII 3 SISO Ant 1	802.11a 6 Mbps	Standalone	Off	9	Edge 2	149	5745.0	1.432	98.7%	17.0	16.9	0.616	0.640	
						165	5825.0	1.236	98.7%	17.0	16.8	0.526	0.560	
					Corner A	149	5745.0	0.425	98.7%	17.0	16.9	0.215	0.224	
	802.11ac (VHT80) MCS0		On	Rear	155	5775.0	1.309	98.6%	9.5	8.3	0.434	0.584		
				Edge 2	155	5775.0	2.061	98.6%	9.5	8.3	0.664	0.894	24	
				Corner A	155	5775.0	1.122	98.6%	9.5	8.3	0.511	0.688		
5.8 GHz U-NII 3 SISO Ant 2	802.11a 6 Mbps	Standalone	Off	6	Edge 4	149	5745.0	0.931	98.7%	17.0	15.1	0.370	0.577	25
				13	Corner B	149	5745.0	0.116	98.7%	17.0	15.1	0.044	0.068	
	802.11ac (VHT80) MCS0		On	Rear	155	5775.0	1.585	98.6%	9.5	8.1	0.378	0.527		
				Edge 4	155	5775.0	0.896	98.6%	9.5	8.1	0.241	0.336		
5.8 GHz U-NII 3 MIMO Ant 1	802.11a 6 Mbps	Standalone	Off	9	Edge 2	157	5825.0	1.200	98.7%	17.0	15.6	0.533	0.744	
				6	Edge 4	157	5825.0	0.875	98.7%	17.0	15.6			
	802.11ac (VHT80) MCS0		On	0	Edge 2	155	5775.0	1.725	97.3%	9.5	8.0	0.601	0.883	26
				0	Edge 4	155	5775.0	0.715	97.3%	9.5	8.0			
				0	Corner A	155	5775.0	0.707	97.3%	9.5	8.0	0.368	0.541	
5.8 GHz U-NII 3 MIMO Ant 2	802.11a 6 Mbps	Standalone	Off	9	Edge 2	157	5825.0	1.200	98.7%	17.0	15.1			
				6	Edge 4	157	5825.0	0.875	98.7%	17.0	15.1	0.357	0.559	
	802.11ac (VHT80) MCS0		On	0	Edge 2	155	5775.0	1.092	97.3%	9.5	8.0	0.493	0.711	
				0	Edge 4	155	5775.0	0.715	97.3%	9.5	8.0	0.246	0.355	
				0	Corner A	155	5775.0	0.707	97.3%	9.5	8.0			

Note(s):

- Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.
- Testing for a second channel was required because the reported SAR for this test position was > 0.8 or 2.0 W/kg (1-g or 10-g respectively).
- Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
- For Standalone exposure condition, MIMO SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

Additional Test Accessory SAR

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
5.5 GHz U-NII 2C SISO Ant 1	802.11ac VHT80	Standalone	On	0	Edge 2	122	5610.0	1.188	98.6%	9.5	8.5	0.581	0.747	
5.8 GHz U-NII 3 SISO Ant 2	802.11a 6 Mbps	Standalone	Off	6	Edge 4	149	5745.0	0.169	98.7%	17.0	15.1	0.070	0.109	
5.5 GHz U-NII 2C MIMO Ant 1	802.11ac VHT80	Standalone	On	0	Edge 2	106	5530.0	2.605	97.3%	9.5	8.6	0.874	1.106	
5.5 GHz U-NII 2C MIMO Ant 2	802.11ac VHT80	Standalone	On	0	Edge 2	106	5530.0	2.605	97.3%	9.5	8.7			

Note(s):

In the case of Accessory SAR, the highest reported SAR by frequency was further measured in the band.

11 SAR Measurement Variability

In accordance with published RF Exposure KDB 865664 D01 SAR measurement 100 MHz to 6 GHz. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

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

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	First Repeated	
						Measured SAR (W/kg)	Largest to Smallest SAR Ratio
750	LTE Band 12	Standalone	Edge 1	No	0.469	N/A	N/A
	LTE Band 13	Standalone	Edge 1	No	0.493	N/A	N/A
	LTE Band 17	Standalone	Edge 1	No	0.799	N/A	N/A
850	GSM 850	Standalone	Rear	No	0.495	N/A	N/A
	WCDMA Band V	Standalone	Edge 1	No	0.660	N/A	N/A
	LTE Band 5	Standalone	Edge 1	No	0.716	N/A	N/A
	LTE Band 26	Standalone	Edge 1	Yes	0.919	0.906	1.01
	Band n5	Standalone	Rear	No	0.577	N/A	N/A
1750	WCDMA Band IV	Standalone	Edge 1	No	0.687	N/A	N/A
	LTE Band 66	Standalone	Edge 1	Yes	0.923	0.923	1.00
1900	GSM 1900	Standalone	Edge 1	No	0.908	N/A	N/A
	WCDMA Band II	Standalone	Edge 1	No	0.864	N/A	N/A
	LTE Band 2	Standalone	Edge 1	No	0.912	N/A	N/A
	LTE Band 25	Standalone	Edge 1	Yes	0.930	0.907	1.03
2400	Wi-Fi 802.11b/g/n	Standalone	Edge 4	No	0.491	N/A	N/A
	Bluetooth	Standalone	Rear	No	0.179	N/A	N/A
2600	LTE Band 41	Standalone	Edge 1	No	0.651	N/A	N/A
5300	Wi-Fi 802.11a/n	Standalone	Edge 2	Yes	0.954	0.950	1.00
5500	Wi-Fi 802.11a/n	Standalone	Edge 2	Yes	0.933	0.909	1.03
5800	Wi-Fi 802.11a/n	Standalone	Edge 2	No	0.749	N/A	N/A

Note(s):

Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the original and first repeated measurement is not > 1.20 .

12 Simultaneous Transmission SAR Analysis

Simultaneous Transmission Condition

RF Exposure Condition	Item	Capable Transmit Configurations				
Standalone	1	GSM(Voice/GPRS)	+	DTS_Ant.1	or/and	DTS_Ant.2
	2	GSM(Voice/GPRS)	+	U-NII_Ant.1	or/and	U-NII_Ant.2
	3	GSM(Voice/GPRS)	+	BT		
	4	GSM(Voice/GPRS)	+	U-NII_Ant.1 or 2	+	BT
	5	GSM(Voice/GPRS)	+	U-NII_MIMO	+	BT
	6	W-CDMA or LTE	+	DTS_Ant.1	or/and	DTS_Ant.2
	7	W-CDMA or LTE	+	U-NII_Ant.1	or/and	U-NII_Ant.2
	8	W-CDMA or LTE	+	BT		
	9	W-CDMA or LTE	+	U-NII_Ant.1 or 2	+	BT
	10	W-CDMA or LTE	+	U-NII_MIMO	+	BT
	11	EN-DC (LTE + NR)	+	DTS_Ant.1	or/and	DTS_Ant.2
	12	EN-DC (LTE + NR)	+	U-NII_Ant.1	or/and	U-NII_Ant.2
	13	EN-DC (LTE + NR)	+	BT		
	14	EN-DC (LTE + NR)	+	U-NII_Ant.1 or 2	+	BT
	15	EN-DC (LTE + NR)	+	U-NII_MIMO	+	BT

Notes:

1. DTS supports Wi-Fi Direct, Hotspot and VoIP.
2. U-NII supports Wi-Fi Direct, Hotspot and VoIP.
3. U-NII Radio can transmit simultaneously with Bluetooth Radio.
4. DTS Radio cannot transmit simultaneously with Bluetooth Radio.
5. NR Radio can transmit through EN-DC mode with LTE anchor bands. (Please refer to Sec.6.5)

Simultaneous transmission SAR test exclusion considerations

KDB 447498 D01 General RF Exposure Guidance provides two procedures for determining simultaneous transmission SAR test exclusion: Sum of SAR and SAR to Peak Location Ratio (SPLSR)

Estimated SAR for Simultaneous Transmission SAR Analysis

Considerations for SAR estimation

1. When standalone SAR test exclusion applies, standalone SAR must also be estimated to determine simultaneous transmission SAR test exclusion.
2. Dedicated Host Approach criteria for SAR test exclusion is likewise applied to SAR estimation, with certain distinctions between test exclusion and SAR estimation:
 - o When the separation distance from the antenna to an adjacent edge is ≤ 5 mm, a distance of 5 mm is applied for SAR estimation; this is the same between test exclusion and SAR estimation calculations.
 - o When the separation distance from the antenna to an adjacent edge is > 5 mm but ≤ 50 mm, the actual antenna-to-edge separation distance is applied for SAR estimation.
 - o When the minimum test separation distance is > 50 mm, the estimated SAR value is 0.4 W/kg
3. Please refer to Estimated SAR Tables to see which test positions are inherently compliant as they consist of only estimated SAR values for all applicable transmitters and consequently will always have sum of SAR values < 1.2 W/kg. Simultaneous transmission SAR analysis was therefore not performed for these test positions.

Sum of SAR

To qualify for simultaneous transmission SAR test exclusion based upon Sum of SAR the sum of the reported standalone SARs for all simultaneously transmitting antennas shall be below the applicable standalone SAR limit. If the sum of the SARs is above the applicable limit then simultaneous transmission SAR test exclusion may still apply if the requirements of the SAR to Peak Location Ratio (SPLSR) evaluation are met.

SAR to Peak Location Ratio (SPLSR)

KDB 447498 D01 General RF Exposure Guidance explains how to calculate the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$$SPLSR = (SAR_1 + SAR_2)^{1.5} / R_i$$

Where:

SAR₁ is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

SAR₂ is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

R_i is the separation distance between the pair of simultaneous transmitting antennas. When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of

$$[(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2]$$

In order for a pair of simultaneous transmitting antennas with the sum of 1-g SAR > 1.6 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$$(SAR_1 + SAR_2)^{1.5} / R_i \leq 0.04$$

When an individual antenna transmits at on two bands simultaneously, the sum of the highest *reported* SAR for the frequency bands should be used to determine **SAR₁** or **SAR₂**. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used. The antennas in all antenna pairs that do not qualify for simultaneous transmission SAR test exclusion must be tested for SAR compliance, according to the enlarged zoom scan and volume scan post-processing procedures in KDB Publication 865664 D01

The antennas for the unlicensed transmitters are closely situated. As a result, the associated SAR hotspots are also closely situated. Some of the sum of SAR calculations yielded results over 1.6 W/kg. The SPLSR calculations for these situations were performed by treating the unlicensed SAR values as a single transmitter. The most conservative distance between all the unlicensed hotspots to the licensed hotspot was used for the value of *d* in the SPLSR calculation.

Simultaneous transmission SAR measurement

When simultaneous transmission SAR measurements are required in different frequency bands not covered by a single probe calibration point then separate tests for each frequency band are performed. The tests are performed using enlarged zoom scans which are processed, by means of superposition, using the DASY5 volume scan postprocessing procedures to determine the 1-g SAR for the aggregate SAR distribution.

The spatial resolution used for all enlarged zoom scans is the same as used for the most stringent zoom scans. I.E. the scan parameters required for the highest frequency assessed are used for all enlarged zoom scans. The scans cover the complete area of the device to ensure all transmitting antennas and radiating structures are assessed.

DASY5 provides the ability to perform Multiband Evaluations according to the latest standards using the Volume Scan job as well as appropriate routines for the Post-processing.

In order to extract and process measurements within different frequency bands, the SEMCAD X Post-processor performs the combination and subsequent superposition of these measurement data via DASY5= Combined MultiBand Averaged SAR.

Combined Multi Band Averaged SAR allows - in addition to the data extraction - an evaluation of the 1 g, 10 g and/or arbitrary averaged mass SAR.

Power Scaling Factor is used to allow the volume scans to be scaled by a value other than "1", this is important when the results need to be scaled to different maximum power levels. The Power Scaling Factor is applied to each individual point of the scan. When power scaling is used in multi-band combinations the scaling factor is applied to each individual point of the first scan, the second factor is then applied to each individual point of the second scan and so on. The scans are then combined.

SPLSR Hotspot Combination

Per November 2019 TCB Workshop Notes, SPLSR Hotspot Combination procedure can be applied to evaluate to simultaneous transmission SAR analysis.

Hybrid SPLSR and enlarged zoom scan (Volume scan) can be applied when Simultaneous transmission SAR is over 1.6 or 4.0 W/kg (1-g or 10-g respectively), it does not meet SPLSR criteria, and antenna pair is co-located. Antenna co-location means that SAR distributions overlap because the antennas are not significantly spatially separated.

Test procedure

Step.1 Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR.

Step.2 Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair.

Estimated SAR for WWAN

Antenna	Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)					Calculated Threshold Value					
			dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4
Full Power, Proximity Sensor Off. A sensor triggering of 14 mm is included for both Rear and Edge 1															
Cellular	GPRS 4 Slots	848.8	30.00	500	0	0	46	242	46		92.1	92.1	10	> 50 mm	10
Cellular	GPRS 2 Slots	1909.8	28.00	158	0	0	46	242	46		MEASURE: 43.7	MEASURE: 43.7	MEASURE: 4.7	> 50 mm	MEASURE: 4.7
Cellular	W-CDMA 5	846.6	24.50	282	0	0	46	242	46		MEASURE: 51.9	MEASURE: 51.9	MEASURE: 5.5	> 50 mm	MEASURE: 5.5
Cellular	W-CDMA 4	1752.6	24.50	282	0	0	46	242	46		MEASURE: 74.7	MEASURE: 74.7	MEASURE: 8.1	> 50 mm	MEASURE: 8.1
Cellular	W-CDMA 2	1907.6	24.50	282	0	0	46	242	46		MEASURE: 77.7	MEASURE: 77.7	MEASURE: 8.5	> 50 mm	MEASURE: 8.5
Cellular	LTE Band 2	1900	24.50	282	0	0	46	242	46		MEASURE: 74.5	MEASURE: 74.5	MEASURE: 8.1	> 50 mm	MEASURE: 8.1
Cellular	LTE Band 4	1745	24.50	282	0	0	46	242	46		MEASURE: 51.8	MEASURE: 51.8	MEASURE: 5.8	> 50 mm	MEASURE: 5.8
Cellular	LTE Band 5	844	24.50	282	0	0	46	242	46		MEASURE: 47.6	MEASURE: 47.6	MEASURE: 5.2	> 50 mm	MEASURE: 5.2
Cellular	LTE Band 12	711	24.50	282	0	0	46	242	46		MEASURE: 47.5	MEASURE: 47.5	MEASURE: 5.2	> 50 mm	MEASURE: 5.2
Cellular	LTE Band 17	710	24.50	282	0	0	46	242	46		MEASURE: 75	MEASURE: 75	MEASURE: 8.2	> 50 mm	MEASURE: 8.2
Cellular	LTE Band 66	1770	24.50	282	0	0	46	242	46		MEASURE: 75	MEASURE: 75	MEASURE: 8.2	> 50 mm	MEASURE: 8.2
Second Stage Power Back-off, Proximity Sensor On															
Cellular	GPRS 3 Slots	848.8	21.50	53	0	0	46	242	46		9.8	9.8	1	> 50 mm	1
Cellular	GPRS 2 Slots	1909.8	20.50	28	0	0	46	242	46		MEASURE: 7.7	MEASURE: 7.7	MEASURE: 1	> 50 mm	MEASURE: 1
Cellular	W-CDMA 5	846.6	17.00	50	0	0	46	242	46		MEASURE: 6.6	MEASURE: 6.6	MEASURE: 1	> 50 mm	MEASURE: 1
Cellular	W-CDMA 4	1752.6	14.00	25	0	0	46	242	46		MEASURE: 6.9	MEASURE: 6.9	MEASURE: 1	> 50 mm	MEASURE: 1
Cellular	W-CDMA 2	1907.6	14.00	25	0	0	46	242	46		MEASURE: 7.7	MEASURE: 7.7	MEASURE: 1	> 50 mm	MEASURE: 1
Cellular	LTE Band 2	1900	14.50	28	0	0	46	242	46		MEASURE: 6.6	MEASURE: 6.6	MEASURE: 1	> 50 mm	MEASURE: 1
Cellular	LTE Band 4	1745	14.00	25	0	0	46	242	46		MEASURE: 9.2	MEASURE: 9.2	MEASURE: 1	> 50 mm	MEASURE: 1
Cellular	LTE Band 5	844	17.00	50	0	0	46	242	46		MEASURE: 12	MEASURE: 12	MEASURE: 1	> 50 mm	MEASURE: 1
Cellular	LTE Band 12	711	18.50	71	0	0	46	242	46		MEASURE: 6.7	MEASURE: 6.7	MEASURE: 1	> 50 mm	MEASURE: 1
Cellular	LTE Band 17	710	18.50	71	0	0	46	242	46		MEASURE: 6.7	MEASURE: 6.7	MEASURE: 1	> 50 mm	MEASURE: 1
Cellular	LTE Band 66	1770	14.00	25	0	0	46	242	46		MEASURE: 6.7	MEASURE: 6.7	MEASURE: 1	> 50 mm	MEASURE: 1

