



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

SAR EVALUATION REPORT

FOR

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

MODEL NUMBER: SM-W737N0

FCC ID: A3LSMW737N0

REPORT NUMBER: 4788556585-S1V1

ISSUE DATE: 8/31/2018

Prepared for
**SAMSUNG ELECTRONICS CO., LTD.
129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,
GYEONGGI-DO, 16677, KOREA**

Prepared by

UL Korea, Ltd.

26th floor, 152, Teheran-ro, Gangnam-gu Seoul, 06236, Korea

**Suwon Test Site: UL Korea, Ltd. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16675, Korea
TEL: (031) 337-9902
FAX: (031) 213-5433**



TL-637

Revision History

Rev.	Date	Revisions	Revised By
V1	8/31/2018	Initial Issue	Eunji Choi

Table of Contents

1.	Attestation of Test Results	6
2.	Test Specification, Methods and Procedures.....	7
3.	Facilities and Accreditation.....	7
4.	SAR Measurement System & Test Equipment	8
4.1.	<i>SAR Measurement System.....</i>	8
4.2.	<i>SAR Scan Procedures.....</i>	9
4.3.	<i>Test Equipment.....</i>	11
5.	Measurement Uncertainty.....	12
6.	Device Under Test (DUT) Information	13
6.1.	<i>DUT Description</i>	13
6.2.	<i>Wireless Technologies.....</i>	14
6.3.	<i>Nominal and Maximum Output Power.....</i>	15
6.4.	<i>General LTE SAR Test and Reporting Considerations.....</i>	17
6.5.	<i>LTE (TDD) Considerations.....</i>	20
6.6.	<i>LTE Carrier Aggregation.....</i>	21
6.7.	<i>Proximity sensor feature</i>	22
6.7.1.	<i>Proximity Sensor Triggering Distance (KDB 616217 §6.2).....</i>	23
6.7.2.	<i>Proximity Sensor Coverage (KDB 616217 §6.3)</i>	31
6.7.3.	<i>Proximity Sensor Tilt Angle Assessment (KDB 616217 §6.4).....</i>	31
6.7.4.	<i>Resulting test positions for SAR measurements</i>	31
7.	RF Exposure Conditions (Test Configurations).....	32
7.1	<i>Standalone SAR Test Exclusion Considerations.....</i>	32
7.2	<i>Required Test Configurations</i>	36
8.	Dielectric Property Measurements & System Check	37
8.1.	<i>Dielectric Property Measurements</i>	37
8.2.	<i>System Check.....</i>	41
9.	Conducted Output Power Measurements.....	45
9.1.	<i>W-CDMA</i>	45
9.2.	<i>LTE.....</i>	50
9.2.1.	<i>LTE Rel. 10 Carrier Aggregation.....</i>	76
9.3.	<i>Wi-Fi 2.4 GHz (DTS Band).....</i>	79
9.4.	<i>Wi-Fi 5 GHz (U-NII Bands).....</i>	80
9.5.	<i>Bluetooth</i>	84

10. Measured and Reported (Scaled) SAR Results..... 85

10.1. *W-CDMA Band II..... 87*

10.2. *W-CDMA Band IV..... 87*

10.3. *W-CDMA Band V..... 87*

10.4. *LTE Band 2 (20MHz Bandwidth)..... 88*

10.5. *LTE Band 4 (20MHz Bandwidth)..... 88*

10.6. *LTE Band 5 (10MHz Bandwidth)..... 88*

10.7. *LTE Band 7 (20MHz Bandwidth)..... 88*

10.8. *LTE Band 12 (10MHz Bandwidth)..... 88*

10.9. *LTE Band 13 (10MHz Bandwidth)..... 89*

10.10. *LTE Band 14 (10MHz Bandwidth)..... 89*

10.11. *LTE Band 17 (10MHz Bandwidth)..... 89*

10.12. *LTE Band 25 (20MHz Bandwidth)..... 89*

10.13. *LTE Band 26 (15MHz Bandwidth)..... 90*

10.14. *LTE Band 30 (10MHz Bandwidth)..... 90*

10.15. *LTE Band 38 (20MHz Bandwidth)..... 90*

10.16. *LTE Band 41 (20MHz Bandwidth)..... 90*

10.17. *LTE Band 66 (20MHz Bandwidth)..... 91*

10.18. *LTE Band 71 (20MHz Bandwidth)..... 91*

10.19. *Wi-Fi (DTS Band)..... 91*

10.20. *Wi-Fi (U-NII Bands)..... 92*

10.21. *Bluetooth..... 92*

11. SAR Measurement Variability..... 93

12. Simultaneous Transmission SAR Analysis..... 94

12.1. *Sum of the SAR for W-CDMA Band II & Wi-Fi & BT..... 97*

12.2. *Sum of the SAR for W-CDMA Band IV & Wi-Fi & BT..... 98*

12.3. *Sum of the SAR for W-CDMA Band V & Wi-Fi & BT..... 99*

12.4. *Sum of the SAR for LTE Band 2 & Wi-Fi & BT..... 99*

12.5. *Sum of the SAR for LTE Band 4 & Wi-Fi & BT..... 99*

12.6. *Sum of the SAR for LTE Band 5 & Wi-Fi & BT..... 100*

12.7. *Sum of the SAR for LTE Band 7 & Wi-Fi & BT..... 100*

12.8. *Sum of the SAR for LTE Band 12 & Wi-Fi & BT..... 101*

12.9. *Sum of the SAR for LTE Band 13 & Wi-Fi & BT..... 102*

12.10. *Sum of the SAR for LTE Band 14 & Wi-Fi & BT..... 103*

12.11. *Sum of the SAR for LTE Band 17 & Wi-Fi & BT..... 103*

12.12. *Sum of the SAR for LTE Band 25 & Wi-Fi & BT..... 104*

12.13. *Sum of the SAR for LTE Band 26 & Wi-Fi & BT..... 105*

12.14. Sum of the SAR for LTE Band 30 & Wi-Fi & BT 106

12.15. Sum of the SAR for LTE Band 38 & Wi-Fi & BT 106

12.16. Sum of the SAR for LTE Band 41 & Wi-Fi & BT 107

12.17. Sum of the SAR for LTE Band 66 & Wi-Fi & BT 108

12.18. Sum of the SAR for LTE Band 71 & Wi-Fi & BT 109

Appendixes 156

4788556585-S1V1 FCC Report SAR_App A_Photos & Ant. Locations..... 156

4788556585-S1V1 FCC Report SAR_App B_Highest SAR Test Plots..... 156

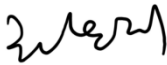
4788556585-S1V1 FCC Report SAR_App C_System Check Plots..... 156

4788556585-S1V1 FCC Report SAR_App D_SAR Tissue Ingredients 156

4788556585-S1V1 FCC Report SAR_App E_Probe Cal. Certificates 156

4788556585-S1V1 FCC Report SAR_App F_Dipole Cal. Certificates..... 156

1. Attestation of Test Results

Applicant Name	SAMSUNG ELECTRONICS CO.,LTD.			
FCC ID	A3LSMW737N0			
Model Number	SM-W737N0			
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	UNII	DSS(BT)
Standalone	1.35	0.99	1.19	0.47
Simultaneous TX	1.60	1.59	1.58	1.60
Date Tested	7/9/2018 to 8/29/2018			
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 Lead Test Engineer UL Korea, Ltd. Suwon Laboratory		Eunji Choi Associate Test Engineer UL Korea, Ltd. Suwon Laboratory		

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

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)

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

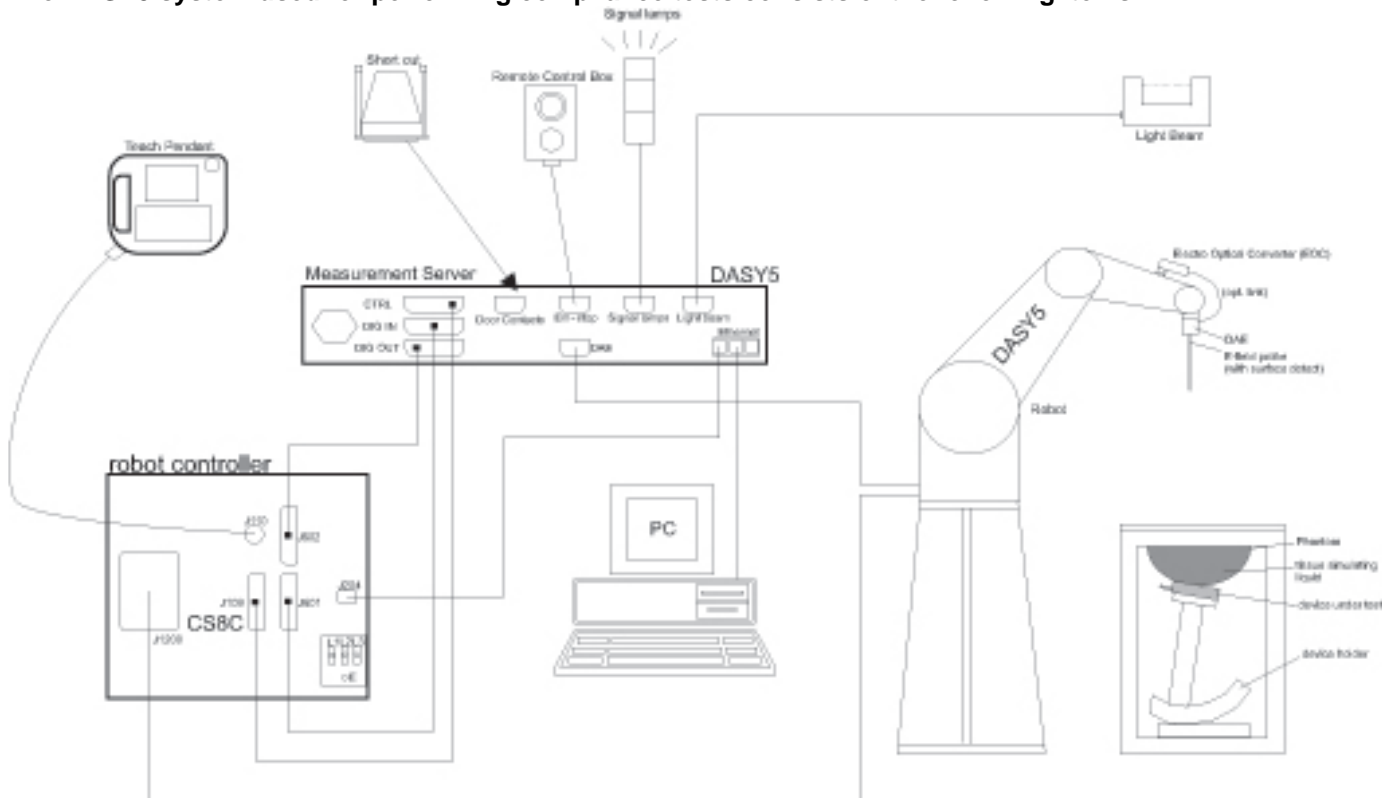
UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.

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	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5 · $\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 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	8-8-2018
Network Analyzer	Agilent	E5071C	MY46522054	8-7-2019
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	6-26-2019
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3424	8-11-2018
Thermometer	LKM	DTM3000	3424	8-9-2019
Thermometer	Lutron	MHB-382SD	AH.91478	8-10-2018
Thermometer	Lutron	MHB-382SD	AH.91478	8-8-2019

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8-7-2018
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8-7-2019
Power Sensor	Agilent	U2000A	MY54260010	8-8-2018
Power Sensor	Agilent	U2000A	MY54260010	8-7-2019
Power Sensor	Agilent	U2000A	MY54260007	8-8-2018
Power Sensor	Agilent	U2000A	MY54260007	8-7-2019
Power Amplifier	EXODUS	1410025-AMP2027-10003	10003	8-8-2018
Power Amplifier	EXODUS	1410025-AMP2027-10003	10003	8-8-2019
Directional Coupler	Agilent	772D	MY52180193	8-7-2018
Directional Coupler	Agilent	772D	MY52180193	8-7-2019
Directional Coupler	Agilent	778D	MY52180432	8-7-2018
Directional Coupler	Agilent	778D	MY52180432	8-7-2019
Low Pass Filter	MICROLAB	LA-15N	03943	8-7-2018
Low Pass Filter	MICROLAB	LA-15N	03943	8-7-2019
Low Pass Filter	FILTRON	L14012FL	1410003S	8-7-2018
Low Pass Filter	FILTRON	L14012FL	1410003S	8-7-2019
Low Pass Filter	MICROLAB	LA-60N	03942	8-7-2018
Low Pass Filter	MICROLAB	LA-60N	03942	8-7-2019
Attenuator	Agilent	8491B/003	MY39269292	8-7-2018
Attenuator	Agilent	8491B/003	MY39269292	8-7-2019
Attenuator	Agilent	8491B/010	MY39269315	8-7-2018
Attenuator	Agilent	8491B/010	MY39269315	8-7-2019
Attenuator	Agilent	8491B/020	MY39269298	8-7-2018
Attenuator	Agilent	8491B/020	MY39269298	8-7-2019
E-Field Probe (SAR1)	SPEAG	EX3DV4	7330	1-22-2019
E-Field Probe (SAR2)	SPEAG	EX3DV4	7313	2-20-2019
E-Field Probe (SAR3)	SPEAG	EX3DV4	7314	9-28-2018
E-Field Probe (SAR3)	SPEAG	EX3DV4	7376	8-22-2018
Data Acquisition Electronics (SAR1)	SPEAG	DAE4	1468	8-22-2018
Data Acquisition Electronics (SAR1)	SPEAG	DAE4	1494	7-23-2019
Data Acquisition Electronics (SAR2)	SPEAG	DAE4	1447	3-15-2019
Data Acquisition Electronics (SAR3)	SPEAG	DAE4	1494	7-20-2018
Data Acquisition Electronics (SAR3)	SPEAG	DAE4	614	6-22-2019

System Check (Continued)

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
System Validation Dipole	SPEAG	D750V3	1122	2-19-2019
System Validation Dipole	SPEAG	D835V2	4d174	9-21-2018
System Validation Dipole	SPEAG	D1750V2	1125	2-16-2019
System Validation Dipole	SPEAG	D1900V2	5d190	9-20-2018
System Validation Dipole	SPEAG	D1900V2	5d199	3-15-2019
System Validation Dipole	SPEAG	D2300V2	1049	2-21-2018
System Validation Dipole	SPEAG	D2450V2	939	9-19-2018
System Validation Dipole	SPEAG	D2600V2	1097	1-17-2019
System Validation Dipole	SPEAG	D5GHzV2	1209	2-15-2019
Thermometer (SAR1)	Lutron	MHB-382SD	AH.91463	8-10-2018
Thermometer (SAR1)	Lutron	MHB-382SD	AH.91463	8-8-2019
Thermometer (SAR2)	Lutron	MHB-382SD	AH.50215	2-9-2019
Thermometer (SAR3)	Lutron	MHB-382SD	AH.50213	8-16-2018
Thermometer (SAR3)	Lutron	MHB-382SD	AH.50213	8-14-2019

Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	150313	12-08-2018
Base Station Simulator	R & S	CMW500	150313	8-9-2019
Base Station Simulator	R & S	CMW500	150314	12-05-2018
Base Station Simulator	R & S	CMW500	150314	8-9-2019
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	8-7-2018
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	8-7-2019

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations (D2302, SN : 1049)

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.

6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	Overall (Length x Width): 287.5 mm x 200.5 mm Overall Diagonal: 348 mm Display Diagonal: 304 mm																					
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 and S-pen																					
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, Ch 1~11) <input checked="" type="checkbox"/> Mobile Hotspot (Wi-Fi 5 GHz, Ch 36~48, Ch.149~165)																					
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, Ch 1~11) <input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 5 GHz, Ch 36~48, Ch.149~165)																					
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>BBMGR34K5005RHW</td> <td>Main Conducted</td> </tr> <tr> <td>2</td> <td>BBMGR34K50061VZ</td> <td>Wi-Fi Conducted</td> </tr> <tr> <td>3</td> <td>BBMGR34K50061LE</td> <td>SAR</td> </tr> <tr> <td>4</td> <td>BBMGR34K50060PT</td> <td>SAR</td> </tr> <tr> <td>5</td> <td>BBMGR34K50061JD</td> <td>SAR</td> </tr> <tr> <td>6</td> <td>BBMGR34K5005T7F</td> <td>SAR</td> </tr> </tbody> </table>	No.	S/N	Notes	1	BBMGR34K5005RHW	Main Conducted	2	BBMGR34K50061VZ	Wi-Fi Conducted	3	BBMGR34K50061LE	SAR	4	BBMGR34K50060PT	SAR	5	BBMGR34K50061JD	SAR	6	BBMGR34K5005T7F	SAR
No.	S/N	Notes																				
1	BBMGR34K5005RHW	Main Conducted																				
2	BBMGR34K50061VZ	Wi-Fi Conducted																				
3	BBMGR34K50061LE	SAR																				
4	BBMGR34K50060PT	SAR																				
5	BBMGR34K50061JD	SAR																				
6	BBMGR34K5005T7F	SAR																				

6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode	Duty Cycle used for SAR testing
W-CDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Release.9) HSUPA (Release.9) HSPA+ (Release 9)	100%
LTE	FDD Band 2 FDD Band 4 FDD Band 5 FDD Band 7 FDD Band 12 FDD Band 13 FDD Band 14 FDD Band 17 FDD Band 25 FDD Band 26 FDD Band 30 FDD Band 66 FDD Band 71 TDD Band 38 TDD Band 41	QPSK 16QAM 64QAM Rel. 11 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 802.11g 802.11n (HT20)	99.5% (802.11b) 98.8% (802.11g) 98.7% (802.11n 20MHz BW)
	5 GHz	802.11a 802.11n (HT20) 802.11n (HT40) 802.11ac (VHT20) 802.11ac (VHT40) 802.11ac (VHT80)	98.8% (802.11a) 99.3% (802.11n 20MHz BW) 99.3% (802.11n 40MHz BW) 99.2% (802.11n 80MHz BW)
	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	76.9% (DH5)

Notes:

1. This device supports uplink-downlink configuration 0-6. The configuration with the highest duty cycle was used (uplink-downlink configuration 0 at 63.3%).
2. The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 76.9% and was considered and used for SAR Testing.
3. 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	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)
W-CDMA Band II	Ant.2	R99	24.5	13.5
		HSDPA	23.5	12.5
		HSUPA	23.5	12.5
W-CDMA Band IV	Ant.2	R99	25.0	13.5
		HSDPA	24.0	12.5
		HSUPA	24.0	12.5
W-CDMA Band V	Ant.1	R99	25.0	18.5
		HSDPA	24.0	17.5
		HSUPA	24.0	17.5

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)
LTE Band 2 ²	Ant.2	QPSK	25.0	14.0
LTE Band 4 ³	Ant.2	QPSK	25.3	13.0
LTE Band 5 ⁴	Ant.1	QPSK	25.5	18.0
LTE Band 7	Ant.1	QPSK	25.0	13.0
LTE Band 12	Ant.1	QPSK	25.0	19.0
LTE Band 13	Ant.1	QPSK	25.0	18.0
LTE Band 14	Ant.1	QPSK	25.0	19.0
LTE Band 17 ⁵	Ant.1	QPSK	25.0	19.0
LTE Band 25	Ant.2	QPSK	25.0	14.0
LTE Band 26	Ant.1	QPSK	25.5	18.0
LTE Band 30	Ant.1	QPSK	24.0	16.0
LTE Band 38 ⁶	Ant.1	QPSK	25.0	16.0
LTE Band 41	Ant.1	QPSK	25.0	16.0
LTE Band 66	Ant.2	QPSK	25.5	13.0
LTE Band 71	Ant.1	QPSK	25.0	19.0

Note(s):

1. LTE QPSK configuration has the highest maximum average output power per 3GPP standard.
2. LTE Band 2 (Frequency range: 1850-1910 MHz) is covered by LTE Band 25 (Frequency range: 1850-1915 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.
3. LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, higher maximum tune-up limit and same channel bandwidth.
4. LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth from 10MHz to 1.4MHz. Therefore, LTE Band 26 at 15MHz bandwidth has been measured.
5. LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.
6. LTE Band 38 (Frequency range: 2570-2620 MHz) is covered by LTE Band 41 (Frequency range: 2496-2690 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

RF Air interface	Mode	Max. RF Output Power (dBm)		Reduced. RF Output Power (dBm)	
		Ant. 1	Ant. 2	Ant. 1	Ant. 2
WiFi 2.4 GHz (Ch.1 - Ch.11)	802.11b	16.5	16.5	12.0	12.0
	802.11g	15.5	15.5	12.0	12.0
	802.11n HT20	15.0	15.0	12.0	12.0
WiFi 2.4 GHz (Ch.12)	802.11b	5.5	5.5		
	802.11g	5.5	5.5		
	802.11n HT20	5.5	5.5		
WiFi 2.4 GHz (Ch.13)	802.11b	5.5	5.5		
	802.11g	5.5	5.5		
	802.11n HT20	5.5	5.5		
WiFi 5GHz	802.11a	13.0	13.0	9.0	9.0
	802.11n HT20	12.0	12.0	9.0	9.0
	802.11n HT40	12.0	12.0	9.0	9.0
	802.11ac VHT20	12.0	12.0	9.0	9.0
	802.11ac VHT40	11.0	11.0	9.0	9.0
	802.11ac VHT80	11.0	11.0	9.0	9.0
Bluetooth		10.0			
Bluetooth LE		3.0			

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	18675/ 1857.5	18650/ 1855	18625/ 1852.5	18615/ 1851.5	18607/ 1850.7
	Mid	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880
	High	19100/ 1900	19125/ 1902.5	19150/ 1905	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	20025/ 1717.5	20000/ 1715	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	20325/ 1747.5	20350/ 1750	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	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	20625/ 846.5	20635/ 847.5	20643/ 848.3
	Band 7	Frequency range: 2500 - 2570 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20850/ 2510	20825/ 2507.5	20800/ 2505	20775/ 2502.5		
	Mid	21100/ 2535	21100/ 2535	21100/ 2535	21100/ 2535		
	High	21350/ 2560	21375/ 2562.5	21400/ 2565	21425/ 2567.5		
	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	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	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	23230/ 782			
High				23255/ 784.5			

General LTE SAR Test and Reporting Considerations (Continued)

Item	Description						
Frequency range, Channel Bandwidth, Numbers and Frequencies	Frequency range: 788 - 798 MHz						
	Channel Bandwidth						
	Band 14	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low				23305/ 790.5		
	Mid			23330/ 793	23330/ 793		
	High				23355/ 795.5		
	Frequency range: 704 - 716 MHz						
	Channel Bandwidth						
	Band 17	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			23780/ 709	23755/ 706.5		
	Mid			23790/ 710	23790/ 710		
	High			23800/ 711	23825/ 713.5		
	Frequency range: 1850 - 1915 MHz						
	Channel Bandwidth						
	Band 25	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	26140/ 1860	26115/ 1857.5	26090/ 1855	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	26615/ 1907.5	26640/ 1910	26665/ 1912.5	26675/ 1913.5	26683/ 1914.3
	Frequency range: 814 - 849 MHz						
	Channel Bandwidth						
	Band 26	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low		26765/ 821.5	26740/ 819	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		26965/ 841.5	26990/ 844	27015/ 846.5	27025/ 847.5	27033/ 848.3
	Frequency range: 2305 - 2315 MHz						
	Channel Bandwidth						
	Band 30	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low				27685/ 2307.5		
Mid			27710/ 2310	27710/ 2310			
High				27735/ 2312.5			
Frequency range: 2570 - 2620 MHz							
Channel Bandwidth							
Band 38	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz	
Low	37850/ 2580	37825/ 2577.5	37800/ 2575	37775/ 2572.5			
Mid	38000/ 2595	38000/ 2595	38000/ 2595	38000/ 2595			
High	38150 2610	38175/ 2612.5	38200/ 2615	38225/ 2617.5			
Frequency range: 2496 - 2690 MHz							
Channel Bandwidth							
Band 41	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						

General LTE SAR Test and Reporting Considerations (Continued)

Item	Description																																																														
Frequency range, Channel Bandwidth, Numbers and Frequencies	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	132047/ 1717.5	132022/ 1715	131997/ 1712.5	131987/ 1711.5	131979/ 1710.7																																																								
	Mid	132322/ 1745	132322/ 1745	132322/ 1745	132322/ 1745	132322/ 1745	132322/ 1745																																																								
	High	132572/ 1770	132597/ 1772.5	132622/ 1775	132647/ 1777.5	132657/ 1778.5	132665/ 1779.3																																																								
	Band 71	Frequency range: 663 - 698 MHz																																																													
		Channel Bandwidth																																																													
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz																																																								
	Low	133222/ 673	133197/ 670.5	133172/ 668	133147/ 665.5																																																										
	Mid	133297/ 680.5	133297/ 680.5	133297/ 680.5	133297/ 680.5																																																										
	High	133372/ 688	133397/ 690.5	133422/ 693	133447/ 695.5																																																										
	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					
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.																																																														

Note(s):

- SAR Testing for LTE was performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

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

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 and Special Subframe 7.

6.6. LTE Carrier Aggregation

DL Inter-Band (2CC Max)

E-UTRA CA configuration (BCS)	E-UTRA Band	Bandwidth						Max Aggregated BW
		1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
CA_5A-7A (0)(1)	Band 5	Yes	Yes	Yes	Yes			30 MHz
	Band 7				Yes	Yes	Yes	
	Band 5			Yes	Yes			30 MHz
	Band 7				Yes	Yes	Yes	

DL Inter-Band (3CC Max)

E-UTRA CA configuration (BCS)	E-UTRA Band	Bandwidth						Max Aggregated BW
		1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
CA_5A-7A-7A (0)	Band 5			Yes	Yes			30 MHz
	Band 7	See CA_7A-7A (3)						

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	
CA_7A-7A (0)(1)(2)(3)	Band 7	5	15	40 MHz
		10	10, 15	
		15	15, 20	
		20	20	
		5, 10, 15, 20	5, 10, 15, 20	40 MHz
		5, 10, 15, 20	5, 10	30 MHz
		10, 15, 20	10, 15, 20	40 MHz
CA_66A_66A (0)	Band 66	5, 10, 15, 20	5, 10, 15, 20	40 MHz

DL Intra-Band Contiguous

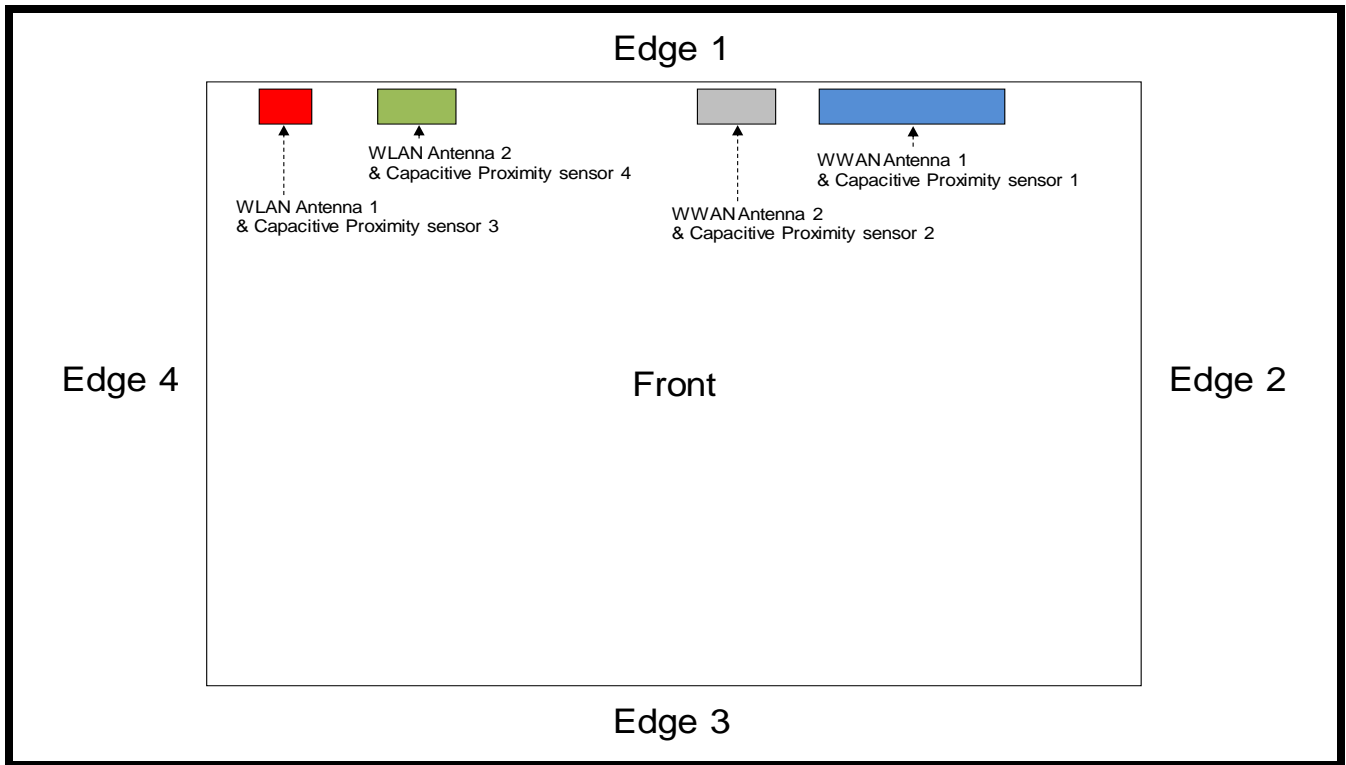
E-UTRA CA configuration (BCS)	E-UTRA Band	Allowed Channel BW Per Carrier (MHz)		Max Aggregated BW
		1st Carrier	2nd Carrier	
CA_66B (0)	Band 66	5	5, 10, 15	20 MHz
		10	5, 10	
		15	5	
CA_66C (0)	Band 66	5	20	40 MHz
		10	15, 20	
		15	10, 15, 20	
		20	5, 10, 15, 20	

Note(s):

- For supported channels, please refer to §6.4.
- This device supports DL 4x4 MIMO for LTE Band 7, please refer to §9.2.1 for detailed LTE CA combination with 4x4 DL MIMO.

6.7. Proximity sensor feature

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

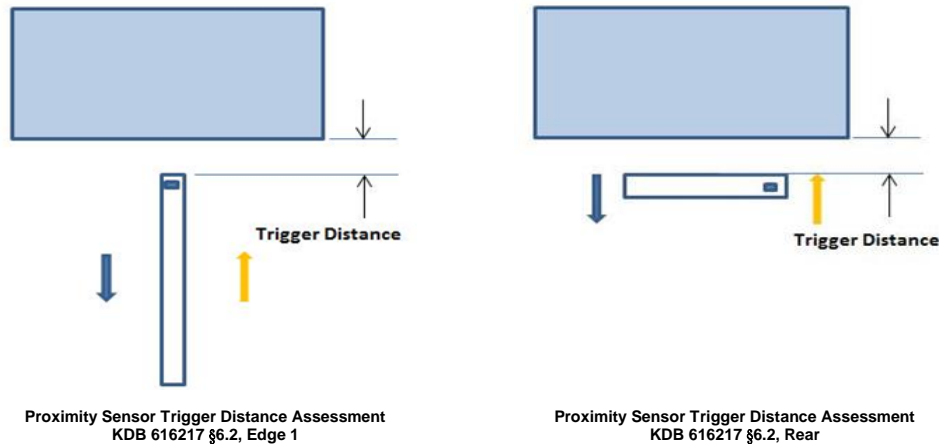


6.7.1. Proximity Sensor Triggering Distance (KDB 616217 §6.2)

Rear and Edge 1 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

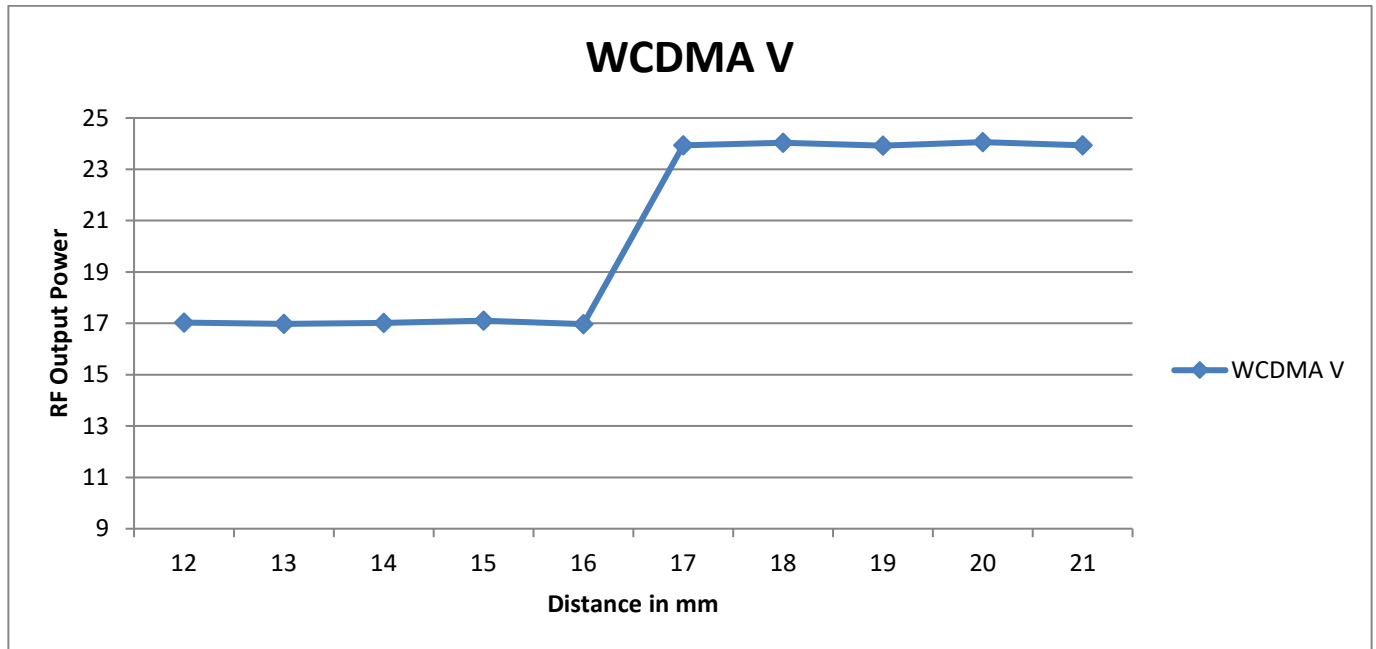
Antenna	Tissue simulating liquid	Trigger distance - Rear		Trigger distance – Edge 1	
		Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom
WWAN Ant.1	750 muscle	16 mm	16 mm	16 mm	16 mm
	850 muscle	16 mm	16 mm	16 mm	16 mm
	2300 muscle	16 mm	16 mm	16 mm	16 mm
	2600 muscle	16 mm	16 mm	16 mm	16 mm
WWAN Ant.2	1750 muscle	15 mm	15 mm	16 mm	16 mm
	1900 muscle	15 mm	15 mm	16 mm	16 mm
WLAN Ant.1	2450 muscle	6 mm	6 mm	N/A	N/A
	5000 muscle	6 mm	6 mm	N/A	N/A
WLAN Ant.2	2450 muscle	5 mm	5 mm	N/A	N/A
	5000 muscle	5 mm	5 mm	N/A	N/A

Proximity Sensor Triggering Distance Measurement Results

W-CDMA Band V (WWAN Ant.1)

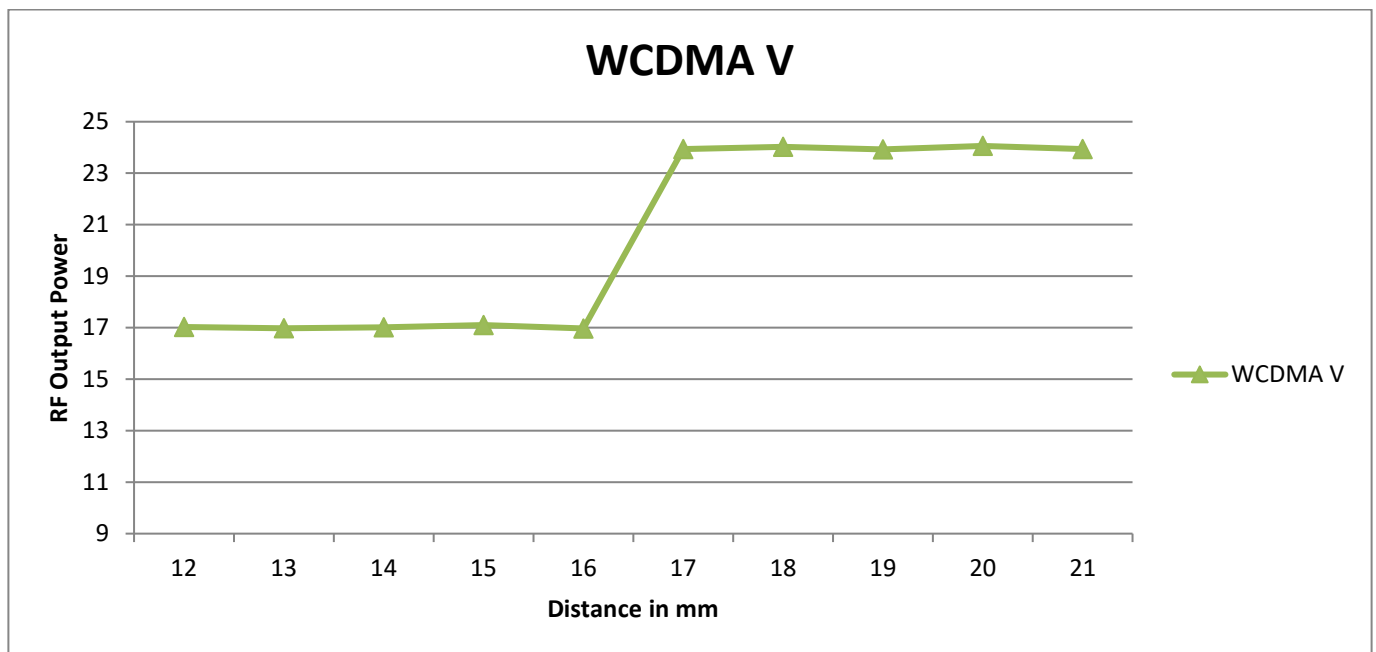
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	12	13	14	15	16	17	18	19	20	21
WCDMA V	17.0	17.0	17.0	17.1	17.0	23.9	24.0	23.9	24.1	23.9



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

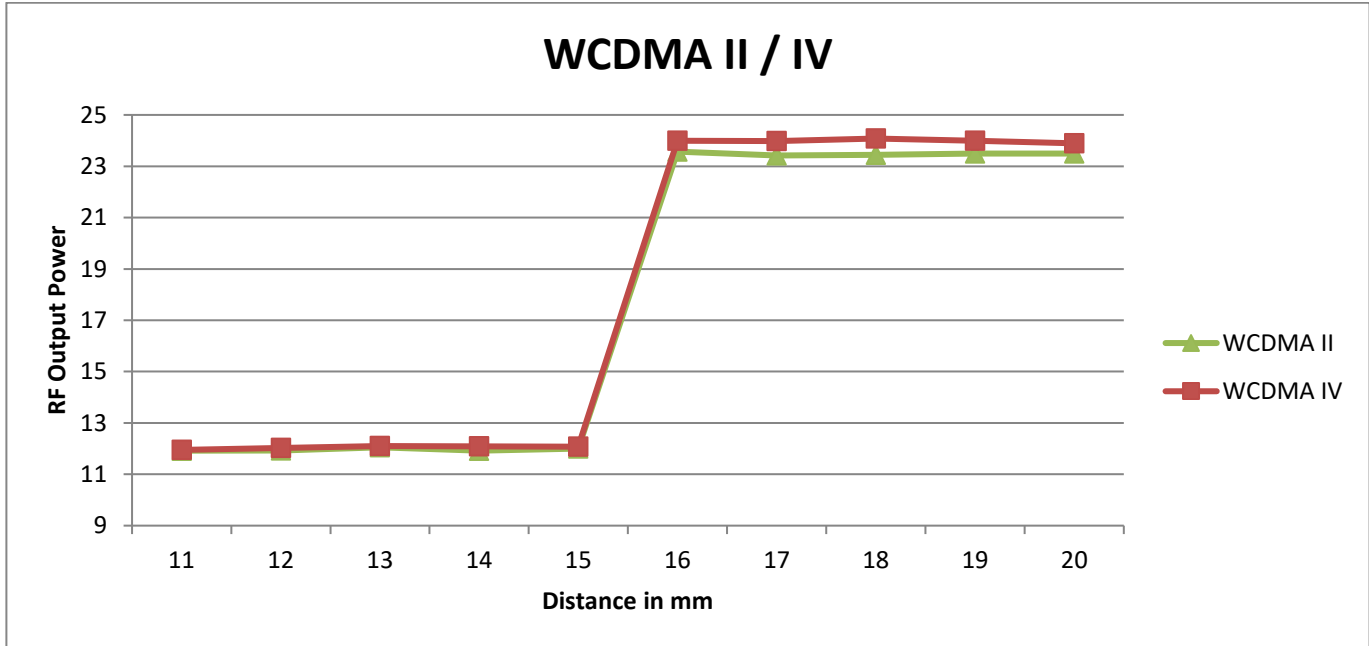
Distance to DUT vs. Output Power in dBm										
Distance (mm)	12	13	14	15	16	17	18	19	20	21
WCDMA V	17.0	17.0	17.0	17.1	17.0	23.9	24.0	23.9	24.1	23.9



W-CDMA Band II/IV (WWAN Ant.2)

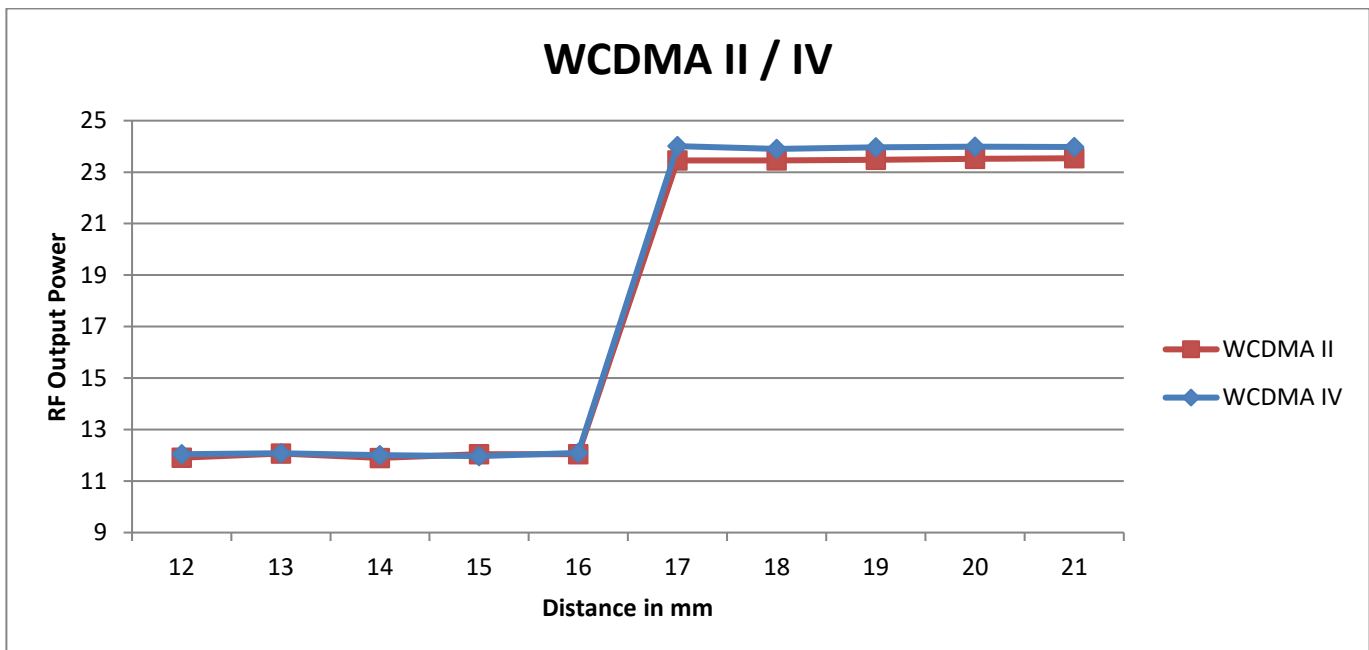
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	11	12	13	14	15	16	17	18	19	20
WCDMA II	11.9	11.9	12.1	11.9	12.0	23.6	23.4	23.4	23.5	23.5
WCDMA IV	12.0	12.0	12.1	12.1	12.1	24.0	24.0	24.1	24.0	23.9