Estimated SAR for WLAN

SISO Max															
Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Wi-Fi Antenna 1															
Wi-Fi 2.4 GHz	2462	19.00	79	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi 5.3 GHz	5320	17.00	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi 5.5 GHz	5700	17.00	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi 5.8 GHz	5825	17.00	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Bluetooth	2480	18.00	63	0	0	0	272.1	138		0.336	0.336	0.336	0.400	0.400	
Wi-Fi Antenna 2															
Wi-Fi 2.4 GHz	2462	18.00	63	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
Wi-Fi 5.3 GHz	5320	17.00	50	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
Wi-Fi 5.5 GHz	5700	17.00	50	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
Wi-Fi 5.8 GHz	5825	17.00	50	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
SISO Reduce															
Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Wi-Fi Antenna 1															
Wi-Fi 2.4 GHz	2462	12.00	79	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi 5.3 GHz	5320	9.50	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi 5.5 GHz	5700	9.50	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi 5.8 GHz	5825	9.50	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Bluetooth	2480	10.00	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi Antenna 2															
Wi-Fi 2.4 GHz	2462	12.00	63	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
Wi-Fi 5.3 GHz	5320	9.50	50	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
Wi-Fi 5.5 GHz	5700	9.50	50	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
Wi-Fi 5.8 GHz	5825	9.50	50	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
MIMO Max															
Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Wi-Fi Antenna 1															
Wi-Fi 5.3 GHz	5320	17.00	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi 5.5 GHz	5700	17.00	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi 5.8 GHz	5825	17.00	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi Antenna 2															
Wi-Fi 5.3 GHz	5320	17.00	50	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
Wi-Fi 5.5 GHz	5700	17.00	50	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
Wi-Fi 5.8 GHz	5825	17.00	50	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
MIMO Reduce															
Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Wi-Fi Antenna 1															
Wi-Fi 5.3 GHz	5320	9.50	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi 5.5 GHz	5700	9.50	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi 5.8 GHz	5825	9.50	50	0	0	0	272.1	138		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Wi-Fi Antenna 2															
Wi-Fi 5.3 GHz	5320	9.50	50	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
Wi-Fi 5.5 GHz	5700	9.50	50	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
Wi-Fi 5.8 GHz	5825	9.50	50	0	0	138	272.1	0		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	

Note(s):

1. Bluetooth SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.
2. MIMO UNII SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

12.1 Sum of the SAR for GSM 850 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							∑ 1-g SAR (W/kg)									
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7
Rear	0.636	0.387	0.109	0.746	0.726	0.850	0.266	1.023	0.745	1.132	1.382	1.362	1.486	0.902	1.648	1.628	1.752
Edge 1	0.540	0.266	0.042	0.276	0.401	0.450	0.160	0.806	0.582	0.848	0.816	0.941	0.990	0.700	0.976	1.101	1.150
Edge 2	0.087	0.431	0.400	1.194	0.400	1.197	0.221	0.518	0.487	0.918	1.281	0.487	1.284	0.308	1.502	0.708	1.505
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513
Edge 4	0.141	0.112	0.579	0.400	0.589	0.631	0.005	0.253	0.720	0.832	0.541	0.730	0.772	0.146	0.546	0.735	0.777

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	Standalone SAR (W/kg)			∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Volume Scan SAR (W/kg) <i>Note 1</i>	Figure
	1 WWAN	2 U-NII Ant 1	3 BT	1 + 2 + 3	1.648					
Rear	0.636	0.746	0.266	1 + 2 + 3	1.648				1, 2	
		0.746	0.266	2 + 3	1.012	3.9	0.26	Yes		1.140
Hybrid SPLSR <i>Note 2</i>	0.636	1.140		1 + (2 + 3)	1.776	71.1	0.03	No		

Test Position	Standalone SAR (W/kg)			∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII Ant 2	3 BT	1 + 2 + 3	1.628				
Rear	0.636	0.726	0.266	1 + 2 + 3	1.628				3
	0.636	0.726		1 + 2	1.362	102.0	0.02	No	
	0.636		0.236	1 + 3	0.872	72.4	0.01	No	
		0.726	0.266	2 + 3	0.992	172.8	0.01	No	

Test Position	Standalone SAR (W/kg)			∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.752				
Rear	0.636	0.850	0.266	1 + 2 + 3	1.752				4
	0.636	0.850		1 + 2	1.486	103.2	0.02	No	
	0.636		0.236	1 + 3	0.872	72.4	0.01	No	
		0.850	0.266	2 + 3	1.116	174.1	0.01	No	

Note(s):

- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.18 for detailed Volume Scan Result.
- SPLSR Hotspot Combination Step.2) Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair. Hybrid SPLSR procedure was applied for the spatially separated main bands and unlicensed bands for Multi-band Combined results.
- Green values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

Conclusion:

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is ≤ 0.04 for all circumstances that require SPLSR calculation.

12.2 Sum of the SAR for GSM 1900 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							∑ 1-g SAR (W/kg)										
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO	
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7	
Rear	0.493	0.387	0.109	0.746	0.726	0.850	0.266	0.880	0.602	0.989	1.239	1.219	1.343	0.759	1.505	1.485	1.609	
Edge 1	1.031	0.266	0.042	0.276	0.401	0.450	0.160	1.297	1.073	1.339	1.307	1.432	1.481	1.191	1.467	1.592	1.641	
Edge 2	0.086	0.431	0.400	1.194	0.400	1.197	0.221	0.517	0.486	0.917	1.280	0.486	1.283	0.307	1.501	0.707	1.504	
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513	
Edge 4	0.400	0.112	0.579	0.400	0.589	0.631	0.005	0.512	0.979	1.091	0.800	0.989	1.031	0.405	0.805	0.994	1.036	

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	Standalone SAR (W/kg)			∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.609				
Rear	0.493	0.850	0.266	1 + 2 + 3	1.609			5	
	0.493	0.850		1 + 2	1.343	116.3	0.01		
	0.493		0.266	1 + 3	0.759	58.6	0.01		
		0.850	0.266	2 + 3	1.116	174.1	0.01		
Edge 1	1.031	0.450	0.160	1 + 2 + 3	1.641			6	
	1.031	0.450		1 + 2	1.481	93.2	0.02		
	1.031		0.160	1 + 3	1.191	47.7	0.03		
		0.450	0.160	2 + 3	0.610	140.2	0.00		

Note(s):

- Green values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

Conclusion:

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is ≤ 0.04 for all circumstances that require SPLSR calculation.

12.3 Sum of the SAR for WCDMA Band II & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							Σ 1-g SAR (W/kg)									
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7
Rear	0.493	0.387	0.109	0.746	0.726	0.850	0.266	0.880	0.602	0.989	1.239	1.219	1.343	0.759	1.505	1.485	1.609
Edge 1	1.092	0.266	0.042	0.276	0.401	0.450	0.160	1.358	1.134	1.400	1.368	1.493	1.542	1.252	1.528	1.653	1.702
Edge 2	0.151	0.431	0.400	1.194	0.400	1.197	0.221	0.582	0.551	0.982	1.345	0.551	1.348	0.372	1.566	0.772	1.569
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513
Edge 4	0.400	0.112	0.579	0.400	0.589	0.631	0.005	0.512	0.979	1.091	0.800	0.989	1.031	0.405	0.805	0.994	1.036

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.609				
Rear	0.493	0.850	0.266	1 + 2 + 3	1.609			7	
	0.493	0.850		1 + 2	1.343	114.8	0.01		No
	0.493		0.266	1 + 3	0.759	60.1	0.01		No
		0.850	0.266	2 + 3	1.116	174.1	0.01		No

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII Ant 2	3 BT	1 + 2 + 3	1.653				
Edge 1	1.092	0.401	0.160	1 + 2 + 3	1.653			8	
	1.092	0.401		1 + 2	1.493	97.5	0.02		No
	1.092		0.160	1 + 3	1.252	44.1	0.03		No
		0.401	0.160	2 + 3	0.561	140.2	0.00		No

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.702				
Edge 1	1.092	0.450	0.160	1 + 2 + 3	1.702			9	
	1.092	0.450		1 + 2	1.542	97.5	0.02		No
	1.092		0.160	1 + 3	1.252	44.1	0.03		No
		0.450	0.160	2 + 3	0.610	140.2	0.00		No

Note(s):

- Green values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.

Conclusion:

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is ≤ 0.04 for all circumstances that require SPLSR calculation.

12.4 Sum of the SAR for WCDMA Band IV & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							∑ 1-g SAR (W/kg)										
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO	
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7	
Rear	0.548	0.387	0.109	0.746	0.726	0.850	0.266	0.935	0.657	1.044	1.294	1.274	1.398	0.814	1.560	1.540	1.664	
Edge 1	0.803	0.266	0.042	0.276	0.401	0.450	0.160	1.069	0.845	1.111	1.079	1.204	1.253	0.963	1.239	1.364	1.413	
Edge 2	0.158	0.431	0.400	1.194	0.400	1.197	0.221	0.589	0.558	0.989	1.352	0.558	1.355	0.379	1.573	0.779	1.576	
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513	
Edge 4	0.400	0.112	0.579	0.400	0.589	0.631	0.005	0.512	0.979	1.091	0.800	0.989	1.031	0.405	0.805	0.994	1.036	

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	Standalone SAR (W/kg)			∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.664				
Rear	0.548	0.850	0.266	1 + 2 + 3	1.664			10	
	0.548	0.850		1 + 2	1.398	110.3	0.01		
	0.548		0.266	1 + 3	0.814	64.3	0.01		
		0.850	0.266	2 + 3	1.116	174.1	0.01		

Note(s):

- Green values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.

Conclusion:

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is ≤ 0.04 for all circumstances that require SPLSR calculation.

12.5 Sum of the SAR for WCDMA Band V & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							∑ 1-g SAR (W/kg)										
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO	
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7	
Rear	0.455	0.387	0.109	0.746	0.726	0.850	0.266	0.842	0.564	0.951	1.201	1.181	1.305	0.721	1.467	1.447	1.571	
Edge 1	0.673	0.266	0.042	0.276	0.401	0.450	0.160	0.939	0.715	0.981	0.949	1.074	1.123	0.833	1.109	1.234	1.283	
Edge 2	0.102	0.431	0.400	1.194	0.400	1.197	0.221	0.533	0.502	0.933	1.296	0.502	1.299	0.323	1.517	0.723	1.520	
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513	
Edge 4	0.093	0.112	0.579	0.400	0.589	0.631	0.005	0.205	0.672	0.784	0.493	0.682	0.724	0.098	0.498	0.687	0.729	

Note(s):

- Green values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.

12.6 Sum of the SAR for LTE Band 2 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							Σ 1-g SAR (W/kg)										
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO	
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7	
Rear	0.602	0.387	0.109	0.746	0.726	0.850	0.266	0.989	0.711	1.098	1.348	1.328	1.452	0.868	1.614	1.594	1.718	
Edge 1	1.157	0.266	0.042	0.276	0.401	0.450	0.160	1.423	1.199	1.465	1.433	1.558	1.607	1.317	1.593	1.718	1.767	
Edge 2	0.122	0.431	0.400	1.194	0.400	1.197	0.221	0.553	0.522	0.953	1.316	0.522	1.319	0.343	1.537	0.743	1.540	
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513	
Edge 4	0.400	0.112	0.579	0.400	0.589	0.631	0.005	0.512	0.979	1.091	0.800	0.989	1.031	0.405	0.805	0.994	1.036	

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Volume Scan SAR (W/kg) <i>Note 1</i>	Figure
	1 WWAN	2 U-NII Ant 1	3 BT	1 + 2 + 3	1.614					
Rear	0.602	0.746	0.266	1 + 2 + 3	1.614					
		0.746	0.266	2 + 3	1.012	3.9	0.26	Yes	1.140	
Hybrid SPLSR <i>Note 2</i>	0.602	1.140		1 + (2 + 3)	1.742	54.6	0.04	Yes		
Volume scan	1.200			(1 + 2 + 3)	1.200					

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.718				
Rear	0.602	0.850	0.266	1 + 2 + 3	1.718				14
	0.602	0.850		1 + 2	1.452	116.8	0.01	No	
	0.602		0.236	1 + 3	0.838	58.0	0.01	No	
		0.850	0.266	2 + 3	1.116	174.1	0.01	No	

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII Ant 2	3 BT	1 + 2 + 3	1.718				
Edge 1	1.157	0.401	0.160	1 + 2 + 3	1.718				15
	1.157	0.401		1 + 2	1.558	96.4	0.02	No	
	1.157		0.160	1 + 3	1.317	44.2	0.03	No	
		0.401	0.160	2 + 3	0.561	140.2	0.00	No	

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.767				
Edge 1	1.157	0.450	0.160	1 + 2 + 3	1.767				16
	1.157	0.450		1 + 2	1.607	96.4	0.02	No	
	1.157		0.160	1 + 3	1.317	44.2	0.03	No	
		0.450	0.160	2 + 3	0.610	140.2	0.00	No	

Note(s):

- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.18 for detailed Volume Scan Result.
- SPLSR Hotspot Combination Step.2) Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair. Hybrid SPLSR procedure was applied for the spatially separated main bands and unlicensed bands for Multi-band Combined results.
- Green values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

Conclusion:

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is ≤ 0.04 for all circumstances that require SPLSR calculation.
- Simultaneous Transmission SAR analysis results is satisfied the FCC Limit requirement according to follow procedures with “Sum of SAR” or “SPLSR” or “SPLSR Hotspot combination”.

12.7 Sum of the SAR for LTE Band 5 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							Σ 1-g SAR (W/kg)									
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7
Rear	0.444	0.387	0.109	0.746	0.726	0.850	0.266	0.831	0.553	0.940	1.190	1.170	1.294	0.710	1.456	1.436	1.560
Edge 1	0.765	0.266	0.042	0.276	0.401	0.450	0.160	1.031	0.807	1.073	1.041	1.166	1.215	0.925	1.201	1.326	1.375
Edge 2	0.109	0.431	0.400	1.194	0.400	1.197	0.221	0.540	0.509	0.940	1.303	0.509	1.306	0.330	1.524	0.730	1.527
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513
Edge 4	0.112	0.112	0.579	0.400	0.589	0.631	0.005	0.224	0.691	0.803	0.512	0.701	0.743	0.117	0.517	0.706	0.748

Note(s):

- Green values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

12.8 Sum of the SAR for LTE Band 12 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							Σ 1-g SAR (W/kg)									
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7
Rear	0.372	0.387	0.109	0.746	0.726	0.850	0.266	0.759	0.481	0.868	1.118	1.098	1.222	0.638	1.384	1.364	1.488
Edge 1	0.586	0.266	0.042	0.276	0.401	0.450	0.160	0.852	0.628	0.894	0.862	0.987	1.036	0.746	1.022	1.147	1.196
Edge 2	0.050	0.431	0.400	1.194	0.400	1.197	0.221	0.481	0.450	0.881	1.244	0.450	1.247	0.271	1.465	0.671	1.468
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513
Edge 4	0.072	0.112	0.579	0.400	0.589	0.631	0.005	0.184	0.651	0.783	0.472	0.661	0.703	0.077	0.477	0.666	0.708

Note(s):

- Green values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

12.9 Sum of the SAR for LTE Band 13 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							Σ 1-g SAR (W/kg)									
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7
Rear	0.472	0.387	0.109	0.746	0.726	0.850	0.266	0.859	0.581	0.968	1.218	1.198	1.322	0.738	1.484	1.464	1.588
Edge 1	0.587	0.266	0.042	0.276	0.401	0.450	0.160	0.853	0.629	0.895	0.863	0.988	1.037	0.747	1.023	1.148	1.197
Edge 2	0.059	0.431	0.400	1.194	0.400	1.197	0.221	0.490	0.459	0.890	1.253	0.459	1.256	0.280	1.474	0.680	1.477
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513
Edge 4	0.103	0.112	0.579	0.400	0.589	0.631	0.005	0.215	0.682	0.794	0.503	0.692	0.734	0.108	0.508	0.697	0.739

Note(s):

- Green values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

12.10 Sum of the SAR for LTE Band 17 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							Σ 1-g SAR (W/kg)									
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7
Rear	0.450	0.387	0.109	0.746	0.726	0.850	0.266	0.837	0.559	0.946	1.196	1.176	1.300	0.716	1.462	1.442	1.566
Edge 1	0.967	0.266	0.042	0.276	0.401	0.450	0.160	1.233	1.009	1.275	1.243	1.368	1.417	1.127	1.403	1.528	1.577
Edge 2	0.018	0.431	0.400	1.194	0.400	1.197	0.221	0.449	0.418	0.849	1.212	0.418	1.215	0.239	1.433	0.639	1.436
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513
Edge 4	0.400	0.112	0.579	0.400	0.589	0.631	0.005	0.512	0.979	1.091	0.800	0.989	1.031	0.405	0.805	0.994	1.036

Note(s):

- Green values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

12.11 Sum of the SAR for LTE Band 25 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							Σ 1-g SAR (W/kg)									
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7
Rear	0.606	0.387	0.109	0.746	0.726	0.850	0.266	0.993	0.715	1.102	1.352	1.332	1.456	0.872	1.618	1.598	1.722
Edge 1	1.157	0.266	0.042	0.276	0.401	0.450	0.160	1.423	1.199	1.465	1.433	1.558	1.607	1.317	1.593	1.718	1.767
Edge 2	0.120	0.431	0.400	1.194	0.400	1.197	0.221	0.551	0.520	0.951	1.314	0.520	1.317	0.341	1.535	0.741	1.538
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513
Edge 4	0.400	0.112	0.579	0.400	0.589	0.631	0.005	0.512	0.979	1.091	0.800	0.989	1.031	0.405	0.805	0.994	1.036

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Volume Scan SAR (W/kg) <i>Note 1</i>	Figure
	1 WWAN	2 U-NII Ant 1	3 BT	1 + 2 + 3	1.618					
Rear	0.606	0.746	0.266	1 + 2 + 3	1.618					
		0.746	0.266	2 + 3	1.012	3.9	0.26	Yes	1.140	
Hybrid SPLSR <i>Note 2</i>	0.606	1.140		1 + (2 + 3)	1.746	54.0	0.04	Yes		
Volume scan	1.220			(1 + 2 + 3)	1.220					

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.722				
Rear	0.606	0.850	0.266	1 + 2 + 3	1.722				20
	0.606	0.850		1 + 2	1.456	116.8	0.02	No	
	0.606		0.236	1 + 3	0.842	58.0	0.01	No	
		0.850	0.266	2 + 3	1.116	174.1	0.01	No	

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII Ant 2	3 BT	1 + 2 + 3	1.718				
Edge 1	1.157	0.401	0.160	1 + 2 + 3	1.718				21
	1.157	0.401		1 + 2	1.558	97.8	0.02	No	
	1.157		0.160	1 + 3	1.317	43.6	0.03	No	
		0.401	0.160	2 + 3	0.561	140.2	0.00	No	

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.767				
Edge 1	1.157	0.450	0.160	1 + 2 + 3	1.767				22
	1.157	0.450		1 + 2	1.607	97.8	0.02	No	
	1.157		0.160	1 + 3	1.317	43.6	0.03	No	
		0.450	0.160	2 + 3	0.610	140.2	0.00	No	

Note(s):

- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.18 for detailed Volume Scan Result.
- SPLSR Hotspot Combination Step.2) Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair. Hybrid SPLSR procedure was applied for the spatially separated main bands and unlicensed bands for Multi-band Combined results.
- Green values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

Conclusion:

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is ≤ 0.04 for all circumstances that require SPLSR calculation.
- Simultaneous Transmission SAR analysis results is satisfied the FCC Limit requirement according to follow procedures with "Sum of SAR" or "SPLSR" or "SPLSR Hotspot combination".

12.12 Sum of the SAR for LTE Band 26 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							Σ 1-g SAR (W/kg)										
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO	
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7	
Rear	0.818	0.387	0.109	0.746	0.726	0.850	0.266	1.205	0.927	1.314	1.564	1.544	1.668	1.084	1.830	1.810	1.934	
Edge 1	1.144	0.266	0.042	0.276	0.401	0.450	0.160	1.410	1.186	1.452	1.420	1.545	1.594	1.304	1.580	1.705	1.754	
Edge 2	0.130	0.431	0.400	1.194	0.400	1.197	0.221	0.561	0.530	0.961	1.324	0.530	1.327	0.351	1.545	0.751	1.548	
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513	
Edge 4	0.156	0.112	0.579	0.400	0.589	0.631	0.005	0.268	0.735	0.847	0.556	0.745	0.787	0.161	0.561	0.750	0.792	

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Volume Scan SAR (W/kg) <i>Note 1</i>	Figure
	1 WWAN	2 U-NII Ant 1	3 BT	1 + 2 + 3	1.830					
Rear	0.818	0.746	0.266	1 + 2 + 3	1.830				23, 24	
		0.746	0.266	2 + 3	1.012	3.9	0.26	Yes		
Hybrid SPLSR <i>Note 2</i>	0.818		1.140		1 + (2 + 3)	1.958	88.5	0.03	No	

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII Ant 2	3 BT	1 + 2 + 3	1.810				
Rear	0.818	0.726	0.266	1 + 2 + 3	1.810				25
	0.818	0.726		1 + 2	1.544	81.7	0.02	No	
	0.818		0.236	1 + 3	1.054	91.8	0.01	No	
		0.726	0.266	2 + 3	0.992	172.8	0.01	No	

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.934				
Rear	0.818	0.850	0.266	1 + 2 + 3	1.934				26
	0.818	0.850		1 + 2	1.668	82.9	0.03	No	
	0.818		0.236	1 + 3	1.054	91.8	0.01	No	
		0.850	0.266	2 + 3	1.116	174.1	0.01	No	

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII Ant 2	3 BT	1 + 2 + 3	1.705				
Edge 1	1.144	0.401	0.160	1 + 2 + 3	1.705				27
	1.144	0.401		1 + 2	1.545	88.5	0.02	No	
	1.144		0.160	1 + 3	1.304	52.0	0.03	No	
		0.401	0.160	2 + 3	0.561	140.2	0.00	No	

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.754				
Edge 1	1.144	0.450	0.160	1 + 2 + 3	1.754				28
	1.144	0.450		1 + 2	1.594	88.5	0.02	No	
	1.144		0.160	1 + 3	1.304	52.0	0.03	No	
		0.450	0.160	2 + 3	0.610	140.2	0.00	No	

Note(s):

- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.18 for detailed Volume Scan Result.
- SPLSR Hotspot Combination Step.2) Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair. Hybrid SPLSR procedure was applied for the spatially separated main bands and unlicensed bands for Multi-band Combined results.
- Green values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

Conclusion:

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is ≤ 0.04 for all circumstances that require SPLSR calculation.

12.13 Sum of the SAR for LTE Band 41 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							Σ 1-g SAR (W/kg)										
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO	
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7	
Rear	0.409	0.387	0.109	0.746	0.726	0.850	0.266	0.796	0.518	0.905	1.155	1.135	1.259	0.675	1.421	1.401	1.525	
Edge 1	0.855	0.266	0.042	0.276	0.401	0.450	0.160	1.121	0.897	1.163	1.131	1.256	1.305	1.015	1.291	1.416	1.465	
Edge 2	0.142	0.431	0.400	1.194	0.400	1.197	0.221	0.573	0.542	0.973	1.336	0.542	1.339	0.363	1.557	0.763	1.560	
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513	
Edge 4	0.400	0.112	0.579	0.400	0.589	0.631	0.005	0.512	0.979	1.091	0.800	0.989	1.031	0.405	0.805	0.994	1.036	

Note(s):

- Green values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

12.14 Sum of the SAR for LTE Band 66 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)							Σ 1-g SAR (W/kg)										
	WWAN	DTS Ant 1	DTS Ant 2	U-NII Ant 1	U-NII Ant 2	U-NII MIMO	BT	WWAN + DTS Ant 1	WWAN + DTS Ant 2	WWAN + DTS MIMO	WWAN + U-NII Ant 1	WWAN + U-NII Ant 2	WWAN + U-NII MIMO	WWAN + BT	WWAN + BT + U-NII Ant 1	WWAN + BT + U-NII Ant 2	WWAN + BT + U-NII MIMO	
	1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	1+6	1+7	1+4+7	1+5+7	1+6+7	
Rear	0.587	0.387	0.109	0.746	0.726	0.850	0.266	0.974	0.696	1.083	1.333	1.313	1.437	0.853	1.599	1.579	1.703	
Edge 1	1.133	0.266	0.042	0.276	0.401	0.450	0.160	1.399	1.175	1.441	1.409	1.534	1.583	1.293	1.569	1.694	1.743	
Edge 2	0.161	0.431	0.400	1.194	0.400	1.197	0.221	0.592	0.561	0.992	1.365	0.561	1.358	0.382	1.576	0.782	1.579	
Edge 3	0.400	0.431	0.400	0.400	0.400	0.077	0.036	0.831	0.800	1.231	0.800	0.800	0.477	0.436	0.836	0.836	0.513	
Edge 4	0.400	0.112	0.579	0.400	0.589	0.631	0.005	0.512	0.979	1.091	0.800	0.989	1.031	0.405	0.805	0.994	1.036	

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.703				
Rear	0.587	0.850	0.266	1 + 2 + 3	1.703			29	
	0.587	0.850		1 + 2	1.437	112.0	0.02		No
	0.587		0.266	1 + 3	0.853	62.9	0.01		No
		0.850	0.266	2 + 3	1.116	174.1	0.01		No

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII Ant 2	3 BT	1 + 2 + 3	1.694				
Edge 1	1.133	0.401	0.160	1 + 2 + 3	1.694			30	
	1.133	0.401		1 + 2	1.534	97.6	0.02		No
	1.133		0.160	1 + 3	1.293	42.6	0.03		No
		0.401	0.160	2 + 3	0.561	140.2	0.00		No

Test Position	Standalone SAR (W/kg)			Σ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	1 WWAN	2 U-NII MIMO	3 BT	1 + 2 + 3	1.743				
Edge 1	1.133	0.450	0.160	1 + 2 + 3	1.743			31	
	1.133	0.450		1 + 2	1.583	97.6	0.02		No
	1.133		0.160	1 + 3	1.293	42.6	0.03		No
		0.450	0.160	2 + 3	0.610	140.2	0.00		No

Note(s):

- Green values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

Conclusion:

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is ≤ 0.04 for all circumstances that require SPLSR calculation.

Figure (1)

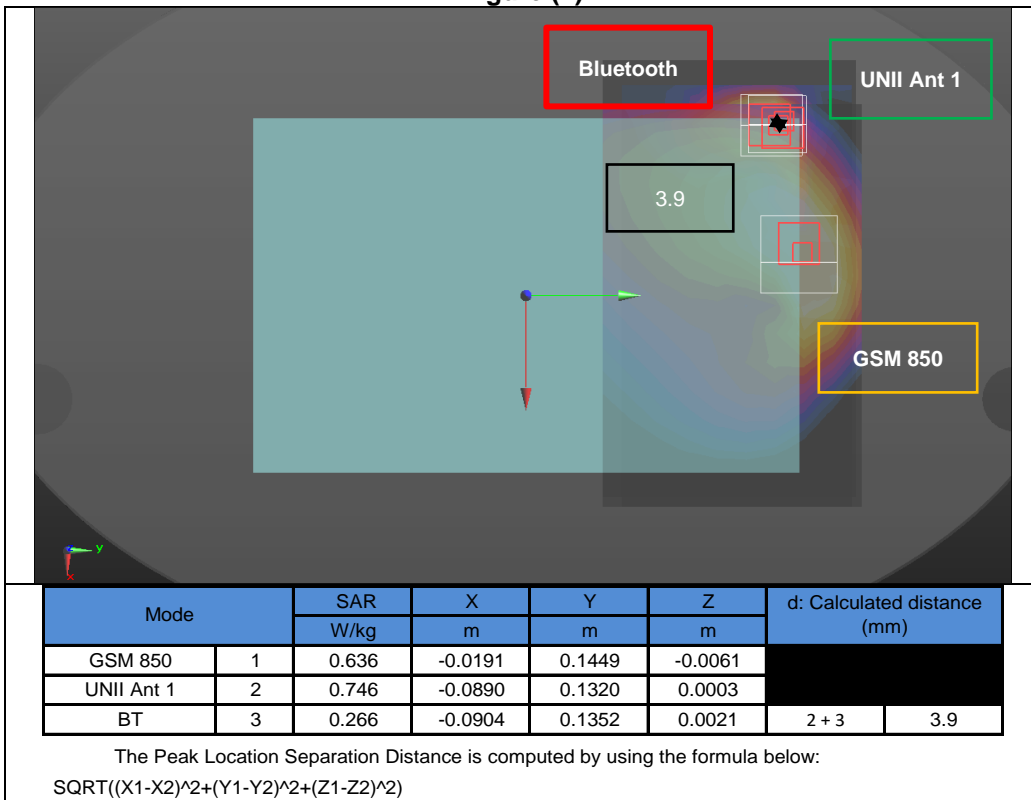


Figure (2)

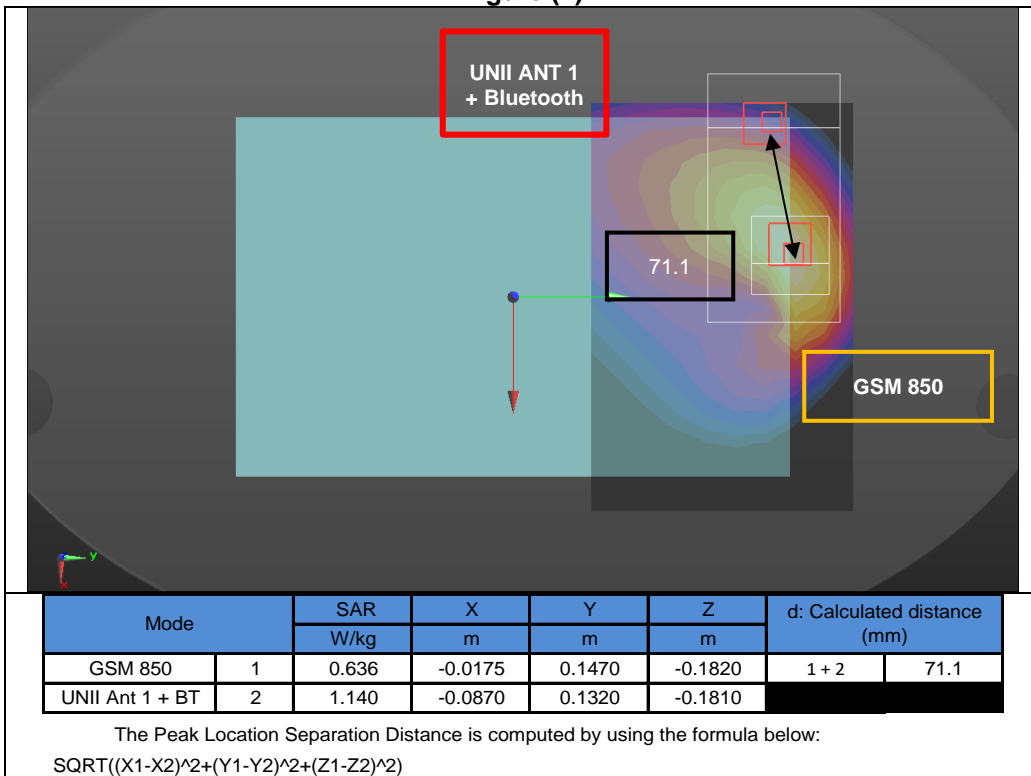


Figure (3)