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

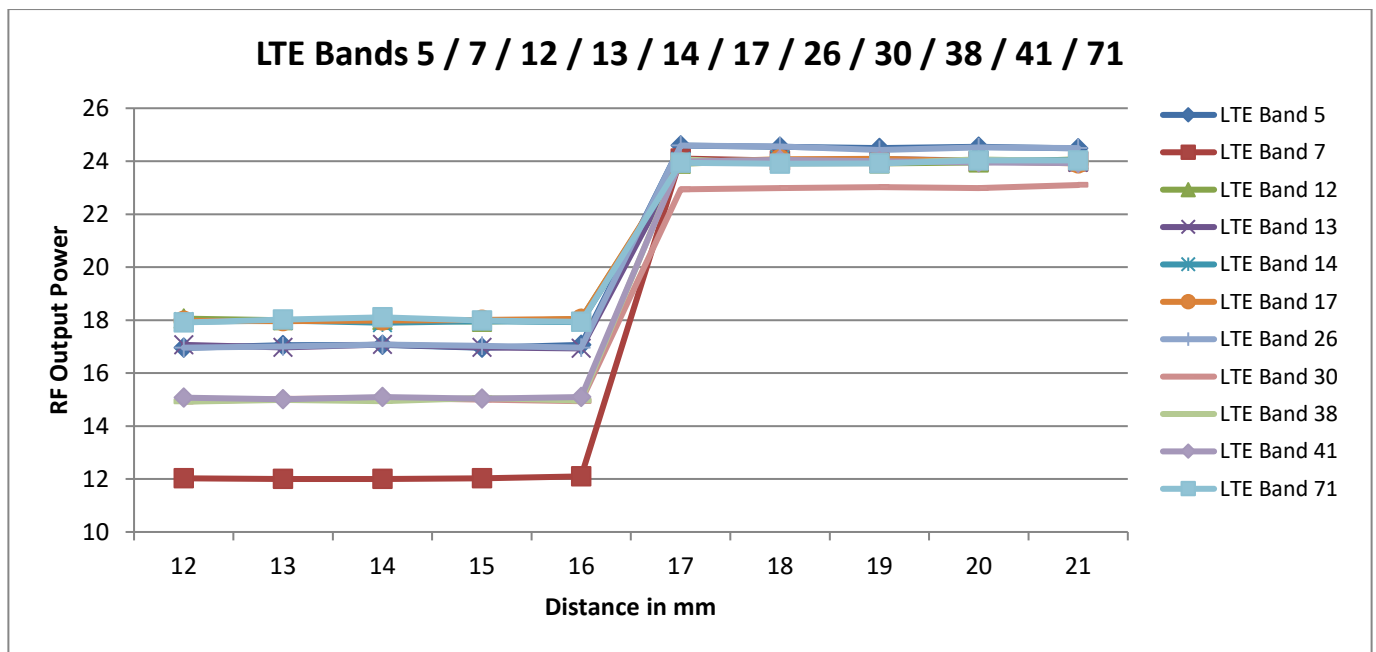
Distance to DUT vs. Output Power in dBm										
Distance (mm)	12	13	14	15	16	17	18	19	20	21
WCDMA II	11.9	12.1	11.9	12.1	12.0	23.5	23.5	23.5	23.5	23.5
WCDMA IV	12.1	12.1	12.0	12.0	12.1	24.0	23.9	24.0	24.0	24.0



LTE Band 5 / 12 / 13 / 14 / 17 / 26 / 30 / 38 / 41 / 71 (WWAN Ant.1)

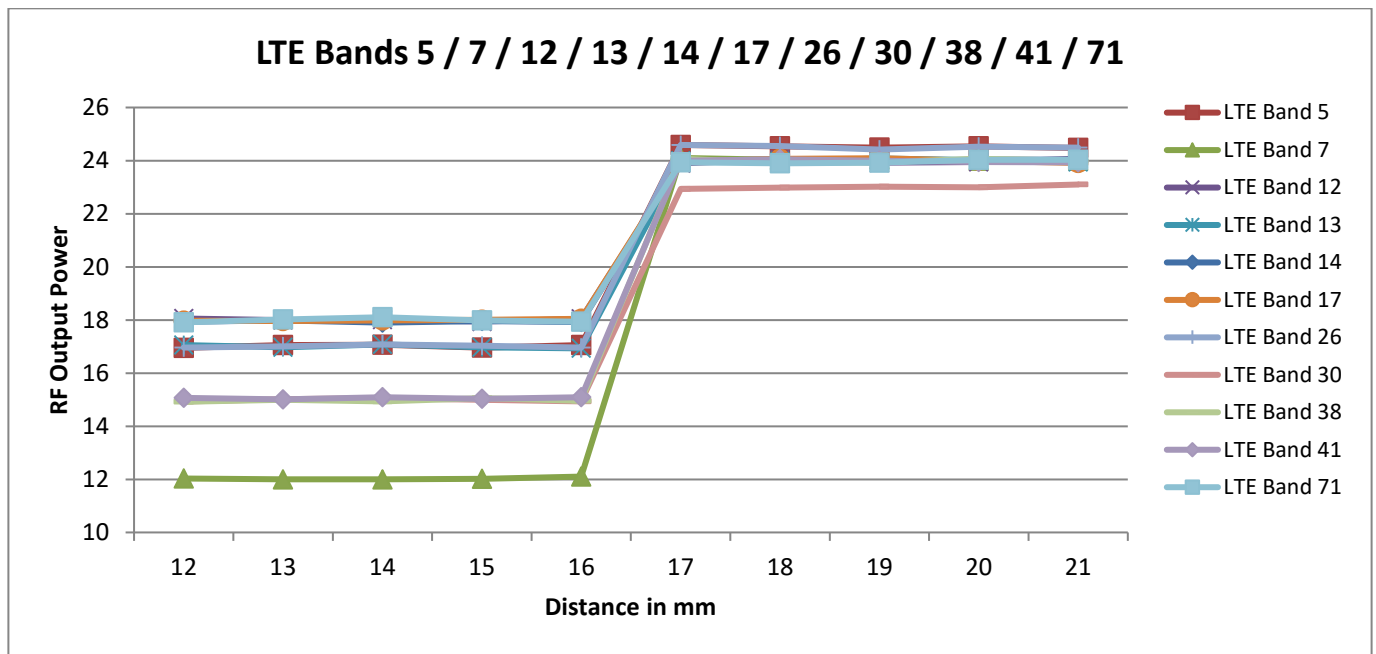
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	12	13	14	15	16	17	18	19	20	21
LTE Band 5	17.0	17.1	17.1	17.0	17.1	24.6	24.5	24.5	24.5	24.5
LTE Band 7	12.0	12.0	12.0	12.0	12.1	24.1	24.0	24.0	24.0	24.0
LTE Band 12	18.1	18.0	18.0	17.9	18.0	23.9	24.0	23.9	24.0	24.1
LTE Band 13	17.1	17.0	17.1	17.0	16.9	24.0	24.0	24.1	24.0	24.0
LTE Band 14	17.9	18.0	17.9	18.0	17.9	24.0	24.1	24.0	24.0	24.0
LTE Band 17	18.0	18.0	18.0	18.0	18.0	24.0	24.1	24.1	24.0	23.9
LTE Band 26	17.0	17.0	17.1	17.0	17.0	24.6	24.6	24.4	24.5	24.5
LTE Band 30	14.9	15.0	15.1	15.0	14.9	22.9	23.0	23.0	23.0	23.1
LTE Band 38	14.9	15.0	14.9	15.1	15.0	24.1	23.9	23.9	24.1	24.0
LTE Band 41	15.1	15.0	15.1	15.0	15.1	24.0	24.1	24.0	24.0	23.9
LTE Band 71	17.9	18.0	18.1	18.0	17.9	23.9	23.9	23.9	24.0	24.0



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

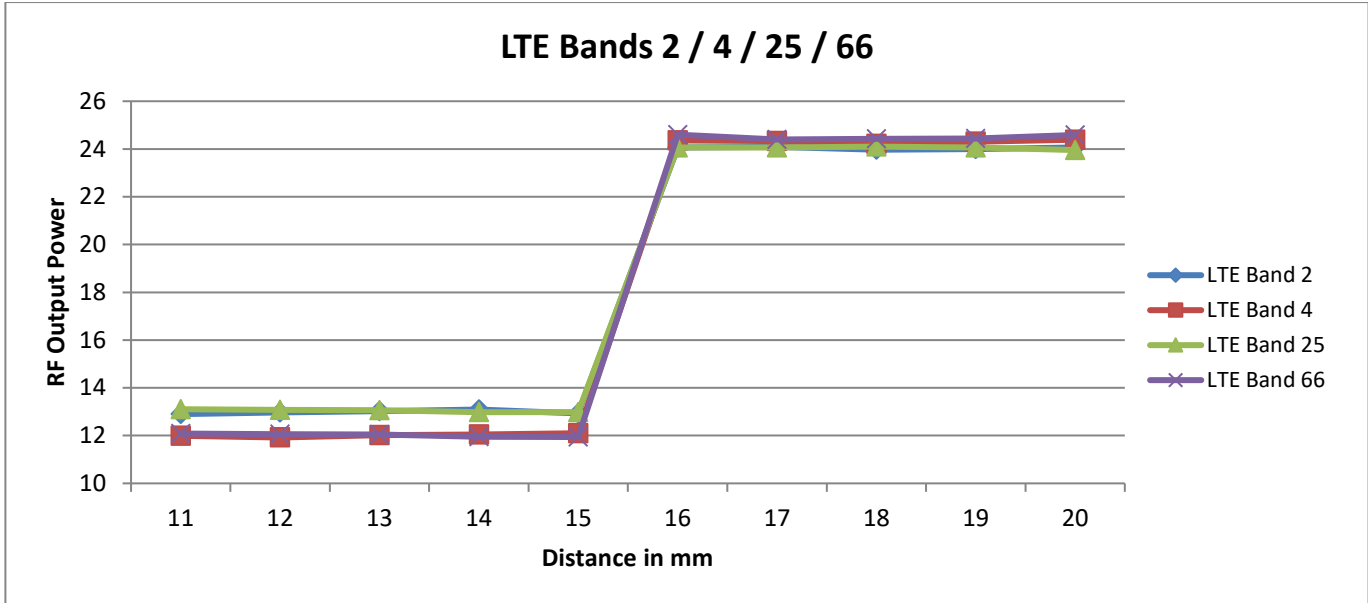
Distance to DUT vs. Output Power in dBm										
Distance (mm)	12	13	14	15	16	17	18	19	20	21
LTE Band 5	17.0	17.1	17.1	17.0	17.1	24.6	24.5	24.5	24.5	24.5
LTE Band 7	12.0	12.0	12.0	12.0	12.1	24.1	24.0	24.0	24.0	24.0
LTE Band 12	18.1	18.0	18.0	17.9	18.0	23.9	24.0	23.9	24.0	24.1
LTE Band 13	17.1	17.0	17.1	17.0	16.9	24.0	24.0	24.1	24.0	24.0
LTE Band 14	17.9	18.0	17.9	18.0	17.9	24.0	24.1	24.0	24.0	24.0
LTE Band 17	18.0	18.0	18.0	18.0	18.0	24.0	24.1	24.1	24.0	23.9
LTE Band 26	17.0	17.0	17.1	17.0	17.0	24.6	24.6	24.4	24.5	24.5
LTE Band 30	14.9	15.0	15.1	15.0	14.9	22.9	23.0	23.0	23.0	23.1
LTE Band 38	14.9	15.0	14.9	15.1	15.0	24.1	23.9	23.9	24.1	24.0
LTE Band 41	15.1	15.0	15.1	15.0	15.1	24.0	24.1	24.0	24.0	23.9
LTE Band 71	17.9	18.0	18.1	18.0	17.9	23.9	23.9	23.9	24.0	24.0



LTE Band 2 / 4 / 25 / 66 (WWAN Ant.2)

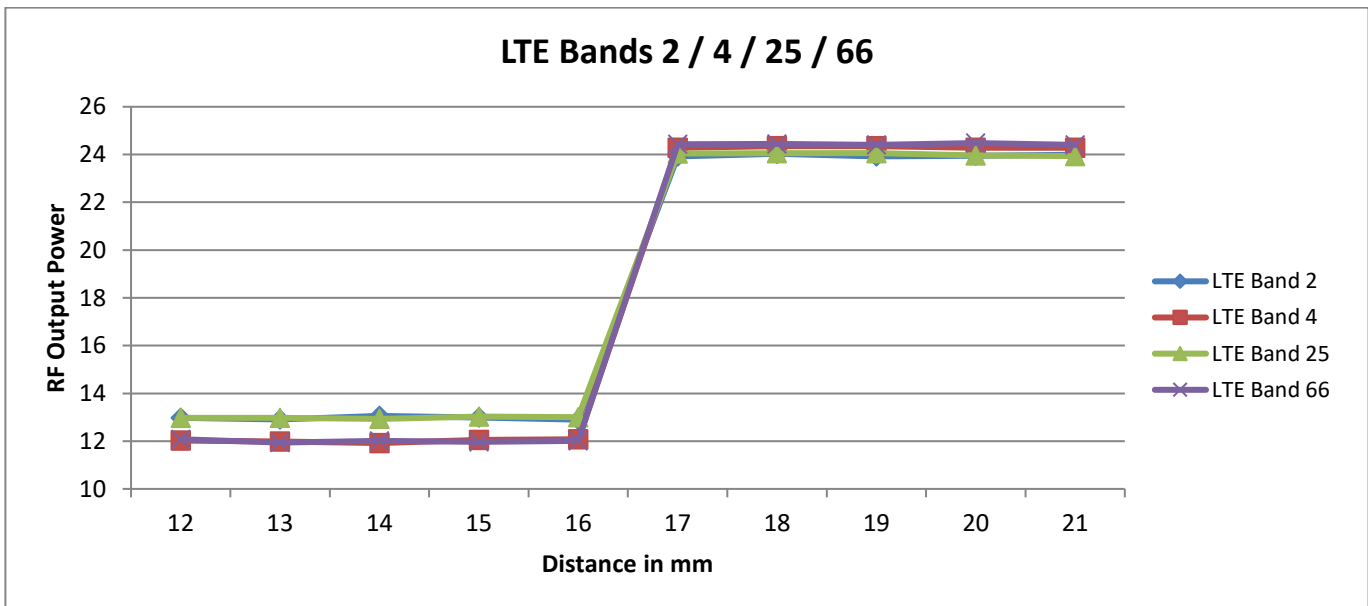
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	11	12	13	14	15	16	17	18	19	20
LTE Band 2	12.9	13.0	13.0	13.1	12.9	24.1	24.1	24.0	24.0	24.1
LTE Band 4	12.0	11.9	12.0	12.1	12.1	24.4	24.3	24.2	24.3	24.4
LTE Band 25	13.1	13.1	13.1	13.0	13.0	24.1	24.1	24.1	24.1	24.0
LTE Band 66	12.1	12.1	12.1	12.0	11.9	24.6	24.4	24.4	24.4	24.6



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

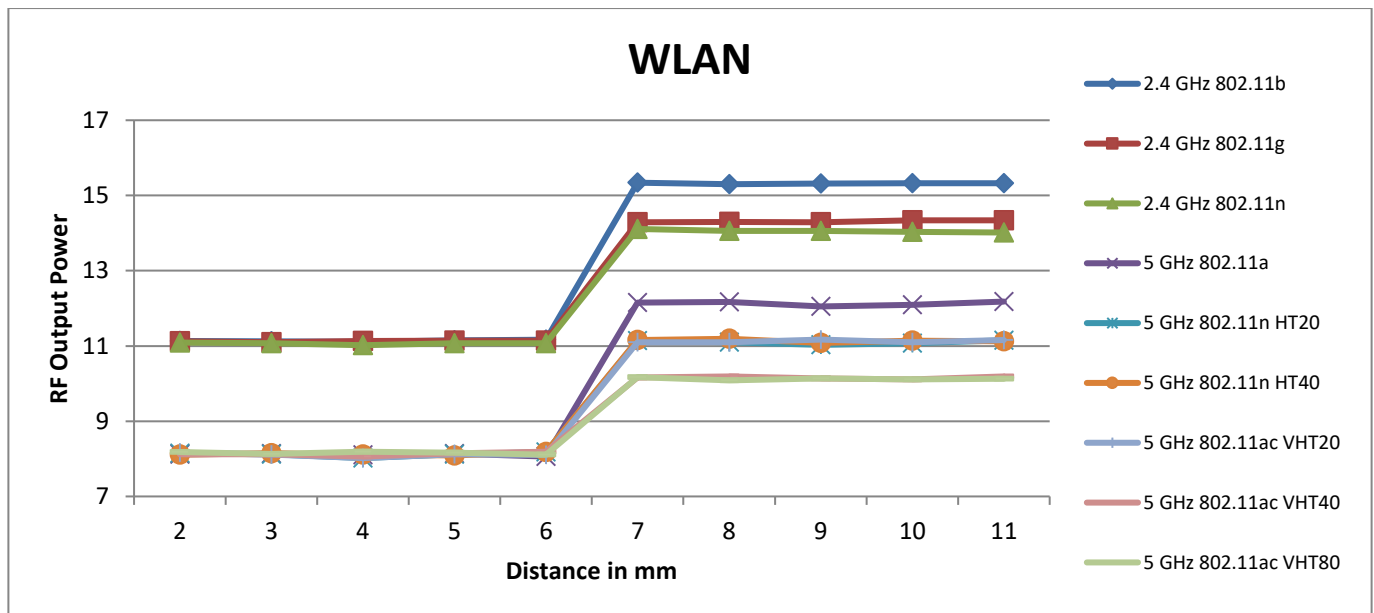
Distance to DUT vs. Output Power in dBm											
Distance (mm)	12	13	14	15	16	17	18	19	20	21	
LTE Band 2	13.0	12.9	13.1	13.0	12.9	23.9	24.0	23.9	24.0	24.0	
LTE Band 4	12.0	12.0	11.9	12.1	12.1	24.3	24.4	24.4	24.3	24.3	
LTE Band 25	13.0	13.0	12.9	13.0	13.0	24.0	24.1	24.1	24.0	23.9	
LTE Band 66	12.1	11.9	12.0	12.0	12.0	24.4	24.4	24.4	24.5	24.4	



WLAN 2.4GHz and 5GHz (WLAN Ant.1)

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

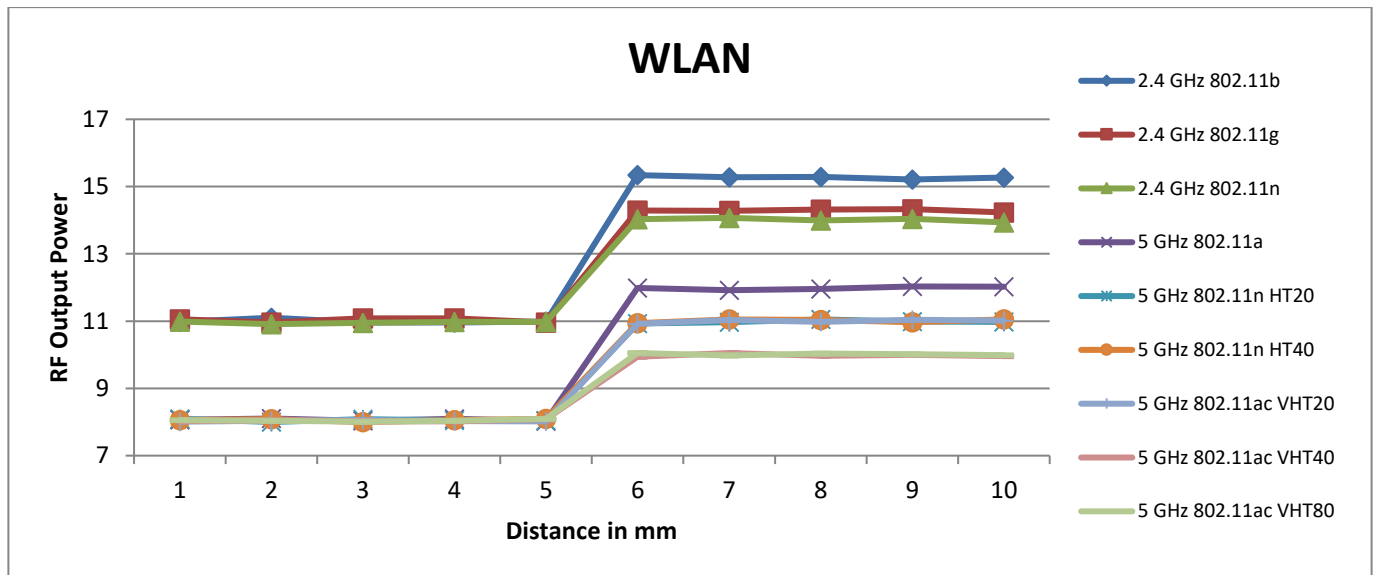
Distance to DUT vs. Output Power in dBm										
Distance	2	3	4	5	6	7	8	9	10	11
2.4 GHz 802.11b	11.1	11.1	11.1	11.2	11.2	15.3	15.3	15.3	15.3	15.3
2.4 GHz 802.11g	11.1	11.1	11.1	11.1	11.1	14.3	14.3	14.3	14.3	14.3
2.4 GHz 802.11n	11.1	11.1	11.0	11.1	11.1	14.1	14.1	14.1	14.0	14.0
5 GHz 802.11a	8.1	8.1	8.1	8.1	8.1	12.2	12.2	12.1	12.1	12.2
5 GHz 802.11n HT20	8.2	8.1	8.0	8.1	8.2	11.1	11.1	11.0	11.1	11.2
5 GHz 802.11n HT40	8.1	8.2	8.1	8.1	8.2	11.2	11.2	11.1	11.1	11.1
5 GHz 802.11ac VHT20	8.2	8.1	8.0	8.1	8.1	11.1	11.1	11.2	11.1	11.2
5 GHz 802.11ac VHT40	8.1	8.1	8.1	8.2	8.2	10.2	10.2	10.1	10.1	10.2
5 GHz 802.11ac VHT80	8.2	8.1	8.2	8.2	8.1	10.2	10.1	10.1	10.1	10.1



WLAN 2.4GHz and 5GHz (WLAN Ant.2)

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

Distance to DUT vs. Output Power in dBm										
Distance (mm)	1	2	3	4	5	6	7	8	9	10
2.4 GHz 802.11b	11.0	11.1	11.0	11.0	11.0	15.3	15.3	15.3	15.2	15.3
2.4 GHz 802.11g	11.1	11.0	11.1	11.1	11.0	14.3	14.3	14.3	14.3	14.2
2.4 GHz 802.11n	11.0	10.9	11.0	11.0	11.0	14.0	14.1	14.0	14.0	13.9
5 GHz 802.11a	8.1	8.1	8.0	8.1	8.0	12.0	11.9	12.0	12.0	12.0
5 GHz 802.11n HT20	8.1	8.0	8.1	8.1	8.1	10.9	11.0	11.1	11.0	11.0
5 GHz 802.11n HT40	8.1	8.1	8.0	8.1	8.1	10.9	11.1	11.0	11.0	11.1
5 GHz 802.11ac VHT20	8.0	8.0	8.1	8.0	8.0	10.9	11.0	11.0	11.0	11.0
5 GHz 802.11ac VHT40	8.0	8.1	8.0	8.0	8.1	9.9	10.1	10.0	10.0	10.0
5 GHz 802.11ac VHT80	8.1	8.0	8.0	8.0	8.1	10.1	10.0	10.0	10.0	10.0



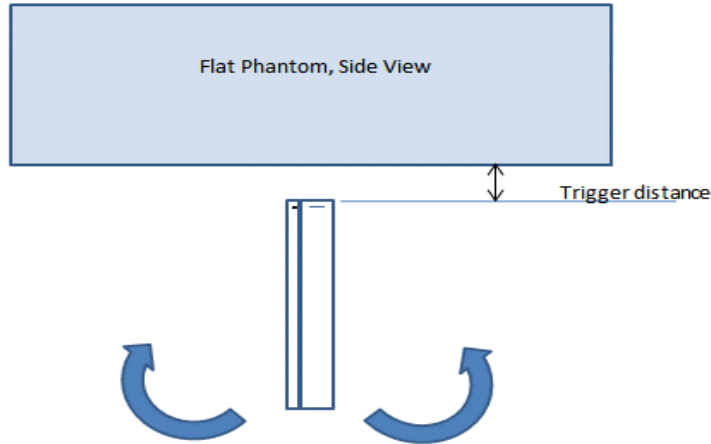
6.7.2. Proximity Sensor Coverage (KDB 616217 §6.3)

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

6.7.3. 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) 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	16 mm	16 mm	On	On	On	On	On	On	On	On	On	On	On
850	16 mm	16 mm	On	On	On	On	On	On	On	On	On	On	On
1750	16 mm	16 mm	On	On	On	On	On	On	On	On	On	On	On
1900	16 mm	16 mm	On	On	On	On	On	On	On	On	On	On	On
2300	16 mm	16 mm	On	On	On	On	On	On	On	On	On	On	On
2600	16 mm	16 mm	On	On	On	On	On	On	On	On	On	On	On

6.7.4. 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 (Ant.1)	Rear	16 mm	N/A	N/A	15 mm
	Edge 1	16 mm	N/A	16 mm	15 mm
WWAN (Ant.2)	Rear	15 mm	N/A	N/A	14 mm
	Edge 1	16 mm	N/A	16 mm	15 mm
WLAN (Ant.1)	Rear	6 mm	N/A	N/A	5 mm
WLAN (Ant.2)	Rear	5 mm	N/A	N/A	4 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	W-CDMA Band II	1907.6	24.50	282	2.7	3.4	110	189	154		77.9	77.9	> 50 mm	> 50 mm	> 50 mm	
Cellular	W-CDMA Band IV	1752.6	25.00	316	2.7	3.4	110	189	154		83.7	83.7	> 50 mm	> 50 mm	> 50 mm	
Cellular	W-CDMA Band V	846.6	25.00	316	2.7	3.4	44	189	189		58.2	58.2	6.6	> 50 mm	> 50 mm	
Cellular	LTE Band 2	1900	25.00	316	2.7	3.4	110	189	154		87.1	87.1	> 50 mm	> 50 mm	> 50 mm	
Cellular	LTE Band 4	1745	25.30	339	2.7	3.4	110	189	154		89.6	89.6	> 50 mm	> 50 mm	> 50 mm	
Cellular	LTE Band 5	844	25.50	355	2.7	3.4	44	189	189		65.2	65.2	7.4	> 50 mm	> 50 mm	
Cellular	LTE Band 7	2560	25.00	316	2.7	3.4	44	189	189		101.1	101.1	11.5	> 50 mm	> 50 mm	
Cellular	LTE Band 12	711	25.00	316	2.7	3.4	44	189	189		53.3	53.3	6.1	> 50 mm	> 50 mm	
Cellular	LTE Band 13	782	25.00	316	2.7	3.4	44	189	189		55.9	55.9	6.4	> 50 mm	> 50 mm	
Cellular	LTE Band 14	793	25.00	316	2.7	3.4	44	189	189		56.3	56.3	6.4	> 50 mm	> 50 mm	
Cellular	LTE Band 17	711	25.00	316	2.7	3.4	44	189	189		53.3	53.3	6.1	> 50 mm	> 50 mm	
Cellular	LTE Band 25	1905	25.00	316	2.7	3.4	110	189	154		87.2	87.2	> 50 mm	> 50 mm	> 50 mm	
Cellular	LTE Band 26	841.5	25.50	355	2.7	3.4	44	189	189		65.1	65.1	7.4	> 50 mm	> 50 mm	
Cellular	LTE Band 30	2310	24.00	251	2.7	3.4	44	189	189		76.3	76.3	8.7	> 50 mm	> 50 mm	
Cellular	LTE Band 38	2610	25.00	316	2.7	3.4	44	189	189		102.1	102.1	11.6	> 50 mm	> 50 mm	
Cellular	LTE Band 41	2680	25.00	316	2.7	3.4	44	189	189		103.5	103.5	11.8	> 50 mm	> 50 mm	
Cellular	LTE Band 66	1770	25.50	355	2.7	3.4	110	189	154		94.5	94.5	> 50 mm	> 50 mm	> 50 mm	
Cellular	LTE Band 71	687.9	25.00	316	2.7	3.4	44	189	189		52.4	52.4	6	> 50 mm	> 50 mm	
Power Back-off, Proximity Sensor On																
Cellular	W-CDMA Band II	1907.6	13.50	22	2.7	3.4					6.1	6.1				
Cellular	W-CDMA Band IV	1752.6	13.50	22	2.7	3.4					5.8	5.8				
Cellular	W-CDMA Band V	846.6	18.50	71	2.7	3.4					13.1	13.1				
Cellular	LTE Band 2	1900	14.00	25	2.7	3.4					6.9	6.9				
Cellular	LTE Band 4	1745	13.00	20	2.7	3.4					5.3	5.3				
Cellular	LTE Band 5	844	18.00	63	2.7	3.4					11.6	11.6				
Cellular	LTE Band 7	2560	13.00	20	2.7	3.4					6.4	6.4				
Cellular	LTE Band 12	711	19.00	79	2.7	3.4					13.3	13.3				
Cellular	LTE Band 13	782	18.00	63	2.7	3.4					11.1	11.1				
Cellular	LTE Band 14	793	19.00	79	2.7	3.4					14.1	14.1				
Cellular	LTE Band 17	711	19.00	79	2.7	3.4					13.3	13.3				
Cellular	LTE Band 25	1905	14.00	25	2.7	3.4					6.9	6.9				
Cellular	LTE Band 26	841.5	18.00	63	2.7	3.4					11.6	11.6				
Cellular	LTE Band 30	2310	16.00	40	2.7	3.4					12.2	12.2				
Cellular	LTE Band 38	2610	16.00	40	2.7	3.4					12.9	12.9				
Cellular	LTE Band 41	2680	16.00	40	2.7	3.4					13.1	13.1				
Cellular	LTE Band 66	1770	13.00	20	2.7	3.4					5.3	5.3				
Cellular	LTE Band 71	687.9	19.00	79	2.7	3.4					13.1	13.1				

Note(s):

1. According to KDB 447498, if the calculated threshold value is >3 then SAR testing is required.

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	W-CDMA Band II	1907.6	24.50	282	2.7	3.4	110	189	154		< 50 mm	< 50 mm	708.6 mW -EXEMPT-	1498.6 mW -EXEMPT-	1148.6 mW -EXEMPT-	
Cellular	W-CDMA Band IV	1752.6	25.00	316	2.7	3.4	110	189	154		< 50 mm	< 50 mm	713.3 mW -EXEMPT-	1503.3 mW -EXEMPT-	1153.3 mW -EXEMPT-	
Cellular	W-CDMA Band V	846.6	25.00	316	2.7	3.4	44	189	189		< 50 mm	< 50 mm	< 50 mm	947.5 mW -EXEMPT-	947.5 mW -EXEMPT-	
Cellular	LTE Band 2	1900	25.00	316	2.7	3.4	110	189	154		< 50 mm	< 50 mm	708.8 mW -EXEMPT-	1498.8 mW -EXEMPT-	1148.8 mW -EXEMPT-	
Cellular	LTE Band 4	1745	25.30	339	2.7	3.4	110	189	154		< 50 mm	< 50 mm	713.6 mW -EXEMPT-	1503.6 mW -EXEMPT-	1153.6 mW -EXEMPT-	
Cellular	LTE Band 5	844	25.50	355	2.7	3.4	44	189	189		< 50 mm	< 50 mm	< 50 mm	945.4 mW -EXEMPT-	945.4 mW -EXEMPT-	
Cellular	LTE Band 7	2560	25.00	316	2.7	3.4	44	189	189		< 50 mm	< 50 mm	< 50 mm	1483.8 mW -EXEMPT-	1483.8 mW -EXEMPT-	
Cellular	LTE Band 12	711	25.00	316	2.7	3.4	44	189	189		< 50 mm	< 50 mm	< 50 mm	836.8 mW -EXEMPT-	836.8 mW -EXEMPT-	
Cellular	LTE Band 13	782	25.00	316	2.7	3.4	44	189	189		< 50 mm	< 50 mm	< 50 mm	894.3 mW -EXEMPT-	894.3 mW -EXEMPT-	
Cellular	LTE Band 14	793	25.00	316	2.7	3.4	44	189	189		< 50 mm	< 50 mm	< 50 mm	903.3 mW -EXEMPT-	903.3 mW -EXEMPT-	
Cellular	LTE Band 17	711	25.00	316	2.7	3.4	44	189	189		< 50 mm	< 50 mm	< 50 mm	836.8 mW -EXEMPT-	836.8 mW -EXEMPT-	
Cellular	LTE Band 25	1905	25.00	316	2.7	3.4	110	189	154		< 50 mm	< 50 mm	708.7 mW -EXEMPT-	1498.7 mW -EXEMPT-	1148.7 mW -EXEMPT-	
Cellular	LTE Band 26	841.5	25.50	355	2.7	3.4	44	189	189		< 50 mm	< 50 mm	< 50 mm	943.3 mW -EXEMPT-	943.3 mW -EXEMPT-	
Cellular	LTE Band 30	2310	24.00	251	2.7	3.4	44	189	189		< 50 mm	< 50 mm	< 50 mm	1488.7 mW -EXEMPT-	1488.7 mW -EXEMPT-	
Cellular	LTE Band 38	2610	25.00	316	2.7	3.4	44	189	189		< 50 mm	< 50 mm	< 50 mm	1482.8 mW -EXEMPT-	1482.8 mW -EXEMPT-	
Cellular	LTE Band 41	2680	25.00	316	2.7	3.4	44	189	189		< 50 mm	< 50 mm	< 50 mm	1481.6 mW -EXEMPT-	1481.6 mW -EXEMPT-	
Cellular	LTE Band 66	1770	25.50	355	2.7	3.4	110	189	154		< 50 mm	< 50 mm	712.7 mW -EXEMPT-	1502.7 mW -EXEMPT-	1152.7 mW -EXEMPT-	
Cellular	LTE Band 71	687.9	25.00	316	2.7	3.4	44	189	189		< 50 mm	< 50 mm	< 50 mm	818.3 mW -EXEMPT-	818.3 mW -EXEMPT-	
Power Back-off, Proximity Sensor On																
Cellular	W-CDMA Band II	1907.6	13.50	22	2.7	3.4					< 50 mm	< 50 mm				
Cellular	W-CDMA Band IV	1752.6	13.50	22	2.7	3.4					< 50 mm	< 50 mm				
Cellular	W-CDMA Band V	846.6	18.50	71	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 2	1900	14.00	25	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 4	1745	13.00	20	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 5	844	18.00	63	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 7	2560	13.00	20	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 12	711	19.00	79	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 13	782	18.00	63	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 14	793	19.00	79	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 17	711	19.00	79	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 25	1905	14.00	25	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 26	841.5	18.00	63	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 30	2310	16.00	40	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 38	2610	16.00	40	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 41	2680	16.00	40	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 66	1770	13.00	20	2.7	3.4					< 50 mm	< 50 mm				
Cellular	LTE Band 71	687.9	19.00	79	2.7	3.4					< 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

WLAN Ant.1 < 50mm to adjacent edges

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															
Wi-Fi 2.4 GHz	2462	16.50	45	2.7	3.4	253	189	18		14.1 -MEASURE-	14.1 -MEASURE-	> 50 mm	> 50 mm	3.9 -MEASURE-	
Wi-Fi 5.3 GHz	5320	13.00	20	2.7	3.4	253	189	18		9.2 -MEASURE-	9.2 -MEASURE-	> 50 mm	> 50 mm	2.6 -EXEMPT-	
Wi-Fi 5.5 GHz	5700	13.00	20	2.7	3.4	253	189	18		9.5 -MEASURE-	9.5 -MEASURE-	> 50 mm	> 50 mm	2.7 -EXEMPT-	
Wi-Fi 5.8 GHz	5825	13.00	20	2.7	3.4	253	189	18		9.7 -MEASURE-	9.7 -MEASURE-	> 50 mm	> 50 mm	2.7 -EXEMPT-	
Bluetooth	2480	10.00	10	2.7	3.4	253	189	18		3.1 -MEASURE-	3.1 -MEASURE-	> 50 mm	> 50 mm	0.9 -EXEMPT-	
Power Back-off, Proximity Sensor On															
Wi-Fi 2.4 GHz	2462	12.00	16	2.7						5 -MEASURE-					
Wi-Fi 5.3 GHz	5320	9.00	8	2.7						3.7 -MEASURE-					
Wi-Fi 5.5 GHz	5700	9.00	8	2.7						3.8 -MEASURE-					
Wi-Fi 5.8 GHz	5825	9.00	8	2.7						3.9 -MEASURE-					

WLAN Ant.2 < 50mm to adjacent edges

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															
Wi-Fi 2.4 GHz	2462	16.50	45	2.7	3.4	209	189	60		14.1 -MEASURE-	14.1 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Wi-Fi 5.3 GHz	5320	13.00	20	2.7	3.4	209	189	60		9.2 -MEASURE-	9.2 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Wi-Fi 5.5 GHz	5700	13.00	20	2.7	3.4	209	189	60		9.5 -MEASURE-	9.5 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Wi-Fi 5.8 GHz	5825	13.00	20	2.7	3.4	209	189	60		9.7 -MEASURE-	9.7 -MEASURE-	> 50 mm	> 50 mm	> 50 mm	
Power Back-off, Proximity Sensor On															
Wi-Fi 2.4 GHz	2462	12.00	16	2.7						5 -MEASURE-					
Wi-Fi 5.3 GHz	5320	9.00	8	2.7						3.7 -MEASURE-					
Wi-Fi 5.5 GHz	5700	9.00	8	2.7						3.8 -MEASURE-					
Wi-Fi 5.8 GHz	5825	9.00	8	2.7						3.9 -MEASURE-					

Note(s):

1. According to KDB 447498, if the calculated threshold value is >3 then SAR testing is required.

WLAN Ant.1 > 50mm to adjacent edges

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															
Wi-Fi 2.4 GHz	2462	16.50	45	2.7	3.4	253	189	18		< 50 mm	< 50 mm	2125.6 mW -EXEMPT-	1485.6 mW -EXEMPT-	< 50 mm	
Wi-Fi 5.3 GHz	5320	13.00	20	2.7	3.4	253	189	18		< 50 mm	< 50 mm	2095 mW -EXEMPT-	1455 mW -EXEMPT-	< 50 mm	
Wi-Fi 5.5 GHz	5700	13.00	20	2.7	3.4	253	189	18		< 50 mm	< 50 mm	2092.8 mW -EXEMPT-	1452.8 mW -EXEMPT-	< 50 mm	
Wi-Fi 5.8 GHz	5825	13.00	20	2.7	3.4	253	189	18		< 50 mm	< 50 mm	2092.2 mW -EXEMPT-	1452.2 mW -EXEMPT-	< 50 mm	
Bluetooth	2480	10.00	10	2.7	3.4	253	189	18		< 50 mm	< 50 mm	2125.3 mW -EXEMPT-	1485.3 mW -EXEMPT-	< 50 mm	
Power Back-off, Proximity Sensor On															
Wi-Fi 2.4 GHz	2462	12.00	16	2.7						< 50 mm					
Wi-Fi 5.3 GHz	5320	9.00	8	2.7						< 50 mm					
Wi-Fi 5.5 GHz	5700	9.00	8	2.7						< 50 mm					
Wi-Fi 5.8 GHz	5825	9.00	8	2.7						< 50 mm					

WLAN Ant.2 > 50mm to adjacent edges

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															
Wi-Fi 2.4 GHz	2462	16.50	45	2.7	3.4	209	189	60		< 50 mm	< 50 mm	1685.6 mW -EXEMPT-	1485.6 mW -EXEMPT-	195.6 mW -EXEMPT-	
Wi-Fi 5.3 GHz	5320	13.00	20	2.7	3.4	209	189	60		< 50 mm	< 50 mm	1655 mW -EXEMPT-	1455 mW -EXEMPT-	165 mW -EXEMPT-	
Wi-Fi 5.5 GHz	5700	13.00	20	2.7	3.4	209	189	60		< 50 mm	< 50 mm	1652.8 mW -EXEMPT-	1452.8 mW -EXEMPT-	162.8 mW -EXEMPT-	
Wi-Fi 5.8 GHz	5825	13.00	20	2.7	3.4	209	189	60		< 50 mm	< 50 mm	1652.2 mW -EXEMPT-	1452.2 mW -EXEMPT-	162.2 mW -EXEMPT-	
Power Back-off, Proximity Sensor On															
Wi-Fi 2.4 GHz	2462	12.00	16	2.7						< 50 mm					
Wi-Fi 5.3 GHz	5320	9.00	8	2.7						< 50 mm					
Wi-Fi 5.5 GHz	5700	9.00	8	2.7						< 50 mm					
Wi-Fi 5.8 GHz	5825	9.00	8	2.7						< 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

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
			(Top Edge)	(Right Edge)	(Bottom Edge)	(Left Edge)
W-CDMA Band II	OFF	Yes	Yes	No	No	No
	ON	Yes	Yes	No	No	No
W-CDMA Band IV	OFF	Yes	Yes	No	No	No
	ON	Yes	Yes	No	No	No
W-CDMA Band V	OFF	Yes	Yes	Yes	No	No
	ON	Yes	Yes	No	No	No
LTE Band 2	OFF	Yes	Yes	No	No	No
	ON	Yes	Yes	No	No	No
LTE Band 4	OFF	Yes	Yes	No	No	No
	ON	Yes	Yes	No	No	No
LTE Band 5	OFF	Yes	Yes	Yes	No	No
	ON	Yes	Yes	No	No	No
LTE Band 7	OFF	Yes	Yes	Yes	No	No
	ON	Yes	Yes	No	No	No
LTE Band 12	OFF	Yes	Yes	Yes	No	No
	ON	Yes	Yes	No	No	No
LTE Band 13	OFF	Yes	Yes	Yes	No	No
	ON	Yes	Yes	No	No	No
LTE Band 14	OFF	Yes	Yes	Yes	No	No
	ON	Yes	Yes	No	No	No
LTE Band 17	OFF	Yes	Yes	Yes	No	No
	ON	Yes	Yes	No	No	No
LTE Band 25	OFF	Yes	Yes	No	No	No
	ON	Yes	Yes	No	No	No
LTE Band 26	OFF	Yes	Yes	Yes	No	No
	ON	Yes	Yes	No	No	No
LTE Band 30	OFF	Yes	Yes	Yes	No	No
	ON	Yes	Yes	No	No	No
LTE Band 38	OFF	Yes	Yes	Yes	No	No
	ON	Yes	Yes	No	No	No
LTE Band 41	OFF	Yes	Yes	Yes	No	No
	ON	Yes	Yes	No	No	No
LTE Band 66	OFF	Yes	Yes	No	No	No
	ON	Yes	Yes	No	No	No
LTE Band 71	OFF	Yes	Yes	Yes	No	No
	ON	Yes	Yes	No	No	No
Wi-Fi 2.4 GHz SISO (Ant.1)	OFF	Yes	Yes	No	No	Yes
	ON	Yes	No	No	No	No
Wi-Fi 2.4 GHz SISO (Ant.2)	OFF	Yes	Yes	No	No	No
	ON	Yes	No	No	No	No
Wi-Fi 2.4 GHz MIMO	OFF	Yes	Yes	No	No	No
	ON	Yes	No	No	No	No
Wi-Fi 5 GHz SISO (Ant.1)	OFF	Yes	Yes	No	No	No
	ON	Yes	No	No	No	No
Wi-Fi 5 GHz SISO (Ant.2)	OFF	Yes	Yes	No	No	No
	ON	Yes	No	No	No	No
Wi-Fi 5 GHz MIMO	OFF	Yes	Yes	No	No	No
	ON	Yes	No	No	No	No
Bluetooth	OFF	Yes	Yes	No	No	No

Note(s):

1. Yes = Testing is required. No = Testing is not required.
2. This device support keyboard accessory that doesn't have transmitter. So we don't consider to keyboard alone. And for bottom of tablet with keyboard as laptop, all antennas to bottom distance is more longer than Edge 3 of tablet. So we don't consider to bottom test about tablet with keyboard.

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)	Body	
	ϵ_r	σ (S/m)
150	61.9	0.80
300	58.2	0.92
450	56.7	0.94
835	55.2	0.97
900	55.0	1.05
915	55.0	1.06
1450	54.0	1.30
1610	53.8	1.40
1800 – 2000	53.3	1.52
2450	52.7	1.95
3000	52.0	2.73
5000	49.3	5.07
5100	49.1	5.18
5200	49.0	5.30
5300	48.9	5.42
5400	48.7	5.53
5500	48.6	5.65
5600	48.5	5.77
5700	48.3	5.88
5800	48.2	6.00

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 ±(%)	
07-09-2018	Body 835	e'	53.2300	Relative Permittivity (ϵ_r):	53.23	55.20	-3.57	5
		e"	21.3900	Conductivity (σ):	0.99	0.97	2.38	5
	Body 820	e'	53.3700	Relative Permittivity (ϵ_r):	53.37	55.28	-3.45	5
		e"	21.4500	Conductivity (σ):	0.98	0.97	0.99	5
	Body 850	e'	53.1000	Relative Permittivity (ϵ_r):	53.10	55.16	-3.73	5
		e"	21.3400	Conductivity (σ):	1.01	0.99	2.17	5
07-10-2018	Body 2250	e'	51.6500	Relative Permittivity (ϵ_r):	51.65	52.97	-2.49	5
		e"	14.1100	Conductivity (σ):	1.77	1.76	0.51	5
	Body 2300	e'	51.5100	Relative Permittivity (ϵ_r):	51.51	52.90	-2.64	5
		e"	14.2400	Conductivity (σ):	1.82	1.80	0.98	5
	Body 2350	e'	51.3800	Relative Permittivity (ϵ_r):	51.38	52.84	-2.76	5
		e"	14.3300	Conductivity (σ):	1.87	1.85	1.17	5
07-10-2018	Body 2600	e'	50.6900	Relative Permittivity (ϵ_r):	50.69	52.51	-3.47	5
		e"	14.9800	Conductivity (σ):	2.17	2.16	0.22	5
	Body 2500	e'	51.0200	Relative Permittivity (ϵ_r):	51.02	52.64	-3.07	5
		e"	14.7300	Conductivity (σ):	2.05	2.02	1.35	5
	Body 2700	e'	50.3700	Relative Permittivity (ϵ_r):	50.37	52.38	-3.85	5
		e"	15.1600	Conductivity (σ):	2.28	2.30	-1.10	5
07-24-2017	Body 2450	e'	53.8900	Relative Permittivity (ϵ_r):	53.89	52.70	2.26	5
		e"	14.5600	Conductivity (σ):	1.98	1.95	1.72	5
	Body 2400	e'	54.0000	Relative Permittivity (ϵ_r):	54.00	52.77	2.33	5
		e"	14.3900	Conductivity (σ):	1.92	1.90	1.17	5
	Body 2480	e'	53.8000	Relative Permittivity (ϵ_r):	53.80	52.66	2.16	5
		e"	14.6600	Conductivity (σ):	2.02	1.99	1.48	5
08-13-2018	Body 2450	e'	53.2800	Relative Permittivity (ϵ_r):	53.28	52.70	1.10	5
		e"	14.2300	Conductivity (σ):	1.94	1.95	-0.59	5
	Body 2400	e'	53.3500	Relative Permittivity (ϵ_r):	53.35	52.77	1.09	5
		e"	14.0800	Conductivity (σ):	1.88	1.90	-1.01	5
	Body 2480	e'	53.1800	Relative Permittivity (ϵ_r):	53.18	52.66	0.98	5
		e"	14.2600	Conductivity (σ):	1.97	1.99	-1.29	5
08-15-2018	Body 680	e'	55.3000	Relative Permittivity (ϵ_r):	55.30	55.82	-0.92	5
		e"	24.2400	Conductivity (σ):	0.92	0.96	-4.30	5
	Body 715	e'	54.9100	Relative Permittivity (ϵ_r):	54.91	55.68	-1.38	5
		e"	23.9000	Conductivity (σ):	0.95	0.96	-1.06	5
	Body 750	e'	54.5000	Relative Permittivity (ϵ_r):	54.50	55.55	-1.88	5
		e"	23.6100	Conductivity (σ):	0.98	0.96	2.23	5
08-15-2018	Body 750	e'	53.4000	Relative Permittivity (ϵ_r):	53.40	55.55	-3.86	5
		e"	23.1000	Conductivity (σ):	0.96	0.96	0.03	5
	Body 700	e'	53.9700	Relative Permittivity (ϵ_r):	53.97	55.74	-3.17	5
		e"	23.4600	Conductivity (σ):	0.91	0.96	-4.81	5
	Body 795	e'	52.8800	Relative Permittivity (ϵ_r):	52.88	55.37	-4.50	5
		e"	22.7700	Conductivity (σ):	1.01	0.97	4.14	5
08-15-2018	Body 835	e'	53.3600	Relative Permittivity (ϵ_r):	53.36	55.20	-3.33	5
		e"	21.6700	Conductivity (σ):	1.01	0.97	3.72	5
	Body 820	e'	53.5200	Relative Permittivity (ϵ_r):	53.52	55.28	-3.18	5
		e"	21.7400	Conductivity (σ):	0.99	0.97	2.35	5
	Body 850	e'	53.2100	Relative Permittivity (ϵ_r):	53.21	55.16	-3.53	5
		e"	21.6100	Conductivity (σ):	1.02	0.99	3.46	5

SAR 1 Room (Continued)

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
08-16-2018	Body 2600	e'	51.9300	Relative Permittivity (ϵ_r):	51.93	52.51	-1.11	5
		e"	14.8800	Conductivity (σ):	2.15	2.16	-0.45	5
	Body 2500	e'	52.1700	Relative Permittivity (ϵ_r):	52.17	52.64	-0.89	5
		e"	14.6400	Conductivity (σ):	2.04	2.02	0.73	5
	Body 2700	e'	51.6800	Relative Permittivity (ϵ_r):	51.68	52.38	-1.35	5
		e"	15.1400	Conductivity (σ):	2.27	2.30	-1.23	5
08-22-2018	Body 2250	e'	53.6700	Relative Permittivity (ϵ_r):	53.67	52.97	1.32	5
		e"	14.0300	Conductivity (σ):	1.76	1.76	-0.06	5
	Body 2300	e'	53.5200	Relative Permittivity (ϵ_r):	53.52	52.90	1.16	5
		e"	14.0900	Conductivity (σ):	1.80	1.80	-0.09	5
	Body 2350	e'	53.4400	Relative Permittivity (ϵ_r):	53.44	52.84	1.14	5
		e"	14.1300	Conductivity (σ):	1.85	1.85	-0.24	5
08-22-2018	Body 2450	e'	53.3500	Relative Permittivity (ϵ_r):	53.35	52.70	1.23	5
		e"	14.3700	Conductivity (σ):	1.96	1.95	0.39	5
	Body 2400	e'	53.3700	Relative Permittivity (ϵ_r):	53.37	52.77	1.13	5
		e"	14.2100	Conductivity (σ):	1.90	1.90	-0.09	5
	Body 2480	e'	53.2900	Relative Permittivity (ϵ_r):	53.29	52.66	1.19	5
		e"	14.4600	Conductivity (σ):	1.99	1.99	0.09	5
08-29-2018	Body 2450	e'	53.7800	Relative Permittivity (ϵ_r):	53.78	52.70	2.05	5
		e"	14.9300	Conductivity (σ):	2.03	1.95	4.30	5
	Body 2400	e'	53.9000	Relative Permittivity (ϵ_r):	53.90	52.77	2.14	5
		e"	14.7700	Conductivity (σ):	1.97	1.90	3.85	5
	Body 2480	e'	53.6900	Relative Permittivity (ϵ_r):	53.69	52.66	1.95	5
		e"	15.0300	Conductivity (σ):	2.07	1.99	4.04	5

SAR 2 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
07-09-2018	Body 1750	e'	53.7700	Relative Permittivity (ϵ_r):	53.77	53.44	0.62	5
		e"	14.7500	Conductivity (σ):	1.44	1.49	-3.42	5
	Body 1710	e'	53.8500	Relative Permittivity (ϵ_r):	53.85	53.54	0.57	5
		e"	14.7500	Conductivity (σ):	1.40	1.46	-4.04	5
	Body 1755	e'	53.7600	Relative Permittivity (ϵ_r):	53.76	53.43	0.62	5
		e"	14.7500	Conductivity (σ):	1.44	1.49	-3.35	5
07-09-2018	Body 1900	e'	53.3300	Relative Permittivity (ϵ_r):	53.33	53.30	0.06	5
		e"	14.8500	Conductivity (σ):	1.57	1.52	3.21	5
	Body 1850	e'	53.4700	Relative Permittivity (ϵ_r):	53.47	53.30	0.32	5
		e"	14.8300	Conductivity (σ):	1.53	1.52	0.36	5
	Body 1910	e'	53.3000	Relative Permittivity (ϵ_r):	53.30	53.30	0.00	5
		e"	14.8700	Conductivity (σ):	1.58	1.52	3.90	5
08-13-2018	Body 1750	e'	51.7400	Relative Permittivity (ϵ_r):	51.74	53.44	-3.18	5
		e"	14.6900	Conductivity (σ):	1.43	1.49	-3.82	5
	Body 1710	e'	51.8500	Relative Permittivity (ϵ_r):	51.85	53.54	-3.16	5
		e"	14.6300	Conductivity (σ):	1.39	1.46	-4.82	5
	Body 1755	e'	51.7200	Relative Permittivity (ϵ_r):	51.72	53.43	-3.20	5
		e"	14.7000	Conductivity (σ):	1.43	1.49	-3.68	5
08-13-2018	Body 1900	e'	51.2900	Relative Permittivity (ϵ_r):	51.29	53.30	-3.77	5
		e"	14.8700	Conductivity (σ):	1.57	1.52	3.35	5
	Body 1850	e'	51.4400	Relative Permittivity (ϵ_r):	51.44	53.30	-3.49	5
		e"	14.8000	Conductivity (σ):	1.52	1.52	0.16	5
	Body 1910	e'	51.2500	Relative Permittivity (ϵ_r):	51.25	53.30	-3.85	5
		e"	14.8800	Conductivity (σ):	1.58	1.52	3.97	5
08-20-2018	Body 1900	e'	52.2900	Relative Permittivity (ϵ_r):	52.29	53.30	-1.89	5
		e"	14.9600	Conductivity (σ):	1.58	1.52	3.98	5
	Body 1850	e'	52.4400	Relative Permittivity (ϵ_r):	52.44	53.30	-1.61	5
		e"	14.8500	Conductivity (σ):	1.53	1.52	0.50	5
	Body 1910	e'	52.2700	Relative Permittivity (ϵ_r):	52.27	53.30	-1.93	5
		e"	14.9900	Conductivity (σ):	1.59	1.52	4.73	5

SAR 3 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
07-11-2018	Body 750	e'	56.8800	Relative Permittivity (ϵ_r):	56.88	55.55	2.40	5
		e"	23.3500	Conductivity (σ):	0.97	0.96	1.11	5
	Body 700	e'	57.3700	Relative Permittivity (ϵ_r):	57.37	55.74	2.93	5
		e"	23.8400	Conductivity (σ):	0.93	0.96	-3.27	5
	Body 795	e'	56.4400	Relative Permittivity (ϵ_r):	56.44	55.37	1.93	5
		e"	22.9400	Conductivity (σ):	1.01	0.97	4.92	5
07-12-2018	Body 680	e'	58.2700	Relative Permittivity (ϵ_r):	58.27	55.82	4.40	5
		e"	24.1500	Conductivity (σ):	0.91	0.96	-4.65	5
	Body 715	e'	57.9400	Relative Permittivity (ϵ_r):	57.94	55.68	4.06	5
		e"	23.7700	Conductivity (σ):	0.95	0.96	-1.60	5
	Body 750	e'	57.6000	Relative Permittivity (ϵ_r):	57.60	55.55	3.70	5
		e"	23.4400	Conductivity (σ):	0.98	0.96	1.50	5
08-13-2018	Body 5250	e'	47.5700	Relative Permittivity (ϵ_r):	47.57	48.95	-2.82	5
		e"	18.3400	Conductivity (σ):	5.35	5.35	0.01	5
	Body 5260	e'	47.5600	Relative Permittivity (ϵ_r):	47.56	48.94	-2.82	5
		e"	18.3600	Conductivity (σ):	5.37	5.36	0.10	5
	Body 5600	e'	47.0600	Relative Permittivity (ϵ_r):	47.06	48.48	-2.92	5
		e"	18.5500	Conductivity (σ):	5.78	5.76	0.26	5
	Body 5750	e'	46.8900	Relative Permittivity (ϵ_r):	46.89	48.27	-2.87	5
		e"	18.6100	Conductivity (σ):	5.95	5.94	0.24	5
	Body 5825	e'	46.7400	Relative Permittivity (ϵ_r):	46.74	48.20	-3.03	5
		e"	18.7000	Conductivity (σ):	6.06	6.00	0.95	5
08-16-2018	Body 5250	e'	48.4300	Relative Permittivity (ϵ_r):	48.43	48.95	-1.07	5
		e"	18.3800	Conductivity (σ):	5.37	5.35	0.23	5
	Body 5260	e'	48.4100	Relative Permittivity (ϵ_r):	48.41	48.94	-1.08	5
		e"	18.3900	Conductivity (σ):	5.38	5.36	0.26	5
	Body 5600	e'	47.8500	Relative Permittivity (ϵ_r):	47.85	48.48	-1.29	5
		e"	18.7200	Conductivity (σ):	5.83	5.76	1.18	5
	Body 5750	e'	47.6200	Relative Permittivity (ϵ_r):	47.62	48.27	-1.36	5
		e"	18.8800	Conductivity (σ):	6.04	5.94	1.69	5
	Body 5825	e'	47.4900	Relative Permittivity (ϵ_r):	47.49	48.20	-1.47	5
		e"	18.9700	Conductivity (σ):	6.14	6.00	2.40	5
08-20-2018	Body 5250	e'	47.5500	Relative Permittivity (ϵ_r):	47.55	48.95	-2.86	5
		e"	18.5300	Conductivity (σ):	5.41	5.35	1.05	5
	Body 5260	e'	47.5300	Relative Permittivity (ϵ_r):	47.53	48.94	-2.88	5
		e"	18.5400	Conductivity (σ):	5.42	5.36	1.08	5
	Body 5600	e'	46.9400	Relative Permittivity (ϵ_r):	46.94	48.48	-3.17	5
		e"	18.8600	Conductivity (σ):	5.87	5.76	1.94	5
	Body 5750	e'	46.6900	Relative Permittivity (ϵ_r):	46.69	48.27	-3.28	5
		e"	19.0200	Conductivity (σ):	6.08	5.94	2.45	5
	Body 5825	e'	46.5700	Relative Permittivity (ϵ_r):	46.57	48.20	-3.38	5
		e"	19.1000	Conductivity (σ):	6.19	6.00	3.10	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	Body
D750V3	1122	2-19-2018	750	1g	8.63
				10g	5.72
D835V2	4d174	9-21-2017	835	1g	9.41
				10g	6.12
D1750V2	1125	2-16-2018	1750	1g	36.80
				10g	19.50
D1900V2	5d190	9-20-2017	1900	1g	40.00
				10g	21.10
D1900V2	5d199	3-15-2018	1900	1g	39.60
				10g	20.80
D2300V2	1049	2-21-2017	2300	1g	48.00
				10g	23.10
D2450V2	939	9-19-2017	2450	1g	50.70
				10g	23.90
D2600V2	1097	1-17-2018	2600	1g	54.40
				10g	24.20
D5GHzV2	1209	2-15-2018	5250	1g	75.70
				10g	21.00
			5600	1g	79.00
				10g	21.90
			5750	1g	75.60
				10g	20.80

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations (D2302, SN : 1049)

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				
7-9-2018	D835V2	4d174	Body	1g	1.00	10.00	9.41	6.27	1, 2
				10g	0.66	6.60	6.12	7.84	
7-10-2018	D2300V2	1049	Body	1g	4.62	46.20	48.00	-3.75	
				10g	2.20	22.00	23.10	-4.76	
7-10-2018	D2600V2	1097	Body	1g	5.24	52.40	54.40	-3.68	3, 4
				10g	2.31	23.10	24.20	-4.55	
7-24-2018	D2450V2	939	Body	1g	4.96	49.60	50.70	-2.17	
				10g	2.26	22.60	23.90	-5.44	
8-13-2018	D2450V2	939	Body	1g	4.87	48.70	50.70	-3.94	
				10g	2.25	22.50	23.90	-5.86	
8-15-2018	D750V3	1122	Body	1g	0.86	8.57	8.63	-0.70	
				10g	0.57	5.71	5.72	-0.17	
8-15-2018	D750V3	1122	Body	1g	0.84	8.39	8.63	-2.78	5, 6
				10g	0.56	5.59	5.72	-2.27	
8-15-2018	D835V2	4d174	Body	1g	0.95	9.47	9.41	0.64	
				10g	0.62	6.23	6.12	1.80	
8-16-2018	D2600V2	1097	Body	1g	5.29	52.90	54.40	-2.76	
				10g	2.34	23.40	24.20	-3.31	
8-22-2018	D2300V2	1049	Body	1g	4.54	45.40	48.00	-5.42	7, 8
				10g	2.15	21.50	23.10	-6.93	
8-22-2018	D2450V2	939	Body	1g	4.87	48.70	50.70	-3.94	9, 10
				10g	2.25	22.50	23.90	-5.86	
8-29-2018	D2450V2	939	Body	1g	5.19	51.90	50.70	2.37	
				10g	2.46	24.60	23.90	2.93	

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				
7-9-2018	D1750V2	1125	Body	1g	3.65	36.50	36.80	-0.82	
				10g	1.91	19.10	19.50	-2.05	
7-9-2018	D1900V2	5d190	Body	1g	4.03	40.30	40.00	0.75	11, 12
				10g	2.04	20.40	21.10	-3.32	
8-13-2018	D1750V2	1125	Body	1g	3.76	37.60	36.80	2.17	13, 14
				10g	2.00	20.00	19.50	2.56	
8-13-2018	D1900V2	5d199	Body	1g	4.31	43.10	39.60	8.84	15, 16
				10g	2.21	22.10	20.80	6.25	
8-20-2018	D1900V2	5d199	Body	1g	4.24	42.40	39.60	7.07	
				10g	2.18	21.80	20.80	4.81	

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				
7-11-2018	D750V3	1122	Body	1g	0.86	8.62	8.63	-0.12	
				10g	0.57	5.74	5.72	0.35	
7-12-2018	D750V3	1122	Body	1g	0.87	8.72	8.63	1.04	
				10g	0.58	5.80	5.72	1.40	
8-13-2018	D5GHzV2 (5250)	1209	Body	1g	8.13	81.30	75.70	7.40	
				10g	2.24	22.40	21.00	6.67	
8-13-2018	D5GHzV2 (5600)	1209	Body	1g	8.40	84.00	79.00	6.33	
				10g	2.28	22.80	21.90	4.11	
8-13-2018	D5GHzV2 (5750)	1209	Body	1g	7.44	74.40	75.60	-1.59	
				10g	2.05	20.50	20.80	-1.44	
8-16-2018	D5GHzV2 (5250)	1209	Body	1g	7.96	79.60	75.70	5.15	
				10g	2.20	22.00	21.00	4.76	
8-16-2018	D5GHzV2 (5600)	1209	Body	1g	8.38	83.80	79.00	6.08	
				10g	2.29	22.90	21.90	4.57	
8-16-2018	D5GHzV2 (5750)	1209	Body	1g	8.18	81.80	75.60	8.20	17, 18
				10g	2.25	22.50	20.80	8.17	
8-20-2018	D5GHzV2 (5250)	1209	Body	1g	7.92	79.20	75.70	4.62	
				10g	2.18	21.80	21.00	3.81	
8-20-2018	D5GHzV2 (5600)	1209	Body	1g	8.19	81.90	79.00	3.67	
				10g	2.24	22.40	21.90	2.28	
8-20-2018	D5GHzV2 (5750)	1209	Body	1g	8.10	81.00	75.60	7.14	
				10g	2.23	22.30	20.80	7.21	

9. Conducted Output Power Measurements

9.1. 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	Subtest	HSDPA 1	HSDPA 2	HSDPA 3	HSDPA 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-DPDCCH	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	

HSPA+

Since 16QAM is not used for uplink, the uplink Category and release is same as HSUPA, Therefore, the RF conducted power is not measured.

W-CDMA Band II Measured Results

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Max. RF output power (dBm)	Reduced RF output power (dBm)
						Meas. Avg Pwr	Meas. Avg Pwr
W-CDMA Band II	Rel 99	RMC, 12.2 kbps	9262	1852.4	N/A	23.5	12.2
			9400	1880.0	N/A	23.5	12.2
			9538	1907.6	N/A	23.4	12.1
	HSDPA	Subtest 1	9262	1852.4	0	22.4	11.1
			9400	1880.0	0	22.5	11.2
			9538	1907.6	0	22.4	11.1
		Subtest 2	9262	1852.4	0	22.4	11.1
			9400	1880.0	0	22.4	11.2
			9538	1907.6	0	22.4	11.1
		Subtest 3	9262	1852.4	0.5	21.9	10.7
			9400	1880.0	0.5	21.9	10.7
			9538	1907.6	0.5	21.9	10.6
		Subtest 4	9262	1852.4	0.5	21.9	10.6
			9400	1880.0	0.5	22.0	10.7
			9538	1907.6	0.5	21.9	10.6
	HSUPA	Subtest 1	9262	1852.4	0	22.4	11.1
			9400	1880.0	0	22.5	11.1
			9538	1907.6	0	22.4	11.1
		Subtest 2	9262	1852.4	2	20.4	9.2
			9400	1880.0	2	20.4	9.2
			9538	1907.6	2	20.4	9.1
		Subtest 3	9262	1852.4	1	21.5	10.1
			9400	1880.0	1	21.5	10.2
			9538	1907.6	1	21.4	10.1
		Subtest 4	9262	1852.4	2	20.4	9.2
			9400	1880.0	2	20.5	9.1
			9538	1907.6	2	20.4	9.1
		Subtest 5	9262	1852.4	0	22.5	11.2
			9400	1880.0	0	22.5	11.2
			9538	1907.6	0	22.5	11.1

W-CDMA Band IV Measured Results

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Max. RF output power (dBm)	Reduced RF output power (dBm)	
						Meas. Avg Pwr	Meas. Avg Pwr	
W-CDMA Band IV	Rel 99	RMC, 12.2 kbps	1312	1712.4	N/A	23.3	12.1	
			1413	1732.6	N/A	23.3	12.0	
			1513	1752.6	N/A	23.2	11.9	
	HSDPA	Subtest 1	1312	1712.4	0	22.3	11.0	
			1413	1732.6	0	22.3	11.0	
			1513	1752.6	0	22.2	10.9	
		Subtest 2	1312	1712.4	0	22.3	11.1	
			1413	1732.6	0	22.3	10.9	
			1513	1752.6	0	22.1	10.9	
		Subtest 3	1312	1712.4	0.5	21.8	10.5	
			1413	1732.6	0.5	21.7	10.5	
			1513	1752.6	0.5	21.7	10.4	
		Subtest 4	1312	1712.4	0.5	21.7	10.6	
			1413	1732.6	0.5	21.8	10.4	
			1513	1752.6	0.5	21.7	10.3	
		HSUPA	Subtest 1	1312	1712.4	0	22.4	11.1
				1413	1732.6	0	22.3	11.0
				1513	1752.6	0	22.3	10.8
	Subtest 2		1312	1712.4	2	20.4	9.1	
			1413	1732.6	2	20.4	9.0	
			1513	1752.6	2	20.2	9.0	
	Subtest 3		1312	1712.4	1	21.4	10.1	
			1413	1732.6	1	21.3	10.0	
			1513	1752.6	1	21.2	9.9	
	Subtest 4		1312	1712.4	2	20.3	9.1	
			1413	1732.6	2	20.3	9.0	
			1513	1752.6	2	20.2	8.9	
	Subtest 5		1312	1712.4	0	22.4	11.1	
			1413	1732.6	0	22.3	11.0	
			1513	1752.6	0	22.2	10.9	

W-CDMA Band V Measured Results

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Max. RF output power (dBm)	Reduced RF output power (dBm)	
						Meas. Avg Pwr	Meas. Avg Pwr	
W-CDMA Band V	Rel 99	RMC, 12.2 kbps	4132	826.4	N/A	23.7	17.3	
			4183	836.6	N/A	23.6	17.2	
			4233	846.6	N/A	23.6	17.2	
	HSDPA	Subtest 1	4132	826.4	0	22.7	16.3	
			4183	836.6	0	22.5	16.1	
			4233	846.6	0	22.6	16.2	
		Subtest 2	4132	826.4	0	22.7	16.3	
			4183	836.6	0	22.6	16.2	
			4233	846.6	0	22.6	16.2	
		Subtest 3	4132	826.4	0.5	22.2	15.8	
			4183	836.6	0.5	22.1	15.7	
			4233	846.6	0.5	22.1	15.7	
		Subtest 4	4132	826.4	0.5	22.2	15.8	
			4183	836.6	0.5	22.1	15.7	
			4233	846.6	0.5	22.1	15.7	
		HSUPA	Subtest 1	4132	826.4	0	22.7	16.3
				4183	836.6	0	22.6	16.2
				4233	846.6	0	22.6	16.2
	Subtest 2		4132	826.4	2	20.7	14.4	
			4183	836.6	2	20.5	14.2	
			4233	846.6	2	20.6	14.2	
	Subtest 3		4132	826.4	1	21.7	15.2	
			4183	836.6	1	21.6	15.1	
			4233	846.6	1	21.6	15.1	
	Subtest 4		4132	826.4	2	20.7	14.3	
			4183	836.6	2	20.6	14.2	
			4233	846.6	2	20.6	14.2	
	Subtest 5		4132	826.4	0	22.7	16.3	
			4183	836.6	0	22.6	16.2	
			4233	846.6	0	22.6	16.2	

9.2. 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
NS_03	6.6.2.2.1	2, 4, 10, 23, 25, 35, 36, 66, 70	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
NS_04	6.6.2.2.2, 6.6.3.3.19	41	5, 10, 15, 20	Table 6.2.4-4, Table 6.2.4-4a	
				10, 15, 20	≥ 50 (NOTE 1)
NS_05	6.6.3.3.1	1	15, 20	Table 6.2.4-18 (NOTE 2)	
			10, 15, 20	≥ 50	≤ 1 (NOTE 1)
			15, 20	Table 6.2.4-18 (NOTE 2)	
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	N/A
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	
NS_11	6.6.2.2.1 6.6.3.3.13	23	1.4, 3, 5, 10, 15, 20	Table 6.2.4-5	
				1.4, 3, 5, 10, 15	Table 6.2.4-6
NS_13	6.6.3.3.6	26	5	Table 6.2.4-7	
NS_14	6.6.3.3.7	26	10, 15	Table 6.2.4-8	
NS_15	6.6.3.3.8	26	1.4, 3, 5, 10, 15	Table 6.2.4-9 Table 6.2.4-10	
				3, 5, 10	Table 6.2.4-11, Table 6.2.4-12, Table 6.2.4-13
NS_17	6.6.3.3.10	28	5, 10	Table 5.6-1	N/A
NS_18	6.6.3.3.11	28	5	≥ 2	≤ 1
				10, 15, 20	≥ 1
NS_19	6.6.3.3.12	44	10, 15, 20	Table 6.2.4-14	
NS_20	6.2.2 6.6.2.2.1 6.6.3.3.14	23	5, 10, 15, 20	Table 6.2.4-15	
				6.6.2.2.1 6.6.3.3.15	Table 6.2.4-16
NS_22	6.6.3.3.16	42, 43	5, 10, 15, 20	Table 6.2.4-17	
NS_23	6.6.3.3.17	42, 43	5, 10, 15, 20	N/A	
NS_24	6.6.3.3.20	65 (NOTE 4)	5, 10, 15, 20	Table 6.2.4-19	
NS_25	6.6.3.3.21	65 (NOTE 4)	5, 10, 15, 20	Table 6.2.4-20	
NS_26	6.6.3.3.22	68	10, 15	Table 6.2.4-21	
NS_27	6.6.2.2.5, 6.6.3.3.23	48	5, 10, 15, 20	Table 6.2.4-22	
NS_28	6.2.2A, 6.6.3.3.24	46 (NOTE 5)	20	Table 6.2.4-23	
				6.2.2A, 6.6.2.3.1a, 6.6.3.3.25	Table 6.2.4-24
NS_30	6.2.2A, 6.6.3.3.26	46 (NOTE 5)	20	Table 6.2.4-25	
NS_31	6.2.2A, 6.6.3.3.27	46 (NOTE 5)	20	Table 6.2.4-26	
NS_32	-	-	-	-	-

NOTE 1: Applicable when the lower edge of the assigned E-UTRA UL channel bandwidth frequency is larger than or equal to the upper edge of PHS band (1915.7 MHz) + 4 MHz + the channel BW assigned, where channel BW is as defined in subclause 5.6. A-MPR for

LTE Band 2 Measured Results

SAR LTE Band 2 (Frequency range: 1850-1910 MHz) is covered by LTE Band 25 (Frequency range: 1850-1915 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 4 Measured Results

SAR for LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 5 Measured Results

SAR for LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 7 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						2510 MHz	2535 MHz	2560 MHz		2510 MHz	2535 MHz	2560 MHz
LTE Band 7	20	QPSK	1	0	0	24.1	23.9	24.0	0	12.4	12.1	12.3
			1	49	0	23.9	23.8	23.9	0	12.1	12.1	12.1
			1	99	0	23.8	23.8	23.7	0	12.0	12.0	11.9
			50	0	1	23.1	22.9	23.0	0	12.5	12.2	12.3
			50	24	1	23.0	22.9	22.9	0	12.3	12.2	12.2
			50	50	1	22.9	22.8	22.8	0	12.1	12.1	12.0
			100	0	1	23.0	22.9	22.9	0	12.3	12.1	12.1
		16QAM	1	0	1	23.5	23.5	23.4	0	12.8	12.8	12.7
			1	49	1	23.4	23.4	23.3	0	12.6	12.6	12.5
			1	99	1	23.3	23.4	23.1	0	12.5	12.6	12.3
			50	0	2	22.2	22.1	22.1	0	12.4	12.3	12.3
			50	24	2	22.1	22.0	22.0	0	12.4	12.2	12.2
			50	50	2	22.0	21.9	21.9	0	12.3	12.2	12.1
			100	0	2	22.1	22.0	22.0	0	12.3	12.3	12.2
		64QAM	1	0	2	22.8	22.3	22.3	0	12.7	12.6	12.6
			1	49	2	22.6	22.2	22.1	0	12.7	12.5	12.4
			1	99	2	22.5	22.2	22.0	0	12.7	12.5	12.2
			50	0	3	21.2	21.1	21.1	0	12.5	12.4	12.4
			50	24	3	21.2	21.0	21.0	0	12.5	12.3	12.3
			50	50	3	21.0	21.0	20.9	0	12.3	12.3	12.2
			100	0	3	21.1	21.0	21.0	0	12.4	12.3	12.3
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						2507.5 MHz	2535 MHz	2562.5 MHz		2507.5 MHz	2535 MHz	2562.5 MHz
LTE Band 7	15	QPSK	1	0	0	24.0	23.9	24.0	0	12.2	12.2	12.1
			1	37	0	24.0	23.8	24.0	0	12.2	12.1	12.1
			1	74	0	23.8	23.8	23.7	0	12.1	12.0	11.8
			36	0	1	23.0	22.9	22.9	0	12.2	12.1	12.1
			36	20	1	23.0	22.8	22.9	0	12.2	12.1	12.1
			36	39	1	22.9	22.8	22.8	0	12.2	12.0	12.0
			75	0	1	22.9	22.9	22.9	0	12.2	12.1	12.1
		16QAM	1	0	1	23.4	23.0	23.4	0	12.7	12.6	12.1
			1	37	1	23.4	22.8	23.4	0	12.7	12.5	12.1
			1	74	1	23.3	22.8	23.2	0	12.6	12.4	11.8
			36	0	2	22.1	22.0	22.0	0	12.3	12.2	12.3
			36	20	2	22.2	22.0	22.0	0	12.3	12.2	12.3
			36	39	2	22.1	21.9	21.9	0	12.3	12.2	12.1
			75	0	2	22.1	21.9	22.0	0	12.3	12.2	12.2
		64QAM	1	0	2	22.2	22.4	22.6	0	12.6	12.4	12.5
			1	37	2	22.2	22.2	22.6	0	12.6	12.3	12.5
			1	74	2	22.1	22.2	22.4	0	12.7	12.3	12.3
			36	0	3	21.1	21.0	21.0	0	12.3	12.4	12.3
			36	20	3	21.1	21.0	21.0	0	12.4	12.3	12.3
			36	39	3	21.1	20.9	20.9	0	12.4	12.3	12.1
			75	0	3	21.1	21.0	21.1	0	12.3	12.3	12.3

LTE Band 7 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)				
						2505 MHz	2535 MHz	2565 MHz		2505 MHz	2535 MHz	2565 MHz		
LTE Band 7	10	QPSK	1	0	0	23.9	24.0	24.0	0	12.1	12.3	12.1		
			1	25	0	23.8	23.8	23.7	0	12.0	12.1	11.9		
			1	49	0	23.8	23.8	23.7	0	12.0	12.0	11.9		
			25	0	1	23.0	22.9	23.0	0	12.1	12.1	12.2		
			25	12	1	23.0	22.9	22.9	0	12.2	12.1	12.0		
			25	25	1	22.9	22.8	22.7	0	12.2	12.0	11.9		
		16QAM	50	0	1	23.0	22.9	22.9	0	12.2	12.1	12.0		
			1	0	1	23.1	23.4	23.0	0	12.2	12.6	12.1		
			1	25	1	23.0	23.3	22.7	0	12.2	12.4	11.9		
			1	49	1	23.0	23.2	22.7	0	12.1	12.4	11.8		
			25	0	2	22.1	22.0	22.0	0	12.4	12.2	12.3		
			25	12	2	22.2	22.0	22.0	0	12.4	12.2	12.2		
		64QAM	25	25	2	22.1	21.9	21.9	0	12.3	12.2	12.0		
			50	0	2	22.1	22.0	22.0	0	12.3	12.1	12.1		
			1	0	2	22.2	22.2	22.3	0	12.4	12.4	12.6		
			1	25	2	22.1	22.0	22.1	0	12.3	12.2	12.3		
			1	49	2	22.1	22.0	22.1	0	12.3	12.2	12.2		
			25	0	3	21.1	21.1	21.1	0	12.4	12.3	12.3		
		LTE Band 7	5	QPSK	25	12	3	21.2	21.1	21.0	0	12.4	12.3	12.2
					25	25	3	21.1	21.0	20.9	0	12.3	12.2	12.0
					50	0	3	21.1	21.0	21.0	0	12.3	12.2	12.1
1	0				0	24.0	24.0	23.7	0	12.2	12.2	11.9		
1	12				0	24.0	23.9	23.7	0	12.1	12.1	12.0		
1	24				0	24.0	23.8	23.7	0	12.1	12.0	12.0		
16QAM	12			0	1	23.0	22.9	22.7	0	12.1	12.1	12.0		
	12			7	1	23.0	22.9	22.8	0	12.1	12.1	12.0		
	12			13	1	22.9	22.9	22.8	0	12.1	12.0	12.0		
	25			0	1	23.0	22.8	22.7	0	12.2	12.0	12.0		
	1			0	1	23.2	23.2	23.3	0	12.3	12.3	12.5		
	1			12	1	23.2	23.0	23.3	0	12.4	12.1	12.6		
64QAM	1	24	1	23.1	23.0	23.2	0	12.3	12.1	12.5				
	12	0	2	22.1	22.0	21.9	0	12.3	12.2	12.2				
	12	7	2	22.1	22.0	22.0	0	12.3	12.2	12.2				
	12	13	2	22.1	22.0	22.0	0	12.3	12.2	12.2				
	25	0	2	22.1	21.9	21.9	0	12.3	12.0	12.1				
	1	0	2	22.0	22.3	22.1	0	12.1	12.4	12.3				
64QAM	1	12	2	22.0	22.1	22.1	0	12.1	12.3	12.3				
	1	24	2	21.9	22.2	22.1	0	12.0	12.3	12.2				
	12	0	3	21.1	21.0	20.8	0	12.2	12.2	12.0				
	12	7	3	21.1	21.0	20.8	0	12.3	12.2	12.0				
	12	13	3	21.0	21.0	20.8	0	12.2	12.2	12.0				
	25	0	3	21.0	21.0	20.8	0	12.2	12.1	12.0				

LTE Band 12 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						704 MHz	707.5 MHz	711 MHz		704 MHz	707.5 MHz	711 MHz
LTE Band 12	10	QPSK	1	0	0		23.7		0		17.8	
			1	25	0		23.7		0		17.7	
			1	49	0		23.7		0		17.8	
			25	0	1		22.8		0		17.8	
			25	12	1		22.8		0		17.9	
			25	25	1		22.8		0		17.8	
			50	0	1		22.8		0		17.8	
		16QAM	1	0	1		23.1		0		17.7	
			1	25	1		23.1		0		17.7	
			1	49	1		23.1		0		17.8	
			25	0	2		21.9		0		17.9	
			25	12	2		22.0		0		18.0	
			25	25	2		21.9		0		17.9	
			50	0	2		21.9		0		17.9	
		64QAM	1	0	2		21.9		0		18.0	
			1	25	2		21.9		0		18.1	
			1	49	2		22.0		0		18.1	
			25	0	3		21.0		0		17.9	
			25	12	3		21.0		0		18.0	
			25	25	3		21.0		0		18.0	
			50	0	3		21.0		0		17.9	
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
					701.5 MHz	707.5 MHz	713.5 MHz	701.5 MHz		707.5 MHz	713.5 MHz	
LTE Band 12	5	QPSK	1	0	0	23.6	23.7	23.9	0	17.6	17.9	17.9
			1	12	0	23.6	23.7	23.9	0	17.6	17.9	18.0
			1	24	0	23.7	23.8	23.9	0	17.7	17.9	17.9
			12	0	1	22.6	22.7	22.8	0	17.7	17.7	17.9
			12	7	1	22.7	22.9	22.8	0	17.7	17.9	17.9
			12	13	1	22.7	22.8	22.9	0	17.7	17.8	18.0
			25	0	1	22.7	22.9	22.8	0	17.7	17.9	17.9
		16QAM	1	0	1	22.7	23.3	23.0	0	18.2	18.0	18.1
			1	12	1	22.7	23.3	23.1	0	18.2	18.0	18.1
			1	24	1	22.9	23.4	23.1	0	18.2	18.1	18.1
			12	0	2	21.7	21.9	22.0	0	17.9	17.9	18.0
			12	7	2	21.8	22.1	22.0	0	17.9	18.0	18.0
			12	13	2	21.8	22.0	22.1	0	17.9	18.0	18.0
			25	0	2	21.8	22.0	21.9	0	17.9	18.0	17.9
		64QAM	1	0	2	21.9	22.1	21.8	0	18.0	17.8	18.2
			1	12	2	21.9	22.2	21.9	0	18.0	17.8	18.2
			1	24	2	22.0	22.1	21.8	0	18.0	17.8	18.2
			12	0	3	20.8	20.8	20.9	0	17.7	17.9	18.0
			12	7	3	20.9	20.9	21.0	0	17.8	18.0	18.0
			12	13	3	20.9	20.8	21.0	0	17.7	17.9	18.1
			25	0	3	20.8	20.9	20.9	0	17.8	17.9	17.9

Note(s):

10 MHz Bandwidths 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 Band 12 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)				
						700.5 MHz	707.5 MHz	714.5 MHz		700.5 MHz	707.5 MHz	714.5 MHz		
LTE Band 12	3	QPSK	1	0	0	23.5	23.7	23.9	0	17.6	17.7	17.9		
			1	8	0	23.6	23.9	23.9	0	17.8	17.9	18.0		
			1	14	0	23.5	23.8	23.8	0	17.6	17.8	17.9		
			8	0	1	22.6	22.8	22.8	0	17.6	17.8	17.9		
			8	4	1	22.6	22.8	22.9	0	17.7	17.9	18.0		
			8	7	1	22.6	22.8	22.9	0	17.6	17.9	17.9		
		16QAM	15	0	1	22.6	22.8	22.9	0	17.6	17.8	17.9		
			1	0	1	22.7	23.2	22.8	0	18.0	17.7	18.0		
			1	8	1	22.7	23.3	22.9	0	18.1	17.9	18.1		
			1	14	1	22.6	23.2	22.8	0	18.0	17.8	17.9		
			8	0	2	21.7	21.9	22.0	0	17.8	18.0	18.0		
			8	4	2	21.7	22.0	22.1	0	17.8	18.0	18.1		
		64QAM	8	7	2	21.7	22.0	22.1	0	17.8	18.0	18.0		
			15	0	2	21.6	21.9	22.0	0	17.7	17.9	18.0		
			1	0	2	21.8	21.9	22.2	0	17.7	18.1	18.2		
			1	8	2	21.9	22.0	22.3	0	17.9	18.2	18.2		
			1	14	2	21.8	21.9	22.2	0	17.8	18.2	18.1		
			8	0	3	20.6	20.9	21.0	0	17.8	18.0	18.0		
		LTE Band 12	1.4	QPSK	8	4	3	20.7	21.0	21.1	0	17.8	18.0	18.0
					8	7	3	20.7	21.0	21.0	0	17.8	18.0	18.0
					15	0	3	20.7	20.9	21.0	0	17.7	17.9	18.0
1	0				0	23.5	23.6	23.7	0	17.5	17.7	17.8		
1	3				0	23.6	23.6	23.8	0	17.6	17.8	17.8		
1	5				0	23.6	23.7	23.7	0	17.6	17.8	17.7		
16QAM	3			0	0	23.5	23.6	23.8	0	17.5	17.6	17.7		
	3			1	0	23.6	23.7	23.8	0	17.6	17.7	17.8		
	3			3	0	23.5	23.7	23.8	0	17.6	17.7	17.8		
	6	0	1	22.5	22.7	22.7	0	17.6	17.8	17.8				
	1	0	1	22.6	22.7	23.2	0	17.9	17.8	17.9				
	1	3	1	22.7	22.8	23.2	0	18.0	17.9	17.9				
64QAM	1	5	1	22.7	22.8	23.1	0	17.9	17.9	17.8				
	3	0	1	22.6	22.9	23.0	0	17.7	17.7	17.9				
	3	1	1	22.7	23.0	23.0	0	17.8	17.8	18.0				
	3	3	1	22.7	23.0	23.0	0	17.8	17.9	18.0				
	6	0	2	21.7	22.0	21.7	0	17.6	18.0	18.0				
	1	0	2	21.9	21.8	21.9	0	17.6	18.1	18.0				
LTE Band 12	1.4	64QAM	1	3	2	22.1	21.9	22.0	0	17.8	18.2	18.1		
			1	5	2	21.9	22.0	21.9	0	17.7	18.2	18.0		
			3	0	2	21.9	21.6	21.9	0	17.7	17.9	17.8		
			3	1	2	22.0	21.8	22.0	0	17.8	18.1	17.8		
			3	3	2	22.0	21.8	22.0	0	17.8	18.1	17.8		
			6	0	3	20.6	20.9	21.2	0	17.9	17.8	17.9		