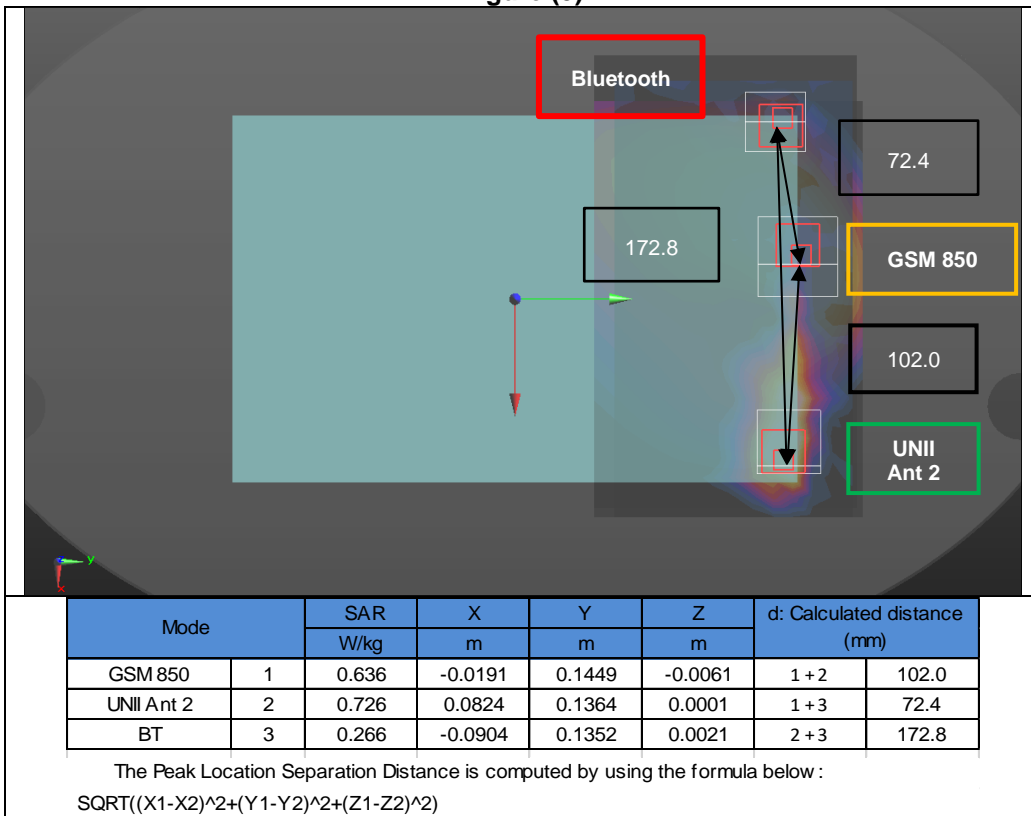


Figure (4)

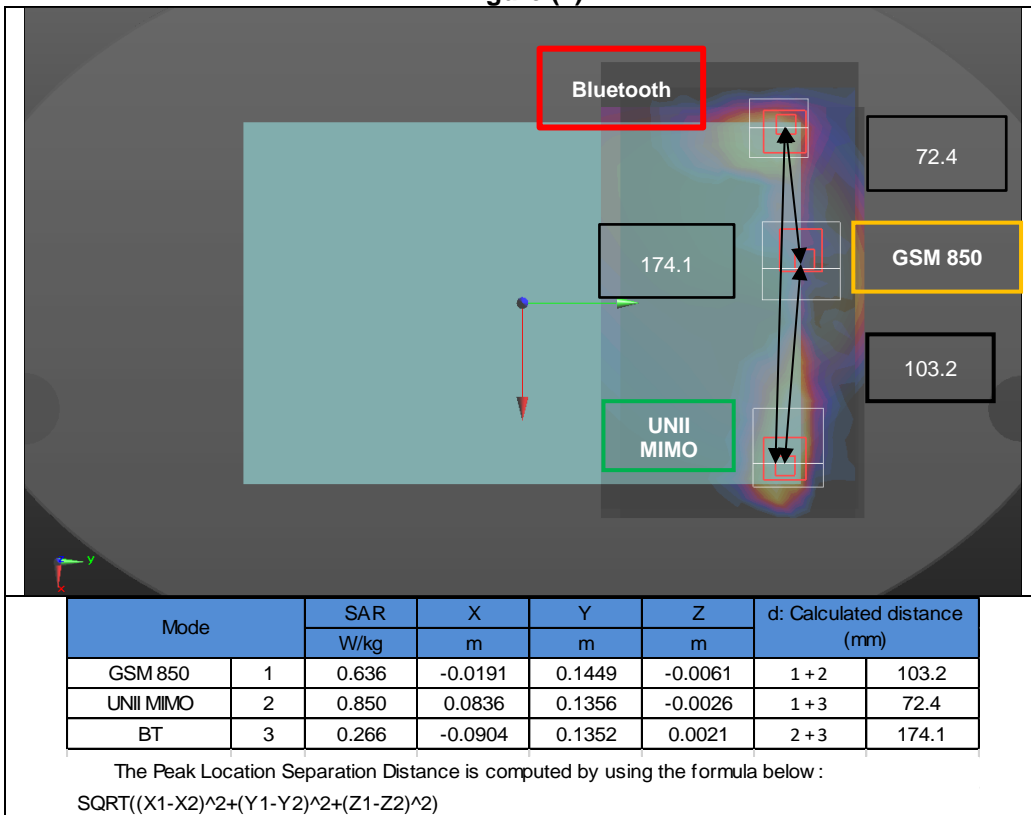


Figure (5)

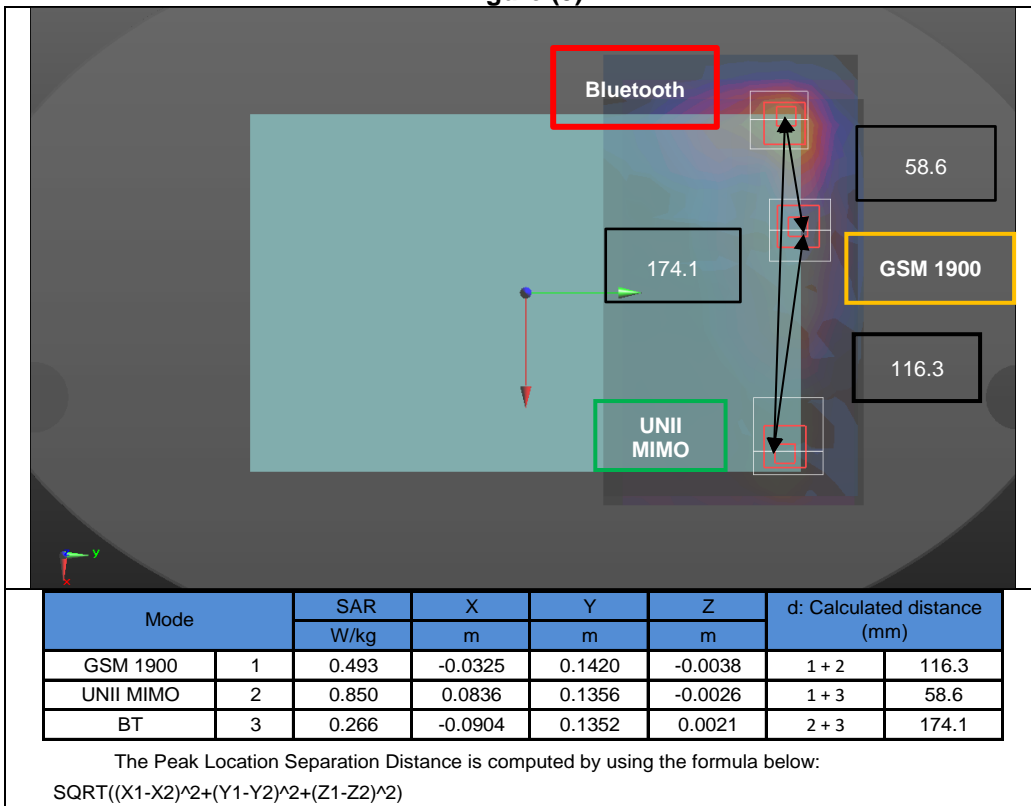


Figure (6)

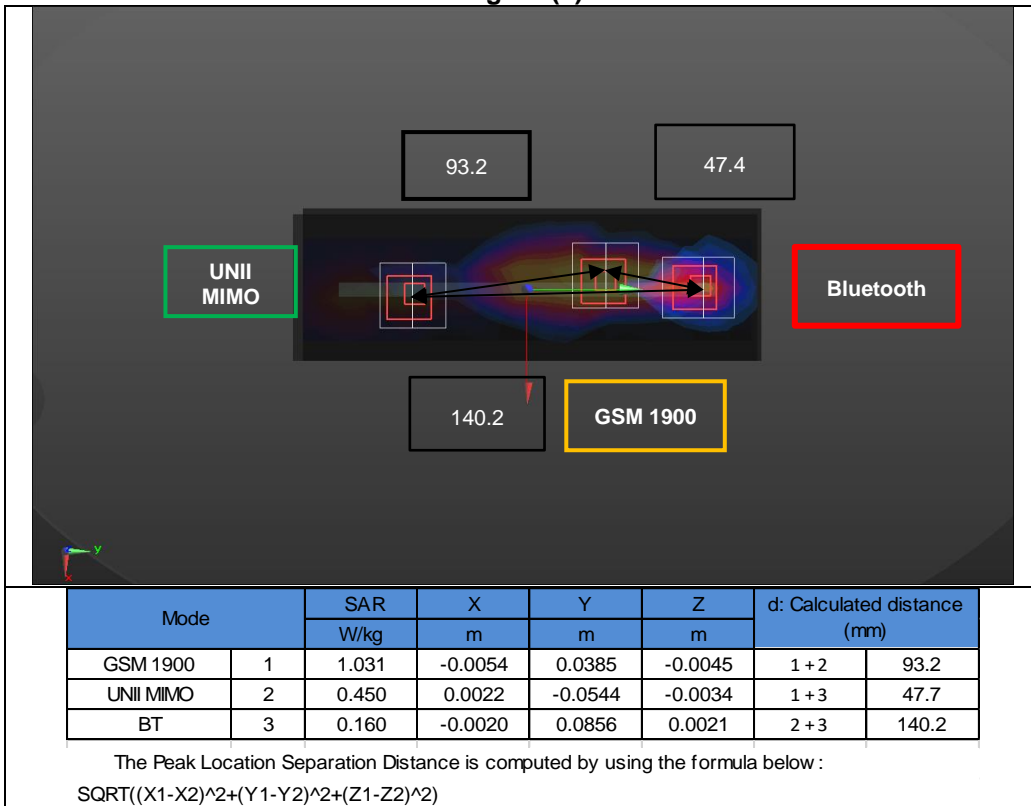


Figure (7)

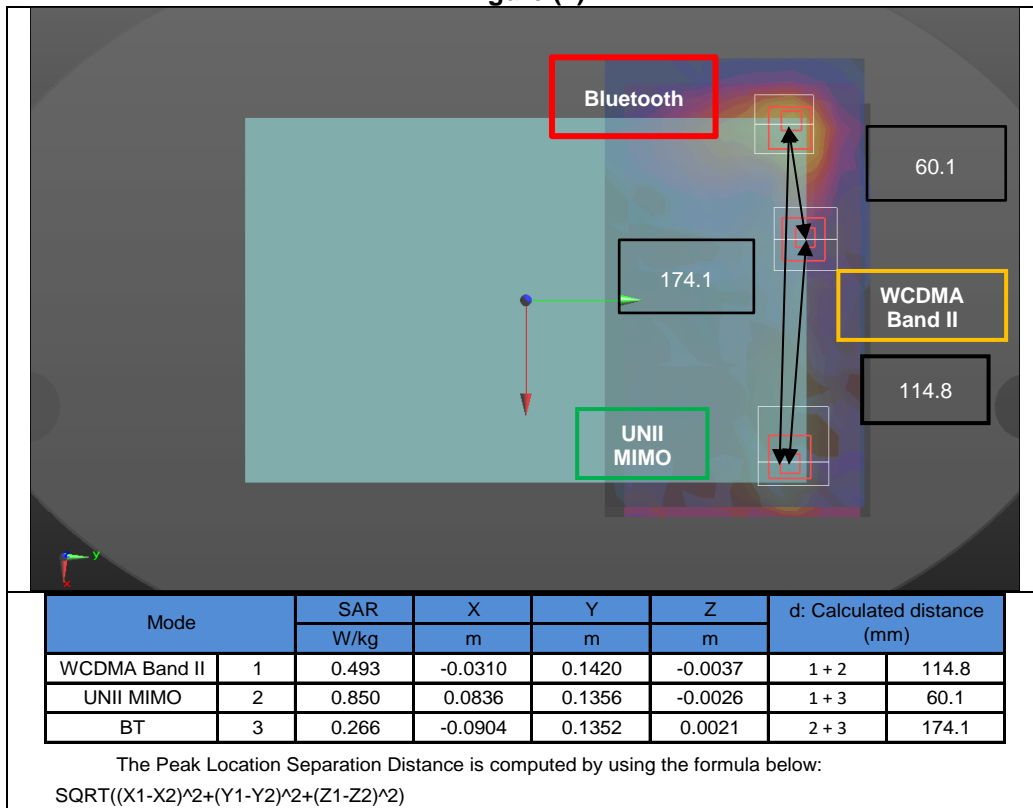


Figure (8)

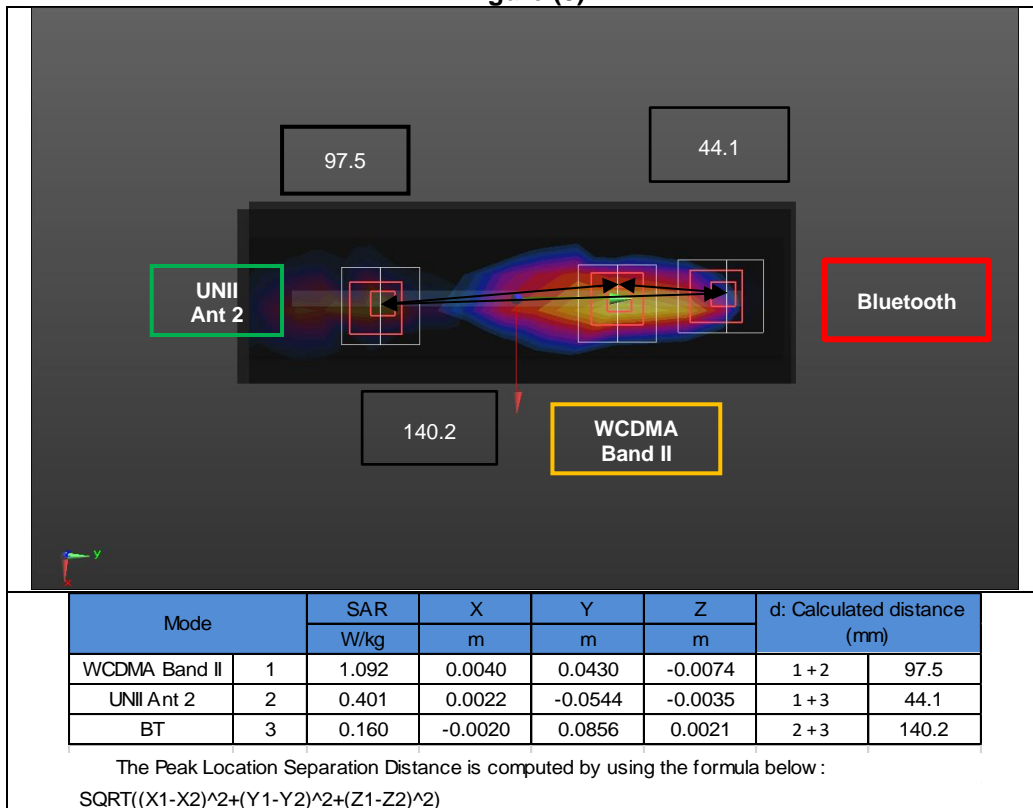


Figure (9)