LTE Band 13 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)				
						782 MHz				782 MHz				
LTE Band 13	10	QPSK	1	0	0		23.5		0		16.7			
			1	25	0		23.5		0		16.7			
			1	49	0		23.5		0		16.6			
			25	0	1		22.6		0		16.8			
			25	12	1		22.6		0		16.8			
			25	25	1		22.6		0		16.8			
		16QAM	50	0	1		22.6		0		16.8			
			1	0	1		22.5		0		16.8			
			1	25	1		22.5		0		16.8			
			1	49	1		22.4		0		16.7			
			25	0	2		21.7		0		17.0			
			25	12	2		21.7		0		17.0			
		64QAM	25	25	2		21.7		0		16.9			
			50	0	2		21.7		0		16.9			
			1	0	2		21.9		0		17.0			
			1	25	2		21.9		0		17.0			
			1	49	2		21.8		0		16.9			
			25	0	3		20.7		0		17.0			
		LTE Band 13	5	QPSK	25	12	3		20.7		0		17.0	
					25	25	3		20.7		0		16.9	
					25	0	3		20.7		0		16.9	
50	0				3		20.7		0		16.9			
1	0				1		22.7		0		17.3			
1	12				1		22.7		0		17.3			
16QAM	1			24	1		22.7		0		17.3			
	12			0	2		21.7		0		17.0			
	12			7	2		21.7		0		17.0			
	12			13	2		21.7		0		16.9			
	25			0	2		21.6		0		16.9			
	1			0	2		21.8		0		17.1			
64QAM	1	12	2		21.9		0		17.1					
	1	24	2		21.9		0		17.1					
	12	0	3		20.7		0		16.8					
	12	7	3		20.7		0		16.8					
	12	13	3		20.7		0		16.7					
	25	0	3		20.7		0		16.8					

Note(s):
 5/10 MHz Bandwidths 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 Band 14 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)				
						793 MHz				793 MHz				
LTE Band 14	10	QPSK	1	0	0		23.7		0		17.9			
			1	25	0		23.6		0		17.8			
			1	49	0		23.6		0		17.7			
			25	0	1		22.7		0		17.9			
			25	12	1		22.6		0		17.9			
			25	25	1		22.6		0		17.8			
			50	0	1		22.6		0		17.8			
		16QAM	1	0	1		22.7		0		17.8			
			1	25	1		22.7		0		17.7			
			1	49	1		22.6		0		17.7			
			25	0	2		21.8		0		18.0			
			25	12	2		21.8		0		17.9			
			25	25	2		21.7		0		17.8			
			50	0	2		21.7		0		17.9			
		64QAM	1	0	2		21.9		0		18.0			
			1	25	2		21.8		0		17.9			
			1	49	2		21.8		0		18.0			
			25	0	3		20.9		0		18.0			
			25	12	3		20.8		0		17.9			
			25	25	3		20.7		0		17.9			
			50	0	3		20.7		0		17.9			
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)				
						790.5 MHz	793 MHz	796.5 MHz		790.5 MHz	793 MHz	796.5 MHz		
LTE Band 14	5	QPSK	1	0	0			23.6		0		17.8		
			1	12	0			23.6		0		17.8		
			1	24	0			23.6		0		17.8		
			12	0	1			22.6		0		17.8		
			12	7	1			22.6		0		17.8		
			12	13	1			22.6		0		17.8		
			25	0	1			22.6		0		17.8		
		16QAM	1	0	1				22.8		0		18.0	
			1	12	1				22.7		0		17.9	
			1	24	1				22.8		0		18.0	
			12	0	2				21.8		0		17.9	
			12	7	2				21.7		0		17.9	
			12	13	2				21.7		0		17.9	
			25	0	2				21.6		0		17.8	
		64QAM	1	0	2				21.9		0		18.0	
			1	12	2				21.9		0		18.0	
			1	24	2				21.9		0		18.0	
			12	0	3				20.8		0		17.9	
			12	7	3				20.8		0		17.9	
			12	13	3				20.8		0		17.9	
			25	0	3				20.7		0		17.9	

Note(s):

5/10 MHz Bandwidths 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 Band 17 Measured Results

SAR for LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 25 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1860 MHz	1882.5 MHz	1905 MHz		1860 MHz	1882.5 MHz	1905 MHz
LTE Band 25	20	QPSK	1	0	0	24.3	24.2	24.5	0	13.0	12.9	13.1
			1	49	0	23.9	23.9	24.2	0	12.6	12.5	12.8
			1	99	0	24.0	24.1	24.0	0	12.7	12.8	12.6
			50	0	1	23.1	23.1	23.4	0	12.8	12.7	13.0
			50	24	1	23.0	23.1	23.3	0	12.7	12.8	12.9
			50	50	1	23.0	23.0	23.3	0	12.7	12.7	12.8
			100	0	1	23.0	23.1	23.3	0	12.8	12.8	12.9
		16QAM	1	0	1	23.8	23.8	23.9	0	13.3	13.3	13.5
			1	49	1	23.4	23.4	23.6	0	13.1	13.2	13.2
			1	99	1	23.5	23.6	23.5	0	13.2	13.4	13.1
			50	0	2	22.2	22.2	22.4	0	12.9	12.9	13.0
			50	24	2	22.1	22.2	22.3	0	12.8	12.9	12.9
			50	50	2	22.1	22.1	22.3	0	12.8	12.8	12.9
			100	0	2	22.1	22.2	22.4	0	12.8	12.9	13.0
		64QAM	1	0	2	23.0	22.7	22.7	0	13.4	13.4	13.3
			1	49	2	22.6	22.2	22.4	0	13.3	12.9	13.0
			1	99	2	22.7	22.5	22.3	0	13.3	13.2	13.0
			50	0	3	21.2	21.2	21.4	0	12.9	12.9	13.0
			50	24	3	21.1	21.2	21.3	0	12.8	12.9	13.0
			50	50	3	21.1	21.1	21.3	0	12.8	12.8	12.9
			100	0	3	21.1	21.2	21.3	0	12.8	12.8	13.0
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1857.5 MHz	1882.5 MHz	1907.5 MHz		1857.5 MHz	1882.5 MHz	1907.5 MHz
LTE Band 25	15	QPSK	1	0	0	24.1	24.0	24.1	0	12.8	12.7	12.8
			1	37	0	23.9	23.9	24.0	0	12.7	12.7	12.8
			1	74	0	23.9	23.9	24.0	0	12.7	12.6	12.7
			36	0	1	23.0	22.9	23.1	0	12.7	12.6	12.8
			36	20	1	23.0	23.0	23.1	0	12.7	12.7	12.8
			36	39	1	22.9	23.0	23.0	0	12.7	12.7	12.8
			75	0	1	23.0	23.0	23.1	0	12.7	12.7	12.8
		16QAM	1	0	1	23.6	23.0	23.6	0	13.3	12.8	13.3
			1	37	1	23.4	22.9	23.5	0	13.1	12.7	13.2
			1	74	1	23.4	22.9	23.4	0	13.0	12.6	13.1
			36	0	2	22.2	22.1	22.2	0	12.9	12.7	12.9
			36	20	2	22.2	22.1	22.2	0	12.8	12.8	12.8
			36	39	2	22.1	22.1	22.1	0	12.8	12.8	12.9
			75	0	2	22.1	22.1	22.2	0	12.8	12.8	12.9
		64QAM	1	0	2	22.3	22.4	22.8	0	13.0	13.2	13.3
			1	37	2	22.1	22.3	22.7	0	12.8	13.0	13.3
			1	74	2	22.1	22.3	22.6	0	12.8	13.0	13.4
			36	0	3	21.2	21.1	21.3	0	12.9	12.8	12.9
			36	20	3	21.1	21.2	21.2	0	12.8	12.8	12.9
			36	39	3	21.1	21.1	21.2	0	12.8	12.8	12.8
			75	0	3	21.1	21.1	21.2	0	12.8	12.8	12.9

LTE Band 25 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1855 MHz	1882.5 MHz	1910 MHz		1855 MHz	1882.5 MHz	1910 MHz
LTE Band 25	10	QPSK	1	0	0	24.2	24.1	24.0	0	13.0	12.8	12.8
			1	25	0	24.0	23.8	23.9	0	12.7	12.5	12.7
			1	49	0	24.1	24.1	23.9	0	12.8	12.9	12.6
			25	0	1	23.0	22.9	23.1	0	12.7	12.6	12.8
			25	12	1	23.0	23.0	23.0	0	12.7	12.7	12.8
			25	25	1	22.9	22.9	23.0	0	12.6	12.7	12.8
			50	0	1	23.0	23.0	23.1	0	12.7	12.8	12.8
		16QAM	1	0	1	23.7	23.2	23.2	0	13.4	12.9	12.9
			1	25	1	23.5	22.7	23.1	0	13.1	12.5	12.8
			1	49	1	23.5	23.0	23.0	0	13.2	12.8	12.7
			25	0	2	22.1	22.0	22.3	0	12.8	12.7	13.0
			25	12	2	22.1	22.1	22.3	0	12.8	12.8	12.9
			25	25	2	22.1	22.1	22.2	0	12.7	12.8	12.9
			50	0	2	22.1	22.0	22.2	0	12.8	12.8	12.9
		64QAM	1	0	2	22.4	22.5	22.4	0	13.2	13.3	13.1
			1	25	2	22.3	22.2	22.2	0	12.9	12.9	13.0
			1	49	2	22.3	22.5	22.1	0	13.0	13.2	12.9
			25	0	3	21.1	21.1	21.3	0	12.8	12.8	13.0
			25	12	3	21.1	21.1	21.3	0	12.8	12.8	13.0
			25	25	3	21.1	21.1	21.2	0	12.8	12.8	12.9
			50	0	3	21.1	21.1	21.2	0	12.8	12.8	12.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1852.5 MHz	1882.5 MHz	1912.5 MHz		1852.5 MHz	1882.5 MHz	1912.5 MHz
LTE Band 25	5	QPSK	1	0	0	23.9	23.9	24.1	0	12.7	12.7	12.8
			1	12	0	24.0	24.0	24.0	0	12.7	12.8	12.8
			1	24	0	24.0	24.0	24.0	0	12.7	12.7	12.6
			12	0	1	22.9	22.9	23.1	0	12.7	12.6	12.8
			12	7	1	22.9	22.9	23.1	0	12.7	12.7	12.8
			12	13	1	23.0	22.9	23.1	0	12.8	12.7	12.8
			25	0	1	23.0	23.0	23.1	0	12.7	12.7	12.8
		16QAM	1	0	1	23.6	23.1	23.3	0	13.3	12.9	13.0
			1	12	1	23.6	23.1	23.2	0	13.3	12.9	12.9
			1	24	1	23.6	23.1	23.1	0	13.3	12.9	12.8
			12	0	2	22.2	22.0	22.2	0	12.9	12.7	12.9
			12	7	2	22.2	22.1	22.2	0	12.9	12.8	12.9
			12	13	2	22.2	22.1	22.2	0	12.9	12.8	12.9
			25	0	2	22.1	22.0	22.1	0	12.8	12.8	12.8
		64QAM	1	0	2	22.4	21.9	22.4	0	13.1	12.6	13.1
			1	12	2	22.4	22.0	22.3	0	13.1	12.7	13.1
			1	24	2	22.4	21.9	22.3	0	13.1	12.7	13.0
			12	0	3	21.0	21.0	21.3	0	12.7	12.7	12.9
			12	7	3	21.0	21.1	21.2	0	12.7	12.8	12.9
			12	13	3	21.1	21.1	21.2	0	12.8	12.8	12.9
			25	0	3	21.0	21.0	21.2	0	12.7	12.7	12.8

LTE Band 25 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1851.5 MHz	1882.5 MHz	1913.5 MHz		1851.5 MHz	1882.5 MHz	1913.5 MHz
LTE Band 25	3	QPSK	1	0	0	23.9	23.8	23.9	0	12.7	12.5	12.7
			1	8	0	23.9	24.0	23.9	0	12.8	12.7	12.7
			1	14	0	23.9	23.9	23.9	0	12.7	12.6	12.5
			8	0	1	22.9	22.9	23.0	0	12.6	12.7	12.7
			8	4	1	22.9	22.9	23.0	0	12.6	12.7	12.6
			8	7	1	22.9	22.9	23.0	0	12.6	12.7	12.6
		16QAM	15	0	1	22.9	22.9	23.0	0	12.6	12.7	12.8
			1	0	1	23.0	23.2	23.0	0	13.1	12.5	12.9
			1	8	1	23.0	23.4	22.9	0	13.2	12.7	12.8
			1	14	1	23.1	23.2	22.9	0	13.1	12.6	12.7
			8	0	2	22.0	22.1	22.2	0	12.8	12.8	12.8
			8	4	2	22.0	22.1	22.1	0	12.8	12.8	12.8
		64QAM	8	7	2	22.0	22.1	22.1	0	12.8	12.8	12.7
			15	0	2	21.9	22.0	22.2	0	12.7	12.8	12.8
			1	0	2	22.2	22.0	22.3	0	12.8	12.9	13.0
			1	8	2	22.2	22.2	22.3	0	12.9	13.1	13.0
			1	14	2	22.2	22.0	22.2	0	12.9	13.0	12.9
			8	0	3	21.0	21.0	21.2	0	12.8	12.8	12.8
			8	4	3	21.0	21.1	21.1	0	12.8	12.8	12.7
			8	7	3	21.0	21.1	21.1	0	12.8	12.8	12.7
			15	0	3	21.0	21.0	21.1	0	12.7	12.7	12.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1850.7 MHz	1882.5 MHz	1914.3 MHz		1850.7 MHz	1882.5 MHz	1914.3 MHz
LTE Band 25	1.4	QPSK	1	0	0	23.8	24.0	23.8	0	12.6	12.6	12.6
			1	3	0	23.9	24.0	23.9	0	12.7	12.7	12.6
			1	5	0	23.8	24.0	23.9	0	12.6	12.8	12.6
			3	0	0	23.8	24.0	23.8	0	12.6	12.6	12.6
			3	1	0	23.9	24.1	23.9	0	12.6	12.8	12.6
			3	3	0	23.8	24.1	23.9	0	12.6	12.8	12.6
		16QAM	6	0	1	22.8	23.1	22.9	0	12.6	12.8	12.6
			1	0	1	23.0	23.4	23.0	0	12.8	12.8	13.0
			1	3	1	23.0	23.4	23.1	0	12.8	12.9	13.1
			1	5	1	22.9	23.5	23.0	0	12.7	12.9	13.0
			3	0	1	23.1	23.2	23.0	0	12.7	12.9	12.9
			3	1	1	23.2	23.4	23.1	0	12.7	13.1	12.9
		64QAM	3	3	1	23.2	23.4	23.0	0	12.7	13.1	12.9
			6	0	2	22.1	22.1	22.1	0	12.8	13.1	12.6
			1	0	2	22.1	22.2	22.3	0	13.1	12.9	12.8
			1	3	2	22.2	22.2	22.4	0	13.1	13.0	12.8
			1	5	2	22.1	22.2	22.3	0	13.0	13.0	12.7
			3	0	2	21.9	22.1	22.3	0	13.0	12.7	12.8
			3	1	2	22.0	22.4	22.4	0	13.0	12.9	12.8
			3	3	2	21.9	22.4	22.3	0	13.0	12.9	12.9
			6	0	3	21.0	21.5	21.0	0	12.6	13.0	13.0

LTE Band 26 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						821.5 MHz	831.5 MHz	841.5 MHz		821.5 MHz	831.5 MHz	841.5 MHz
LTE Band 26	15	QPSK	1	0	0		23.7		0		16.9	
			1	37	0		23.8		0		17.2	
			1	74	0		23.6		0		16.8	
			36	0	1		22.8		0		17.1	
			36	20	1		22.8		0		17.0	
			36	39	1		22.7		0		16.9	
			75	0	1		22.8		0		16.9	
		16QAM	1	0	1		23.2		0		17.3	
			1	37	1		23.2		0		17.4	
			1	74	1		23.1		0		17.2	
			36	0	2		22.0		0		17.2	
			36	20	2		21.9		0		17.1	
			36	39	2		21.8		0		17.0	
			75	0	2		21.9		0		17.1	
		64QAM	1	0	2		21.9		0		17.1	
			1	37	2		22.0		0		17.2	
			1	74	2		21.8		0		16.9	
			36	0	3		21.0		0		17.2	
			36	20	3		21.0		0		17.2	
			36	39	3		20.9		0		17.1	
			75	0	3		20.9		0		17.1	
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						819 MHz	831.5 MHz	844 MHz		819 MHz	831.5 MHz	844 MHz
LTE Band 26	10	QPSK	1	0	0	23.5	23.8	23.8	0	16.7	16.9	17.0
			1	25	0	23.5	23.7	23.6	0	16.7	16.9	16.8
			1	49	0	23.6	23.7	23.6	0	16.8	16.8	16.8
			25	0	1	22.6	22.8	22.8	0	16.9	17.0	16.9
			25	12	1	22.7	22.8	22.7	0	16.9	17.0	16.9
			25	25	1	22.7	22.7	22.7	0	16.9	16.9	16.9
			50	0	1	22.7	22.8	22.7	0	16.9	17.0	16.9
		16QAM	1	0	1	22.7	23.2	22.8	0	16.9	17.3	17.0
			1	25	1	22.7	23.2	22.7	0	16.9	17.3	16.8
			1	49	1	22.7	23.1	22.6	0	16.9	17.3	16.7
			25	0	2	21.9	22.0	21.9	0	17.1	17.1	17.0
			25	12	2	21.9	22.0	21.8	0	17.1	17.1	17.0
			25	25	2	21.8	21.9	21.8	0	17.0	17.0	16.9
			50	0	2	21.8	21.9	21.8	0	17.0	17.0	16.9
		64QAM	1	0	2	21.8	22.0	22.2	0	17.0	17.1	17.3
			1	25	2	21.8	22.0	22.1	0	17.0	17.1	17.2
			1	49	2	21.9	21.9	21.9	0	17.0	17.1	17.1
			25	0	3	20.9	21.0	20.9	0	17.0	17.1	17.1
			25	12	3	20.9	21.0	20.9	0	17.1	17.1	17.0
			25	25	3	20.8	20.9	20.8	0	17.0	17.1	17.0
			50	0	3	20.8	20.9	20.8	0	17.0	17.0	17.0

Note(s):

15 MHz Bandwidths 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 Band 26 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						816.5 MHz	831.5 MHz	846.5 MHz		816.5 MHz	831.5 MHz	846.5 MHz
						LTE Band 26	5	QPSK		1	0	0
			1	12	0	23.6	23.7	23.7	0	16.8	16.9	16.9
			1	24	0	23.6	23.7	23.7	0	16.8	16.9	16.9
			12	0	1	22.7	22.8	22.7	0	16.9	17.0	16.9
			12	7	1	22.7	22.8	22.7	0	16.9	17.0	16.9
			12	13	1	22.7	22.8	22.7	0	16.8	17.0	16.8
			25	0	1	22.6	22.8	22.7	0	16.8	17.0	16.9
		16QAM	1	0	1	22.7	23.4	22.9	0	17.0	17.3	17.1
			1	12	1	22.8	23.3	22.8	0	17.0	17.3	17.0
			1	24	1	22.8	23.3	22.8	0	17.0	17.4	17.0
			12	0	2	21.8	22.0	21.8	0	17.0	17.2	17.0
			12	7	2	21.8	22.0	21.8	0	17.0	17.2	17.0
			12	13	2	21.8	22.0	21.8	0	16.9	17.1	17.0
			25	0	2	21.7	21.9	21.8	0	16.9	17.1	16.9
		64QAM	1	0	2	21.9	22.2	21.7	0	17.1	17.3	16.9
			1	12	2	21.9	22.1	21.6	0	17.1	17.3	16.8
			1	24	2	21.9	22.1	21.6	0	17.1	17.2	16.8
			12	0	3	20.9	20.9	20.8	0	17.0	17.0	17.0
			12	7	3	20.8	20.8	20.8	0	17.0	17.0	17.0
			12	13	3	20.8	20.8	20.8	0	16.9	16.9	16.9
			25	0	3	20.8	20.9	20.8	0	16.9	17.0	16.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						815.5 MHz	831.5 MHz	847.5 MHz		815.5 MHz	831.5 MHz	847.5 MHz
LTE Band 26	3	QPSK	1	0	0	23.5	23.8	23.6	0	16.7	16.9	16.7
			1	8	0	23.5	23.8	23.7	0	16.7	17.0	16.8
			1	14	0	23.5	23.7	23.6	0	16.7	16.9	16.7
			8	0	1	22.5	22.7	22.6	0	16.7	17.0	16.8
			8	4	1	22.5	22.8	22.6	0	16.7	17.0	16.8
			8	7	1	22.6	22.7	22.6	0	16.8	16.9	16.8
			15	0	1	22.6	22.7	22.6	0	16.8	16.9	16.8
		16QAM	1	0	1	22.7	23.2	22.6	0	16.9	17.4	16.8
			1	8	1	22.7	23.3	22.7	0	16.9	17.4	16.8
			1	14	1	22.6	23.2	22.5	0	16.9	17.3	16.7
			8	0	2	21.7	21.9	21.8	0	16.9	17.1	17.0
			8	4	2	21.7	21.9	21.8	0	16.9	17.1	17.0
			8	7	2	21.8	21.9	21.8	0	17.0	17.1	17.0
			15	0	2	21.7	21.9	21.8	0	16.9	17.0	16.9
		64QAM	1	0	2	21.8	21.9	22.0	0	17.0	17.1	17.1
			1	8	2	21.8	22.0	22.1	0	17.0	17.2	17.2
			1	14	2	21.9	21.9	22.0	0	17.0	17.1	17.1
			8	0	3	20.6	20.8	20.8	0	16.8	17.0	16.9
			8	4	3	20.6	20.9	20.8	0	16.8	17.1	17.0
			8	7	3	20.7	20.9	20.8	0	16.9	17.1	17.0
			15	0	3	20.8	20.9	20.7	0	16.9	17.0	16.8

LTE Band 26 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						814.7 MHz	831.5 MHz	848.3 MHz		814.7 MHz	831.5 MHz	848.3 MHz
LTE Band 26	1.4	QPSK	1	0	0	23.4	23.7	23.6	0	16.6	16.9	16.6
			1	3	0	23.5	23.7	23.6	0	16.7	17.0	16.7
			1	5	0	23.4	23.7	23.6	0	16.6	16.9	16.6
			3	0	0	23.4	23.8	23.5	0	16.7	16.8	16.6
			3	1	0	23.5	23.8	23.6	0	16.7	16.9	16.7
			3	3	0	23.5	23.8	23.6	0	16.7	16.9	16.7
			6	0	1	22.4	22.6	22.5	0	16.6	16.9	16.7
		16QAM	1	0	1	22.5	23.1	22.7	0	17.1	17.0	16.8
			1	3	1	22.6	23.2	22.8	0	17.1	17.0	16.8
			1	5	1	22.5	23.1	22.7	0	17.1	16.9	16.8
			3	0	1	22.7	23.0	22.7	0	16.9	16.9	16.9
			3	1	1	22.8	23.0	22.7	0	16.9	16.9	17.0
			3	3	1	22.8	23.1	22.8	0	16.9	16.9	16.9
		64QAM	6	0	2	21.7	21.7	21.7	0	16.7	17.1	17.0
			1	0	2	21.7	21.9	22.0	0	16.8	17.3	16.9
			1	3	2	21.7	22.0	22.1	0	16.9	17.4	17.0
			1	5	2	21.7	21.8	22.0	0	16.8	17.3	16.9
			3	0	2	21.5	21.9	22.0	0	16.8	17.1	16.6
			3	1	2	21.6	22.0	22.0	0	16.9	17.2	16.7
			3	3	2	21.6	22.0	22.0	0	16.9	17.2	16.7
			6	0	3	20.6	21.1	20.6	0	17.0	16.9	16.9

LTE Band 30 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)				
						790.5 MHz	2310 MHz	796.5 MHz		790.5 MHz	2310 MHz	796.5 MHz		
LTE Band 30	10	QPSK	1	0	0		22.5		0		15.1			
			1	25	0		22.4		0		15.0			
			1	49	0		22.5		0		15.1			
			25	0	1		21.5		0		15.1			
			25	12	1		21.5		0		15.1			
			25	25	1		21.6		0		15.2			
		16QAM	50	0	1		21.5		0		15.1			
			1	0	1		21.6		0		15.2			
			1	25	1		21.5		0		15.1			
			1	49	1		21.6		0		15.3			
			25	0	2		20.7		0		15.2			
			25	12	2		20.7		0		15.2			
		64QAM	25	25	2		20.7		0		15.3			
			50	0	2		20.6		0		15.2			
			1	0	2		20.6		0		15.2			
			1	25	2		20.6		0		15.2			
			1	49	2		20.7		0		15.3			
			25	0	3		19.6		0		15.2			
		LTE Band 30	5	QPSK	25	12	3		19.6		0		15.2	
					25	25	3		19.7		0		15.2	
					50	0	3		19.6		0		15.2	
1	0				0		22.5		0		15.2			
1	12				0		22.5		0		15.1			
1	24				0		22.6		0		15.2			
16QAM	12			0	1		21.4		0		15.0			
	12			7	1		21.4		0		15.0			
	12			13	1		21.4		0		15.1			
	25			0	1		21.4		0		15.0			
	1			0	1		21.7		0		15.2			
	1			12	1		21.5		0		15.2			
64QAM	1			24	1		21.7		0		15.2			
	12			0	2		20.6		0		15.2			
	12			7	2		20.6		0		15.2			
	12	13	2		20.6		0		15.2					
	25	0	2		20.5		0		15.2					
	1	0	2		20.7		0		15.1					
64QAM	1	12	2		20.7		0		15.1					
	1	24	2		20.8		0		15.1					
	12	0	3		19.5		0		15.1					
	12	7	3		19.6		0		15.2					
	12	13	3		19.5		0		15.2					
		25	0	3		19.5		0		15.1				

Note(s):

5/10 MHz Bandwidths 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 Band 66 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)				
						1720 MHz	1745 MHz	1770 MHz		1720 MHz	1745 MHz	1770 MHz		
LTE Band 66	20	QPSK	1	0	0	23.6	23.5	23.5	0	12.0	11.7	11.9		
			1	49	0	23.6	23.4	23.5	0	11.8	11.6	11.7		
			1	99	0	23.5	23.3	23.4	0	11.7	11.5	11.6		
			50	0	1	22.9	22.5	22.8	0	12.0	11.8	11.8		
			50	24	1	22.7	22.6	22.6	0	11.9	11.8	11.7		
			50	50	1	22.6	22.5	22.5	0	11.8	11.8	11.7		
		16QAM	100	0	1	22.7	22.5	22.5	0	11.9	11.7	11.7		
			1	0	1	22.8	23.1	23.2	0	12.4	12.3	12.4		
			1	49	1	23.1	23.0	23.0	0	12.3	12.2	12.2		
			1	99	1	22.9	22.9	22.9	0	12.2	12.1	12.1		
			50	0	2	21.9	21.7	21.7	0	12.1	11.9	11.9		
			50	24	2	21.8	21.7	21.6	0	12.0	11.9	11.8		
		64QAM	50	50	2	21.7	21.6	21.5	0	11.9	11.8	11.8		
			100	0	2	21.8	21.6	21.6	0	12.0	11.8	11.8		
			1	0	2	22.0	21.9	22.0	0	12.3	12.1	12.2		
			1	49	2	22.3	21.8	21.8	0	12.2	12.0	12.0		
			1	99	2	22.2	21.8	21.7	0	12.3	12.0	11.9		
			50	0	3	20.9	20.7	20.7	0	12.1	11.9	11.9		
		LTE Band 66	15	QPSK	50	24	3	20.8	20.7	20.7	0	12.0	12.0	11.9
					50	50	3	20.8	20.7	20.6	0	12.0	11.9	11.8
					100	0	3	20.8	20.6	20.7	0	12.0	11.8	11.9
1	0				0	23.3	23.5	23.5	0	12.0	11.6	12.0		
1	37				0	23.6	23.4	23.5	0	11.9	11.6	11.8		
1	74				0	23.5	23.3	23.5	0	11.7	11.6	11.7		
16QAM	36			0	1	22.7	22.5	22.7	0	11.9	11.7	11.9		
	36			20	1	22.7	22.5	22.5	0	11.8	11.7	11.7		
	36			39	1	22.6	22.5	22.5	0	11.8	11.7	11.7		
	75			0	1	22.7	22.5	22.5	0	11.8	11.7	11.7		
	1			0	1	22.7	22.4	23.3	0	12.4	11.7	12.3		
	1			37	1	23.0	22.4	23.1	0	12.3	11.6	12.3		
64QAM	1			74	1	22.9	22.3	22.9	0	12.1	11.6	12.2		
	36			0	2	21.9	21.6	21.8	0	12.1	11.8	12.0		
	36			20	2	21.8	21.6	21.6	0	12.0	11.8	11.8		
	36	39	2	21.8	21.6	21.6	0	11.9	11.8	11.8				
	75	0	2	21.8	21.5	21.6	0	12.0	11.7	11.8				
	1	0	2	21.6	21.8	22.4	0	12.2	12.1	12.4				
64QAM	1	37	2	21.8	21.8	22.3	0	12.0	12.0	12.3				
	1	74	2	21.7	21.7	22.1	0	11.9	12.0	12.4				
	36	0	3	20.9	20.7	20.8	0	12.1	11.9	12.0				
	36	20	3	20.9	20.7	20.6	0	12.0	11.9	11.8				
	36	39	3	20.8	20.6	20.6	0	12.0	11.8	11.8				
	75	0	3	20.8	20.6	20.7	0	12.0	11.8	11.9				

LTE Band 66 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1715 MHz	1745 MHz	1775 MHz		1715 MHz	1745 MHz	1775 MHz
						LTE Band 66	10	QPSK		1	0	0
			1	25	0	23.5	23.4	23.4	0	11.8	11.6	11.6
			1	49	0	23.6	23.4	23.4	0	11.8	11.7	11.6
			25	0	1	22.4	22.5	22.6	0	11.9	11.7	11.8
			25	12	1	22.7	22.5	22.5	0	11.9	11.8	11.7
			25	25	1	22.7	22.5	22.5	0	11.9	11.7	11.7
			50	0	1	22.7	22.6	22.5	0	11.9	11.8	11.7
		16QAM	1	0	1	22.5	22.4	22.8	0	12.3	11.7	12.0
			1	25	1	23.0	22.3	22.6	0	12.2	11.6	11.8
			1	49	1	23.0	22.4	22.5	0	12.2	11.7	11.7
			25	0	2	21.6	21.6	21.7	0	12.0	11.8	12.0
			25	12	2	21.8	21.6	21.7	0	12.0	11.9	11.9
			25	25	2	21.8	21.6	21.7	0	11.9	11.8	11.8
			50	0	2	21.8	21.6	21.6	0	12.0	11.9	11.8
		64QAM	1	0	2	21.3	21.8	21.9	0	12.1	12.0	12.2
			1	25	2	21.8	21.7	21.7	0	12.0	11.9	11.9
			1	49	2	21.8	21.8	21.7	0	12.0	12.0	11.9
			25	0	3	20.8	20.6	20.7	0	12.1	11.8	12.0
			25	12	3	20.8	20.7	20.7	0	12.0	11.9	11.9
			25	25	3	20.8	20.6	20.7	0	12.0	11.9	11.9
			50	0	3	20.8	20.6	20.6	0	12.0	11.9	11.8
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1712.5 MHz	1745 MHz	1777.5 MHz		1712.5 MHz	1745 MHz	1777.5 MHz
LTE Band 66	5	QPSK	1	0	0	23.0	23.6	23.6	0	11.9	11.8	11.8
			1	12	0	23.5	23.5	23.5	0	11.8	11.7	11.7
			1	24	0	23.5	23.5	23.5	0	11.8	11.8	11.7
			12	0	1	22.2	22.4	22.5	0	11.9	11.7	11.7
			12	7	1	22.4	22.4	22.5	0	11.9	11.7	11.7
			12	13	1	22.5	22.5	22.5	0	11.9	11.7	11.7
			25	0	1	22.3	22.5	22.5	0	11.9	11.8	11.7
		16QAM	1	0	1	22.6	22.7	22.7	0	12.3	11.9	11.9
			1	12	1	23.1	22.6	22.6	0	12.3	11.9	11.8
			1	24	1	23.1	22.7	22.6	0	12.4	11.9	11.9
			12	0	2	21.4	21.6	21.6	0	12.0	11.8	11.8
			12	7	2	21.7	21.6	21.6	0	12.1	11.8	11.9
			12	13	2	21.8	21.6	21.6	0	12.0	11.9	11.8
			25	0	2	21.5	21.6	21.5	0	12.0	11.8	11.7
		64QAM	1	0	2	21.4	21.4	21.8	0	12.2	11.7	12.1
			1	12	2	21.9	21.4	21.8	0	12.2	11.6	12.0
			1	24	2	22.0	21.5	21.7	0	12.1	11.8	12.0
			12	0	3	20.3	20.5	20.6	0	11.9	11.8	11.9
			12	7	3	20.6	20.6	20.7	0	11.9	11.8	11.9
			12	13	3	20.7	20.6	20.6	0	11.9	11.9	11.9
			25	0	3	20.6	20.6	20.6	0	11.9	11.8	11.8

LTE Band 66 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1711.5 MHz	1745 MHz	1778.5 MHz		1711.5 MHz	1745 MHz	1778.5 MHz
LTE Band 66	3	QPSK	1	0	0	23.1	23.4	23.5	0	11.8	11.6	11.7
			1	8	0	23.3	23.5	23.5	0	12.0	11.7	11.7
			1	14	0	23.6	23.4	23.4	0	11.8	11.6	11.6
			8	0	1	22.1	22.4	22.4	0	11.8	11.6	11.6
			8	4	1	22.1	22.4	22.4	0	11.9	11.7	11.7
			8	7	1	22.2	22.4	22.4	0	11.9	11.6	11.6
			15	0	1	22.2	22.4	22.4	0	11.8	11.6	11.7
		16QAM	1	0	1	22.4	22.3	22.5	0	12.2	11.6	11.8
			1	8	1	22.8	22.4	22.6	0	12.3	11.7	11.9
			1	14	1	22.9	22.3	22.5	0	12.2	11.5	11.8
			8	0	2	21.2	21.6	21.6	0	12.0	11.8	11.8
			8	4	2	21.4	21.6	21.6	0	12.0	11.8	11.8
			8	7	2	21.4	21.6	21.6	0	11.9	11.8	11.8
			15	0	2	21.3	21.5	21.5	0	11.9	11.7	11.8
		64QAM	1	0	2	21.2	21.7	21.7	0	12.0	12.0	12.0
			1	8	2	21.7	21.8	21.8	0	12.1	12.1	12.0
			1	14	2	21.7	21.7	21.6	0	12.0	11.9	11.9
			8	0	3	20.3	20.6	20.5	0	11.9	11.8	11.7
			8	4	3	20.5	20.6	20.5	0	12.0	11.8	11.8
			8	7	3	20.5	20.6	20.5	0	12.0	11.7	11.7
			15	0	3	20.4	20.5	20.6	0	12.0	11.7	11.8
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)		
						1710.7 MHz	1745 MHz	1779.3 MHz		1710.7 MHz	1745 MHz	1779.3 MHz
LTE Band 66	1.4	QPSK	1	0	0	23.0	23.3	23.3	0	11.7	11.5	11.5
			1	3	0	23.3	23.3	23.4	0	11.8	11.6	11.6
			1	5	0	23.1	23.3	23.3	0	11.7	11.6	11.5
			3	0	0	23.0	23.3	23.4	0	11.7	11.6	11.5
			3	1	0	23.0	23.3	23.4	0	11.8	11.6	11.6
			3	3	0	23.0	23.3	23.4	0	11.8	11.6	11.6
			6	0	1	22.0	22.3	22.3	0	11.8	11.5	11.5
		16QAM	1	0	1	22.0	22.4	22.8	0	11.8	12.0	11.7
			1	3	1	22.2	22.4	22.8	0	11.8	12.0	11.8
			1	5	1	22.3	22.4	22.7	0	11.8	11.9	11.7
			3	0	1	22.0	22.5	22.6	0	12.0	11.8	11.7
			3	1	1	22.1	22.6	22.7	0	12.1	11.8	11.7
			3	3	1	22.1	22.6	22.7	0	12.1	11.8	11.8
			6	0	2	21.2	21.5	21.3	0	12.0	11.5	11.7
		64QAM	1	0	2	21.4	21.5	21.5	0	12.0	11.7	12.0
			1	3	2	21.6	21.6	21.6	0	12.0	11.8	12.1
			1	5	2	21.6	21.6	21.5	0	12.0	11.7	12.0
			3	0	2	21.3	21.3	21.6	0	11.8	11.8	12.0
			3	1	2	21.4	21.4	21.7	0	11.9	11.8	12.0
			3	3	2	21.4	21.4	21.7	0	11.9	11.8	12.0
			6	0	3	20.1	20.5	20.8	0	11.9	11.9	11.6

LTE Band 71 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)				
						673 MHz	680.5 MHz	688 MHz		673 MHz	680.5 MHz	688 MHz		
LTE Band 71	20	QPSK	1	0	0		23.5		0		17.7			
			1	49	0		23.5		0		17.7			
			1	99	0		23.3		0		17.6			
			50	0	1		22.6		0		17.7			
			50	24	1		22.6		0		17.8			
			50	50	1		22.4		0		17.6			
		16QAM	100	0	1		22.5		0		17.7			
			1	0	1		23.0		0		18.2			
			1	49	1		22.9		0		18.1			
			1	99	1		22.8		0		18.0			
			50	0	2		21.6		0		17.8			
			50	24	2		21.6		0		17.8			
		64QAM	50	50	2		21.5		0		17.7			
			100	0	2		21.6		0		17.8			
			1	0	2		21.9		0		18.0			
			1	49	2		21.8		0		18.0			
			1	99	2		21.7		0		17.9			
			50	0	3		20.7		0		17.9			
		LTE Band 71	15	QPSK	50	24	3		20.7		0		17.9	
					50	50	3		20.6		0		17.7	
					100	0	3		20.6		0		17.8	
1	0				0		23.5		0		17.7			
1	37				0		23.6		0		17.7			
1	74				0		23.4		0		17.5			
16QAM	36			0	1		22.6		0		17.8			
	36			20	1		22.6		0		17.7			
	36			39	1		22.5		0		17.6			
	75			0	1		22.5		0		17.7			
	1			0	1		23.0		0		18.1			
	1			37	1		23.0		0		18.1			
64QAM	1	74	1		22.8		0		18.0					
	36	0	2		21.7		0		17.9					
	36	20	2		21.6		0		17.8					
	36	39	2		21.6		0		17.7					
	75	0	2		21.6		0		17.8					
	1	0	2		22.2		0		18.2					
64QAM	1	37	2		22.2		0		18.1					
	1	74	2		22.0		0		18.1					
	36	0	3		20.7		0		17.9					
	36	20	3		20.7		0		17.8					
	36	39	3		20.6		0		17.7					
	75	0	3		20.7		0		17.8					

Note(s):

15/20 MHz Bandwidths 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 Band 71 Measured Results (continued)

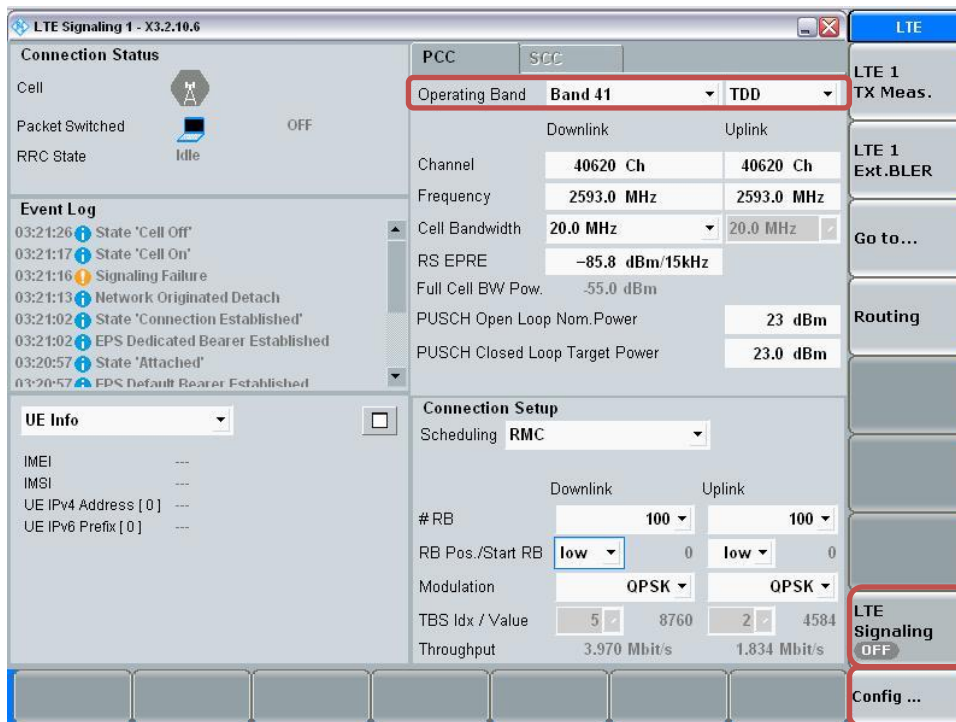
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)			MPR	Reduced Meas. Avg Pwr (dBm)				
						668 MHz	680.5 MHz	693 MHz		668 MHz	680.5 MHz	693 MHz		
LTE Band 71	10	QPSK	1	0	0	23.4	23.4	23.3	0	17.6	17.6	17.5		
			1	25	0	23.4	23.4	23.4	0	17.6	17.6	17.5		
			1	49	0	23.4	23.3	23.3	0	17.5	17.5	17.5		
			25	0	1	22.5	22.6	22.4	0	17.7	17.8	17.5		
			25	12	1	22.6	22.5	22.5	0	17.8	17.7	17.7		
			25	25	1	22.5	22.4	22.4	0	17.7	17.6	17.6		
		16QAM	50	0	1	22.6	22.5	22.4	0	17.7	17.7	17.5		
			1	0	1	22.5	22.6	22.4	0	17.7	17.8	17.6		
			1	25	1	22.5	22.5	22.4	0	17.7	17.7	17.6		
			1	49	1	22.5	22.4	22.3	0	17.7	17.6	17.6		
			25	0	2	21.7	21.7	21.5	0	17.9	17.9	17.7		
			25	12	2	21.8	21.7	21.6	0	18.0	17.9	17.8		
		64QAM	25	25	2	21.7	21.6	21.5	0	17.9	17.8	17.7		
			50	0	2	21.7	21.6	21.5	0	17.9	17.8	17.6		
			1	0	2	21.7	21.7	21.8	0	17.9	17.9	17.8		
			1	25	2	21.7	21.7	21.8	0	18.0	17.9	17.8		
			1	49	2	21.7	21.6	21.7	0	18.0	17.8	17.7		
			25	0	3	20.7	20.7	20.5	0	17.8	17.9	17.7		
		LTE Band 71	5	QPSK	25	12	3	20.8	20.7	20.6	0	17.9	17.8	17.8
					25	25	3	20.7	20.6	20.5	0	17.9	17.8	17.7
					50	0	3	20.7	20.6	20.4	0	17.9	17.8	17.6
1	0				0	23.5	23.6	23.6	0	17.6	17.8	17.7		
1	12				0	23.6	23.5	23.5	0	17.7	17.7	17.6		
1	24				0	23.5	23.5	23.5	0	17.7	17.6	17.6		
16QAM	12			0	1	22.5	22.6	22.5	0	17.7	17.7	17.6		
	12			7	1	22.5	22.6	22.5	0	17.7	17.7	17.6		
	12			13	1	22.5	22.6	22.5	0	17.7	17.7	17.6		
	25			0	1	22.5	22.6	22.5	0	17.7	17.7	17.6		
	1			0	1	22.6	22.8	22.7	0	17.8	17.9	17.8		
	1			12	1	22.7	22.7	22.6	0	17.8	17.8	17.7		
64QAM	1	24	1	22.7	22.7	22.6	0	17.8	17.8	17.7				
	12	0	2	21.7	21.7	21.6	0	17.8	17.8	17.7				
	12	7	2	21.7	21.7	21.6	0	17.8	17.8	17.7				
	12	13	2	21.7	21.7	21.6	0	17.8	17.8	17.7				
	25	0	2	21.6	21.6	21.6	0	17.7	17.7	17.7				
	1	0	2	21.8	21.5	21.5	0	17.9	18.0	17.6				
LTE Band 71	5	64QAM	1	12	2	21.8	21.4	21.4	0	18.0	17.9	17.5		
			1	24	2	21.8	21.4	21.4	0	18.0	17.9	17.5		
			12	0	3	20.7	20.7	20.6	0	17.8	17.8	17.7		
			12	7	3	20.7	20.6	20.6	0	17.8	17.8	17.7		
			12	13	3	20.7	20.6	20.6	0	17.8	17.8	17.7		
			25	0	3	20.6	20.6	20.5	0	17.8	17.8	17.6		

LTE Band TDD Measured Results

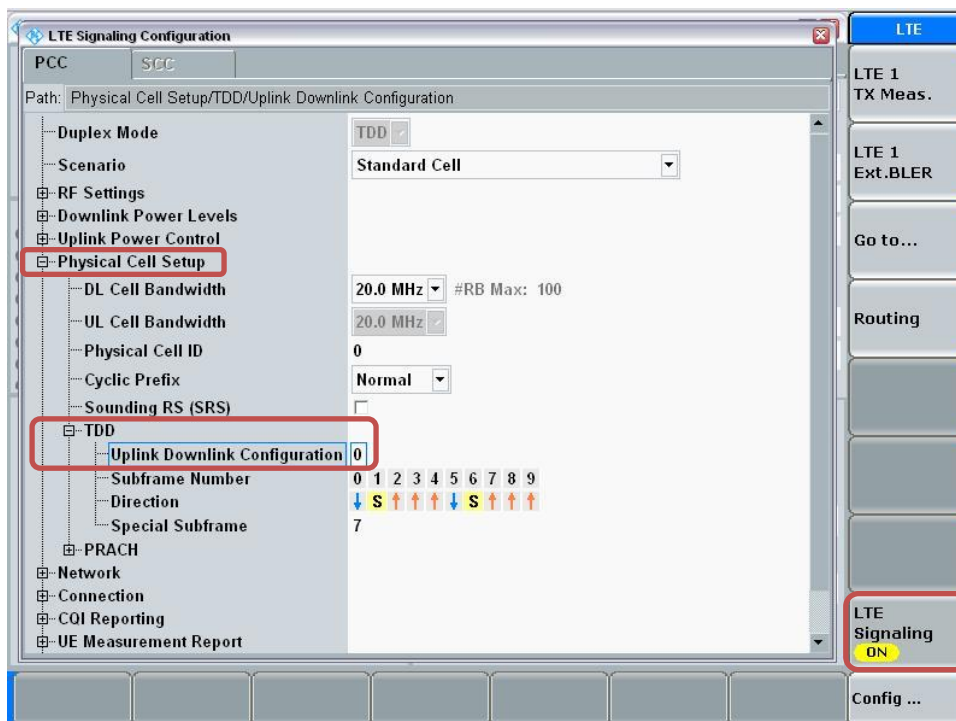
Procedure used to establish SAR test signal for LTE TDD Band

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...”