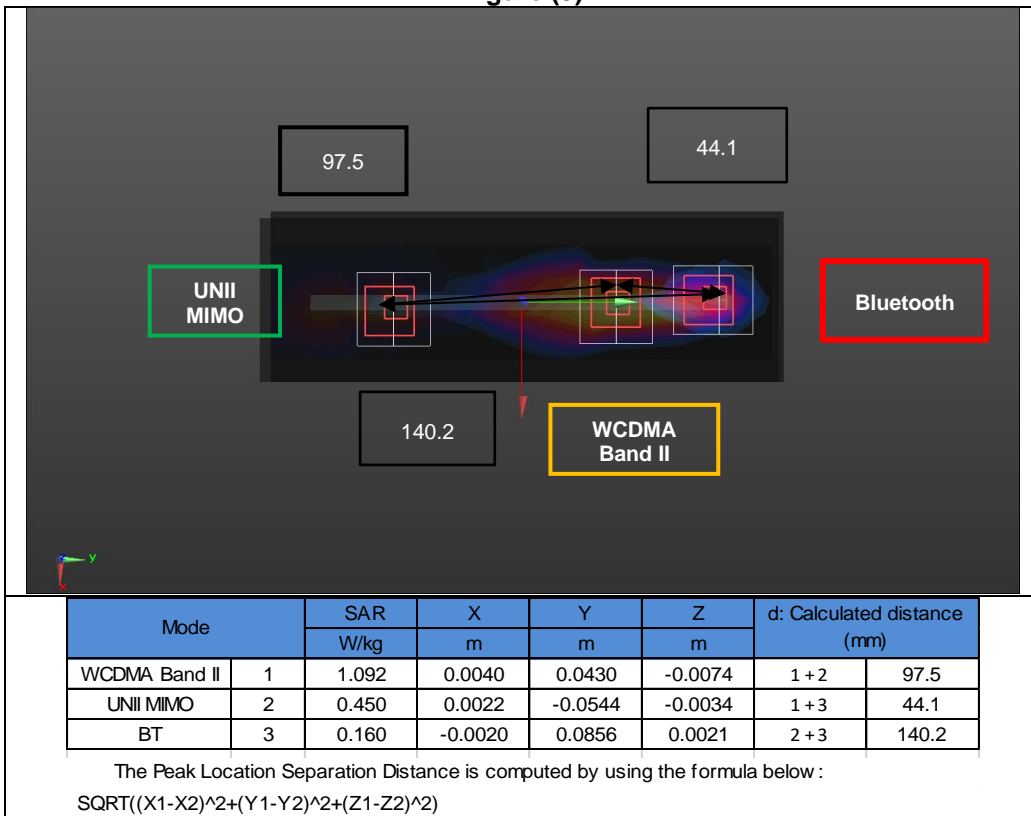


Figure (10)

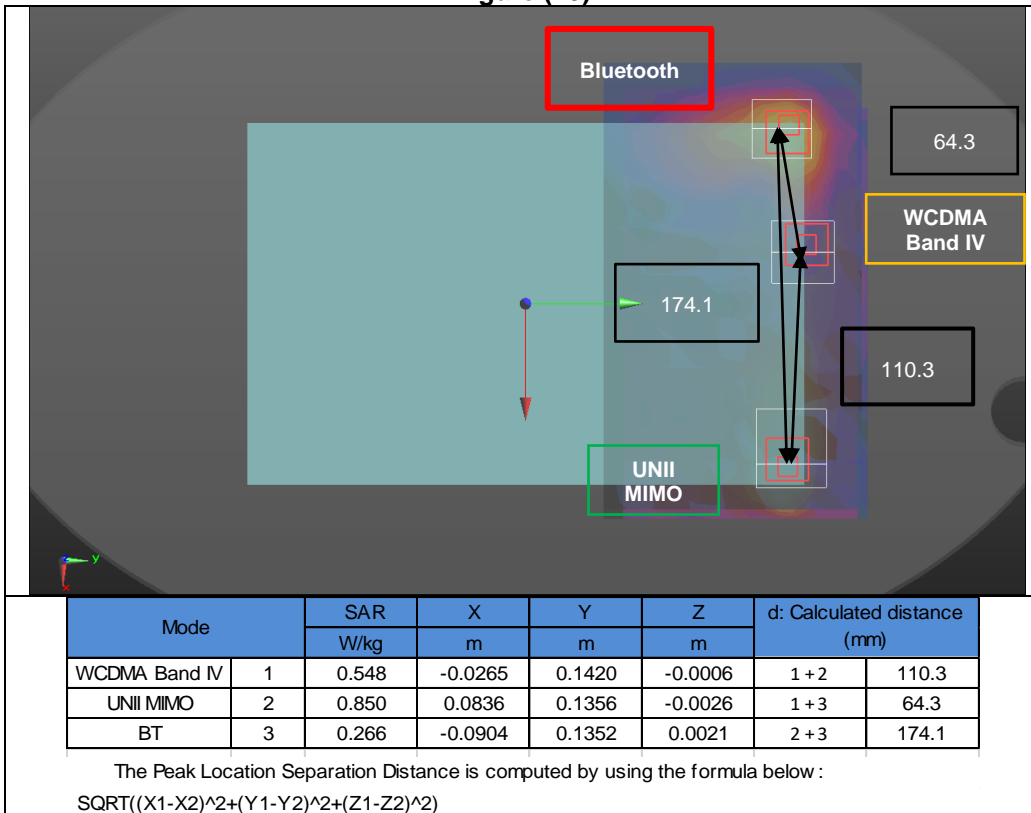


Figure (11)

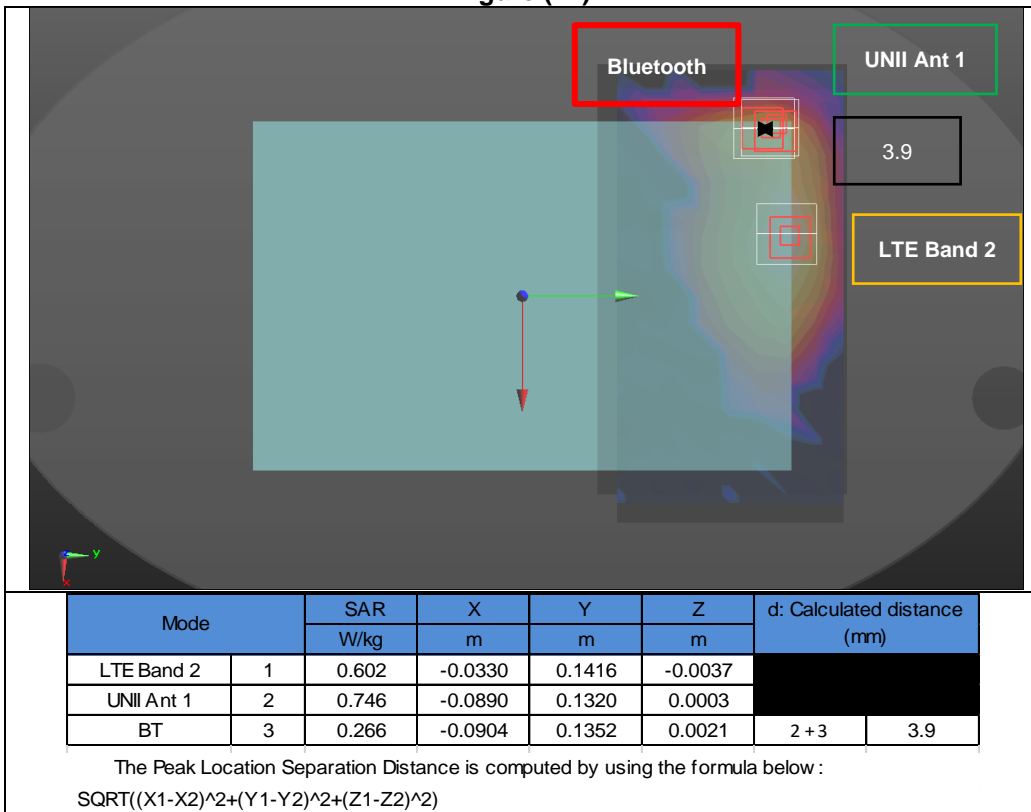


Figure (12)

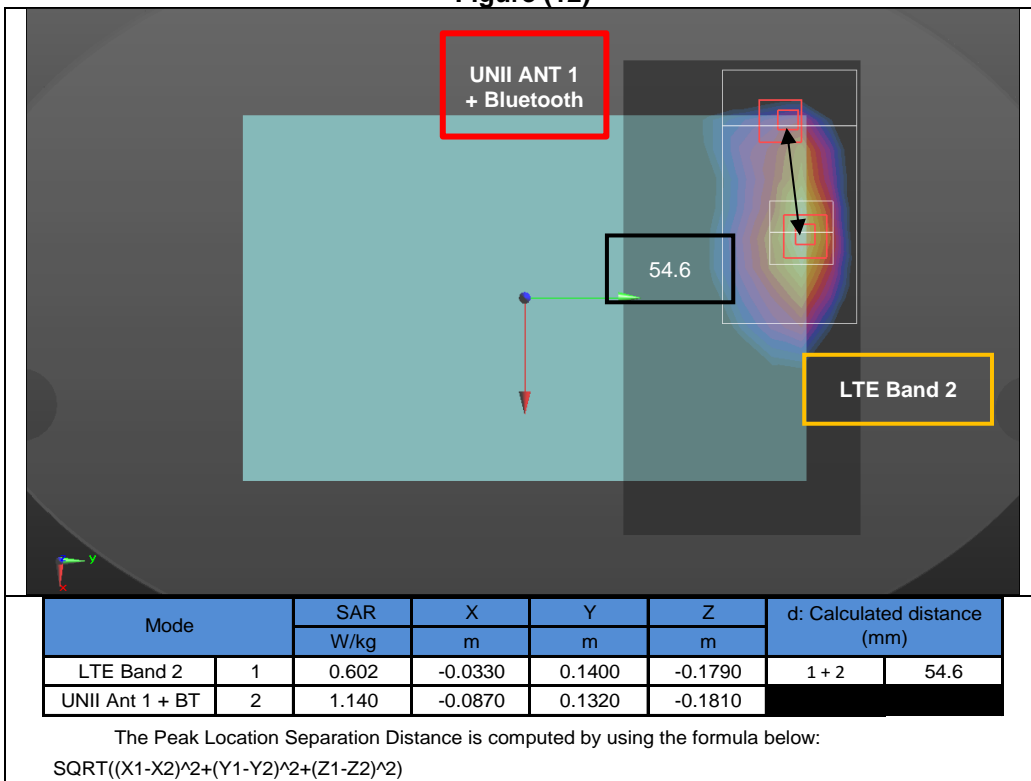


Figure (13)

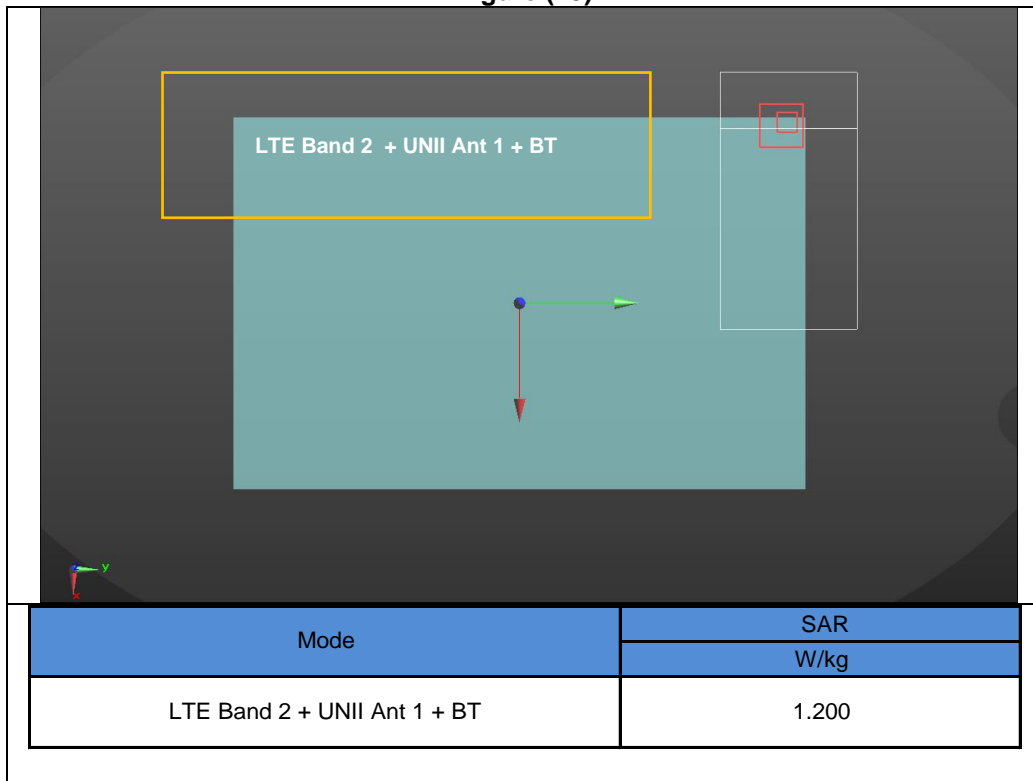


Figure (14)

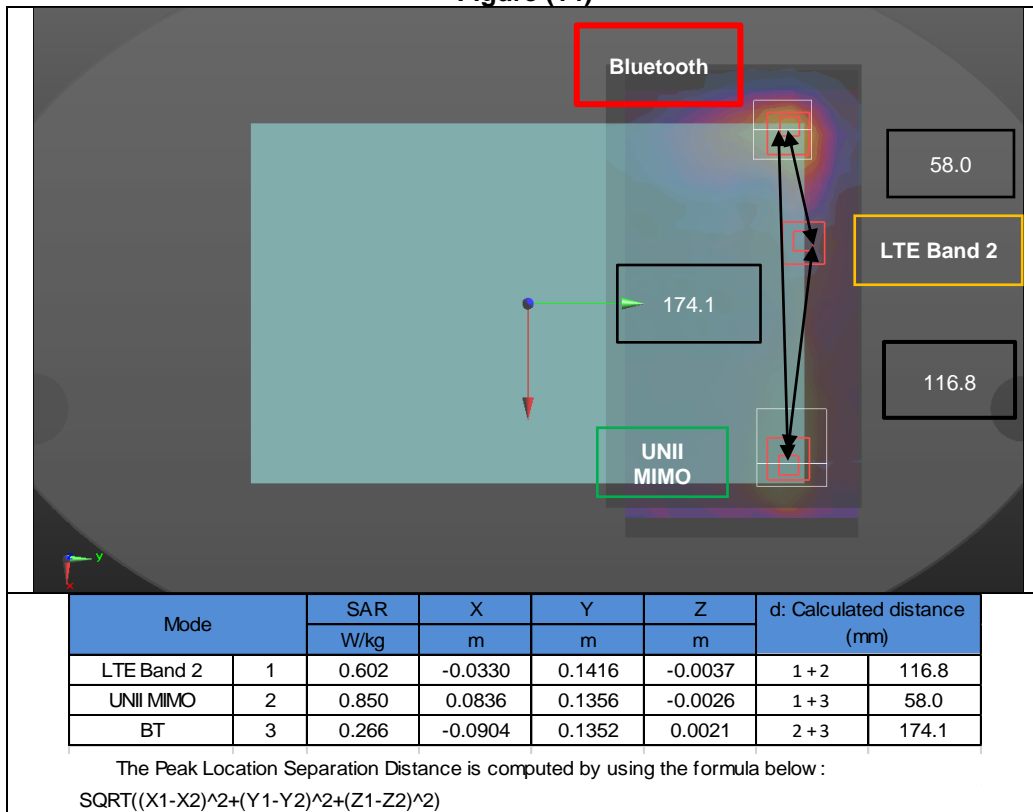


Figure (15)

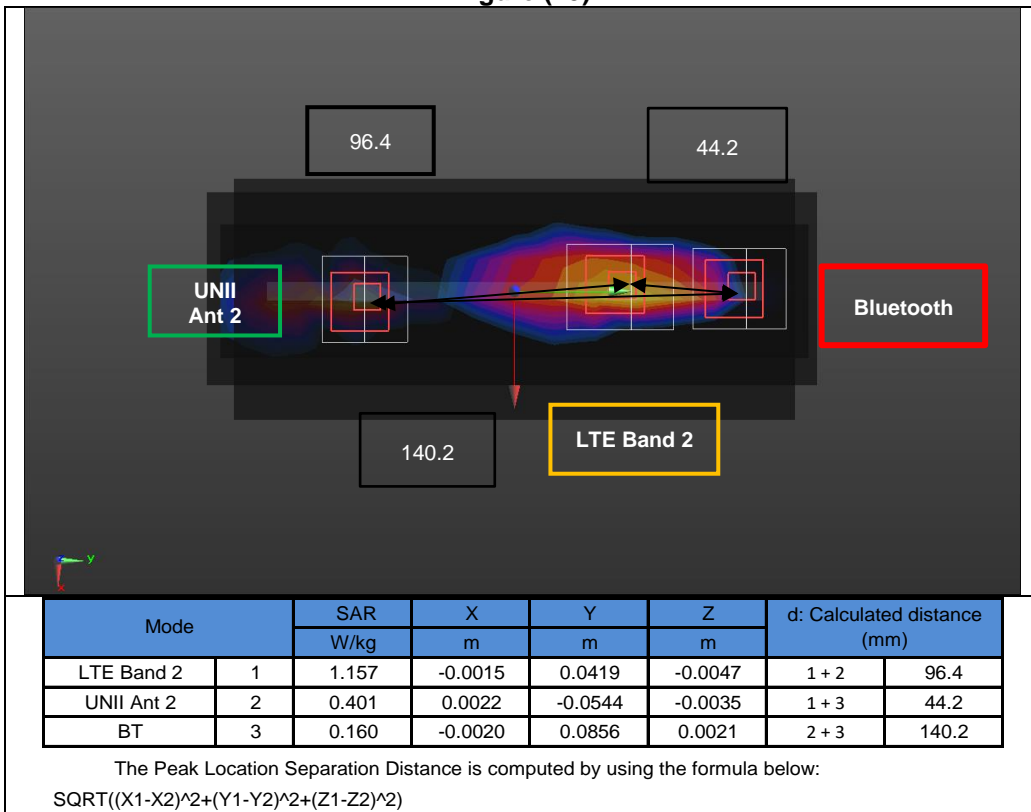


Figure (16)

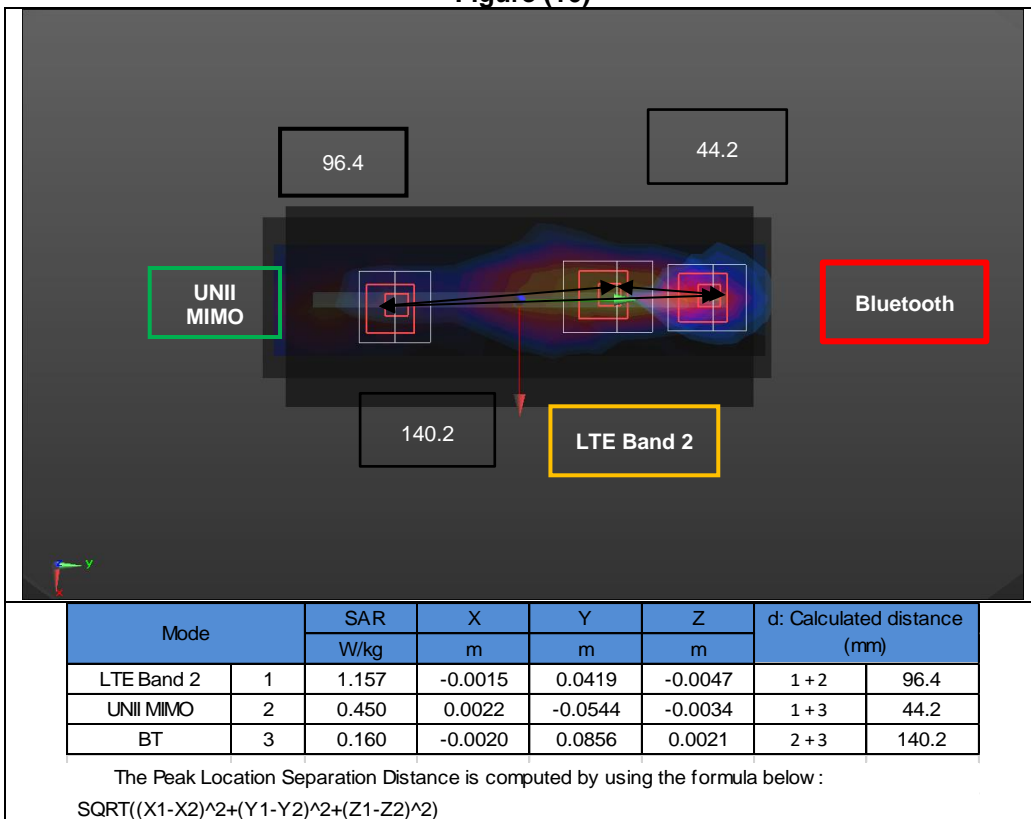


Figure (17)

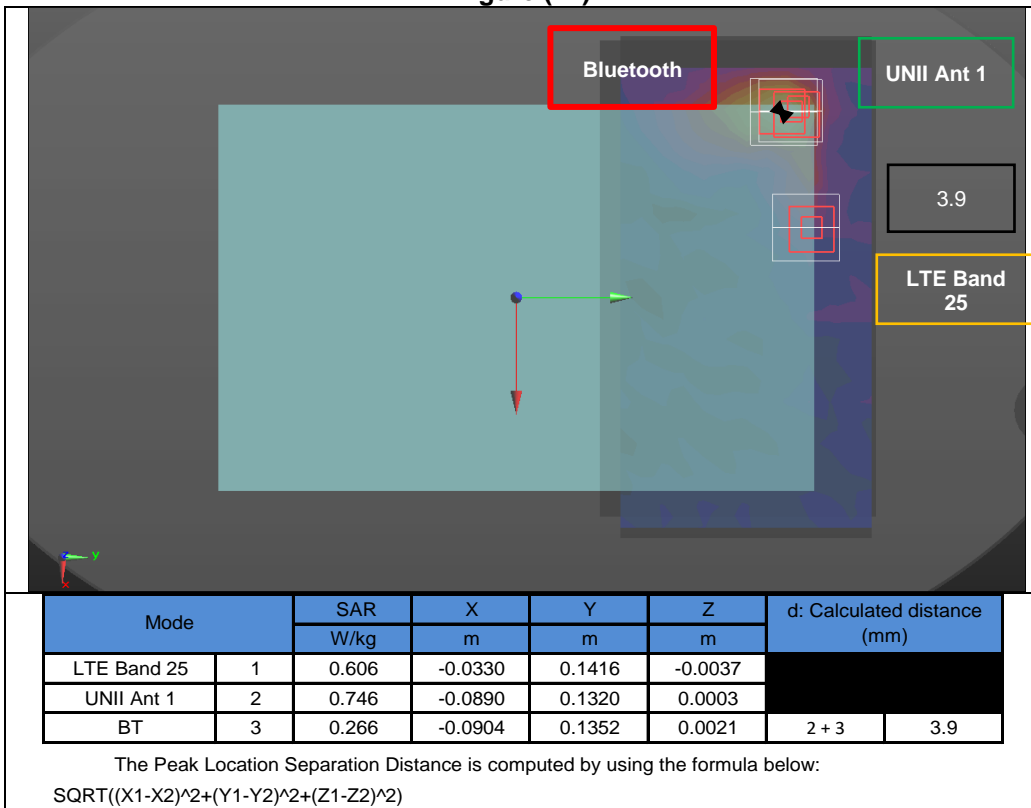


Figure (18)

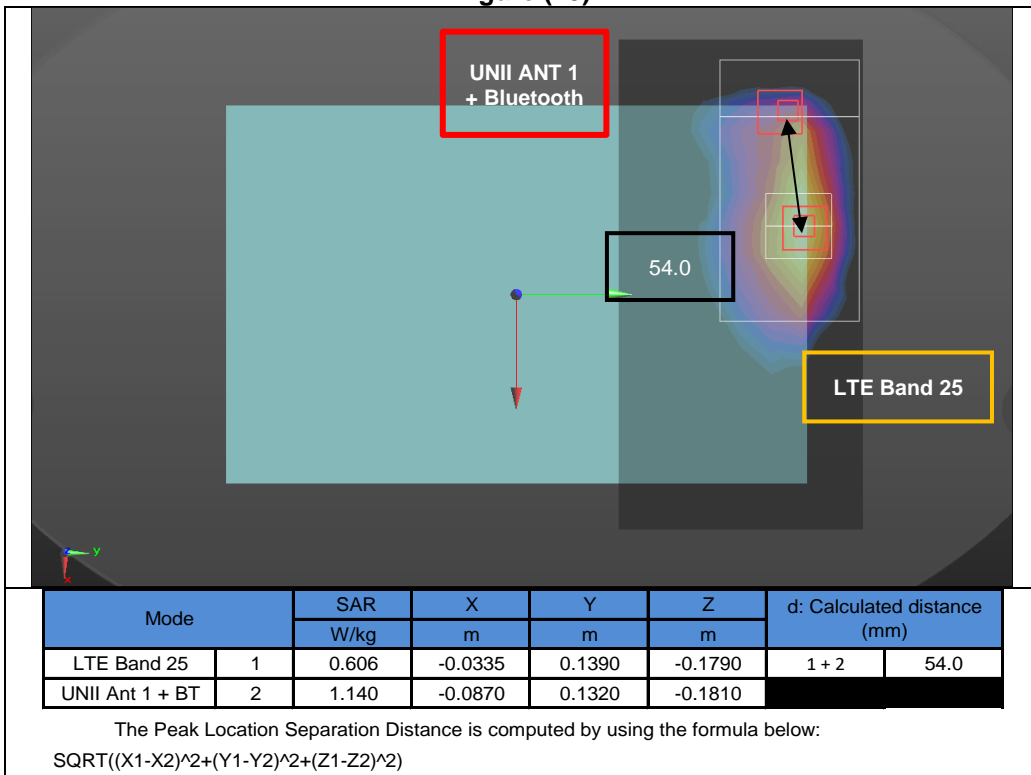


Figure (19)

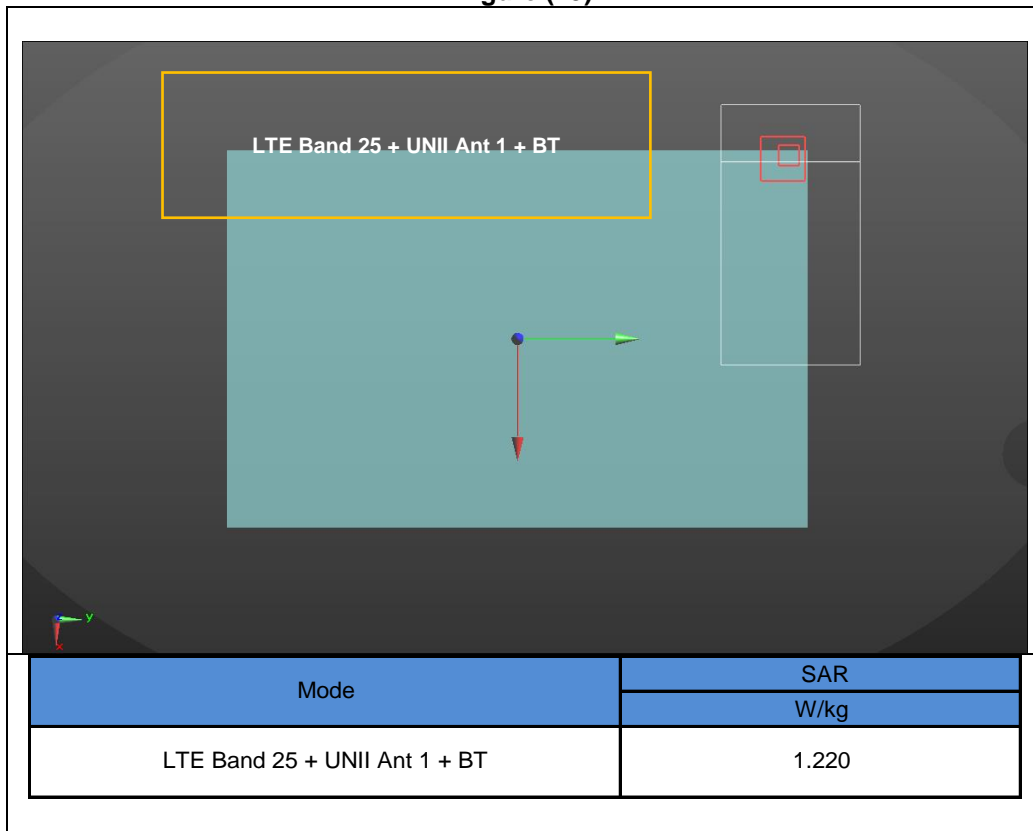


Figure (20)

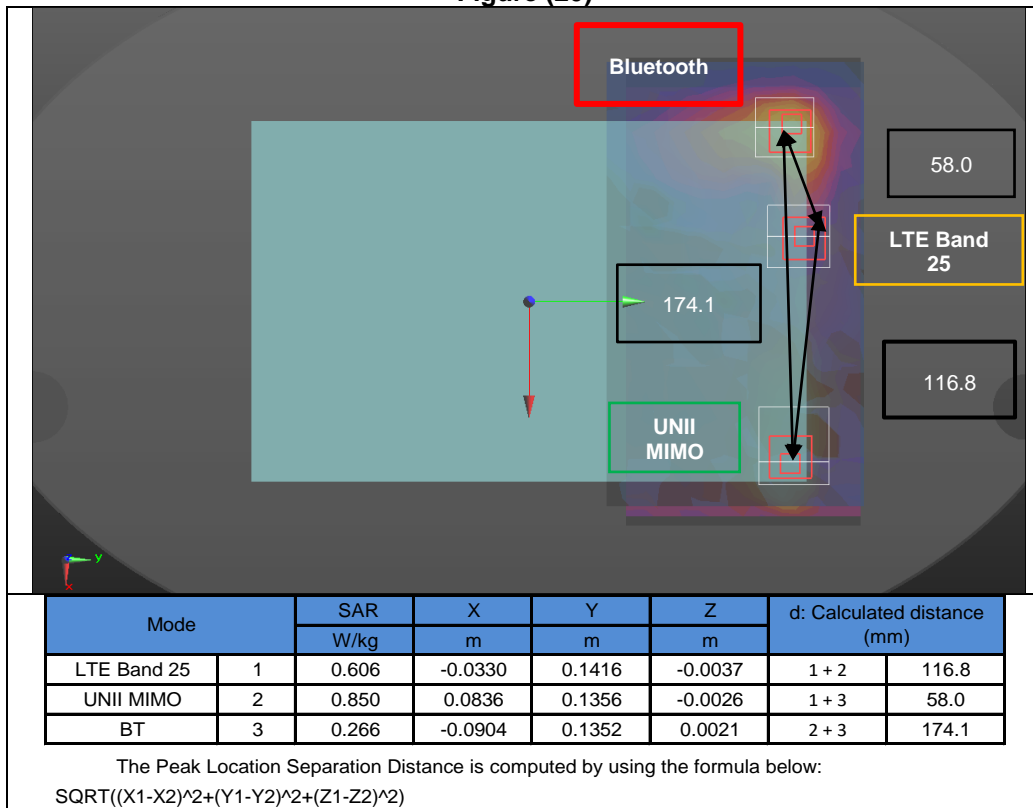


Figure (21)