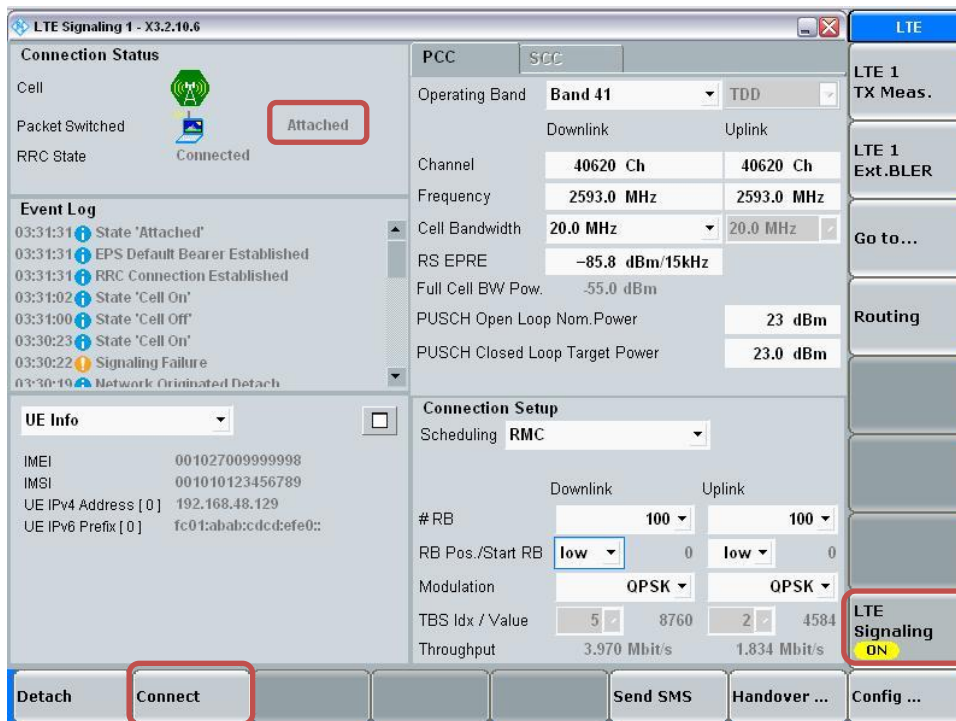


- Go to “Physical Cell Setup”
- Select “TDD” and Set “Uplink Downlink Configuration” to “0” (Uplink Downlink Configuration “0” for Power class 3, Uplink Downlink Configuration “1” for Power class 2.)
- Turn the cell on using “ON | OFF” key



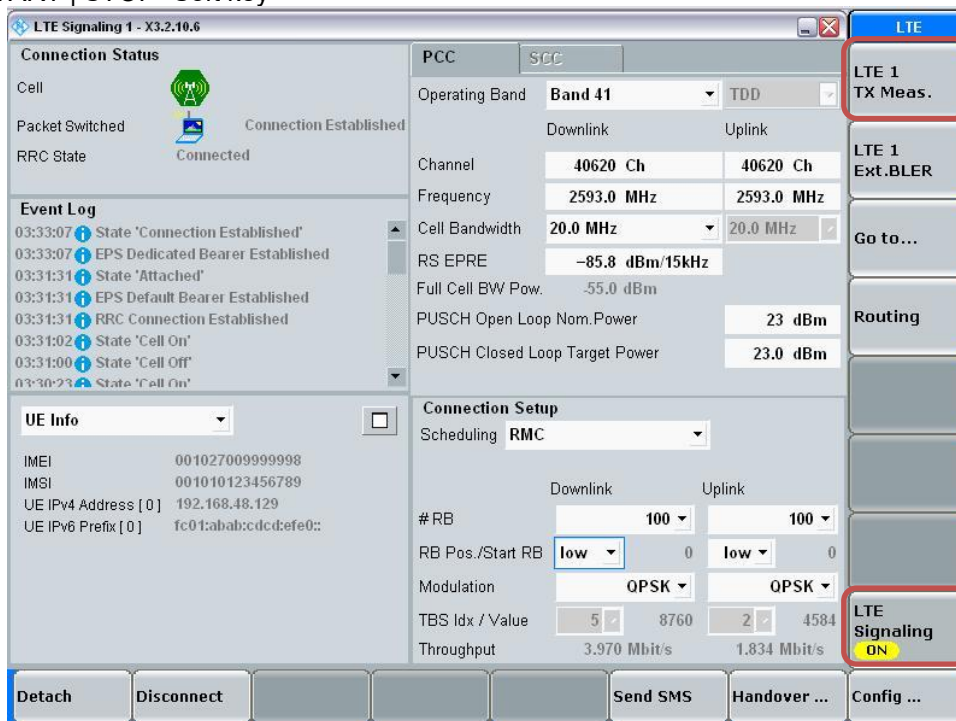
Connect to EUT

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

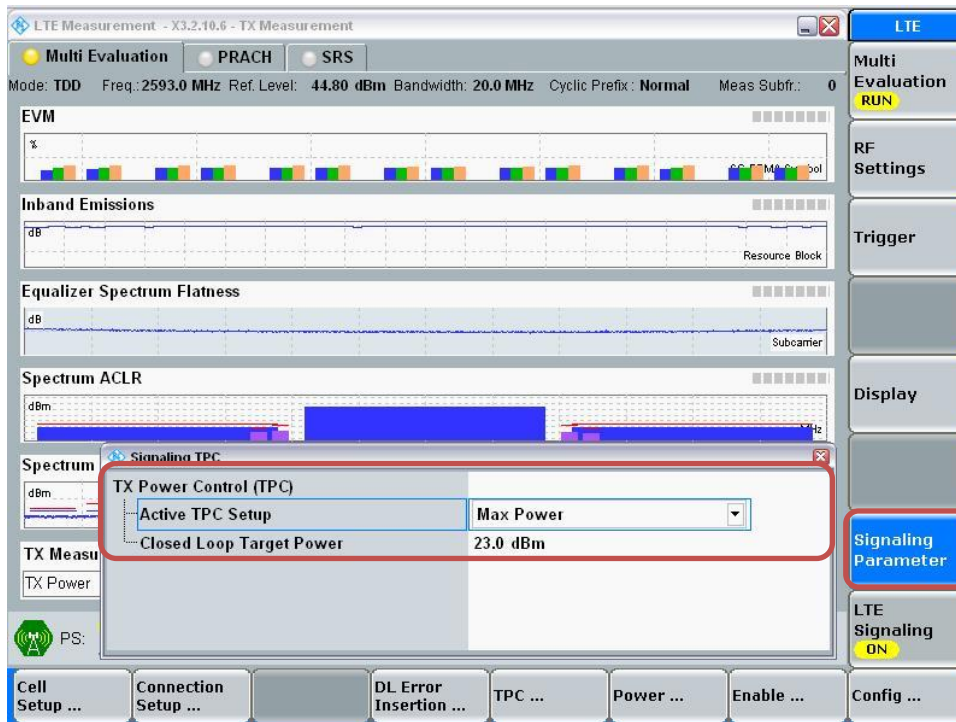


Max Power Setting

- 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 38 Measured Results

SAR for LTE Band 38 (Frequency range: 2570-2620 MHz) is covered by LTE Band 41 (Frequency range: 2496-2690 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 41 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)					MPR	Reduced Meas. Avg Pwr (dBm)						
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
						LTE Band 41	20	QPSK	1	0		0	24.3	24.0	23.9	23.9	24.0	0
1	49	0	24.1	23.8	23.8				23.8	23.8	0	15.3	15.1	15.1	15.1	15.0		
1	99	0	23.9	23.7	23.7				23.7	23.7	0	15.1	15.0	15.0	15.0	14.9		
50	0	1	23.1	22.9	22.8				22.8	22.9	0	15.3	15.1	15.1	15.0	15.1		
50	24	1	23.0	22.9	22.9				22.8	22.8	0	15.1	15.1	15.1	15.0	15.0		
50	50	1	23.0	22.8	22.8				22.7	22.8	0	15.1	15.0	15.1	15.0	15.0		
100	0	1	22.9	22.8	22.7			22.7	22.8	0	15.1	15.1	15.0	15.0	15.0			
1	0	1	23.2	23.2	22.9			22.8	23.1	0	15.4	15.4	15.2	15.1	15.3			
1	49	1	22.9	23.0	22.9			22.7	23.0	0	15.1	15.2	15.1	14.9	15.2			
1	99	1	22.8	22.9	22.8			22.6	22.9	0	15.0	15.1	15.0	14.9	15.1			
50	0	2	22.2	22.0	21.9			21.9	22.0	0	15.3	15.3	15.1	15.1	15.1			
50	24	2	22.0	22.0	22.0			21.8	21.9	0	15.2	15.2	15.2	15.1	15.1			
50	50	2	22.0	21.9	21.9			21.9	21.9	0	15.2	15.1	15.1	15.1	15.1			
100	0	2	22.1	21.9	21.8			21.8	21.9	0	15.2	15.1	15.1	15.1	15.0			
1	0	1	22.2	22.1	22.3			21.9	22.1	0	15.4	15.3	15.6	15.1	15.2			
1	49	1	22.0	21.9	22.3			21.8	21.9	0	15.2	15.1	15.5	15.0	15.1			
1	99	1	21.8	21.9	22.2			21.7	21.8	0	15.1	15.1	15.4	14.9	15.0			
50	0	2	21.2	21.0	20.9			20.9	21.0	0	15.4	15.2	15.2	15.1	15.2			
50	24	2	21.1	21.0	21.0			20.8	20.9	0	15.3	15.2	15.2	15.1	15.1			
50	50	2	21.0	20.9	20.9			20.8	20.9	0	15.3	15.1	15.1	15.1	15.2			
100	0	2	21.0	21.0	20.9			20.8	20.9	0	15.3	15.2	15.1	15.1	15.1			
LTE Band 41	15	QPSK	1	0	0			24.2	24.0	23.8	23.8	23.9	0	15.4	15.2	15.1	15.1	15.2
			1	37	0			24.1	23.8	23.8	23.8	23.8	0	15.3	15.1	15.1	15.1	15.1
			1	74	0			23.9	23.8	23.7	23.7	23.7	0	15.1	15.0	15.0	15.0	15.0
			36	0	1	23.0	22.9	22.8	22.8	22.8	0	15.2	15.2	15.1	15.1	15.1		
			36	20	1	23.0	22.8	22.9	22.7	22.8	0	15.2	15.1	15.2	15.0	15.1		
			36	39	1	23.0	22.7	22.8	22.8	22.8	0	15.2	15.1	15.1	15.1	15.0		
		75	0	1	22.9	22.8	22.7	22.7	22.7	0	15.2	15.1	15.0	15.0	15.1			
		1	0	1	23.2	23.1	22.9	22.9	23.0	0	15.4	15.3	15.2	15.2	15.2			
		1	37	1	23.1	22.8	22.9	22.8	22.9	0	15.3	15.2	15.1	15.1	15.2			
		1	74	1	22.9	22.8	22.8	22.8	22.8	0	15.1	15.1	15.1	15.0	15.1			
		36	0	2	22.1	22.0	21.9	21.8	21.9	0	15.3	15.3	15.2	15.2	15.2			
		36	20	2	22.0	22.0	21.9	21.8	21.9	0	15.3	15.3	15.3	15.1	15.1			
		36	39	2	22.0	21.9	21.9	21.8	21.9	0	15.3	15.2	15.2	15.1	15.2			
		75	0	2	22.0	21.9	21.9	21.8	21.8	0	15.3	15.2	15.1	15.1	15.1			
		1	0	1	22.5	21.9	21.5	22.1	21.8	0	15.6	15.1	14.8	15.4	15.0			
		1	37	1	22.3	21.7	21.5	22.1	21.7	0	15.6	15.0	14.8	15.4	15.0			
		1	74	1	22.2	21.7	21.4	22.0	21.7	0	15.4	14.9	14.7	15.3	14.9			
		36	0	2	21.2	20.9	21.0	20.9	20.9	0	15.5	15.2	15.2	15.2	15.1			
		36	20	2	21.1	20.9	21.0	20.9	20.9	0	15.4	15.2	15.3	15.1	15.1			
		36	39	2	21.1	20.8	21.0	20.9	20.9	0	15.4	15.1	15.2	15.2	15.1			
		75	0	2	21.0	20.9	20.8	20.8	20.9	0	15.3	15.2	15.1	15.1	15.2			
		LTE Band 41	10	QPSK	1	0	0	24.1	23.9	23.9	23.8	23.8	0	15.3	15.2	15.2	15.1	15.1
					1	25	0	24.1	23.8	23.8	23.8	23.8	0	15.3	15.1	15.1	15.1	15.1
					1	49	0	24.0	23.8	23.7	23.7	23.8	0	15.3	15.1	15.1	15.1	15.0
25	0				1	23.0	22.9	22.9	22.7	22.8	0	15.3	15.2	15.2	15.0	15.1		
25	12				1	23.1	22.9	22.8	22.8	22.8	0	15.4	15.2	15.2	15.2	15.0		
25	25				1	23.0	22.8	22.8	22.8	22.8	0	15.3	15.1	15.2	15.1	15.1		
50	0			1	23.0	22.8	22.8	22.7	22.7	0	15.2	15.2	15.2	15.0	15.0			
1	0			1	23.1	23.1	22.9	22.8	23.1	0	15.4	15.4	15.3	15.1	15.2			
1	25			1	23.1	23.0	22.8	22.8	22.9	0	15.3	15.3	15.2	15.1	15.2			
1	49			1	22.9	23.0	22.8	22.8	22.9	0	15.2	15.2	15.1	15.1	15.2			
25	0			2	22.1	21.9	22.0	21.8	21.9	0	15.3	15.2	15.2	15.1	15.1			
25	12			2	22.1	21.9	21.9	21.9	21.8	0	15.4	15.2	15.2	15.2	15.0			
25	25			2	22.1	21.9	21.9	21.9	21.9	0	15.3	15.2	15.2	15.1	15.1			
50	0			2	22.0	22.0	21.9	21.8	21.9	0	15.3	15.2	15.2	15.0	15.0			
1	0			1	22.4	22.0	21.6	22.1	22.0	0	15.5	15.3	14.9	15.3	15.2			
1	25			1	22.3	21.9	21.5	22.1	21.9	0	15.5	15.2	14.8	15.3	15.2			
1	49			1	22.3	21.9	21.4	22.1	21.9	0	15.5	15.2	14.8	15.3	15.1			
25	0			2	21.1	20.9	21.0	20.8	20.8	0	15.3	15.2	15.3	15.0	15.0			
25	12			2	21.1	20.9	20.9	20.9	20.8	0	15.4	15.1	15.2	15.1	15.0			
25	25			2	21.1	20.8	20.9	20.8	20.8	0	15.3	15.1	15.2	15.1	15.1			
50	0			2	21.0	20.9	20.9	20.7	20.8	0	15.3	15.2	15.2	15.0	15.0			

LTE Band 41 Measured Results (Continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Meas. Avg Pwr (dBm)					MPR	Reduced Meas. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
																2506 MHz
LTE Band 41	5	QPSK	1	0	0	24.1	23.8	23.8	23.7	23.8	0	15.3	15.2	15.2	15.1	15.1
			1	12	0	24.0	23.8	23.8	23.7	23.8	0	15.2	15.1	15.1	15.1	15.1
			1	24	0	24.0	23.8	23.8	23.7	23.8	0	15.2	15.1	15.1	15.0	15.1
			12	0	1	23.1	22.8	22.9	22.8	22.7	0	15.3	15.2	15.2	15.1	15.1
			12	7	1	23.0	22.8	22.8	22.8	22.9	0	15.3	15.1	15.2	15.1	15.1
			12	13	1	23.0	22.8	22.8	22.8	22.8	0	15.3	15.1	15.2	15.1	15.1
		16QAM	25	0	1	23.0	22.8	22.8	22.8	22.7	0	15.3	15.1	15.1	15.1	15.0
			1	0	1	23.0	22.9	23.0	22.8	22.8	0	15.3	15.1	15.3	15.1	15.0
			1	12	1	23.0	22.9	23.0	22.7	22.8	0	15.2	15.1	15.3	15.1	15.1
			1	24	1	22.9	22.8	23.0	22.7	22.8	0	15.2	15.1	15.3	15.0	15.1
			12	0	2	22.2	21.9	22.0	21.9	21.8	0	15.4	15.1	15.3	15.2	15.1
			12	7	2	22.2	21.9	22.0	21.9	21.9	0	15.4	15.2	15.2	15.2	15.2
		64QAM	12	13	2	22.1	21.9	22.0	21.9	21.8	0	15.3	15.1	15.2	15.2	15.1
			25	0	2	22.1	21.9	21.9	21.9	21.8	0	15.3	15.2	15.2	15.2	15.1
			1	0	1	21.9	22.3	22.1	21.6	22.1	0	15.1	15.5	15.4	14.9	15.4
			1	12	1	21.8	22.3	22.0	21.6	22.3	0	15.1	15.5	15.3	14.9	15.5
			1	24	1	21.7	22.3	22.0	21.5	22.2	0	15.0	15.5	15.3	14.8	15.5
			12	0	2	21.1	21.0	20.9	20.9	20.9	0	15.4	15.3	15.2	15.1	15.2
			12	7	2	21.1	21.0	20.9	20.9	21.0	0	15.4	15.3	15.1	15.2	15.3
			12	13	2	21.1	21.0	20.8	20.8	21.0	0	15.4	15.2	15.1	15.1	15.3
			25	0	2	21.2	20.9	20.8	20.9	20.8	0	15.4	15.1	15.1	15.2	15.0

9.2.1. LTE Rel. 10 Carrier Aggregation

LTE Release 10 Carrier Aggregation

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.

Index	2CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
2CC #1	5A-7A		3CC #1	Y
2CC #2	7A-7A		3CC #1	
2CC #3	66A-66A			
2CC #4	66B			
2CC #5	66C			

Index	3CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
3CC #1	5A-7A-7A			Y

LTE Release 10 Carrier Aggregation with 4x4 MIMO

Index	2CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
2CC #1	5A-[7A]		3CC #1	Y
2CC #2	[7A]-7A		3CC #1	Y
2CC #3	[7A]-[7A]			

Index	3CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
3CC #1	5A-[7A]-7A			Y
3CC #2	[7A]-7A-5A			

Note:

Only yellow highlight cells need power measurement according to LTE DL CA SAR test Exclusion in TCB workshop (April.2018).

1. Single Carrier 4x4 Downlink MIMO – Max power condition

LTE Band	Bandwidth (MHz)	Channel	Frequency (MHz)	Modulation	RB/Offset	LTE Rel 8 Tx. Power [dBm]	4x4 DL MIMO LTE Rel 8 Tx. Power [dBm]	Delta
7	20	20850	2510	QPSK	1/0	24.13	24.00	-0.13

2. Single Carrier 4x4 Downlink MIMO – Reduce power condition

LTE Band	Bandwidth (MHz)	Channel	Frequency (MHz)	Modulation	RB/Offset	LTE Rel 8 Tx. Power [dBm]	4x4 DL MIMO LTE Rel 8 Tx. Power [dBm]	Delta
7	20	20850	2510	16QAM	1/0	12.77	12.80	0.03

3. Max power condition

2CC	E-UTRA CA configuration (BCS)	Bands			UL					DL					LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta	
		PCC	SCC		PCC					SCC								
		1st	2nd		Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel				Freq. (MHz)
	66A-66A	66A	66A		QPSK	20	132072	1720.0	1/0	20	66536	2120.0	20	66786	2145.0	23.61	23.40	-0.21
	66B	66B	66B		QPSK	15	132047	1717.5	1/37	15	66511	2117.5	5	66604	2126.8	23.60	23.62	0.02
	66C	66C	66C		QPSK	20	132072	1720.0	1/0	20	66536	2120.0	20	66734	2139.8	23.61	23.41	-0.20

3CC	E-UTRA CA configuration (BCS)	Bands			UL					DL					LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta				
		PCC	SCC	TCC	PCC					SCC								TCC			
		1st	2nd	3rd	Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel				Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)
	5A-7A-7A	5A	7A	7A	QPSK	10	20525	836.5	1/0	10	2525	881.5	20	3100	2655.0	20	3350	2680.0	24.09	23.92	-0.17
	7A-7A-5A	7A	7A	5A	QPSK	20	20850	2510.0	1/0	20	2850	2630.0	20	3100	2655.0	10	2525	881.5	24.13	23.97	-0.16

4. Max power condition with 4x4 MIMO

2CC	E-UTRA CA configuration (BCS)	Bands			UL					DL					LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta	
		PCC	SCC		PCC					SCC								
		1st	2nd		Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel				Freq. (MHz)
	[7A]-[7A]	[7A]	[7A]		QPSK	20	20850	2510.0	1/0	20	2850	2630.0	20	3100	2655.0	24.13	23.92	-0.21

3CC	E-UTRA CA configuration (BCS)	Bands			UL					DL					LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta				
		PCC	SCC	TCC	PCC					SCC								TCC			
		1st	2nd	3rd	Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel				Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)
	5A-[7A]-7A	5A	[7A]	7A	QPSK	10	20525	836.5	1/0	10	2525	881.5	20	3100	2655.0	20	3350	2680.0	24.09	24.07	-0.02
	7A-[7A]-5A	7A	[7A]	5A	QPSK	20	20850	2510.0	1/0	20	2850	2630.0	20	3100	2655.0	10	2525	881.5	24.13	24.01	-0.12
	[7A]-7A-5A	[7A]	7A	5A	QPSK	20	20850	2510.0	1/0	20	2850	2630.0	20	3100	2655.0	10	2525	881.5	24.13	23.97	-0.16

Note:

1. According to LTE Test Conditions in TCB workshop (May, 2017), SAR is excluded for LTE downlink 4x4 MIMO operation when uplink output with DL MIMO does not exceed highest uplink output power configuration without DL MIMO by more than a 1/4 dB. And for DL MIMO with carrier aggregation, the same SAR test exclusion procedure is considered.
2. 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.
3. 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.

5. Reduced power condition

2CC	E-UTRA CA configuration (BCS)	Bands			UL					DL					LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta
		PCC	SCC		PCC					PCC			SCC				
		1st	2nd		Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel			
66A-66A	66A	66A		16QAM	20	132072	1720.0	1/0	20	66536	2120.0	20	66786	2145.0	12.39	12.15	-0.24
66B	66B	66B		16QAM	15	132047	1717.5	1/0	15	66511	2117.5	5	66604	2126.8	12.38	12.12	-0.26
66C	66C	66C		16QAM	20	132072	1720.0	1/0	20	66536	2120.0	20	66734	2139.8	12.39	12.10	-0.29

3CC	E-UTRA CA configuration (BCS)	Bands				UL					DL					LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta		
		PCC	SCC	TCC	PCC					PCC			SCC		TCC					
		1st	2nd	3rd	Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)				BW (MHz)	Channel
5A-7A-7A	5A	7A	7A	16QAM	10	20525	836.5	1/0	10	2525	881.5	20	3100	2655.0	20	3350	2680.0	17.47	17.20	-0.27
7A-7A-5A	7A	7A	5A	16QAM	20	20850	2510.0	1/0	20	2850	2630.0	20	3100	2655.0	10	2525	881.5	12.77	12.42	-0.35

6. Reduced power condition with 4x4 MIMO

2CC	E-UTRA CA configuration (BCS)	Bands			UL					DL					LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta
		PCC	SCC		PCC					PCC			SCC				
		1st	2nd		Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel			
7A-7A	7A	7A		16QAM	20	20850	2510.0	1/0	20	2850	2630.0	20	3100	2655.0	12.77	12.29	-0.48

3CC	E-UTRA CA configuration (BCS)	Bands				UL					DL					LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta		
		PCC	SCC	TCC	PCC					PCC			SCC		TCC					
		1st	2nd	3rd	Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)				BW (MHz)	Channel
5A-[7A]-7A	5A	[7A]	7A	16QAM	10	20525	836.5	1/0	10	2525	881.5	20	3100	2655.0	20	3350	2680.0	17.47	17.43	-0.04
7A-[7A]-5A	7A	[7A]	5A	16QAM	20	20850	2510.0	1/0	20	2850	2630.0	20	3100	2655.0	10	2525	881.5	12.77	12.67	-0.10
[7A]-7A-5A	[7A]	7A	5A	16QAM	20	20850	2510.0	1/0	20	2850	2630.0	20	3100	2655.0	10	2525	881.5	12.77	12.68	-0.09

Note:

1. According to LTE Test Conditions in TCB workshop (May, 2017), SAR is excluded for LTE downlink 4x4 MIMO operation when uplink output with DL MIMO does not exceed highest uplink output power configuration without DL MIMO by more than a 1/4 dB. And for DL MIMO with carrier aggregation, the same SAR test exclusion procedure is considered.
2. 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.
3. 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.

9.3. Wi-Fi 2.4 GHz (DTS Band)

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	2.4	802.11b	1 Mbps	1	2412	15.1	16.5	Yes	11.1	12	Yes	
				6	2437	15.7			11.5			
				11	2462	15.2			10.8			
				12	2467	4.7	5.5	No	4.7			5.5
				13	2472	4.2	5.5					
		802.11g	6 Mbps	1	2412	Not Require	15.5	No	11.0	12	No	
				6	2437				11.4			
				11	2462				10.8			
				12	2467		5.5	4.7	5.5			No
				13	2472		5.5	4.3	5.5			
		802.11n (HT20)	6.5 Mbps	1	2412	Not Require	15.0	No	10.8	12	No	
				6	2437				11.2			
				11	2462				10.7			
				12	2467		5.5	4.5	5.5			No
				13	2472		5.5	3.9	5.5			

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.2	2.4	802.11b	1 Mbps	1	2412	15.1	16.5	Yes	11.5	12	Yes	
				6	2437	15.3			11.2			
				11	2462	15.1			10.9			
				12	2467	4.6	5.5	No	4.6			5.5
				13	2472	4.4	5.5					
		802.11g	6 Mbps	1	2412	Not Require	15.5	No	11.4	12	No	
				6	2437				11.2			
				11	2462				11.0			
				12	2467		5.5	4.5	5.5			No
				13	2472		5.5	4.3	5.5			
		802.11n (HT20)	6.5 Mbps	1	2412	Not Require	15.0	No	11.2	12	No	
				6	2437				10.9			
				11	2462				10.8			
				12	2467		5.5	4.3	5.5			No
				13	2472		5.5	4.4	5.5			

MIMO 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)
MIMO Ant.1	2.4	802.11n (HT20)	6.5 Mbps	1	2412	13.7	15.0	Yes	10.6	12	No
				6	2437	14.0			11.0	12	
				11	2462	13.9			10.6	12	
				12	2467	4.2	5.5	No	4.2	5.5	
				13	2472	3.8	5.5				
MIMO Ant.2	2.4	802.11n (HT20)	6.5 Mbps	1	2412	13.7	15.0	Yes	11.0	12	No
				6	2437	13.9			10.8	12	
				11	2462	13.8			10.7	12	
				12	2467	4.2	5.5	No	4.2	5.5	
				13	2472	4.2	5.5				

Note(s):

- Output Power and SAR is not required for 802.11g/n HT20 channels 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.
- Additionally, SAR is not required for Channels 12 and 13 because the tune-up limit and the measured output power for these two channels are no greater than those for the default test channels. Refer to §6.3.

9.4. Wi-Fi 5 GHz (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	12.4	13.0	Yes	Not Required	9.0	No	
				56	5280	12.2						
				60	5300	12.0						
				64	5320	12.1						
		802.11n (HT20)	6.5 Mbps	52	5260	Not Required	12.0	No		9.0	No	
				56	5280							
				60	5300							
		802.11n (HT40)	13.5 Mbps	54	5270	Not Required	12.0	No		9.0	No	
				62	5310							
				64	5320							
		802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	12.0	No		9.0	No	
				56	5280							
	60			5300								
	802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	11.0	No	9.0	No			
			62	5310								
	802.11ac (VHT80)	29.3 Mbps	58	5290	Not Required	11.0	No	7.8	9.0	Yes		
	SISO Ant 1	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	12.3	13.0	Yes	Not Required	9.0	No
					120	5600	12.1					
					124	5620	12.2					
					144	5720	12.2					
			802.11n (HT20)	6.5 Mbps	100	5500	Not Required	12.0	No		9.0	No
120					5600							
124					5620							
802.11n (HT40)			13.5 Mbps	102	5510	Not Required	12.0	No	9.0		Yes	
				118	5590							
				126	5630							
802.11ac (VHT20)			6.5 Mbps	100	5500	Not Required	12.0	No	9.0		No	
				120	5600							
		124		5620								
802.11ac (VHT40)		13.5 Mbps	102	5510	Not Required	11.0	No	9.0	Yes			
			118	5590								
			126	5630								
802.11ac (VHT80)		29.3 Mbps	106	5530	Not Required	11.0	No	8.3	9.0	Yes		
			122	5610				8.2				
			138	5690				8.3				
SISO Ant 1		5.8 (U-NII 3)	802.11a	6 Mbps	149	5745	12.5	13.0	Yes	Not Required	9.0	No
					157	5785	12.3					
	165				5825	12.6						
	802.11n (HT20)		6.5 Mbps	149	5745	Not Required	12.0	No	9.0		No	
				157	5785							
				165	5825							
	802.11n (HT40)	13.5 Mbps	151	5755	Not Required	12.0	No	9.0	Yes			
			159	5795								
	802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	12.0	No	9.0	No			
			157	5785								
			165	5825								
	802.11ac (VHT40)	13.5 Mbps	151	5755	Not Required	11.0	No	9.0	Yes			
159			5795									
802.11ac (VHT80)	29.3 Mbps	155	5775	Not Required	11.0	No	7.9	9.0	Yes			

Measured Results (Continued)

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 2	5.3 (U-NII 2A)	802.11a	6 Mbps	52	5260	12.2	13.0	Yes	Not Required	9.0	No	
				56	5280	12.2						
				60	5300	12.1						
				64	5320	12.1						
		802.11n (HT20)	6.5 Mbps	52	5260	Not Required	12.0	No		9.0	No	
				56	5280							
				60	5300							
				64	5320							
		802.11n (HT40)	13.5 Mbps	54	5270	Not Required	12.0	No		9.0	No	
				62	5310							
		802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	12.0	No		9.0	No	
				56	5280							
				60	5300							
				64	5320							
		802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	11.0	No		9.0	No	
				62	5310							
		802.11ac (VHT80)	29.3 Mbps	58	5290	Not Required	11.0	No		8.3	9.0	Yes
		5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	12.1	13.0		Yes	Not Required	9.0
	120				5600	12.1						
	124				5620	12.1						
	144				5720	12.1						
	802.11n (HT20)		6.5 Mbps	100	5500	Not Required	12.0	No	9.0	No		
				120	5600							
				124	5620							
				144	5720							
	802.11n (HT40)		13.5 Mbps	102	5510	Not Required	12.0	No	9.0	Yes		
				118	5590							
				126	5630							
				142	5710							
	802.11ac (VHT20)		6.5 Mbps	100	5500	Not Required	12.0	No	9.0	No		
				120	5600							
				124	5620							
				144	5720							
	802.11ac (VHT40)		13.5 Mbps	102	5510	Not Required	11.0	No	9.0	Yes		
				118	5590							
		126		5630								
142		5710										
802.11ac (VHT80)	29.3 Mbps	106	5530	Not Required	11.0	No	7.9	9.0	Yes			
		122	5610				7.9					
		138	5690				8.5					
5.8 (U-NII 3)	802.11a	6 Mbps	149	5745	12.2	13.0	Yes	Not Required	9.0	No		
			157	5785	11.9							
			165	5825	12.2							
	802.11n (HT20)	6.5 Mbps	149	5745	Not Required	12.0	No		9.0	No		
			157	5785								
			165	5825								
	802.11n (HT40)	13.5 Mbps	151	5755	Not Required	12.0	No		9.0	Yes		
			159	5795								
	802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	12.0	No		9.0	No		
			157	5785								
			165	5825								
	802.11ac (VHT40)	13.5 Mbps	151	5755	Not Required	11.0	No		9.0	Yes		
159			5795									
802.11ac (VHT80)	29.3 Mbps	155	5775	Not Required	11.0	No	7.9	9.0	Yes			

MIMO 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)
MIMO Ant 1	5.3 (U-NII 2A)	802.11n (HT20)	6.5 Mbps	52	5260	11.3	12.0	No	Not Required	9.0	No
				56	5280	11.1					
				60	5300	10.8					
				64	5320	10.8					
		802.11n (HT40)	13.5 Mbps	54	5270	11.6	12.0	Yes			
				62	5310	11.5					
		802.11ac (VHT20)	6.5 Mbps	52	5260	11.3	12.0	No			
				56	5280	11.1					
				60	5300	11.0					
				64	5320	10.9					
		802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	11.0	No			
				62	5310						
	802.11ac (VHT80)	29.3 Mbps	58	5290	11.0	No	7.9	9.0	Yes		
	5.5 (U-NII 2C)	802.11n (HT20)	6.5 Mbps	100	5500	11.0	12.0	No			
				120	5600	10.9					
				124	5620	11.0					
				144	5720	10.9					
		802.11n (HT40)	13.5 Mbps	102	5510	11.2	12.0	Yes			
				118	5590	11.4					
				126	5630	11.6					
				142	5710	11.5					
		802.11ac (VHT20)	6.5 Mbps	100	5500	11.2	12.0	No			
				120	5600	11.1					
				124	5620	11.1					
				144	5720	11.0					
		802.11ac (VHT40)	13.5 Mbps	102	5510	Not Required	11.0	No			
				118	5590						
				126	5630						
				142	5710						
		802.11ac (VHT80)	29.3 Mbps	106	5530	11.0	No	8.3	9.0	Yes	
				122	5610			8.3			
	138			5690	8.3						
	5.8 (U-NII 3)	802.11n (HT20)	6.5 Mbps	149	5745	11.2	12.0	No			
				157	5785	11.0					
				165	5825	11.3					
		802.11n (HT40)	13.5 Mbps	151	5755	11.5	12.0	Yes			
159				5795	11.6						
802.11ac (VHT20)		6.5 Mbps	149	5745	11.4	12.0	No				
			157	5785	11.2						
			165	5825	11.4						
802.11ac (VHT40)		13.5 Mbps	151	5755	Not Required	11.0	No				
			159	5795							
802.11ac (VHT80)	29.3 Mbps	155	5775	11.0	No	7.9	9.0	Yes			

MIMO Measured Results (Continued)

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)
MIMO Ant 2	5.3 (U-NII 2A)	802.11n (HT20)	6.5 Mbps	52	5260	11.1	12.0	No	Not Required	9.0	No
				56	5280	11.2					
				60	5300	10.9					
				64	5320	10.9					
		802.11n (HT40)	13.5 Mbps	54	5270	11.6	12.0	Yes		9.0	No
				62	5310	11.6					
		802.11ac (VHT20)	6.5 Mbps	52	5260	11.3	12.0	No		9.0	No
				56	5280	11.3					
				60	5300	11.2					
				64	5320	11.1					
		802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	11.0	No		9.0	No
				62	5310						
	802.11ac (VHT80)	29.3 Mbps	58	5290	11.0	No	8.5	9.0	Yes		
	5.5 (U-NII 2C)	802.11n (HT20)	6.5 Mbps	100	5500	11.1	12.0	No	Not Required	9.0	No
				120	5600	10.9					
				124	5620	10.8					
				144	5720	10.8					
		802.11n (HT40)	13.5 Mbps	102	5510	11.5	12.0	Yes		9.0	Yes
				118	5590	11.5					
				126	5630	11.4					
				142	5710	11.4					
		802.11ac (VHT20)	6.5 Mbps	100	5500	11.2	12.0	No		9.0	No
				120	5600	11.1					
				124	5620	11.0					
				144	5720	10.9					
		802.11ac (VHT40)	13.5 Mbps	102	5510	Not Required	11.0	No		9.0	Yes
				118	5590						
				126	5630						
				142	5710						
		802.11ac (VHT80)	29.3 Mbps	106	5530	11.0	No	8.2		9.0	Yes
				122	5610			8.0			
	138			5690	8.5						
	5.8 (U-NII 3)	802.11n (HT20)	6.5 Mbps	149	5745	10.8	12.0	No	Not Required	9.0	No
				157	5785	10.7					
				165	5825	10.9					
802.11n (HT40)		13.5 Mbps	151	5755	11.5	12.0	Yes	9.0		Yes	
			159	5795	11.3						
			149	5745	10.9						
802.11ac (VHT20)		6.5 Mbps	157	5785	10.8	12.0	No	9.0		No	
			165	5825	11.0						
			151	5755	Not Required						11.0
159		5795									
802.11ac (VHT80)	29.3 Mbps	155	5775	11.0	No	8.0	9.0	Yes			

Note(s):

- 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.
- 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.
- 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.

9.5. Bluetooth

Average Power Measured Results

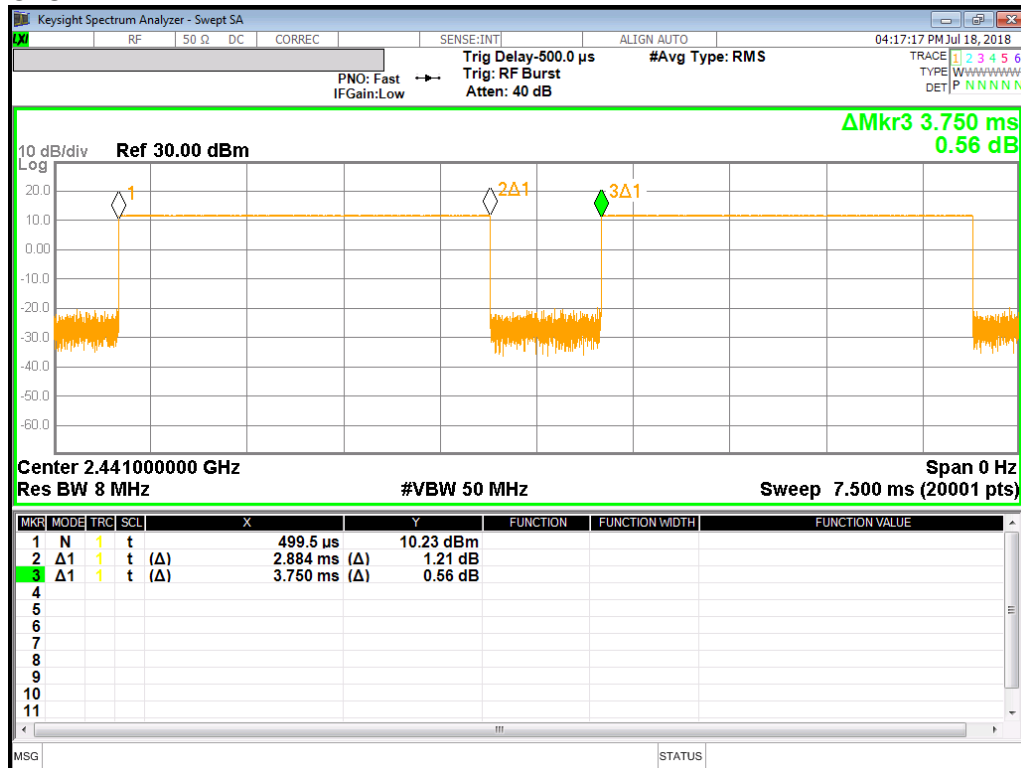
Band (GHz)	Mode	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)
2.4	GFSK	0	2402	8.8
		39	2441	9.2
		78	2480	9.5
	EDR, $\pi/4$ DQPSK	0	2402	5.7
		39	2441	6.2
		78	2480	6.7
	EDR, 8-DPSK	0	2402	5.7
		39	2441	6.3
		78	2480	6.7
	LE, GFSK, 1Mbps	0	2402	1.2
		19	2440	0.9
		39	2480	1.3
LE, GFSK, 2Mbps	0	2402	1.0	
	19	2440	0.7	
	39	2480	1.1	

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
GFSK	DH5	2.884	3.750	76.9%	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

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 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.

10.1. W-CDMA Band II

RF Exposure Conditions	Antenna	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	
Standalone	Main Ant.2	Rel. 99 RMC	Off	14	Rear	9262	1852.4	24.5	23.5	0.886	1.128	1
						9400	1880.0	24.5	23.5	0.863	1.094	
						9538	1907.6	24.5	23.4	0.793	1.022	
				15	Edge 1	9400	1880.0	24.5	23.5	0.334	0.423	
			On	0	Rear	9262	1852.4	13.5	12.2	0.742	1.010	
						9400	1880.0	13.5	12.2	0.727	0.987	
						9538	1907.6	13.5	12.1	0.662	0.912	
						Edge 1	9400	1880.0	13.5	12.2	0.089	0.121

10.2. W-CDMA Band IV

RF Exposure Conditions	Antenna	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	
Standalone	Main Ant.2	Rel. 99 RMC	Off	14	Rear	1312	1712.4	25.0	23.3	0.633	0.928	
						1413	1732.6	25.0	23.3	0.669	0.996	
						1513	1752.6	25.0	23.2	0.725	1.102	
				15	Edge 1	1413	1732.6	25.0	23.3	0.166	0.247	
			On	0	Rear	1312	1712.4	13.5	12.1	0.763	1.065	
						1413	1732.6	13.5	12.0	0.776	1.104	
						1513	1752.6	13.5	11.9	0.786	1.147	2
						Edge 1	1413	1732.6	13.5	12.0	0.132	0.188

10.3. W-CDMA Band V

RF Exposure Conditions	Antenna	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	
Standalone	Main Ant.1	Rel. 99 RMC	Off	15	Rear	4183	836.6	25.0	23.6	0.461	0.641	
				15	Edge 1	4183	836.6	25.0	23.6	0.292	0.406	
				0	Edge 2	4183	836.6	25.0	23.6	0.146	0.203	
			On	0	Rear	4132	826.4	18.5	17.3	0.675	0.893	
						4183	836.6	18.5	17.2	0.788	1.073	3
						4233	846.6	18.5	17.2	0.778	1.050	
					Edge 1	4183	836.6	18.5	17.2	0.395	0.538	

10.4. LTE Band 2 (20MHz Bandwidth)

SAR for LTE Band 2 (Frequency Range: 1850-1910 MHz) is covered by LTE Band 25 (Frequency Range: 1850-1915 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

10.5. LTE Band 4 (20MHz Bandwidth)

SAR for LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, higher maximum tune-up limit and same channel bandwidth.

10.6. LTE Band 5 (10MHz Bandwidth)

SAR for LTE Band 5 (Frequency Range: 824-849 MHz) is covered by LTE Band 26 (Frequency Range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth from 10MHz to 1.4MHz. Therefore, LTE Band 26 at 15MHz bandwidth has been measured.

10.7. LTE Band 7 (20MHz Bandwidth)

RF Exposure Conditions	Antenna	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		
Standalone	Main Ant.1	QPSK	Off	15	Rear	20850	2510.0	1	0	25.0	24.1	0.668	0.816		
								50	0	24.0	23.1	0.514	0.637		4
						21100	2535.0	1	0	25.0	23.9	0.665	0.861		
						21350	2560.0	1	0	25.0	24.0	0.690	0.865		
					15	Edge 1	20850	2510.0	1	0	25.0	24.1	0.674	0.823	
								50	0	24.0	23.1	0.524	0.649		
			21100	2535.0			1	0	25.0	23.9	0.613	0.793			
					21350	2560.0	1	0	25.0	24.0	0.547	0.686			
				0	Edge 2	20850	2510.0	1	0	25.0	24.1	0.238	0.291		
									50	0	24.0	23.1	0.183		0.227
				On	0	Rear	20850	2510.0	1	0	13.0	12.4	0.542	0.620	
										50	0	13.0	12.5	0.502	
	Edge 1	20850	2510.0			1	0	13.0	12.4	0.225	0.257				
							50	0	13.0	12.5	0.225		0.255		

10.8. LTE Band 12 (10MHz Bandwidth)

RF Exposure Conditions	Antenna	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		
Standalone	Main Ant.1	QPSK	Off	15	Rear	23095	707.5	1	0	25.0	23.7	0.258	0.346		
										25	12	24.0	22.8		0.207
					15	Edge 1	23095	707.5	1	0	25.0	23.7	0.117	0.157	
										25	12	24.0	22.8	0.094	
					0	Edge 2	23095	707.5	1	0	25.0	23.7	0.112	0.150	
										25	12	24.0	22.8	0.083	
				On	0	Rear	23095	707.5	1	0	19.0	17.8	0.568	0.747	5
										25	12	19.0	17.9	0.564	
						Edge 1	23095	707.5	1	0	19.0	17.8	0.199	0.262	
										25	12	19.0	17.9	0.203	

10.9. LTE Band 13 (10MHz Bandwidth)

RF Exposure Conditions	Antenna	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	
Standalone	Main Ant.1	QPSK	Off	15	Rear	23230	782.0	1	0	25.0	23.5	0.349	0.490	
					25			0	24.0	22.6	0.284	0.389		
				15	Edge 1	23230	782.0	1	0	25.0	23.5	0.196	0.275	
					25			0	24.0	22.6	0.161	0.220		
				0	Edge 2	23230	782.0	1	0	25.0	23.5	0.143	0.201	
								25	0	24.0	22.6	0.115	0.157	
			On	0	Rear	23230	782.0	1	0	18.0	16.7	0.621	0.839	
								25	0	18.0	16.8	0.650	0.852	
								50	0	18.0	16.8	0.650	0.860	6
					Edge 1	23230	782.0	1	0	18.0	16.7	0.320	0.432	
								25	0	18.0	16.8	0.331	0.434	

10.10. LTE Band 14 (10MHz Bandwidth)

RF Exposure Conditions	Antenna	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	
Standalone	Main Ant.1	QPSK	Off	15	Rear	23330	793.0	1	0	25.0	23.7	0.387	0.525	
					25			0	24.0	22.7	0.321	0.437		
				15	Edge 1	23330	793.0	1	0	25.0	23.7	0.232	0.315	
								25	0	24.0	22.7	0.192	0.261	
				0	Edge 2	23330	793.0	1	0	25.0	23.7	0.160	0.217	
								25	0	24.0	22.7	0.132	0.180	
			On	0	Rear	23330	793.0	1	0	19.0	17.9	0.820	1.060	
								25	0	19.0	17.9	0.866	1.111	
								50	0	19.0	17.8	0.858	1.126	7
					Edge 1	23330	793.0	1	0	19.0	17.9	0.404	0.522	
								25	0	19.0	17.9	0.419	0.538	

10.11. LTE Band 17 (10MHz Bandwidth)

SAR for LTE Band 17 (Frequency Range: 704-716 MHz) is covered by LTE Band 12 (Frequency Range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

10.12. LTE Band 25 (20MHz Bandwidth)

RF Exposure Conditions	Antenna	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		
Standalone	Main Ant.2	QPSK	Off	14	Rear	26140	1860.0	1	0	25.0	24.3	1.010	1.191	8	
								50	0	24.0	23.1	0.766	0.950		
						26365	1882.5	1	0	25.0	24.2	0.984	1.170		
								50	0	24.0	23.1	0.738	0.918		
						26590	1905.0	1	0	25.0	24.5	0.938	1.057		
								50	0	24.0	23.4	0.718	0.830		
				15	Edge 1	26590	1905.0	100	0	24.0	23.3	0.690	0.812		
								1	0	25.0	24.5	0.301	0.339		
				On	0	Rear	26140	1860.0	1	0	14.0	13.0	0.894	1.124	
									50	0	14.0	12.8	0.836	1.096	
									1	0	14.0	12.9	0.854	1.089	
						Edge 1	26365	1882.5	50	0	14.0	12.7	0.820	1.106	
			1						0	14.0	13.1	0.847	1.048		
			50						0	14.0	13.0	0.836	1.058		
			26590	1905.0	100	0	14.0	12.9	0.798	1.027					
					1	0	14.0	13.1	0.124	0.153					
			50	0	14.0	13.0	0.118	0.149							

10.13. LTE Band 26 (15MHz Bandwidth)

RF Exposure Conditions	Antenna	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			
Standalone	Main Ant.1	QPSK	Off	15	Rear	26865	831.5	1	37	25.5	23.8	0.478	0.707			
					36			0	24.5	22.8	0.380	0.560				
				15	Edge 1	26865	831.5	1	37	25.5	23.8	0.308	0.456			
					36			0	24.5	22.8	0.240	0.354				
				0	Edge 2	26865	831.5	1	37	25.5	23.8	0.128	0.189			
								36	0	24.5	22.8	0.102	0.150			
			On	0	Rear	26865	831.5	1	37	18.0	17.0	0.747	0.941			
								36	20	18.0	17.0	0.753	0.943			
								75	0	18.0	16.9	0.746	0.950	9		
					Edge 1			26865	831.5	1	37	18.0	17.0	0.408	0.514	
										36	20	18.0	17.0	0.414	0.518	

10.14. LTE Band 30 (10MHz Bandwidth)

RF Exposure Conditions	Antenna	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			
Standalone	Main Ant.1	QPSK	Off	15	Rear	27710	2310.0	1	49	24.0	22.5	0.170	0.240			
					25			25	23.0	21.6	0.133	0.185				
				15	Edge 1	27710	2310.0	1	49	24.0	22.5	0.179	0.252			
								25	25	23.0	21.6	0.144	0.200			
				0	Edge 2	27710	2310.0	1	49	24.0	22.5	0.010	0.014			
								25	25	23.0	21.6	0.008	0.011			
			On	0	Rear	27710	2310.0	1	49	16.0	15.1	0.421	0.518			
								25	25	16.0	15.2	0.432	0.525	10		
								1	49	16.0	15.1	0.312	0.384			
					Edge 1			27710	2310.0	25	25	16.0	15.2	0.320	0.389	

10.15. LTE Band 38 (20MHz Bandwidth)

SAR for LTE Band 38 (Frequency range: 2570-2620 MHz) is covered by LTE Band 41 (Frequency range: 2496-2690 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

10.16. LTE Band 41 (20MHz Bandwidth)

RF Exposure Conditions	Antenna	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		
Standalone	Main Ant.1	QPSK	Off	15	Rear	37950	2506.0	1	0	25.0	24.3	0.413	0.487		
					50			0	24.0	23.1	0.316	0.389			
				15	Edge 1	37950	2506.0	1	0	25.0	24.3	0.416	0.490		
								50	0	24.0	23.1	0.320	0.394		
				0	Edge 2	37950	2506.0	1	0	25.0	24.3	0.023	0.027		
								50	0	24.0	23.1	0.018	0.022		
				On	0	Rear	39750	2506.0	1	0	16.0	15.6	0.832	0.909	
									50	0	16.0	15.3	0.807	0.955	
									100	0	16.0	15.1	0.847	1.033	
									1	0	16.0	15.3	0.985	1.166	
									50	0	16.0	15.1	0.961	1.173	
									40620	2593.0	1	0	16.0	15.2	1.110
			41055				2636.5	50	0	16.0	15.1	1.020	1.255		
								1	0	16.0	15.2	0.994	1.203		
								50	0	16.0	15.0	0.942	1.179		
								1	0	16.0	15.2	0.821	0.982		
								50	0	16.0	15.1	0.799	0.987		
								41490	2680.0	1	0	16.0	15.6	0.322	0.352
			Edge 1	37950	2506.0	50	0	16.0	15.3	0.302	0.358				

10.17. LTE Band 66 (20MHz Bandwidth)

RF Exposure Conditions	Antenna	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		
Standalone	Main Ant.2	QPSK	Off	14	Rear	132072	1720.0	1	0	25.5	23.6	0.466	0.719		
					50	0	24.5	22.9	0.452	0.658					
				15	Edge 1	132072	1720.0	1	0	25.5	23.6	0.103	0.159		
					50	0	24.5	22.9	0.094	0.138					
				On	0	Rear	132072	1720.0	1	0	13.0	12.0	0.804	1.002	
								50	0	13.0	12.0	0.792	1.001		
			100					0	13.0	11.9	0.775	0.996			
			132322				1745.0	1	0	13.0	11.7	0.780	1.055	12	
							50	0	13.0	11.8	0.779	1.020			
							132572	1770.0	1	0	13.0	11.9	0.767	0.995	
			Edge 1	132072	1720.0	1	0	13.0	11.8	0.756	0.996				
						50	0	13.0	11.8	0.756	0.996				

10.18. LTE Band 71 (20MHz Bandwidth)

RF Exposure Conditions	Antenna	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	
Standalone	Main Ant.1	QPSK	Off	15	Rear	133297	680.5	1	0	25.0	23.5	0.205	0.289	
					50	24	24.0	22.6	0.178	0.247				
				15	Edge 1	133297	680.5	1	0	25.0	23.5	0.086	0.121	
					50	24	24.0	22.6	0.075	0.105				
				0	Edge 2	133297	680.5	1	0	25.0	23.5	0.091	0.128	
								50	24	24.0	22.6	0.075	0.104	
			On	0	Rear	133297	680.5	1	0	19.0	17.7	0.592	0.793	
								50	24	19.0	17.8	0.606	0.797	13
								Edge 1	133297	680.5	1	0	19.0	17.7
					Edge 1	133297	680.5	50	24	19.0	17.8	0.209	0.275	

10.19. Wi-Fi (DTS Band)

Frequency Band	RF Exposure Conditions	Mode	PWR Back-off	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
2.4GHz	Standalone	802.11b 1 Mbps	Off	SISO Ant 1	5	Rear	6	2437.0	0.722	99.5%	16.5	15.7	0.657	0.790		14
					0	Edge 1	6	2437.0	0.345	99.5%	16.5	15.7	0.265	0.319	2	
					0	Edge 4	6	2437.0	0.005	99.5%	16.5	15.7				
			Off	SISO Ant 2	4	Rear	6	2437.0	0.494	99.5%	16.5	15.3	0.439	0.587	2	
					0	Edge 1	6	2437.0	0.693	99.5%	16.5	15.3	0.522	0.698		
					On	SISO Ant 1	0	Rear	6	2437.0	0.970	99.5%	12.0	11.5	0.700	0.786
		1	2412.0	0.435	99.5%				12.0	11.5	0.375	0.420				
		802.11n 6.5 Mbps	Off	MIMO Ant 1 + Ant 2	4	Rear	6	2437.0	0.767	98.7%	15.0	14.0	0.602	0.776		
					0	Edge 1	6	2437.0	0.442	98.7%	15.0	13.9	0.386	0.499	2	
					On	MIMO Ant 1 + Ant 2	0	Rear	1	2412.0	0.819	98.7%	12.0	10.6	0.711	0.989
			6	2437.0	0.847				98.7%	12.0	11.0	0.672	0.863			

Note(s):

- When the 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.

10.20. Wi-Fi (U-NII Bands)

Frequency Band	RF Exposure Conditions	Mode	PWR Back-off	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
5.3GHz U-NII 2A	Standalone	802.11a 6 Mbps	Off	SISO Ant 1	5	Rear	52	5260.0	0.922	98.8%	13.0	12.4	0.468	0.539	2	
					0	Edge 1	52	5260.0	1.427	98.8%	13.0	12.4	0.736	0.847		
					56	5280.0	1.462	98.8%	13.0	12.2	0.723	0.884	3	16		
			Off	SISO Ant 2	4	Rear	56	5280.0	0.850	98.8%	13.0	12.2	0.413	0.500		
					0	Edge 1	52	5260.0	0.520	98.8%	13.0	12.2	0.699	0.848	3	
					56	5280.0	0.542	98.8%	13.0	12.2	0.703	0.851	2			
		802.11ac VHT80 29.3 Mbps	On	SISO Ant 1	0	Rear	58	5290.0	1.062	99.2%	9.0	7.8	0.455	0.603		
							SISO Ant 2	58	5290.0	1.104	99.2%	9.0	8.3	0.543	0.639	
		802.11n HT40 13.5 Mbps	Off	MIMO Ant 1 + Ant 2	4	Rear	54	5270.0	1.020	99.3%	12.0	11.6	0.510	0.564	2	
					0	Edge 1	54	5270.0	1.104	99.3%	12.0	11.6	0.639	0.707		17
		802.11ac VHT80 29.3 Mbps	On	MIMO Ant 1 + Ant 2	0	Rear	58	5290.0	0.980	99.2%	9.0	8.5	0.562	0.643		

Frequency Band	RF Exposure Conditions	Mode	PWR Back-off	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
5.5GHz U-NII 2C	Standalone	802.11a 6 Mbps	Off	SISO Ant 1	5	Rear	100	5500.0	1.235	98.8%	13.0	12.3	0.561	0.672	2	
					0	Edge 1	100	5500.0	1.707	98.8%	13.0	12.3	0.989	1.184		18
					124	5620.0	1.526	98.8%	13.0	12.2	0.963	1.172	3			
			Off	SISO Ant 2	4	Rear	100	5500.0	0.932	98.8%	13.0	12.1	0.458	0.565	2	
					0	Edge 1	100	5500.0	1.129	98.8%	13.0	12.1	0.714	0.881		
					124	5620.0	0.878	98.8%	13.0	12.1	0.586	0.725	3			
		802.11ac VHT80 29.3 Mbps	On	SISO Ant 1	0	Rear	138	5690.0	1.455	99.2%	9.0	8.3	0.592	0.706		
							SISO Ant 2	138	5690.0	2.014	99.2%	9.0	8.5	0.689	0.787	
		802.11n HT40 13.5 Mbps	Off	MIMO Ant 1 + Ant 2	4	Rear	126	5630.0	1.191	99.3%	12.0	11.4	0.544	0.636	2	
					0	Edge 1	126	5630.0	1.585	99.3%	12.0	11.6	0.896	0.989		19
		802.11ac VHT80 29.3 Mbps	On	MIMO Ant 1 + Ant 2	0	Rear	106	5530.0	1.288	99.2%	9.0	8.3	0.645	0.759	3	
							138	5690.0	2.702	99.2%	9.0	8.5	0.881	0.988		

Frequency Band	RF Exposure Conditions	Mode	PWR Back-off	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
5.8GHz U-NII 3	Standalone	802.11a 6 Mbps	Off	SISO Ant 1	5	Rear	149	5745.0	0.618	98.8%	13.0	12.5	0.264	0.300	2	
					0	Edge 1	149	5745.0	1.762	98.8%	13.0	12.5	1.050	1.192		
					165	5825.0	1.759	98.8%	13.0	12.6	1.070	1.193	3	20		
			Off	SISO Ant 2	4	Rear	149	5745.0	0.996	98.8%	13.0	12.2	0.506	0.614		
					0	Edge 1	149	5745.0	0.864	98.8%	13.0	12.2	0.549	0.666	2	
					155	5775.0	1.086	99.2%	9.0	7.9	0.452	0.587				
		802.11ac VHT80 29.3 Mbps	On	SISO Ant 1	0	Rear	155	5775.0	1.112	99.2%	9.0	7.9	0.574	0.747		
							SISO Ant 2	155	5775.0	1.112	99.2%	9.0	7.9	0.574	0.747	
		802.11n HT40 13.5 Mbps	Off	MIMO Ant 1 + Ant 2	4	Rear	159	5795.0	0.993	99.3%	12.0	11.3	0.449	0.532	2	
					0	Edge 1	151	5755.0	1.507	99.3%	12.0	11.5	0.866	0.969	3	
		802.11ac VHT80 29.3 Mbps	On	MIMO Ant 1 + Ant 2	0	Rear	159	5795.0	1.612	99.3%	12.0	11.6	0.912	1.000		21
							155	5775.0	1.174	99.2%	9.0	8.0	0.519	0.667		

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.

10.21. Bluetooth

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	N/A	0	Rear	78	2480.0	76.9%	10.0	9.5	0.321	0.471	22
				0	Edge 1	78	2480.0	76.9%	10.0	9.5	0.059	0.086	

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 <0.8 or 2 W/kg (1-g or 10-g respectively); steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.8 or 2 W/kg (1-g or 10-g respectively), 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 or 3.6 W/kg (~ 10% from the 1-g or 10-g respective SAR limit).
- 4) Perform a third repeated measurement only if the original, first, or second repeated measurement is ≥ 1.5 or 3.75 W/kg (1-g or 10-g respectively) and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

Peak spatial-average (1g of tissue)

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Repeated Measured SAR (W/kg)	Largest to Smallest SAR Ratio
750	LTE Band 12	Standalone	Rear	No	0.568	N/A	N/A
	LTE Band 13	Standalone	Rear	No	0.650	N/A	N/A
	LTE Band 14	Standalone	Rear	Yes	0.866	0.869	1.00
	LTE Band 71	Standalone	Rear	No	0.606	N/A	N/A
835	W-CDMA Band V	Standalone	Rear	No	0.788	N/A	N/A
	LTE Band 26	Standalone	Rear	No	0.753	N/A	N/A
1750	W-CDMA Band IV	Standalone	Rear	No	0.786	N/A	N/A
	LTE Band 66	Standalone	Rear	Yes	0.804	0.790	1.02
1900	W-CDMA Band II	Standalone	Rear	No	0.886	N/A	N/A
	LTE Band 25	Standalone	Rear	Yes	1.010	1.020	1.01
2300	LTE Band 30	Standalone	Rear	No	0.432	N/A	N/A
2450	Wi-Fi 802.11b/g/n	Standalone	Rear	No	0.711	N/A	N/A
	Bluetooth	Standalone	Rear	No	0.321	N/A	N/A
2600	LTE Band 7	Standalone	Rear	No	0.690	N/A	N/A
	LTE Band 41	Standalone	Rear	Yes	1.110	1.040	1.07
5300	Wi-Fi 802.11a/n	Standalone	Edge 1	No	0.736	N/A	N/A
5500	Wi-Fi 802.11a/n	Standalone	Edge 1	Yes	0.989	1.020	1.03
5800	Wi-Fi 802.11a/n	Standalone	Edge 1	Yes	1.070	1.070	1.00

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

KDB 447498 D01 General RF Exposure Guidance introduces a new formula for calculating the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

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

Where:

SAR₁ is the highest measured 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 measured 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

Ri 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:

$$(SAR_1 + SAR_2)^{1.5} / Ri < 0.04$$

Simultaneous Transmission Condition

RF Exposure Condition	Item	Capable Transmit Configurations				
Standalone	1	W-CDMA	+	DTS_Ant.1	+	DTS_Ant.2
	2	W-CDMA	+	U-NII_Ant.1	+	U-NII_Ant.2
	3	W-CDMA	+	DTS_Ant.1	+	U-NII_Ant.2
	4	W-CDMA	+	BT		
	5	LTE	+	DTS_Ant.1	+	DTS_Ant.2
	6	LTE	+	U-NII_Ant.1	+	U-NII_Ant.2
	7	LTE	+	DTS_Ant.1	+	U-NII_Ant.2
	8	LTE	+	BT		

Notes:

1. DTS and UNII supports Hotspot.
2. DTS and UNII supports Wi-Fi Direct.
3. W-CDMA and LTE supports Hotspot.
4. DTS Radio cannot transmit simultaneously with Bluetooth Radio.
5. U-NII Radio cannot transmit simultaneously with Bluetooth Radio.
6. Only U-NII (Ant.2) Radio can transmit simultaneously with DTS (Ant.1) Radio.

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:
 - 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.
 - 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.
 - 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.

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	Front
Full Power, Proximity Sensor Off																
Cellular	W-CDMA Band II	1907.6	25.00	316	2.7	3.4	110	189	154							
Cellular	W-CDMA Band IV	1752.6	24.50	282	2.7	3.4	110	189	154							
Cellular	W-CDMA Band V	846.6	25.00	316	2.7	3.4	44	189	189							
Cellular	LTE Band 2	1900	25.00	316	2.7	3.4	110	189	154							
Cellular	LTE Band 4	1745	25.30	339	2.7	3.4	110	189	154							
Cellular	LTE Band 5	844	25.50	355	2.7	3.4	44	189	189							
Cellular	LTE Band 7	2560	25.00	316	2.7	3.4	44	189	189							
Cellular	LTE Band 12	711	25.00	316	2.7	3.4	44	189	189							
Cellular	LTE Band 13	782	25.00	316	2.7	3.4	44	189	189							
Cellular	LTE Band 14	793	25.00	316	2.7	3.4	44	189	189							
Cellular	LTE Band 17	711	25.00	316	2.7	3.4	44	189	189							
Cellular	LTE Band 25	1905	25.00	316	2.7	3.4	110	189	154							
Cellular	LTE Band 26	841.5	25.50	355	2.7	3.4	44	189	189							
Cellular	LTE Band 30	2310	24.00	251	2.7	3.4	44	189	189							
Cellular	LTE Band 38	2610	25.00	316	2.7	3.4	44	189	189							
Cellular	LTE Band 41	2680	25.00	316	2.7	3.4	44	189	189							
Cellular	LTE Band 66	1770	25.50	355	2.7	3.4	110	189	154							
Cellular	LTE Band 71	687.9	25.00	316	2.7	3.4	44	189	189							
Power Back-off, Proximity Sensor On																
Cellular	W-CDMA 2	1907.6	13.50	22	2.7	3.4										
Cellular	W-CDMA 4	1752.6	13.50	22	2.7	3.4										
Cellular	W-CDMA 5	846.6	18.50	71	2.7	3.4										
Cellular	LTE Band 2	1900	14.00	25	2.7	3.4										
Cellular	LTE Band 4	1745	13.00	20	2.7	3.4										
Cellular	LTE Band 5	844	18.00	63	2.7	3.4										
Cellular	LTE Band 7	2560	13.00	20	2.7	3.4										
Cellular	LTE Band 12	711	19.00	79	2.7	3.4										
Cellular	LTE Band 13	782	18.00	63	2.7	3.4										
Cellular	LTE Band 14	793	19.00	79	2.7	3.4										
Cellular	LTE Band 17	711	19.00	79	2.7	3.4										
Cellular	LTE Band 25	1905	14.00	25	2.7	3.4										
Cellular	LTE Band 26	841.5	18.00	63	2.7	3.4										
Cellular	LTE Band 30	2310	16.00	40	2.7	3.4										
Cellular	LTE Band 38	2610	16.00	40	2.7	3.4										
Cellular	LTE Band 41	2680	16.00	40	2.7	3.4										
Cellular	LTE Band 66	1770	13.00	20	2.7	3.4										
Cellular	LTE Band 71	687.9	19.00	79	2.7	3.4										

Estimated SAR for WLAN

WLAN Ant.1

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
Full Power, Proximity Sensor Off															
Wi-Fi 2.4 GHz	2462	16.50	45	2.7	3.4	253	189	18		-MEASURE-	-MEASURE-	0.400	0.400	-MEASURE-	
Wi-Fi 5.3 GHz	5320	13.00	20	2.7	3.4	253	189	18		-MEASURE-	-MEASURE-	0.400	0.400	0.342	
Wi-Fi 5.5 GHz	5700	13.00	20	2.7	3.4	253	189	18		-MEASURE-	-MEASURE-	0.400	0.400	0.354	
Wi-Fi 5.8 GHz	5825	13.00	20	2.7	3.4	253	189	18		-MEASURE-	-MEASURE-	0.400	0.400	0.358	
Bluetooth	2480	10.00	10	2.7	3.4	253	189	18		-MEASURE-	-MEASURE-	0.400	0.400	0.117	
Power Back-off, Proximity Sensor On															
Wi-Fi 2.4 GHz	2462	12	16	2.7						-MEASURE-					
Wi-Fi 5.3 GHz	5320	9	8	2.7						-MEASURE-					
Wi-Fi 5.5 GHz	5700	9	8	2.7						-MEASURE-					
Wi-Fi 5.8 GHz	5825	9	8	2.7						-MEASURE-					

WLAN Ant.2

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
Full Power, Proximity Sensor Off															
Wi-Fi 2.4 GHz	2462	16.50	45	2.7	3.4	209	189	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.3 GHz	5320	13.00	20	2.7	3.4	209	189	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.5 GHz	5700	13.00	20	2.7	3.4	209	189	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.8 GHz	5825	13.00	20	2.7	3.4	209	189	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Power Back-off, Proximity Sensor On															
Wi-Fi 2.4 GHz	2462	12	16	2.7						-MEASURE-					
Wi-Fi 5.3 GHz	5320	9	8	2.7						-MEASURE-					
Wi-Fi 5.5 GHz	5700	9	8	2.7						-MEASURE-					
Wi-Fi 5.8 GHz	5825	9	8	2.7						-MEASURE-					

12.1. Sum of the SAR for W-CDMA Band II & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)								Σ 1-g SAR (W/kg)							
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII 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 + DTS Ant.1 + U-NII Ant.2	WWAN + BT
	①	②	③	④	⑤	⑥	⑦	⑧	① + ②	① + ③	① + ④	① + ⑤	① + ⑥	① + ⑦	① + ② + ⑥	① + ⑧
Rear	1.128	0.790	0.587	0.989	0.706	0.787	0.988	0.471	1.918	1.715	2.117	1.834	1.915	2.116	2.705	1.599
Edge 1	0.423	0.319	0.698	0.499	1.193	0.881	1.000	0.086	0.742	1.121	0.922	1.616	1.304	1.423	1.623	0.509
Edge 2	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
	①	②	③	④	⑤	⑥	⑦	⑧						
Rear	1.128	0.790							① + ②	1.918	130.8	0.02	No	1
	1.128		0.587						① + ③	1.715	85.9	0.03	No	2
	1.128			0.989					① + ④	2.117	128.6	0.02	No	3
	1.128				0.706				① + ⑤	1.834	127.1	0.02	No	4
	1.128					0.787			① + ⑥	1.915	77.0	0.03	No	5
	1.128						0.988		① + ⑦	2.116	81.4	0.04	No	6
	1.128	0.790							① + ② + ⑥	2.705				7
	1.128	0.790							① + ②	1.918	130.8	0.02	No	
1.128								① + ⑥	1.915	77.0	0.03	No		
		0.790							② + ⑥	1.577	53.9	0.04	No	
Edge 1	0.423				1.193				① + ⑤	1.616	119.4	0.02	No	8
	0.423	0.319				0.881			① + ② + ⑥	1.623				9
	0.423	0.319							① + ②	0.742	124.4	0.01	No	
	0.423						0.881		① + ⑥	1.304	80.6	0.02	No	
		0.319					0.881		② + ⑥	1.200	44.0	0.03	No	

12.2. Sum of the SAR for W-CDMA Band IV & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)								Σ 1-g SAR (W/kg)							
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII 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 + DTS Ant.1 + U-NII Ant.2	WWAN + BT
	①	②	③	④	⑤	⑥	⑦	⑧	① + ②	① + ③	① + ④	① + ⑤	① + ⑥	① + ⑦	① + ② + ⑥	① + ⑧
Rear	1.147	0.790	0.587	0.989	0.706	0.787	0.988	0.471	1.937	1.734	2.136	1.853	1.934	2.135	2.724	1.618
Edge 1	0.247	0.319	0.698	0.499	1.193	0.881	1.000	0.086	0.566	0.945	0.746	1.440	1.128	1.247	1.447	0.333
Edge 2	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
	①	②	③	④	⑤	⑥	⑦	⑧						
Rear	1.147	0.790							① + ②	1.937	134.7	0.02	No	10
	1.147		0.587						① + ③	1.734	89.8	0.03	No	11
	1.147			0.989					① + ④	2.136	132.5	0.02	No	12
	1.147				0.706				① + ⑤	1.853	131.0	0.02	No	13
	1.147					0.787			① + ⑥	1.934	80.9	0.03	No	14
	1.147						0.988		① + ⑦	2.135	85.3	0.04	No	15
	1.147	0.790				0.787			① + ② + ⑥	2.724				16
	1.147	0.790							① + ②	1.937	134.7	0.02	No	
	1.147					0.787			① + ⑥	1.934	80.9	0.03	No	
		0.790				0.787			② + ⑥	1.577	53.9	0.04	No	
1.147							0.471	① + ⑧	1.618	132.8	0.02	No	17	

12.3. Sum of the SAR for W-CDMA Band V & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)								Σ 1-g SAR (W/kg)							
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII 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 + DTS Ant.1 + U-NII Ant.2	WWAN + BT
	①	②	③	④	⑤	⑥	⑦	⑧	① + ②	① + ③	① + ④	① + ⑤	① + ⑥	① + ⑦	① + ② + ⑥	① + ⑧
Rear	1.073	0.790	0.587	0.989	0.706	0.787	0.988	0.471	1.863	1.660	2.062	1.779	1.860	2.061	2.650	1.544
Edge 1	0.538	0.319	0.698	0.499	1.193	0.881	1.000	0.086	0.857	1.236	1.037	1.731	1.419	1.538	1.738	0.624
Edge 2	0.203	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.603	0.603	0.603	0.603	0.603	0.603	1.003	0.603
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
	①	②	③	④	⑤	⑥	⑦	⑧						
Rear	1.073	0.790							① + ②	1.863	185.9	0.01	No	18
	1.073		0.587						① + ③	1.660	141.0	0.02	No	19
	1.073			0.989					① + ④	2.062	183.7	0.02	No	20
	1.073				0.706				① + ⑤	1.779	182.0	0.01	No	21
	1.073					0.787			① + ⑥	1.860	132.0	0.02	No	22
	1.073						0.988		① + ⑦	2.061	136.6	0.02	No	23
	1.073	0.790							① + ② + ⑥	2.650				24
	1.073	0.790							① + ②	1.863	185.9	0.01	No	
	1.073								① + ⑥	1.860	132.0	0.02	No	
		0.790							② + ⑥	1.577	53.9	0.04	No	
Edge 1	0.538				1.193				① + ⑤	1.731	183.5	0.01	No	25
	0.538	0.319							① + ② + ⑥	1.738				26
	0.538	0.319							① + ②	0.857	188.6	0.00	No	
	0.538								① + ⑥	1.419	144.7	0.01	No	
		0.319							② + ⑥	1.200	44.0	0.03	No	

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

SAR for LTE Band 2 (Frequency Range: 1850-1910 MHz) is covered by LTE Band 25 (Frequency Range: 1850-1915 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

12.5. Sum of the SAR for LTE Band 4 & Wi-Fi & BT

SAR for LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, higher maximum tune-up limit and same channel bandwidth.

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

SAR for LTE Band 5 (Frequency Range: 824-849 MHz) is covered by LTE Band 26 (Frequency Range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth from 10MHz to 1.4MHz. Therefore, LTE Band 26 at 15MHz bandwidth has been measured.

12.7. Sum of the SAR for LTE Band 7 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)								Σ 1-g SAR (W/kg)							
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII 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 + DTS Ant.1 + U-NII Ant.2	WWAN + BT
	①	②	③	④	⑤	⑥	⑦	⑧	① + ②	① + ③	① + ④	① + ⑤	① + ⑥	① + ⑦	① + ② + ⑥	① + ⑧
Rear	0.865	0.790	0.587	0.989	0.706	0.787	0.988	0.471	1.655	1.452	1.854	1.571	1.652	1.853	2.442	1.336
Edge 1	0.823	0.319	0.698	0.499	1.193	0.881	1.000	0.086	1.142	1.521	1.322	2.016	1.704	1.823	2.023	0.909
Edge 2	0.291	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.691	0.691	0.691	0.691	0.691	0.691	1.091	0.691
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
	①	②	③	④	⑤	⑥	⑦	⑧						
Rear	0.865	0.790							① + ②	1.655	193.1	0.01	No	27
	0.865			0.989					① + ④	1.854	190.8	0.01	No	28
	0.865					0.787			① + ⑥	1.652	139.2	0.02	No	29
	0.865						0.988		① + ⑦	1.853	143.7	0.02	No	30
	0.865	0.790				0.787			① + ② + ⑥	2.442				31
	0.865	0.790							① + ②	1.655	193.1	0.01	No	
	0.865					0.787			① + ⑥	1.652	139.2	0.02	No	
	0.790					0.787			② + ⑥	1.577	53.9	0.04	No	
Edge 1	0.823				1.193				① + ⑤	2.016	198.0	0.01	No	32
	0.823					0.881			① + ⑥	1.704	159.2	0.01	No	33
	0.823						1.000		① + ⑦	1.823	199.8	0.01	No	34
	0.823	0.319				0.881			① + ② + ⑥	2.023				35
	0.823	0.319							① + ②	1.142	203.1	0.01	No	
	0.823					0.881			① + ⑥	1.704	159.2	0.01	No	
		0.319				0.881			② + ⑥	1.200	44.0	0.03	No	

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	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII 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 + DTS Ant.1 + U-NII Ant.2	WWAN + BT
	①	②	③	④	⑤	⑥	⑦	⑧	① + ②	① + ③	① + ④	① + ⑤	① + ⑥	① + ⑦	① + ② + ⑥	① + ⑧
Rear	0.747	0.790	0.587	0.989	0.706	0.787	0.988	0.471	1.537	1.334	1.736	1.453	1.534	1.735	2.324	1.218
Edge 1	0.262	0.319	0.698	0.499	1.193	0.881	1.000	0.086	0.581	0.960	0.761	1.455	1.143	1.262	1.462	0.348
Edge 2	0.150	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.550	0.550	0.550	0.550	0.550	0.550	0.950	0.550
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
	①	②	③	④	⑤	⑥	⑦	⑧						
Rear	0.747			0.989					① + ④	1.736	190.5	0.01	No	36
	0.747						0.988		① + ⑦	1.735	143.4	0.02	No	37
	0.747	0.790					0.787		① + ② + ⑥	2.324				38
	0.747	0.790							① + ②	1.537	192.8	0.01	No	
	0.747						0.787		① + ⑥	1.534	138.9	0.01	No	
	0.790					0.787		② + ⑥	1.577	53.9	0.04	No		

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 ①	DTS Ant.1 ②	DTS Ant.2 ③	DTS MIMO ④	UNII Ant.1 ⑤	UNII Ant.2 ⑥	UNII MIMO ⑦	BT ⑧	WWAN + DTS Ant.1 ① + ②	WWAN + DTS Ant.2 ① + ③	WWAN + DTS MIMO ① + ④	WWAN + U-NII Ant.1 ① + ⑤	WWAN + U-NII Ant.2 ① + ⑥	WWAN + U-NII MIMO ① + ⑦	WWAN + DTS Ant.1 + U-NII Ant.2 ① + ② + ⑥	WWAN + BT ① + ⑧
Rear	0.860	0.790	0.587	0.989	0.706	0.787	0.988	0.471	1.650	1.447	1.849	1.566	1.647	1.848	2.437	1.331
Edge 1	0.434	0.319	0.698	0.499	1.193	0.881	1.000	0.086	0.753	1.132	0.933	1.627	1.315	1.434	1.634	0.520
Edge 2	0.201	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.601	0.601	0.601	0.601	0.601	0.601	1.001	0.601
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN ①	DTS Ant.1 ②	DTS Ant.2 ③	DTS MIMO ④	UNII Ant.1 ⑤	UNII Ant.2 ⑥	UNII MIMO ⑦	BT ⑧						
Rear	0.860	0.790							① + ②	1.650	186.7	0.01	No	39
	0.860			0.989					① + ④	1.849	184.4	0.01	No	40
	0.860					0.787			① + ⑥	1.647	132.7	0.02	No	41
	0.860						0.988		① + ⑦	1.848	137.3	0.02	No	42
	0.860	0.790				0.787			① + ② + ⑥	2.437				43
	0.860	0.790							① + ②	1.650	186.7	0.01	No	
	0.860					0.787			① + ⑥	1.647	132.7	0.02	No	
	0.790							② + ⑥	1.577	53.9	0.04	No		
Edge 1	0.434				1.193				① + ⑤	1.627	183.4	0.01	No	44
	0.434	0.319				0.881			① + ② + ⑥	1.634				45
	0.434	0.319							① + ②	0.753	188.5	0.00	No	
	0.434					0.881			① + ⑥	1.315	144.6	0.01	No	
	0.319				0.881			② + ⑥	1.200	44.0	0.03	No		

12.10. Sum of the SAR for LTE Band 14 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)								Σ 1-g SAR (W/kg)							
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII 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 + DTS Ant.1 + U-NII Ant.2	WWAN + BT
	①	②	③	④	⑤	⑥	⑦	⑧	① + ②	① + ③	① + ④	① + ⑤	① + ⑥	① + ⑦	① + ② + ⑥	① + ⑧
Rear	1.126	0.790	0.587	0.989	0.706	0.787	0.988	0.471	1.916	1.713	2.115	1.832	1.913	2.114	2.703	1.597
Edge 1	0.538	0.319	0.698	0.499	1.193	0.881	1.000	0.086	0.857	1.236	1.037	1.731	1.419	1.538	1.738	0.624
Edge 2	0.217	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.617	0.617	0.617	0.617	0.617	0.617	1.017	0.617
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
	①	②	③	④	⑤	⑥	⑦	⑧						
Rear	1.126	0.790							① + ②	1.916	186.7	0.01	No	46
	1.126		0.587						① + ③	1.713	141.8	0.02	No	47
	1.126			0.989					① + ④	2.115	184.4	0.02	No	47
	1.126				0.706				① + ⑤	1.832	182.6	0.01	No	49
	1.126					0.787			① + ⑥	1.913	132.7	0.02	No	50
	1.126						0.988		① + ⑦	2.114	137.3	0.02	No	51
	1.126	0.790				0.787			① + ② + ⑥	2.703				52
	1.126	0.790							① + ②	1.916	186.7	0.01	No	
	1.126					0.787			① + ⑥	1.913	132.7	0.02	No	
		0.790							② + ⑥	1.577	53.9	0.04	No	
Edge 1	0.538				1.193				① + ⑤	1.731	183.4	0.01	No	53
	0.538	0.319				0.881			① + ② + ⑥	1.738				54
	0.538	0.319							① + ②	0.857	188.5	0.00	No	
	0.538					0.881			① + ⑥	1.419	144.6	0.01	No	
		0.319			0.881			② + ⑥	1.200	44.0	0.03	No		

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

SAR for LTE Band 17 (Frequency Range: 704-716 MHz) is covered by LTE Band 12 (Frequency Range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