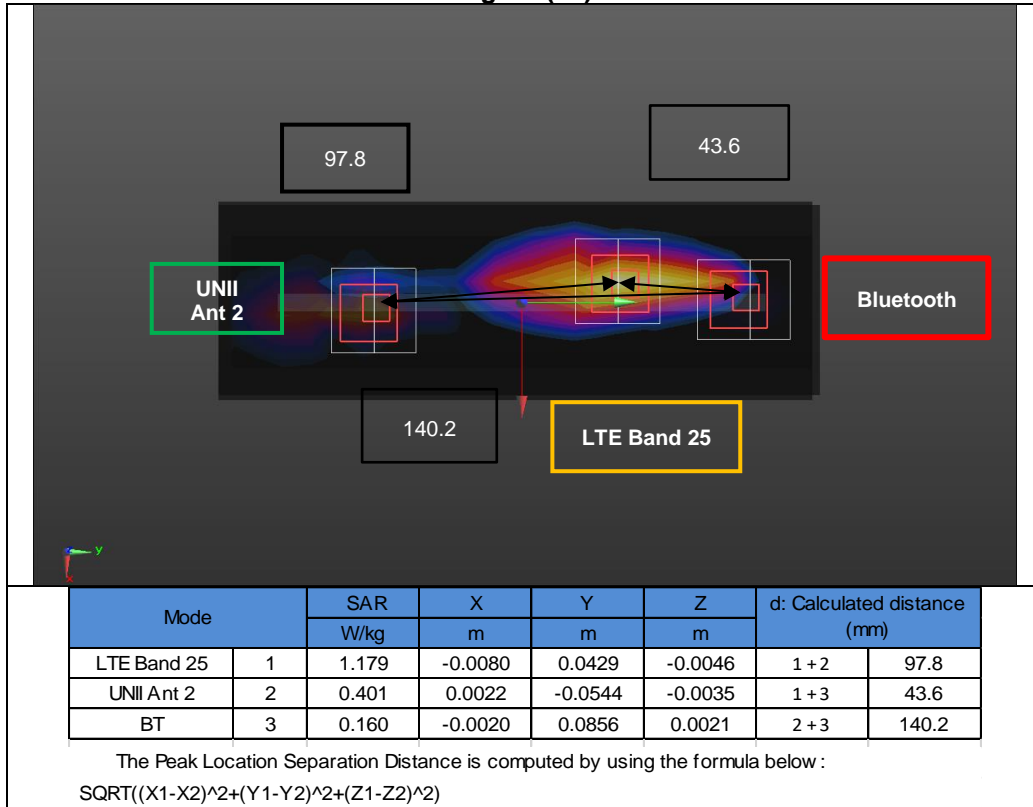


Figure (22)

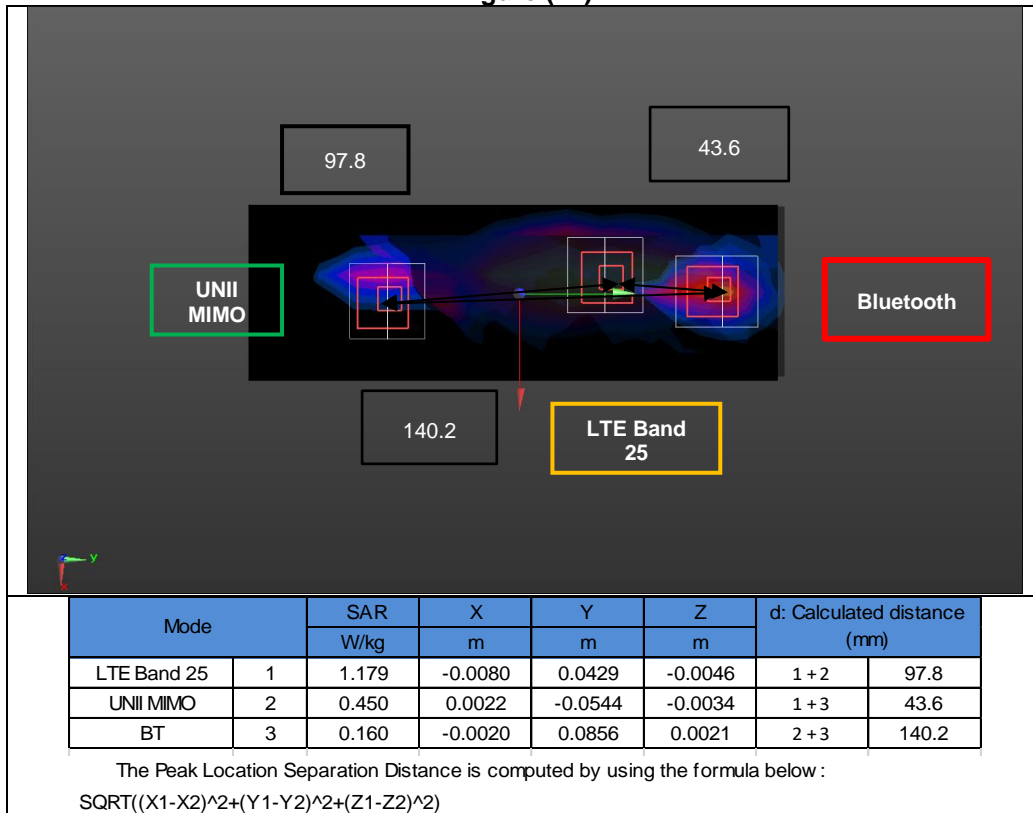


Figure (23)

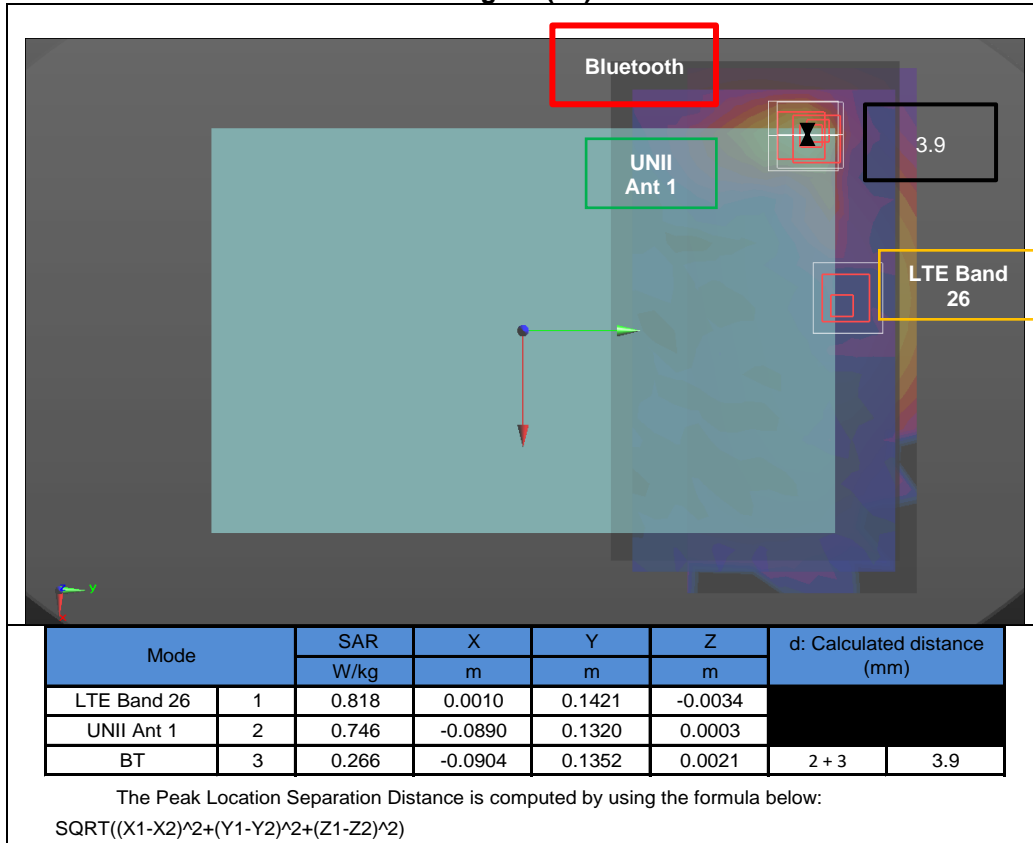


Figure (24)

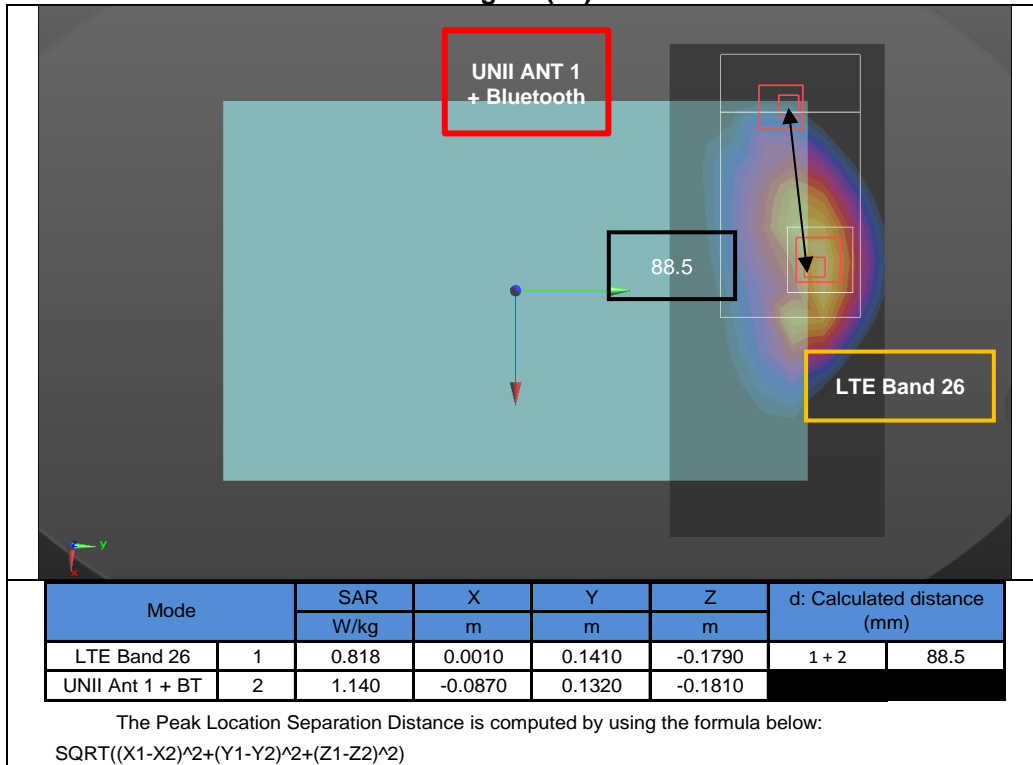


Figure (25)

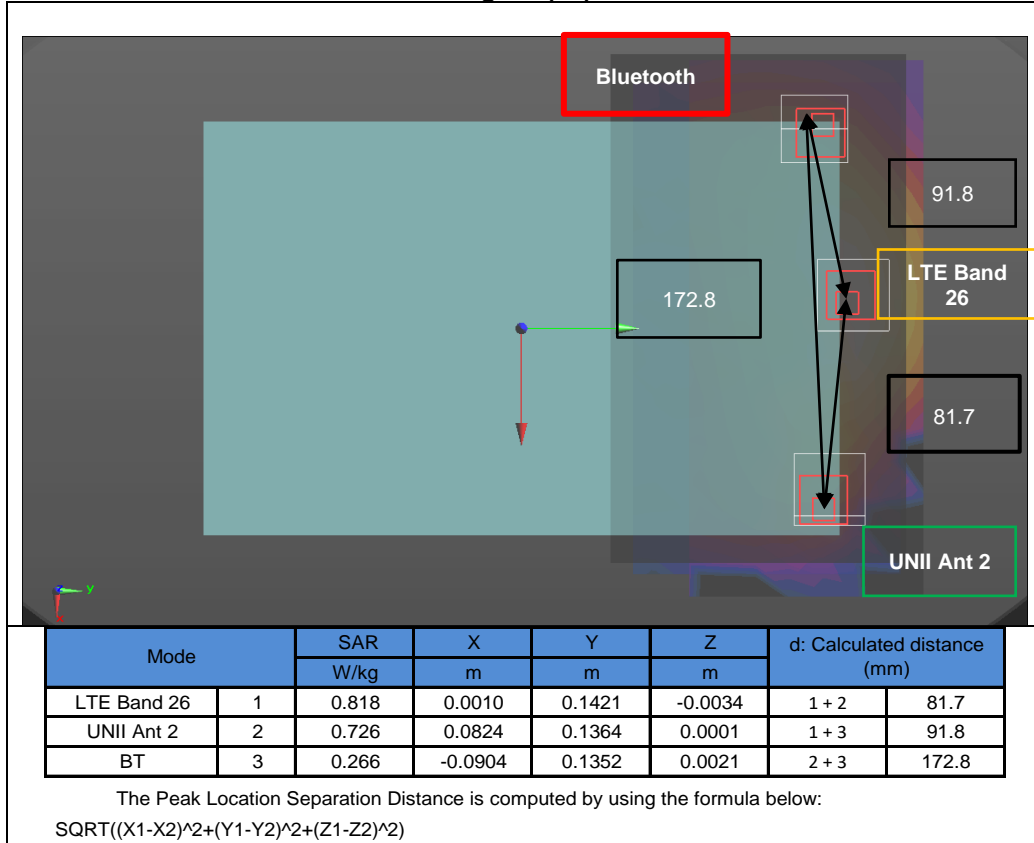


Figure (26)

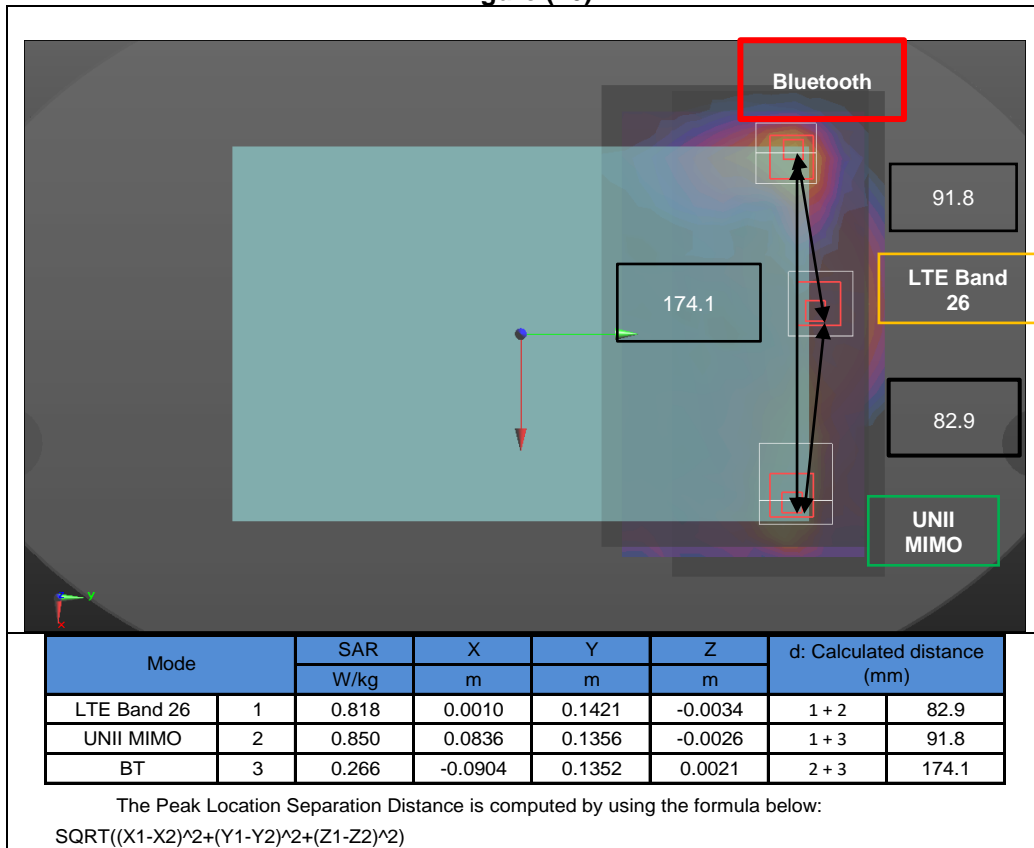


Figure (27)