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

Test Position	Standalone SAR (W/kg)								∑ 1-g SAR (W/kg)							
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII 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 + DTS Ant.1 + U-NII Ant.2	WWAN + BT
	①	②	③	④	⑤	⑥	⑦	⑧	① + ②	① + ③	① + ④	① + ⑤	① + ⑥	① + ⑦	① + ② + ⑥	① + ⑧
Rear	1.191	0.790	0.587	0.989	0.706	0.787	0.988	0.471	1.981	1.778	2.180	1.897	1.978	2.179	2.768	1.662
Edge 1	0.339	0.319	0.698	0.499	1.193	0.881	1.000	0.086	0.658	1.037	0.838	1.532	1.220	1.339	1.539	0.425
Edge 2	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
	①	②	③	④	⑤	⑥	⑦	⑧						
Rear	1.191	0.790							① + ②	1.981	130.8	0.02	No	55
	1.191		0.587						① + ③	1.778	85.9	0.03	No	56
	1.191			0.989					① + ④	2.180	128.6	0.03	No	57
	1.191				0.706				① + ⑤	1.897	127.1	0.02	No	58
	1.191					0.787			① + ⑥	1.978	77.0	0.04	No	59
	1.191						0.988		① + ⑦	2.179	81.4	0.04	No	60
	1.191	0.790				0.787			① + ② + ⑥	2.768				61
	1.191	0.790					0.787		① + ②	1.981	130.8	0.02	No	
	1.191						0.787		① + ⑥	1.978	77.0	0.04	No	
		0.790					0.787		② + ⑥	1.577	53.9	0.04	No	
1.191							0.471	② + ⑥	1.662	128.9	0.02	No	62	

12.13. 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	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII 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 + DTS Ant.1 + U-NII Ant.2	WWAN + BT
	①	②	③	④	⑤	⑥	⑦	⑧	① + ②	① + ③	① + ④	① + ⑤	① + ⑥	① + ⑦	① + ② + ⑥	① + ⑧
Rear	0.950	0.790	0.587	0.989	0.706	0.787	0.988	0.471	1.740	1.537	1.939	1.656	1.737	1.938	2.527	1.421
Edge 1	0.518	0.319	0.698	0.499	1.193	0.881	1.000	0.086	0.837	1.216	1.017	1.711	1.399	1.518	1.718	0.604
Edge 2	0.189	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.589	0.589	0.589	0.589	0.589	0.589	0.989	0.589
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
	①	②	③	④	⑤	⑥	⑦	⑧						
Rear	0.950	0.790							① + ②	1.740	185.0	0.01	No	63
	0.950			0.989					① + ④	1.939	182.8	0.01	No	64
	0.950				0.706				① + ⑤	1.656	181.1	0.01	No	65
	0.950					0.787			① + ⑥	1.737	131.1	0.02	No	66
	0.950						0.988		① + ⑦	1.938	135.7	0.02	No	67
	0.950	0.790				0.787			① + ② + ⑥	2.527				68
	0.950	0.790							① + ②	1.740	185.0	0.01	No	
	0.950					0.787			① + ⑥	1.737	131.1	0.02	No	
	0.790					0.787			② + ⑥	1.577	53.9	0.04	No	
Edge 1	0.518				1.193				① + ⑤	1.711	184.9	0.01	No	69
	0.518	0.319				0.881			① + ② + ⑥	1.718				70
	0.518	0.319							① + ②	0.837	190.0	0.00	No	
	0.518					0.881			① + ⑥	1.399	146.1	0.01	No	
		0.319				0.881			② + ⑥	1.200	44.0	0.03	No	

12.14. Sum of the SAR for LTE Band 30 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)								Σ 1-g SAR (W/kg)							
	WWAN ①	DTS Ant.1 ②	DTS Ant.2 ③	DTS MIMO ④	UNII Ant.1 ⑤	UNII Ant.2 ⑥	UNII MIMO ⑦	BT ⑧	WWAN + DTS Ant.1 ① + ②	WWAN + DTS Ant.2 ① + ③	WWAN + DTS MIMO ① + ④	WWAN + U-NII Ant.1 ① + ⑤	WWAN + U-NII Ant.2 ① + ⑥	WWAN + U-NII MIMO ① + ⑦	WWAN + DTS Ant.1 + U-NII Ant.2 ① + ② + ⑥	WWAN + BT ① + ⑧
Rear	0.525	0.790	0.587	0.989	0.706	0.787	0.988	0.471	1.315	1.112	1.514	1.231	1.312	1.513	2.102	0.996
Edge 1	0.389	0.319	0.698	0.499	1.193	0.881	1.000	0.086	0.708	1.087	0.888	1.582	1.270	1.389	1.589	0.475
Edge 2	0.014	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.414	0.414	0.414	0.414	0.414	0.414	0.814	0.414
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN ①	DTS Ant.1 ②	DTS Ant.2 ③	DTS MIMO ④	UNII Ant.1 ⑤	UNII Ant.2 ⑥	UNII MIMO ⑦	BT ⑧						
Rear	0.525	0.790				0.787			① + ② + ⑥	2.102			71	
	0.525	0.790							① + ②	1.315	193.6	0.01		No
	0.525					0.787			① + ⑥	1.312	139.8	0.01		No
		0.790				0.787			② + ⑥	1.577	53.9	0.04		No

12.15. Sum of the SAR for LTE Band 38 & Wi-Fi & BT

SAR for LTE Band 38 (Frequency range: 2570-2620 MHz) is covered by LTE Band 41 (Frequency range: 2496-2690 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

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

Test Position	Standalone SAR (W/kg)								∑ 1-g SAR (W/kg)							
	WWAN ①	DTS Ant.1 ②	DTS Ant.2 ③	DTS MIMO ④	UNII Ant.1 ⑤	UNII Ant.2 ⑥	UNII MIMO ⑦	BT ⑧	WWAN + DTS Ant.1 ① + ②	WWAN + DTS Ant.2 ① + ③	WWAN + DTS MIMO ① + ④	WWAN + U-NII Ant.1 ① + ⑤	WWAN + U-NII Ant.2 ① + ⑥	WWAN + U-NII MIMO ① + ⑦	WWAN + DTS Ant.1 + U-NII Ant.2 ① + ② + ⑥	WWAN + BT ① + ⑧
Rear	1.346	0.790	0.587	0.989	0.706	0.787	0.988	0.471	2.136	1.933	2.335	2.052	2.133	2.334	2.923	1.817
Edge 1	0.490	0.319	0.698	0.499	1.193	0.881	1.000	0.086	0.809	1.188	0.989	1.683	1.371	1.490	1.690	0.576
Edge 2	0.027	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.427	0.427	0.427	0.427	0.427	0.427	0.827	0.427
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN ①	DTS Ant.1 ②	DTS Ant.2 ③	DTS MIMO ④	UNII Ant.1 ⑤	UNII Ant.2 ⑥	UNII MIMO ⑦	BT ⑧						
Rear	1.346	0.790							① + ②	2.136	197.2	0.02	No	72
	1.346		0.587						① + ③	1.933	152.2	0.02	No	73
	1.346			0.989					① + ④	2.335	195.0	0.02	No	74
	1.346				0.706				① + ⑤	2.052	193.5	0.02	No	75
	1.346					0.787			① + ⑥	2.133	143.5	0.02	No	76
	1.346						0.988		① + ⑦	2.334	147.8	0.02	No	77
	1.346	0.790				0.787			① + ② + ⑥	2.923				78
	1.346	0.790				0.787			① + ②	2.136	197.2	0.02	No	
	1.346					0.787			① + ⑥	2.133	143.5	0.02	No	
			0.790						② + ⑥	1.577	53.9	0.04	No	
1.346							0.471	① + ⑧	1.817	195.2	0.01	No	79	
Edge 1	0.490				1.193				① + ⑤	1.683	193.2	0.01	No	80
	0.490	0.319				0.881			① + ② + ⑥	1.690				81
	0.490	0.319							① + ②	0.809	198.3	0.00	No	
	0.490					0.881			① + ⑥	1.371	154.4	0.01	No	
		0.319				0.881			② + ⑥	1.200	44.0	0.03	No	

12.17. 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	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII 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 + DTS Ant.1 + U-NII Ant.2	WWAN + BT
	①	②	③	④	⑤	⑥	⑦	⑧	① + ②	① + ③	① + ④	① + ⑤	① + ⑥	① + ⑦	① + ② + ⑥	① + ⑧
Rear	1.055	0.790	0.587	0.989	0.706	0.787	0.988	0.471	1.845	1.642	2.044	1.761	1.842	2.043	2.632	1.526
Edge 1	0.168	0.319	0.698	0.499	1.193	0.881	1.000	0.086	0.487	0.866	0.667	1.361	1.049	1.168	1.368	0.254
Edge 2	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
	①	②	③	④	⑤	⑥	⑦	⑧						
Rear	1.055	0.790							① + ②	1.845	134.9	0.02	No	82
	1.055		0.587						① + ③	1.642	89.9	0.02	No	83
	1.055			0.989					① + ④	2.044	132.6	0.02	No	84
	1.055				0.706				① + ⑤	1.761	131.0	0.02	No	85
	1.055					0.787			① + ⑥	1.842	81.0	0.03	No	86
	1.055						0.988		① + ⑦	2.043	85.5	0.03	No	87
	1.055	0.790				0.787			① + ② + ⑥	2.632				88
	1.055	0.790							① + ②	1.845	134.9	0.02	No	
	1.055						0.787		① + ⑥	1.842	81.0	0.03	No	
	0.790					0.787		② + ⑥	1.577	53.9	0.04	No		

12.18. Sum of the SAR for LTE Band 71 & Wi-Fi & BT

Test Position	Standalone SAR (W/kg)								Σ 1-g SAR (W/kg)							
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII 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 + DTS Ant.1 + U-NII Ant.2	WWAN + BT
	①	②	③	④	⑤	⑥	⑦	⑧	① + ②	① + ③	① + ④	① + ⑤	① + ⑥	① + ⑦	① + ② + ⑥	① + ⑧
Rear	0.797	0.790	0.587	0.989	0.706	0.787	0.988	0.471	1.587	1.384	1.786	1.503	1.584	1.785	2.374	1.268
Edge 1	0.301	0.319	0.698	0.499	1.193	0.881	1.000	0.086	0.620	0.999	0.800	1.494	1.182	1.301	1.501	0.387
Edge 2	0.128	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.528	0.528	0.528	0.528	0.528	0.528	0.928	0.528
Edge 3	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.800	0.800	0.800	0.800	0.800	1.200	0.800
Edge 4	0.400	0.790	0.400	0.400	0.358	0.400	0.400	0.117	1.190	0.800	0.800	0.758	0.800	0.800	1.590	0.517

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	
	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
	①	②	③	④	⑤	⑥	⑦	⑧						
Rear	0.797			0.989					① + ④	1.786	189.0	0.01	No	89
	0.797						0.988		① + ⑦	1.785	141.9	0.02	No	90
	0.797	0.790					0.787		① + ② + ⑥	2.374				91
	0.797	0.790							① + ②	1.587	191.2	0.01	No	
	0.797						0.787		① + ⑥	1.584	137.3	0.01	No	
	0.790					0.787		② + ⑥	1.577	53.9	0.04	No		

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)

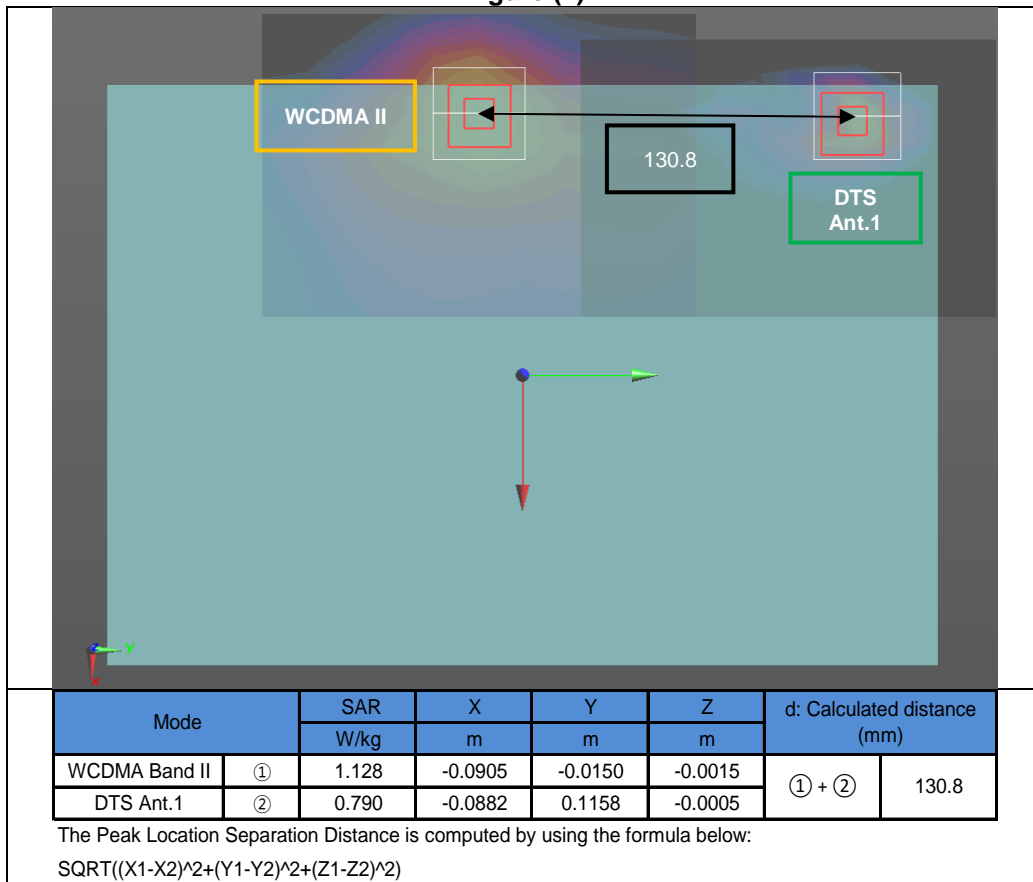


Figure (2)

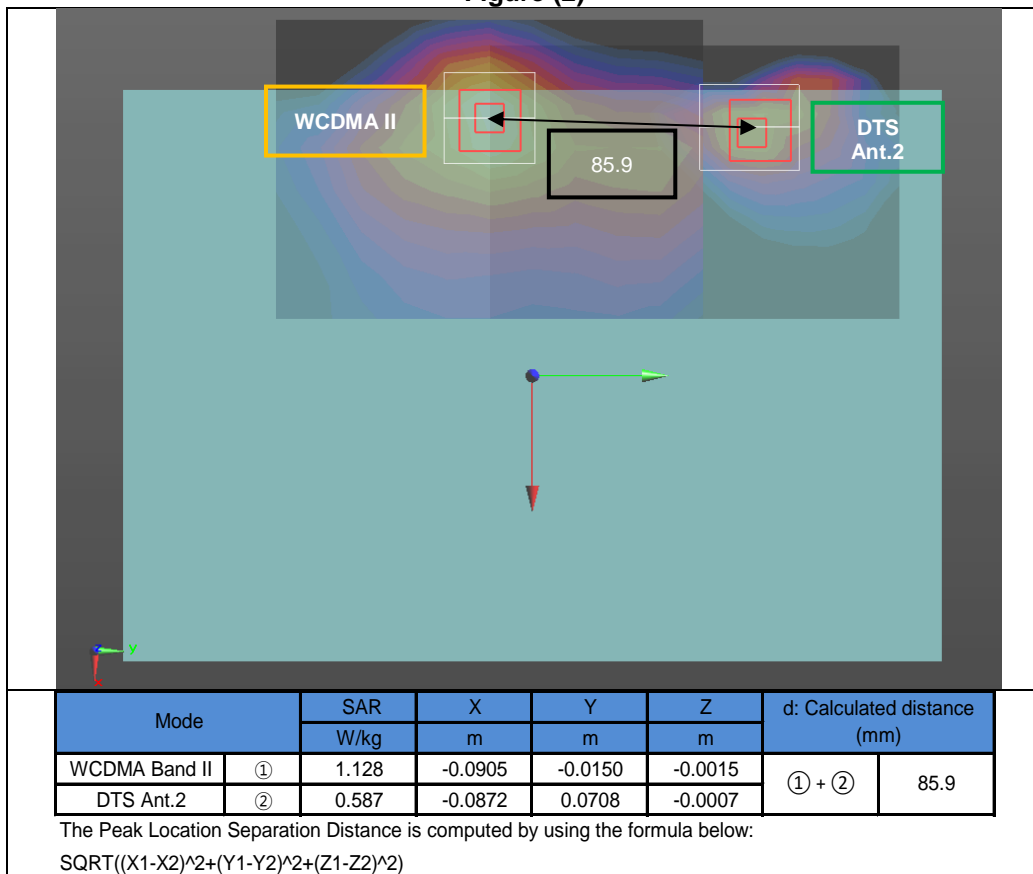


Figure (3)

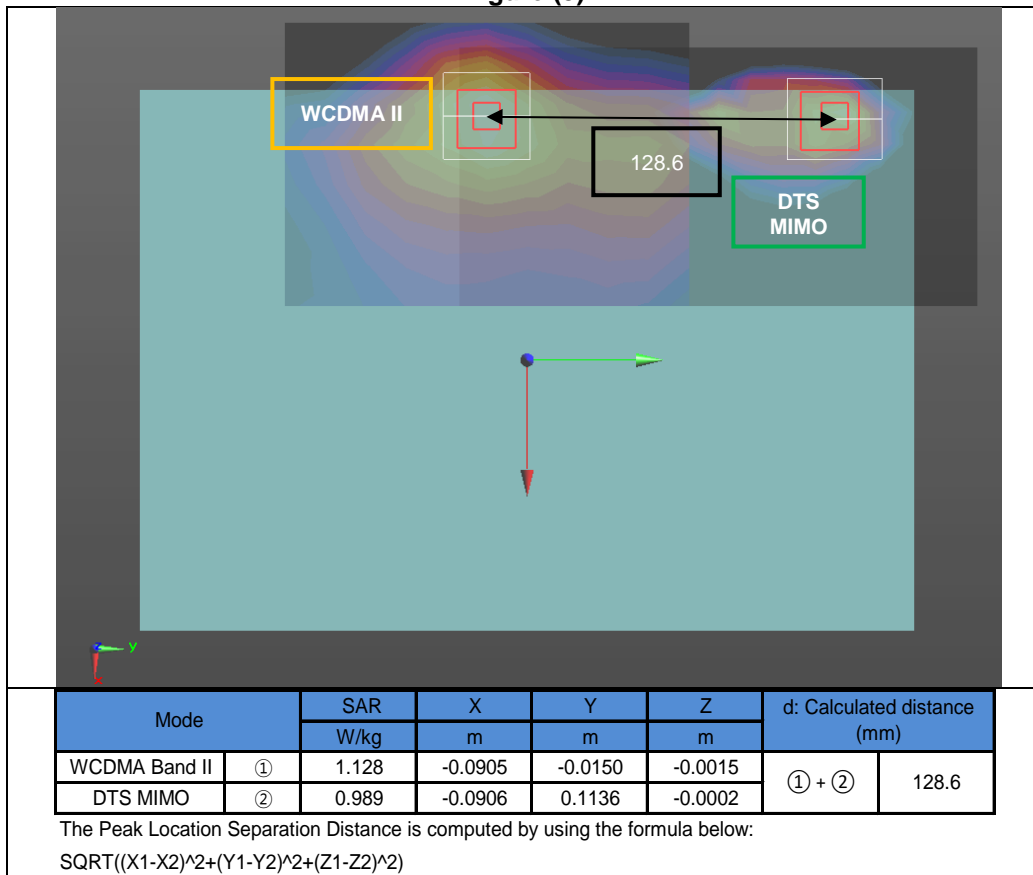


Figure (4)

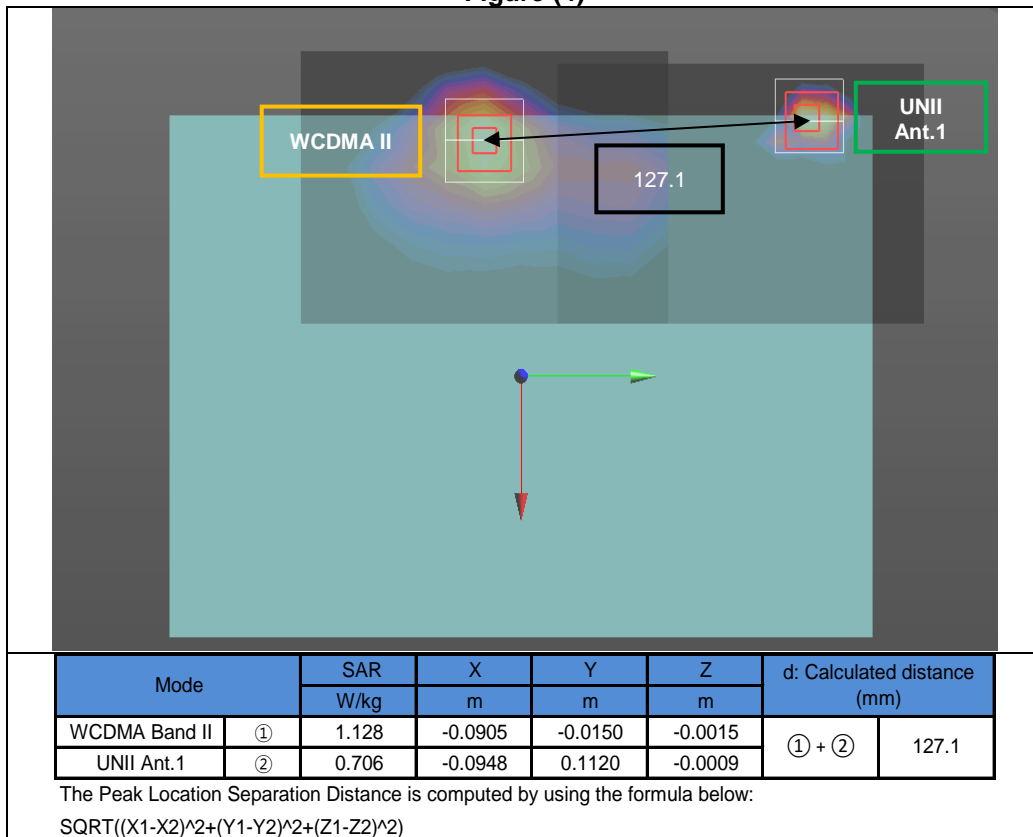


Figure (5)

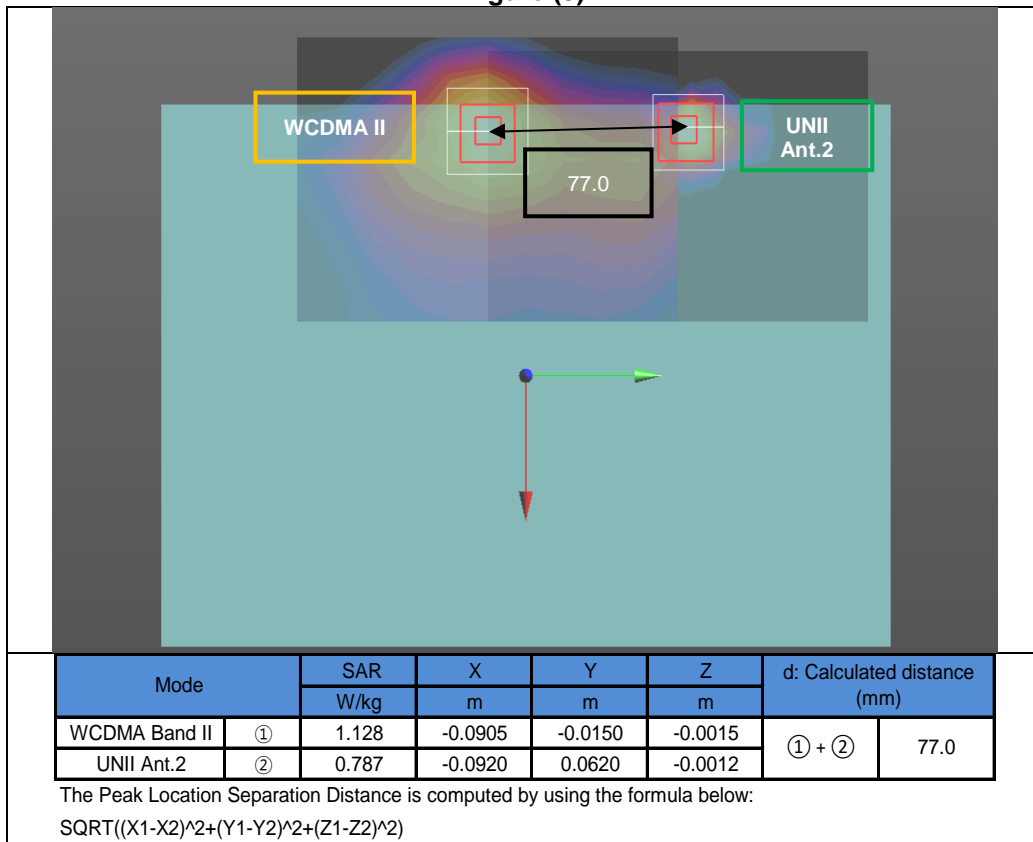


Figure (6)

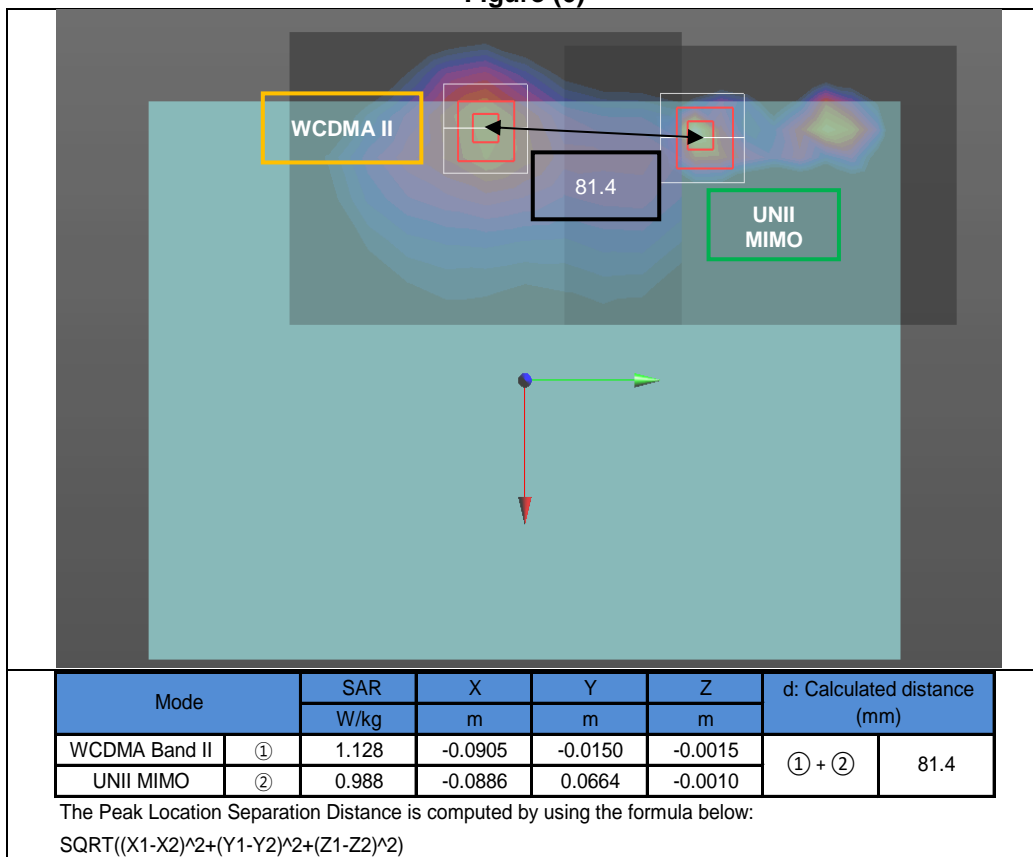


Figure (7)

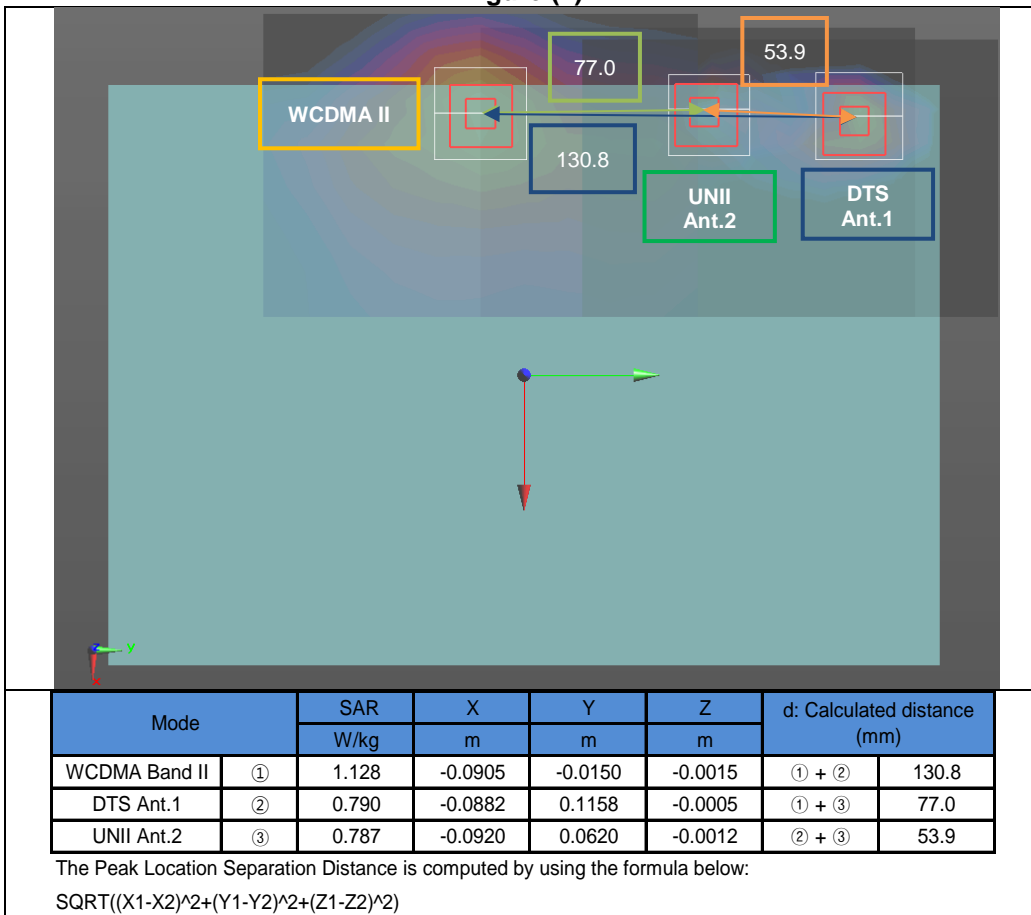


Figure (8)

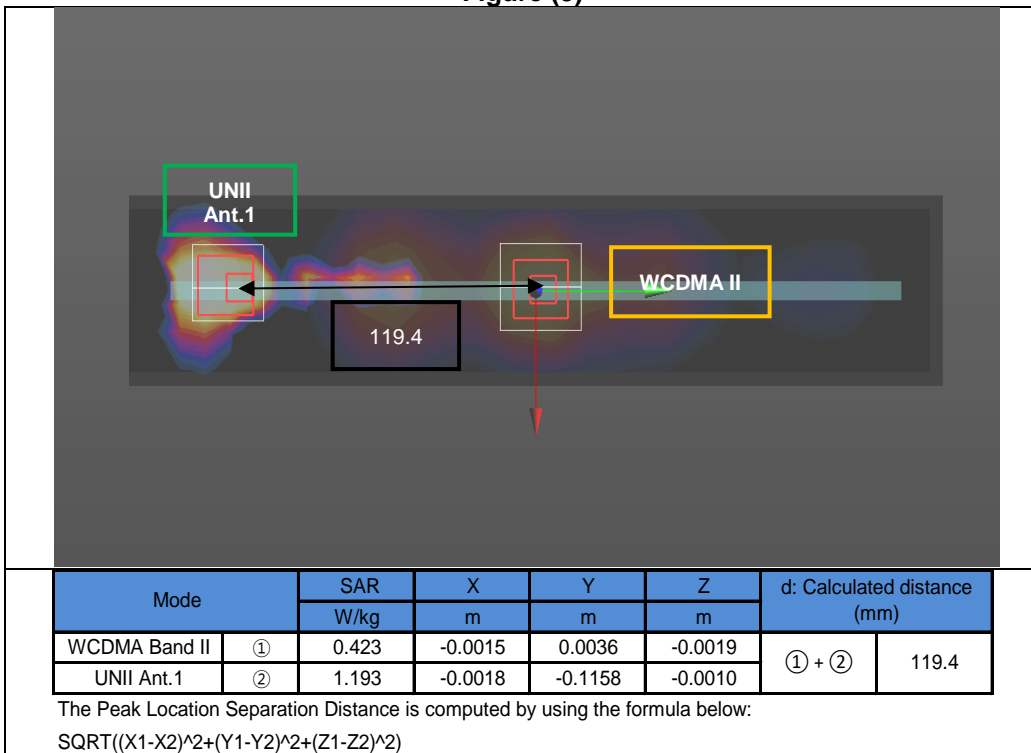


Figure (9)

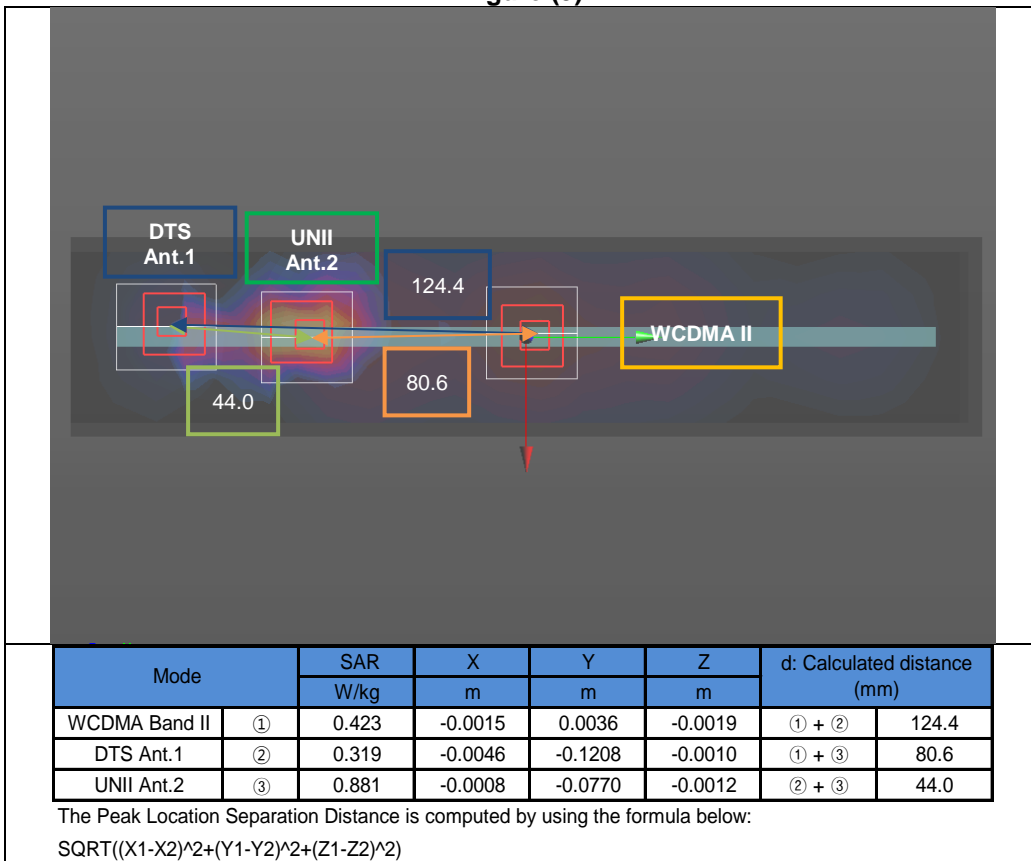


Figure (10)

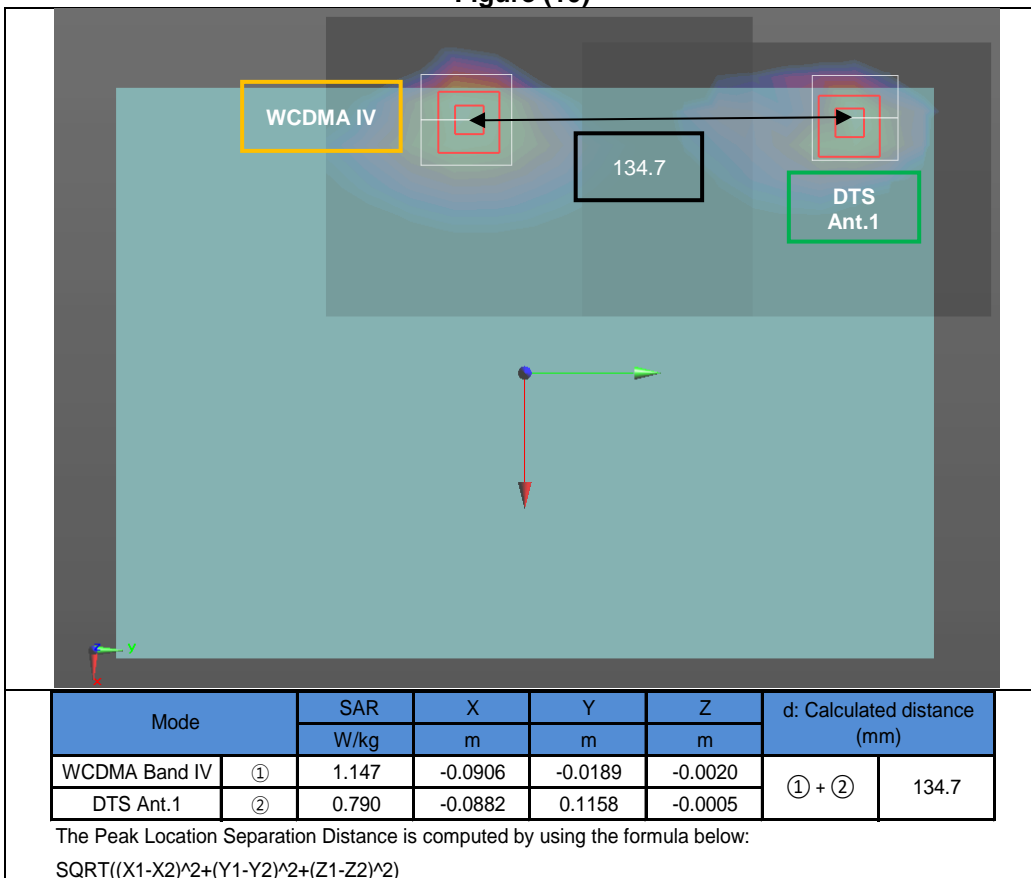


Figure (11)

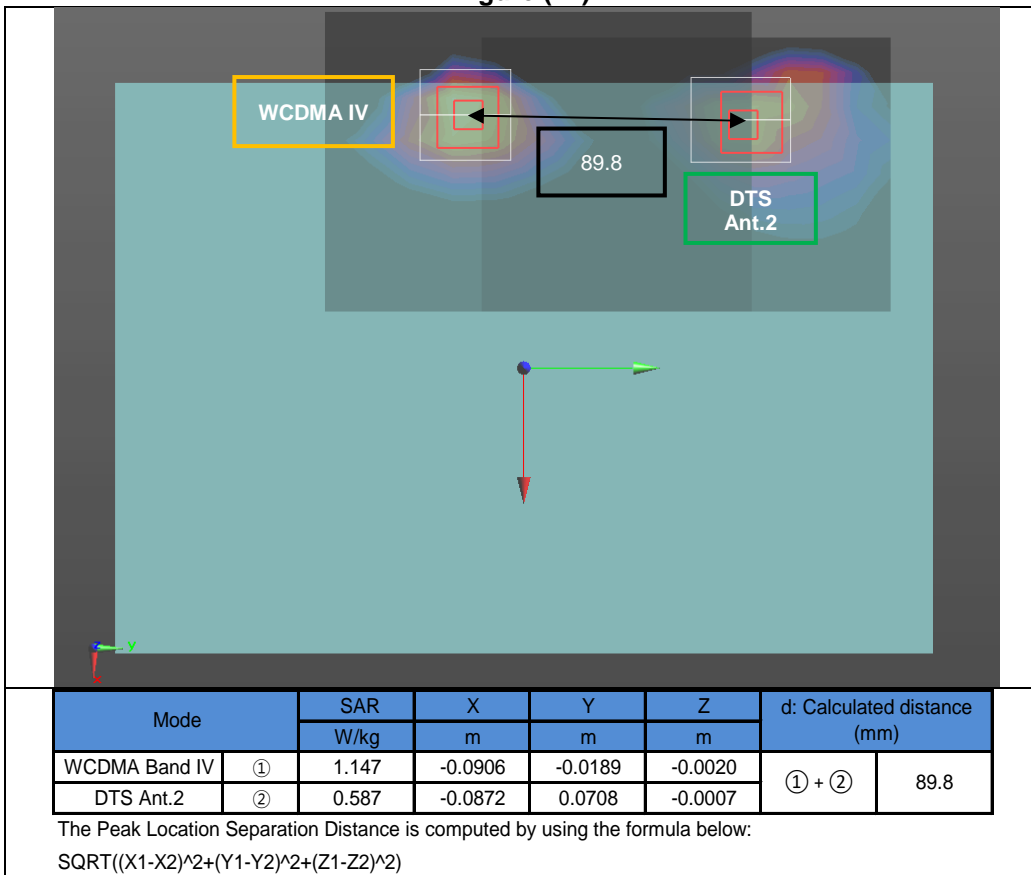


Figure (12)

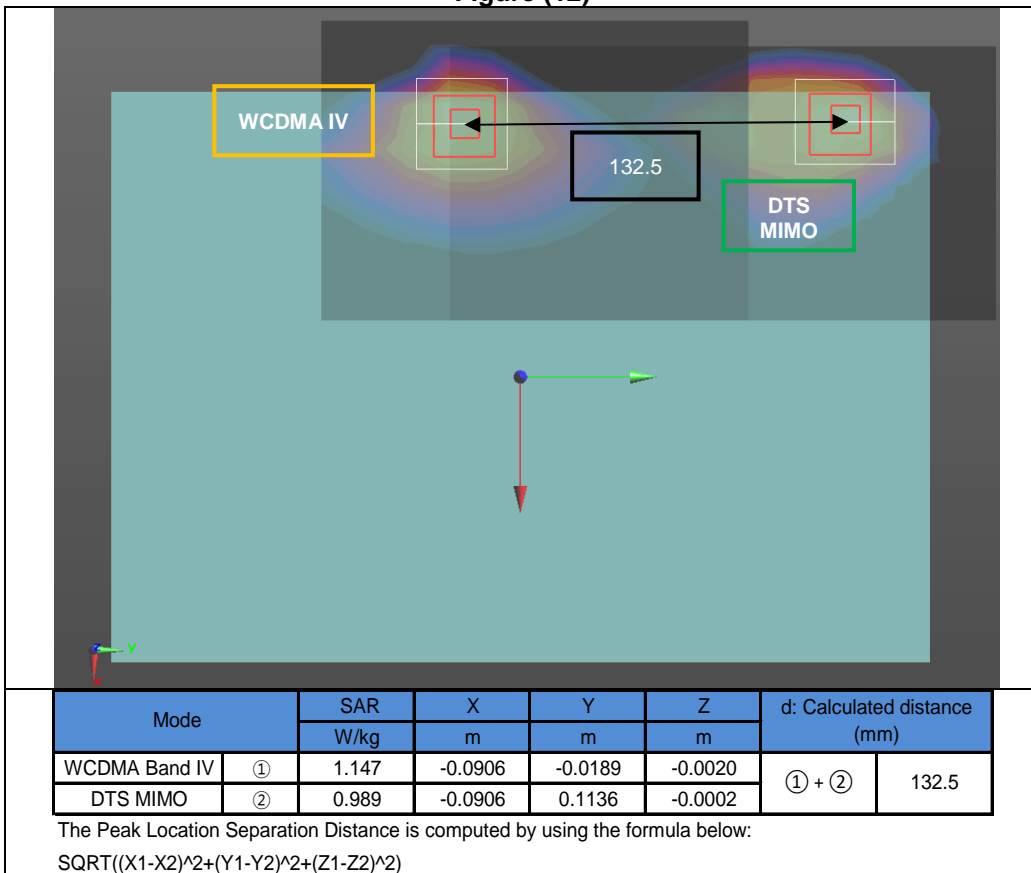


Figure (13)