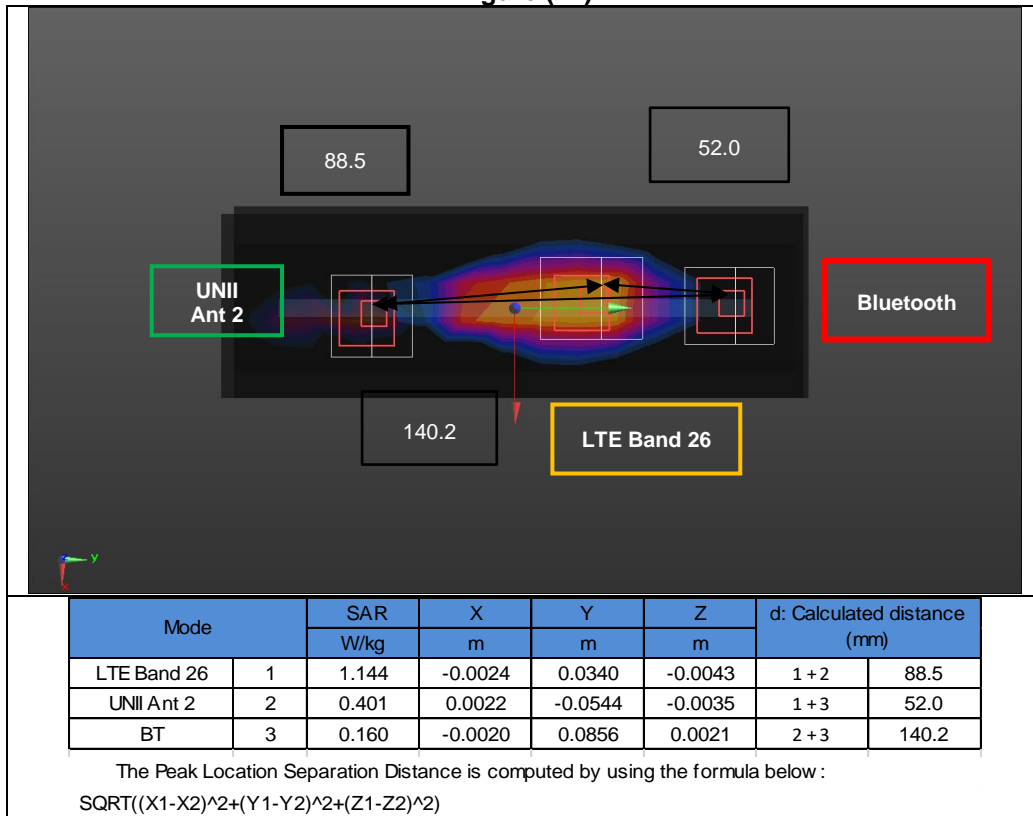


Figure (28)

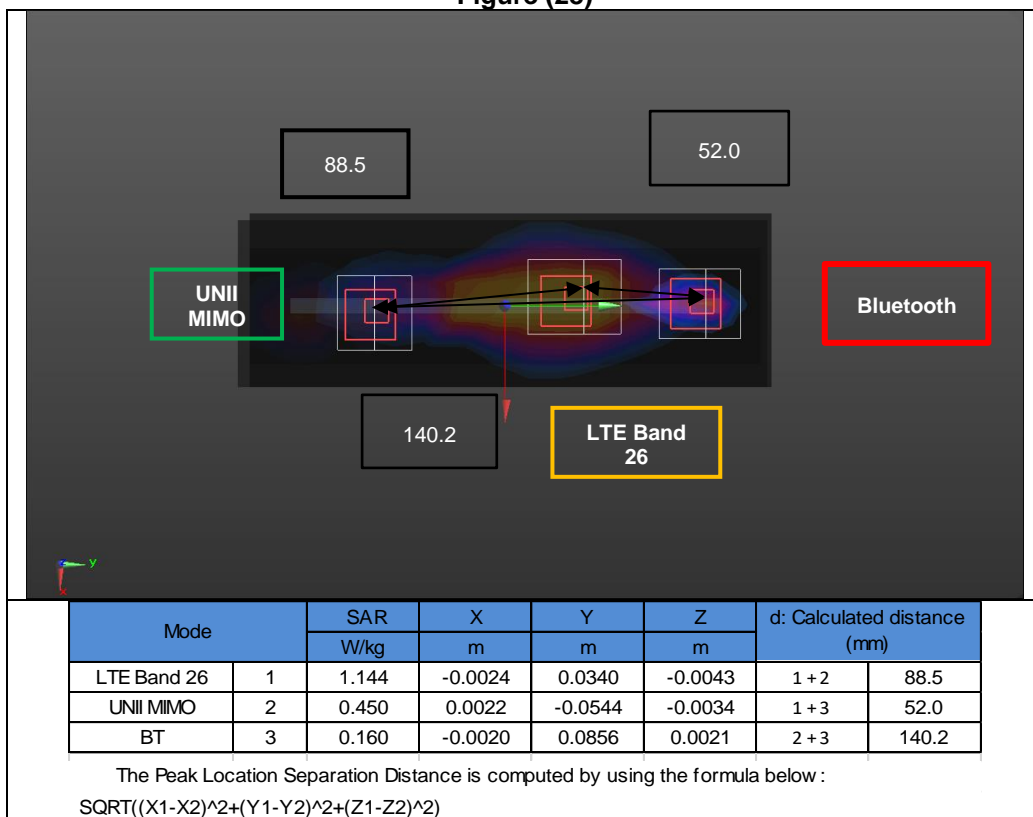


Figure (29)

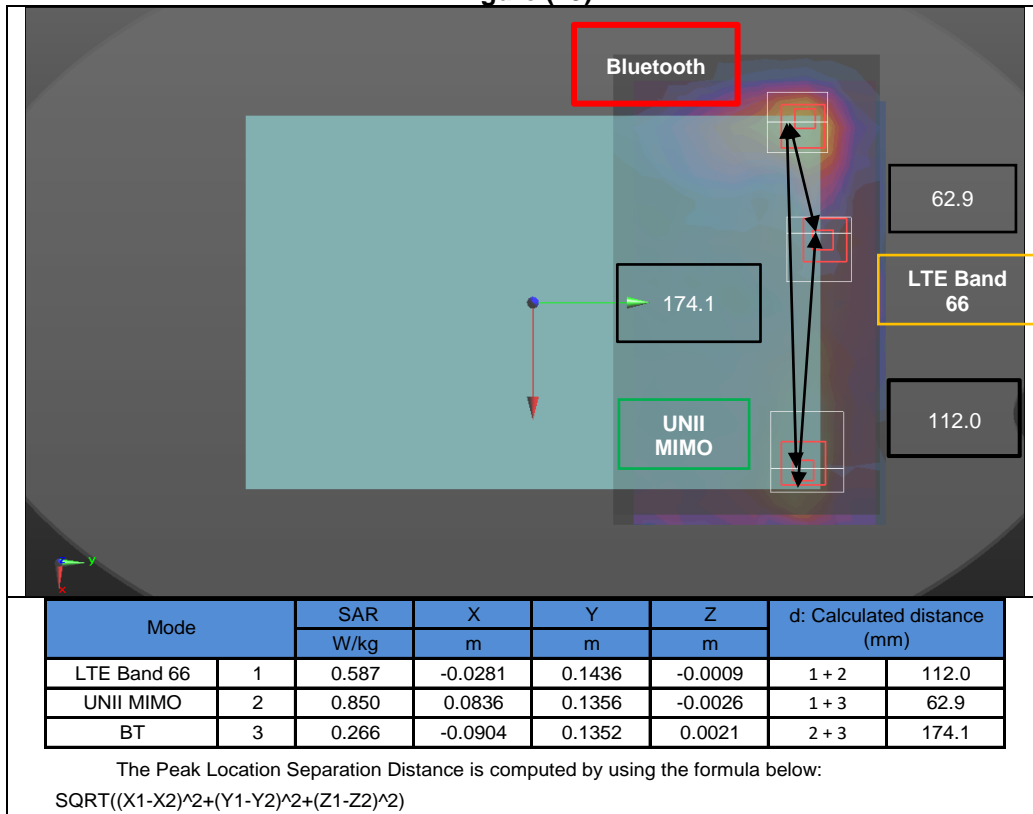


Figure (30)

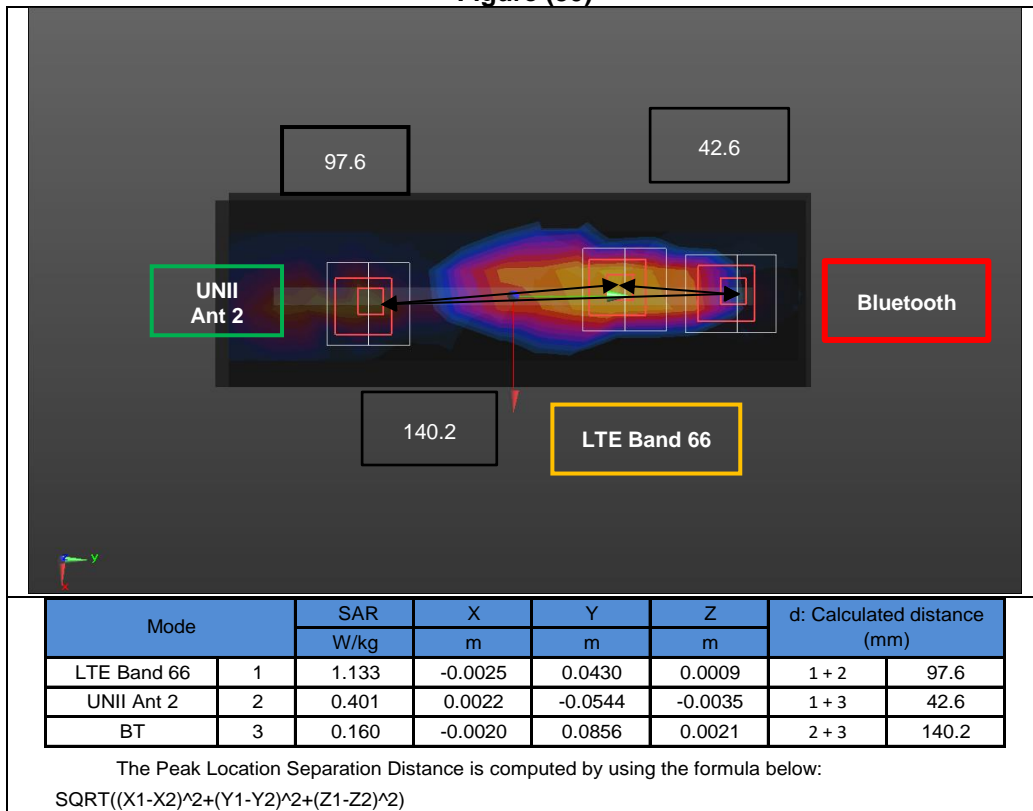
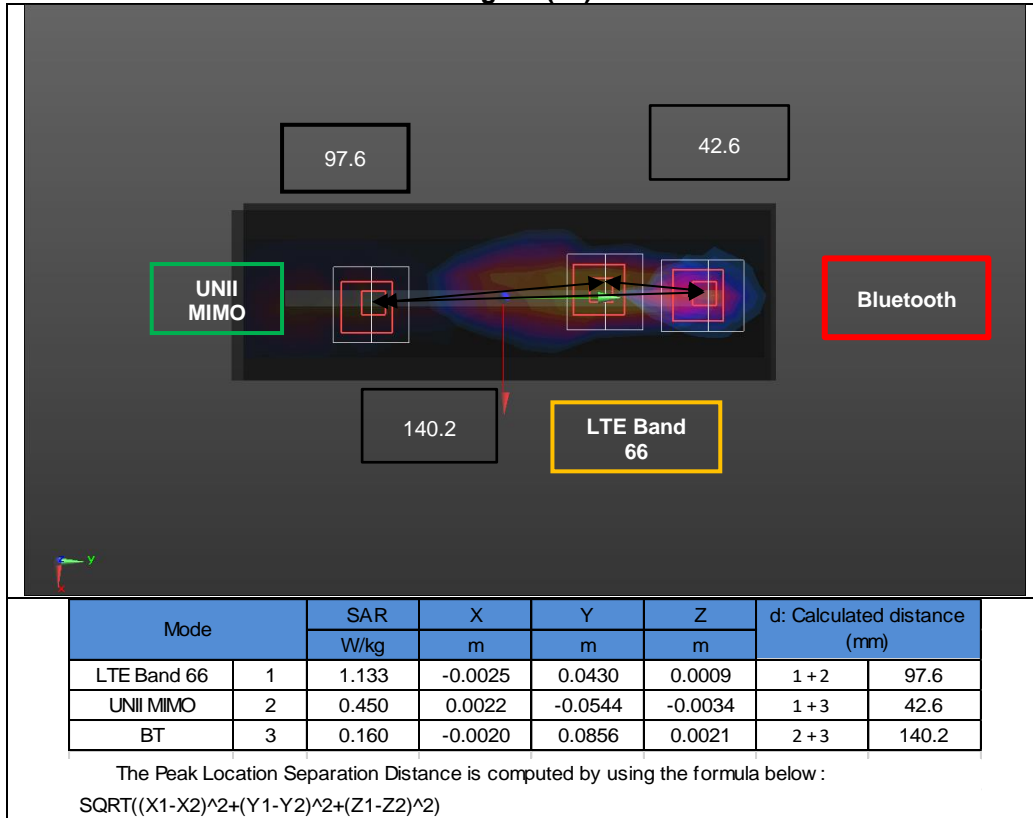


Figure (31)



12.15 Volume Scan Results

RF Exposure	Test Position	Configuration	Band	Original Measured SAR (W/kg)	Volume Scan Result	Plot No.	Multi-Band Combined factor	Multi-Band Combined Result	Plot No.	
Standalone	Rear	UNII Ant 1 + Bluetooth	UNII Ant 1	0.571	0.693	1	1.307	1.140	5	
			Bluetooth	0.174	0.183	2	1.531			
		LTE Band 2 + UNII Ant 1 + Bluetooth	LTE Band 2	0.460	0.397	3	1.309	1.200	6, 7	
			UNII Ant 1	0.571	0.693		1.307			
		LTE Band 25 + UNII Ant 1 + Bluetooth	Bluetooth	0.174	0.183		1.531	1.220	8, 9	
			LTE Band 25	0.475	0.475	4	1.274			
			UNII Ant 1	0.571	0.693		1.307			
				Bluetooth	0.174	0.183		1.531		

Note(s):

1. Multi-band Combined factor is the compensation value of power and duty.
2. For Volume Scan plot number in this section, please refer to the Appendix G.

Appendixes

Refer to separated files for the following appendixes.

4789867746-S1 FCC Report SAR_App A_Photos & Ant. Locations

4789867746-S1 FCC Report SAR_App B_Highest SAR Test Plots

4789867746-S1 FCC Report SAR_App C_System Check Plots

4789867746-S1 FCC Report SAR_App D_SAR Tissue Ingredients

4789867746-S1 FCC Report SAR_App E_Probe Cal. Certificates

4789867746-S1 FCC Report SAR_App F_Dipole Cal. Certificates

4789867746-S1 FCC Report SAR_App G_Volume Scan Results

END OF REPORT