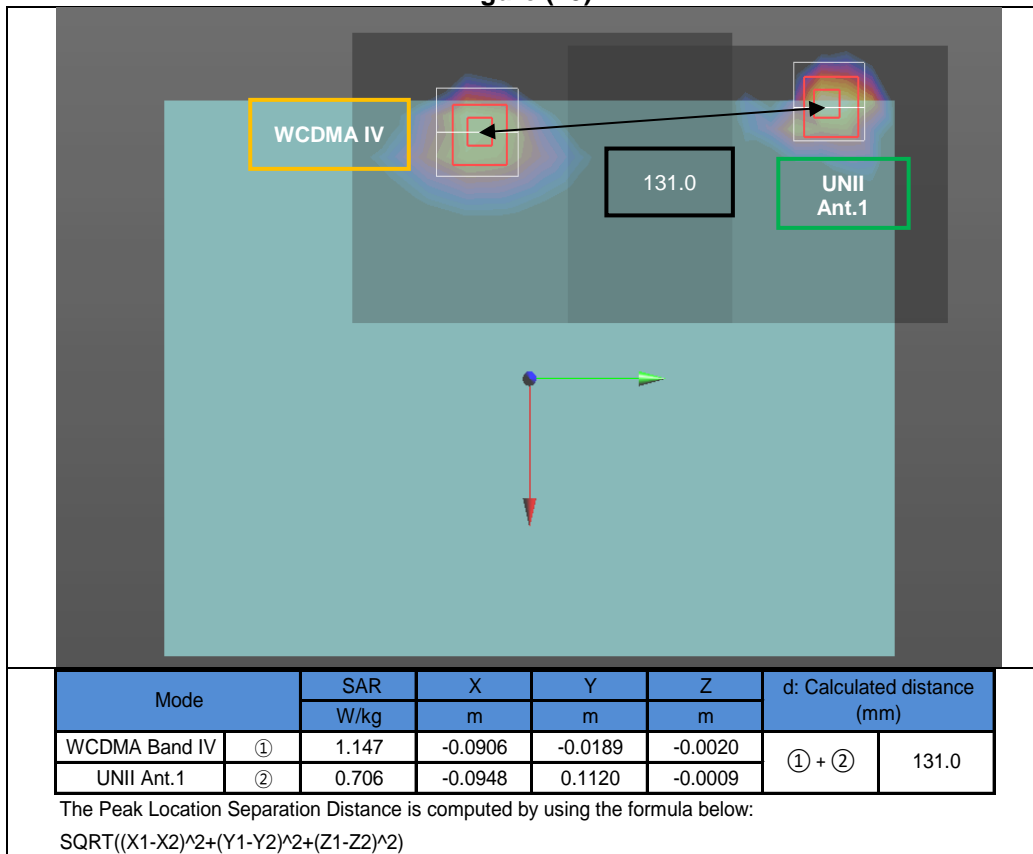


Figure (14)

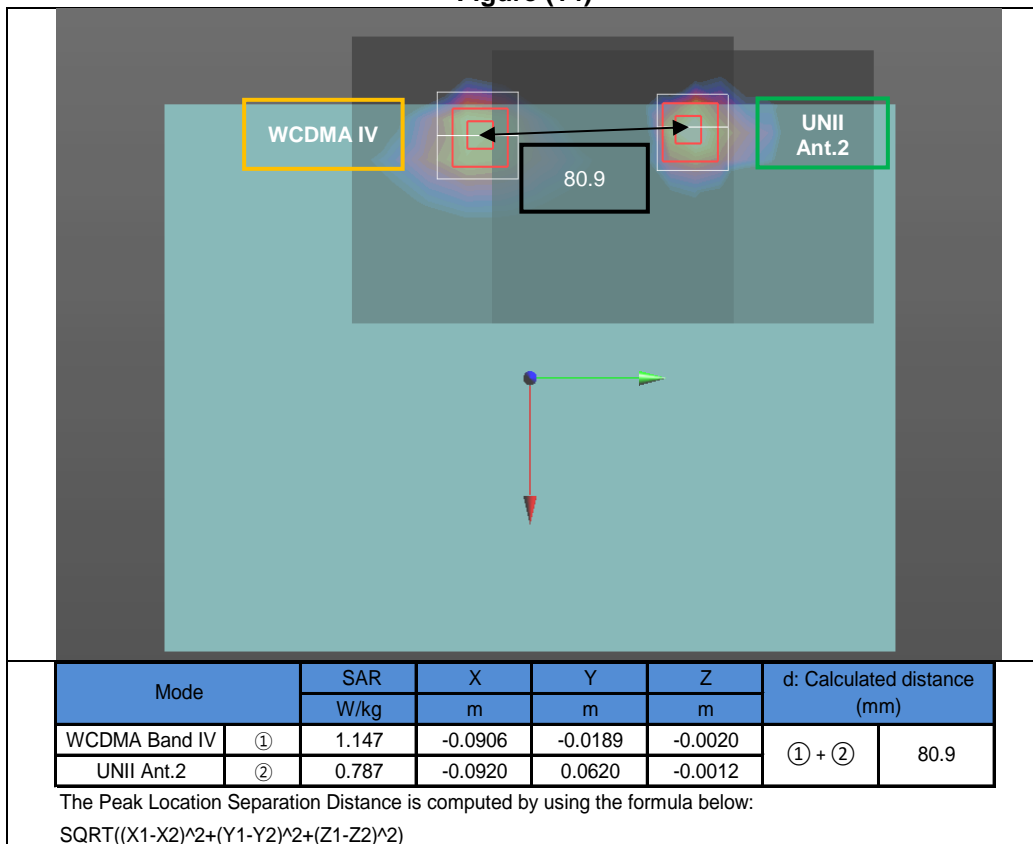


Figure (15)

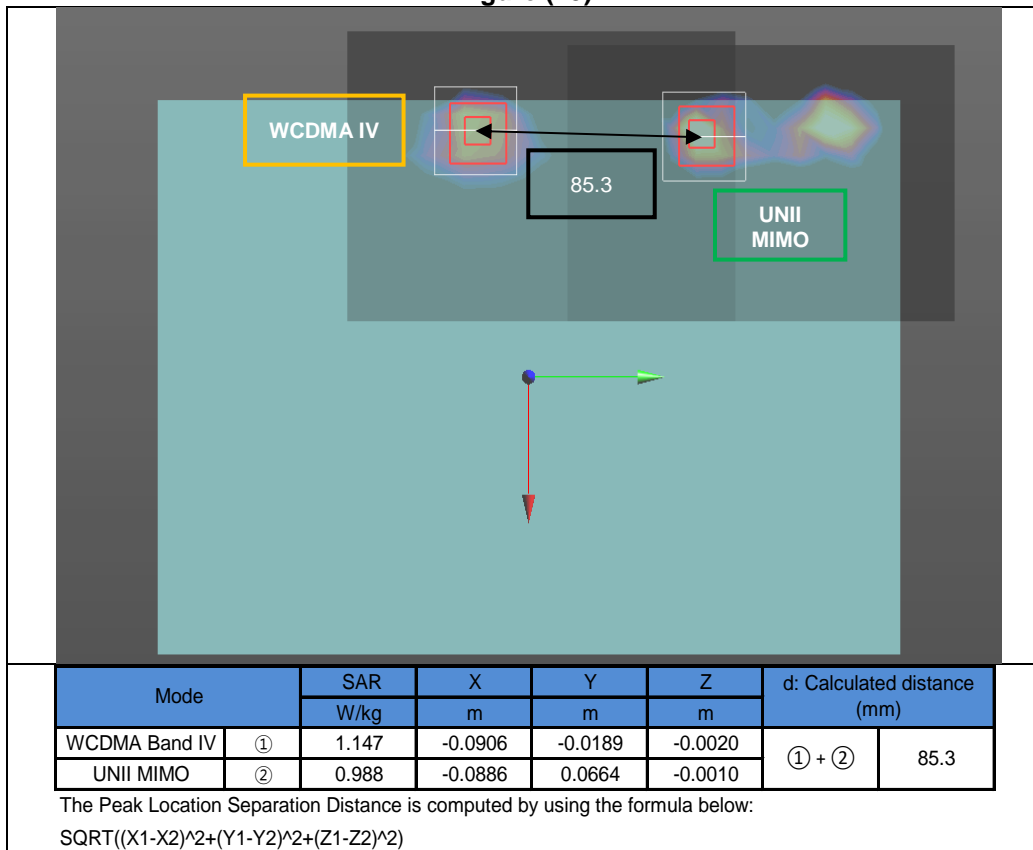


Figure (16)

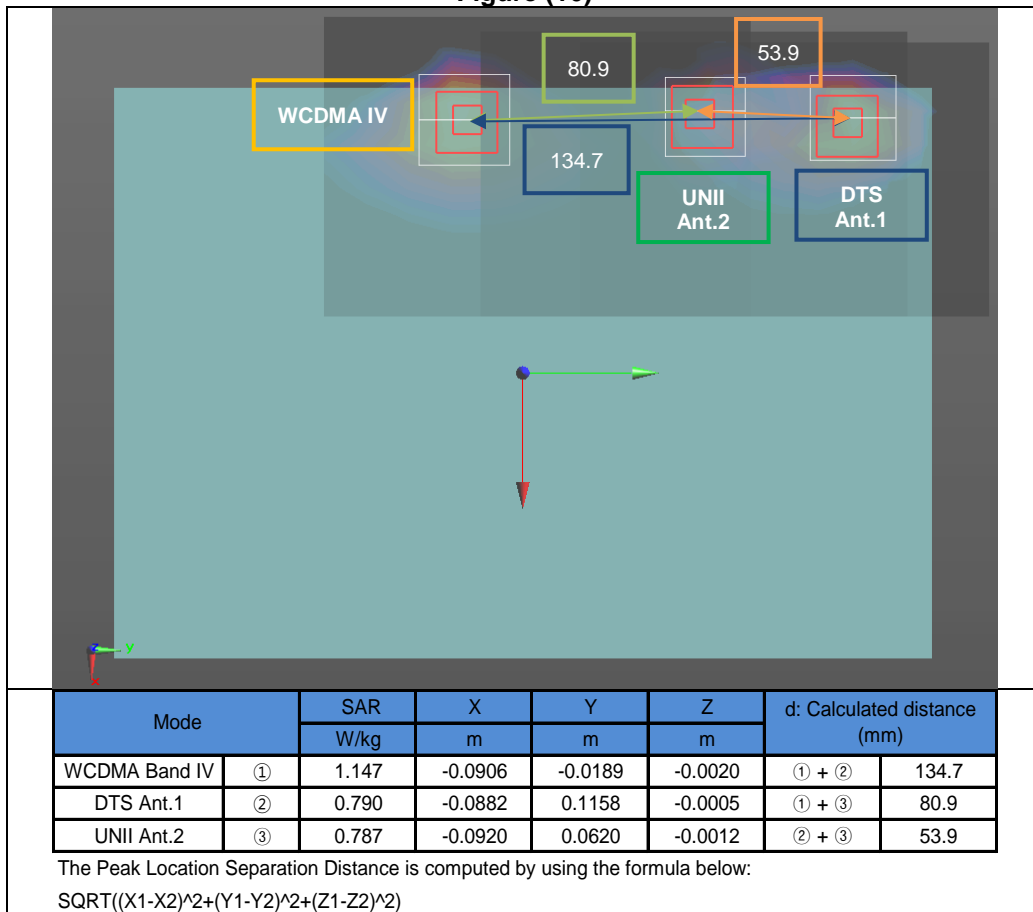


Figure (17)

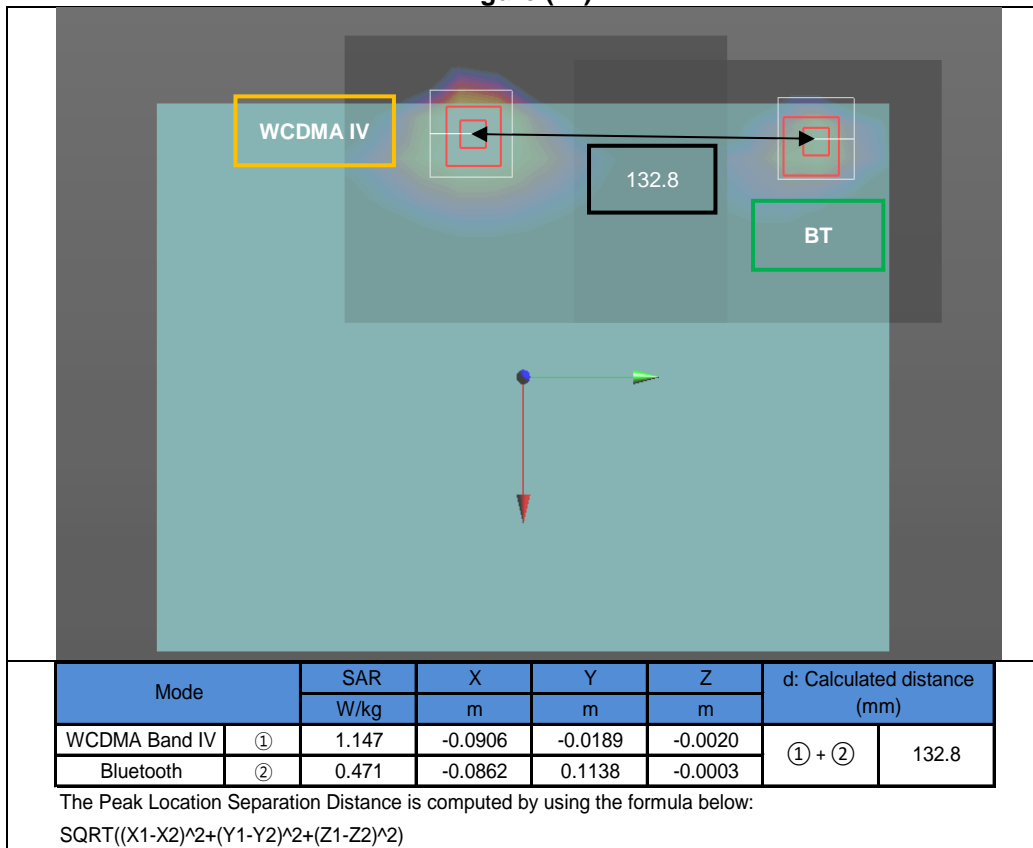


Figure (18)

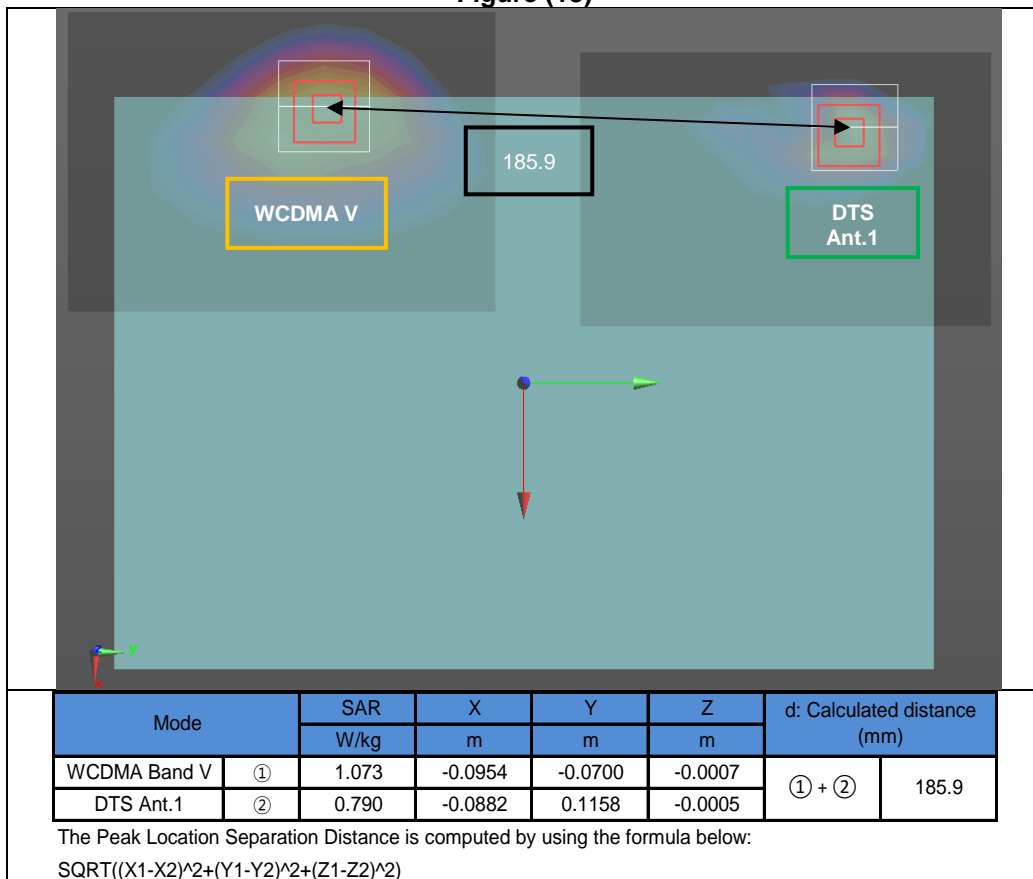


Figure (19)

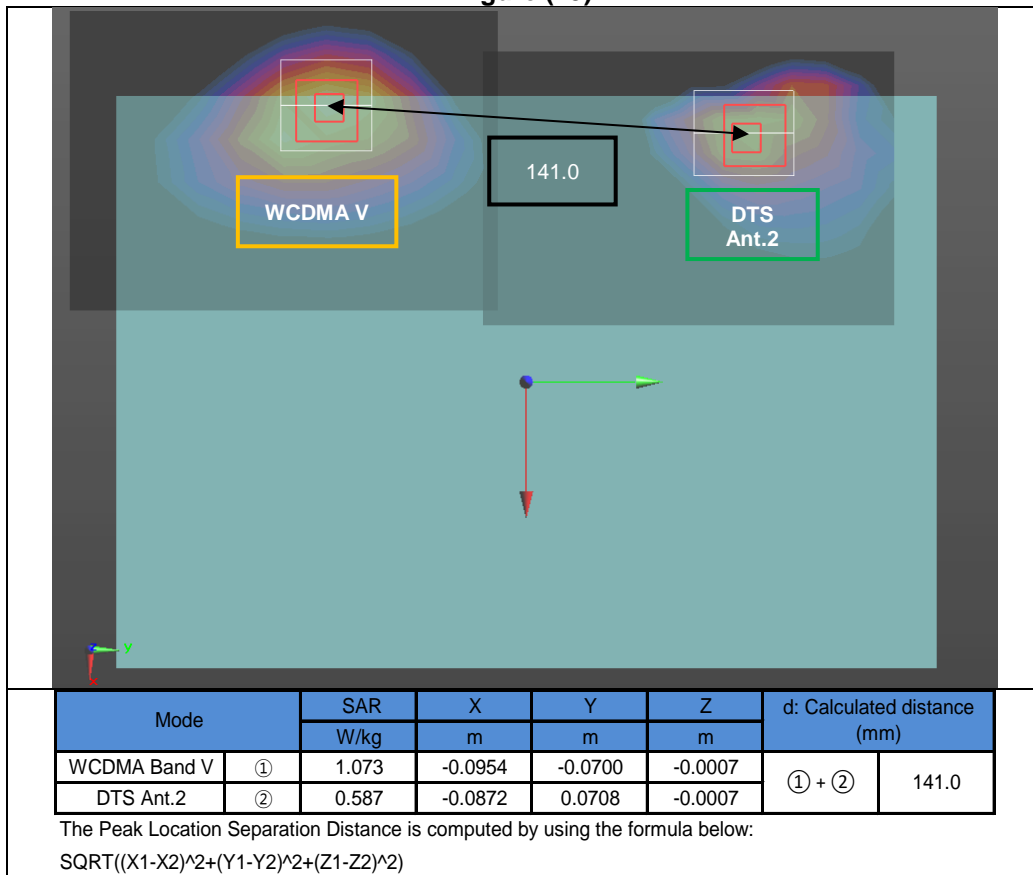


Figure (20)

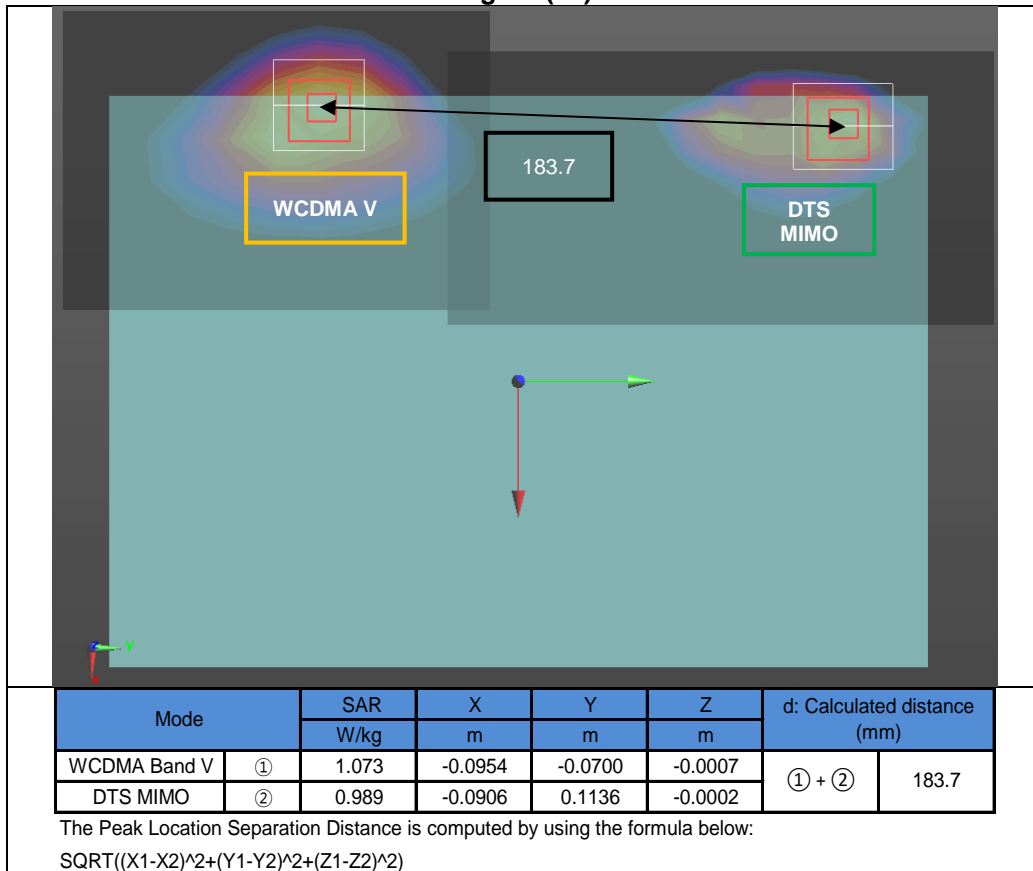


Figure (21)

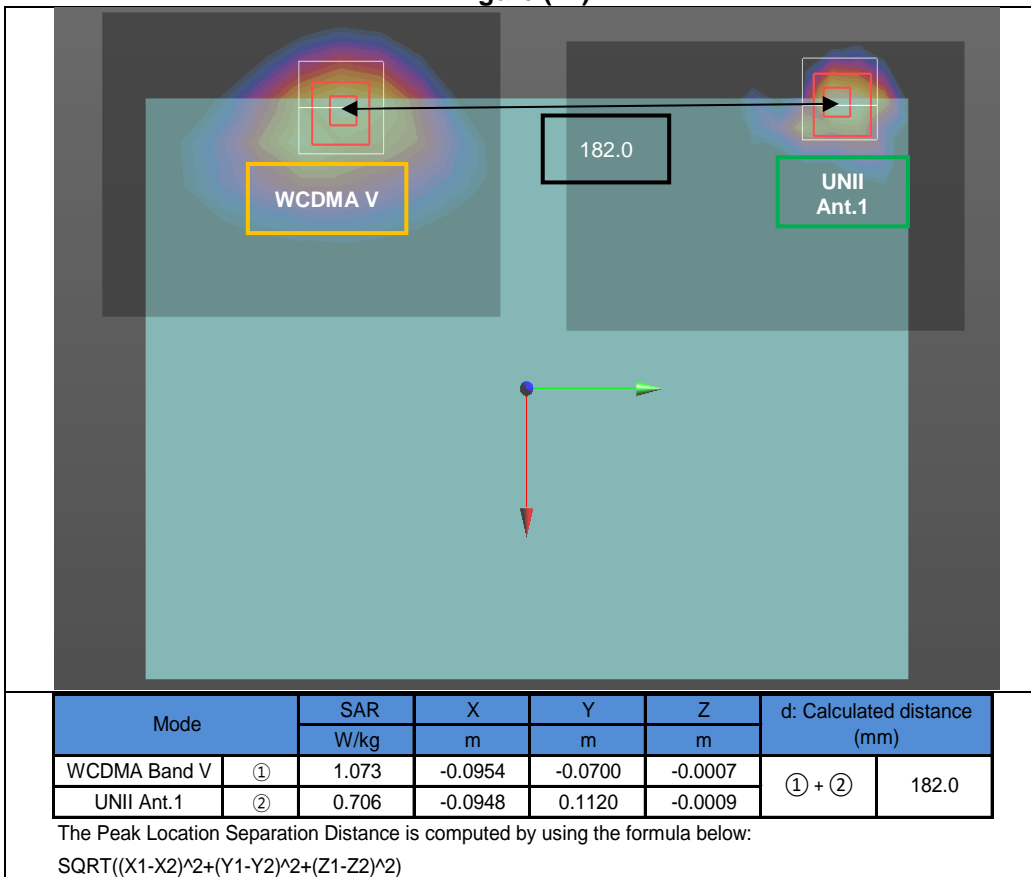


Figure (22)

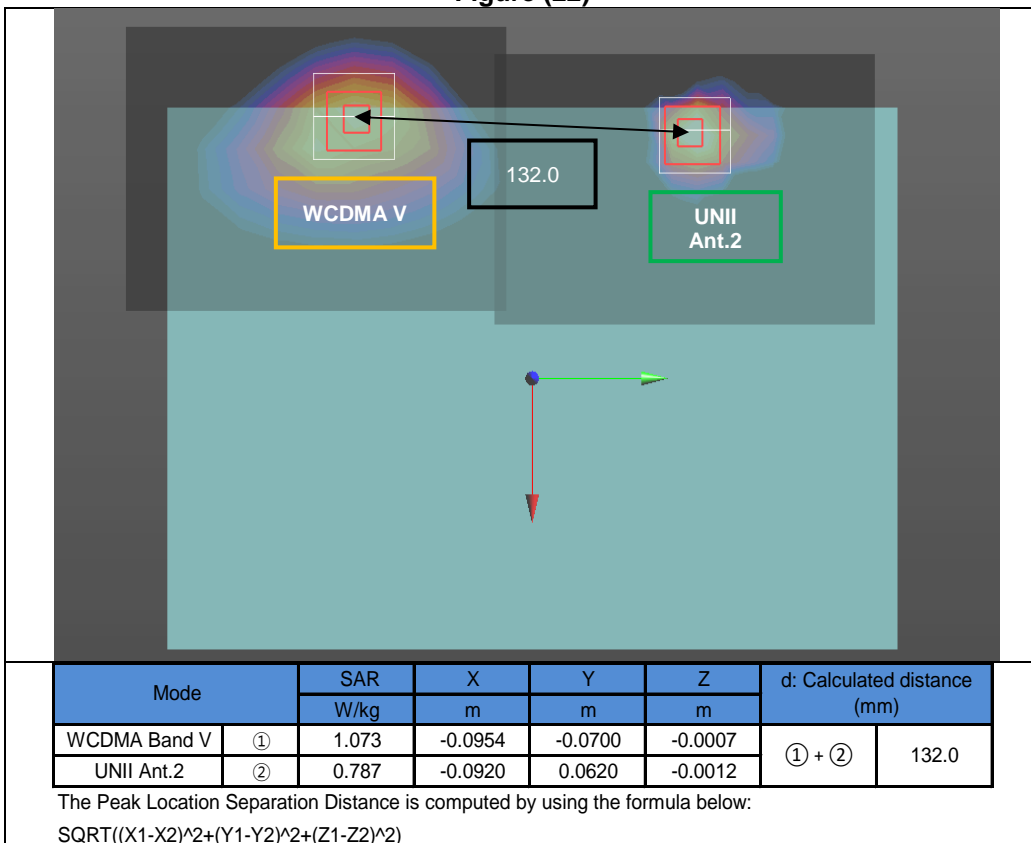


Figure (23)

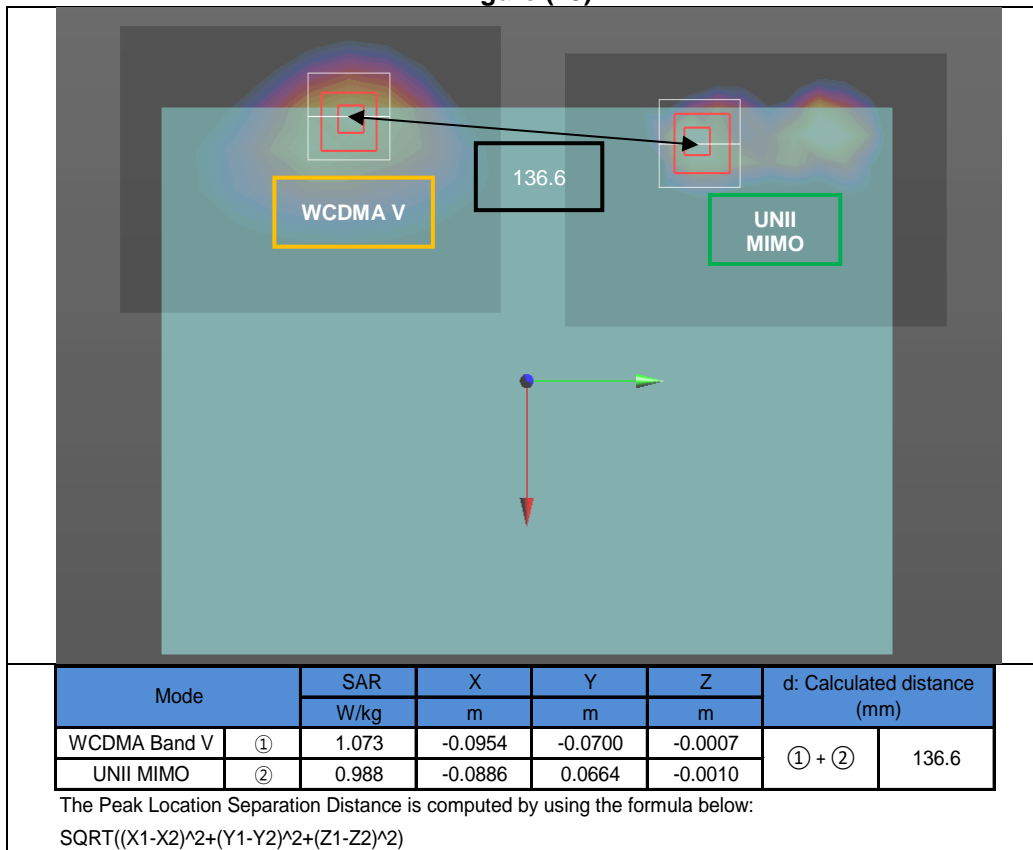


Figure (24)

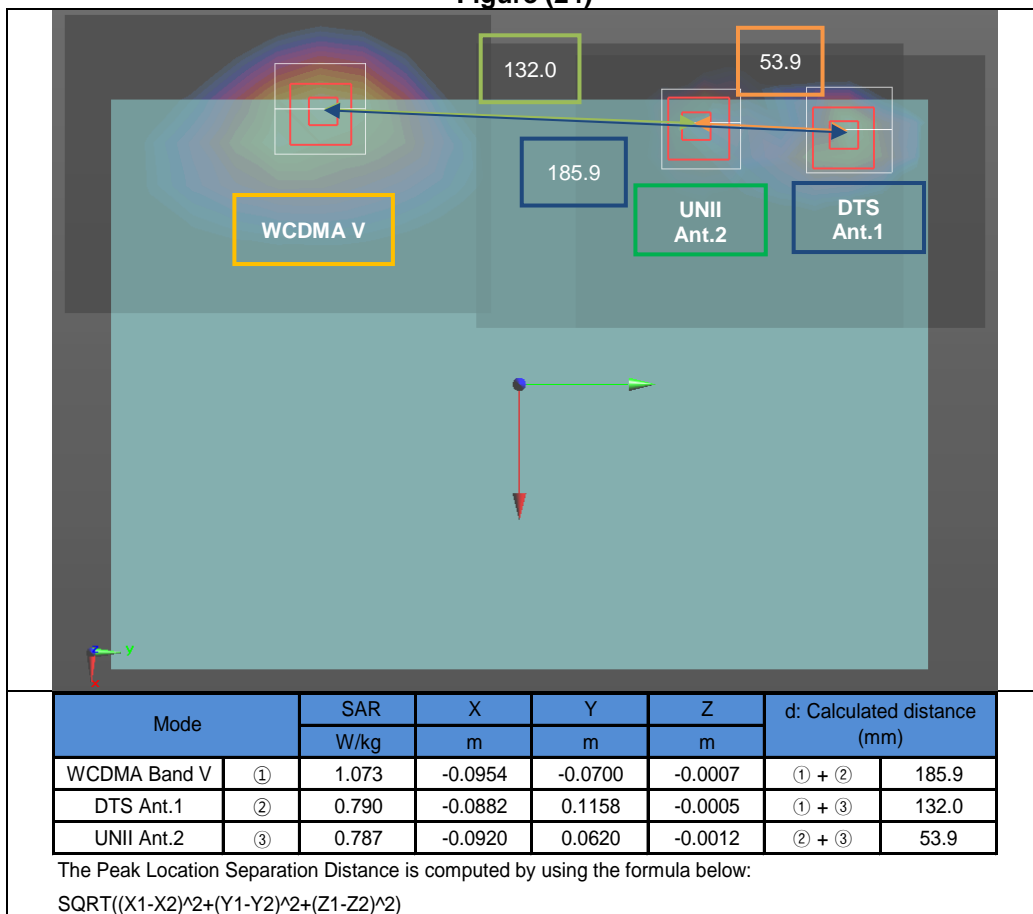


Figure (25)

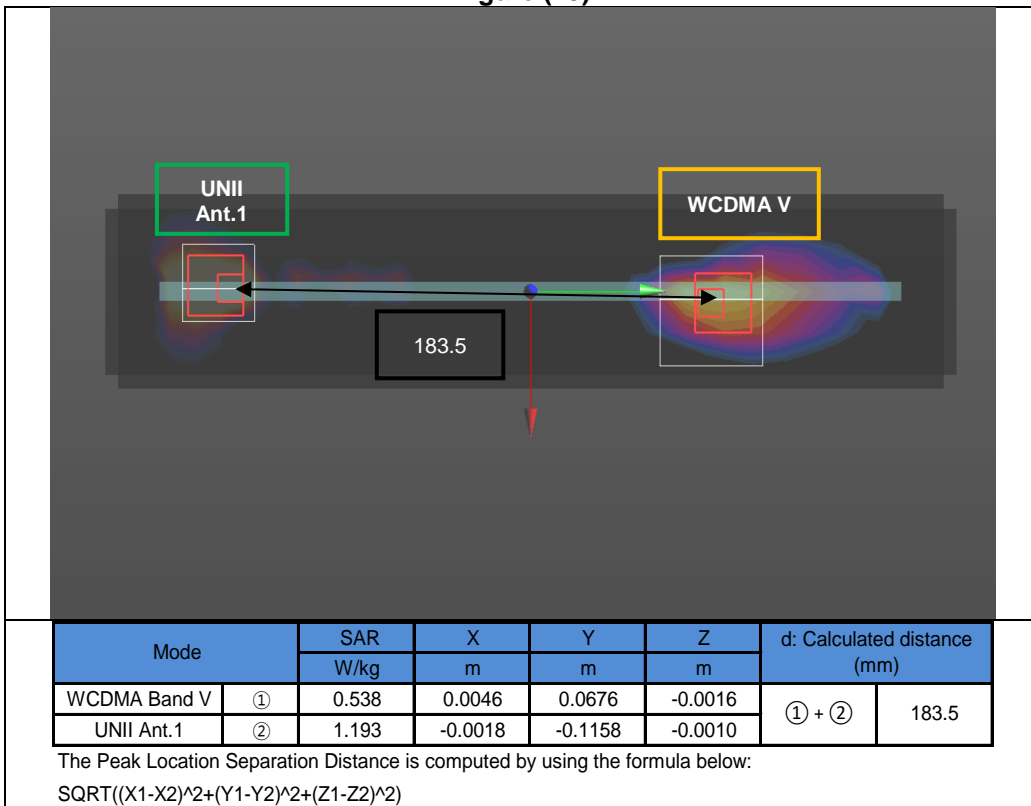


Figure (26)

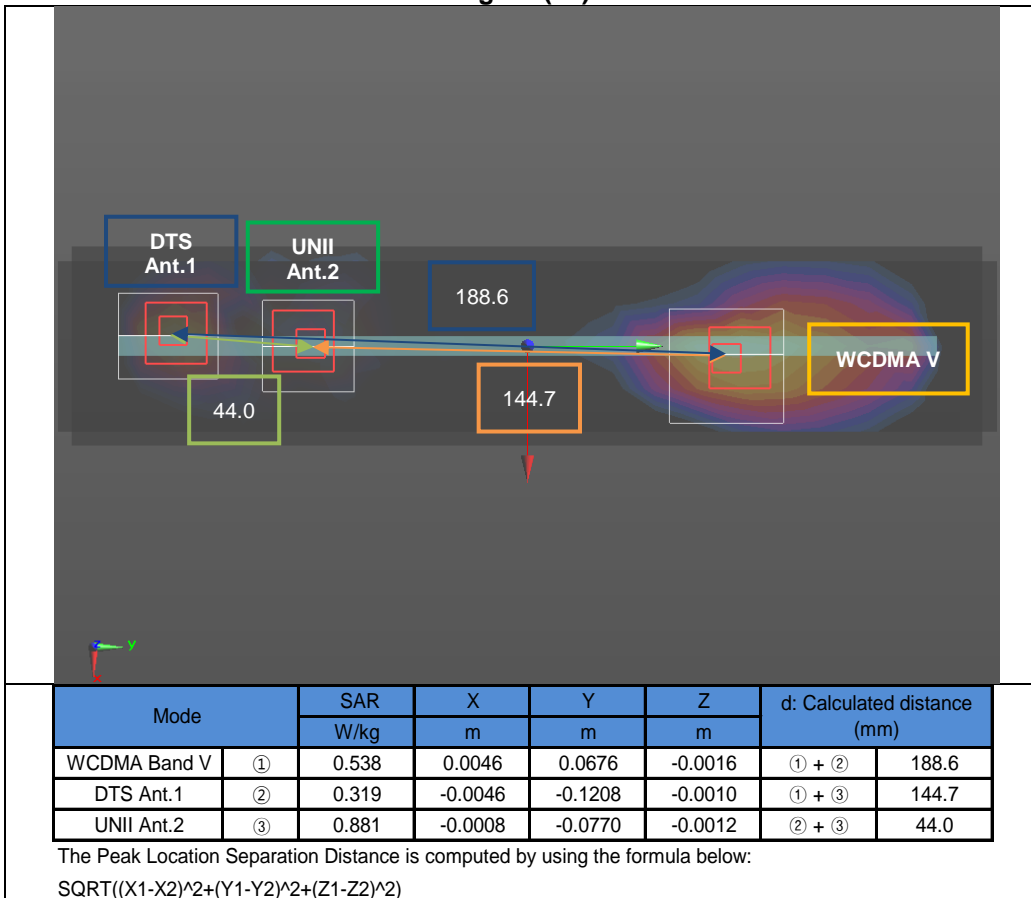


Figure (27)

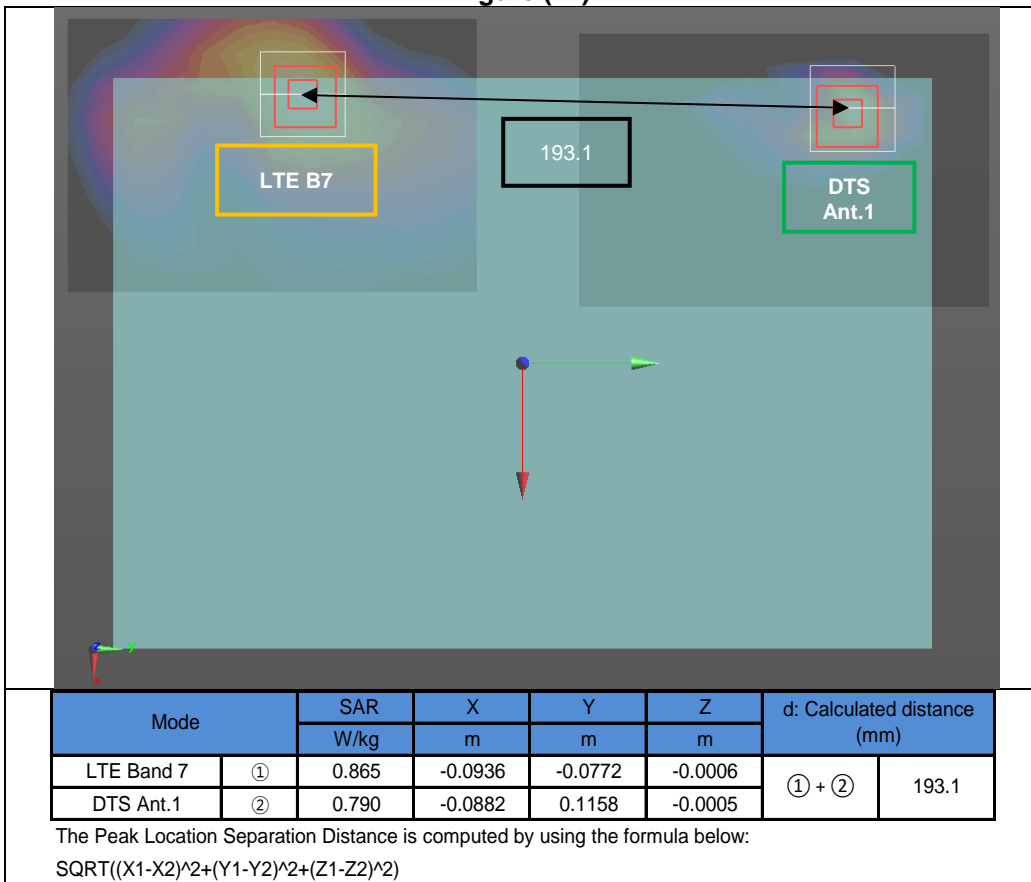


Figure (28)

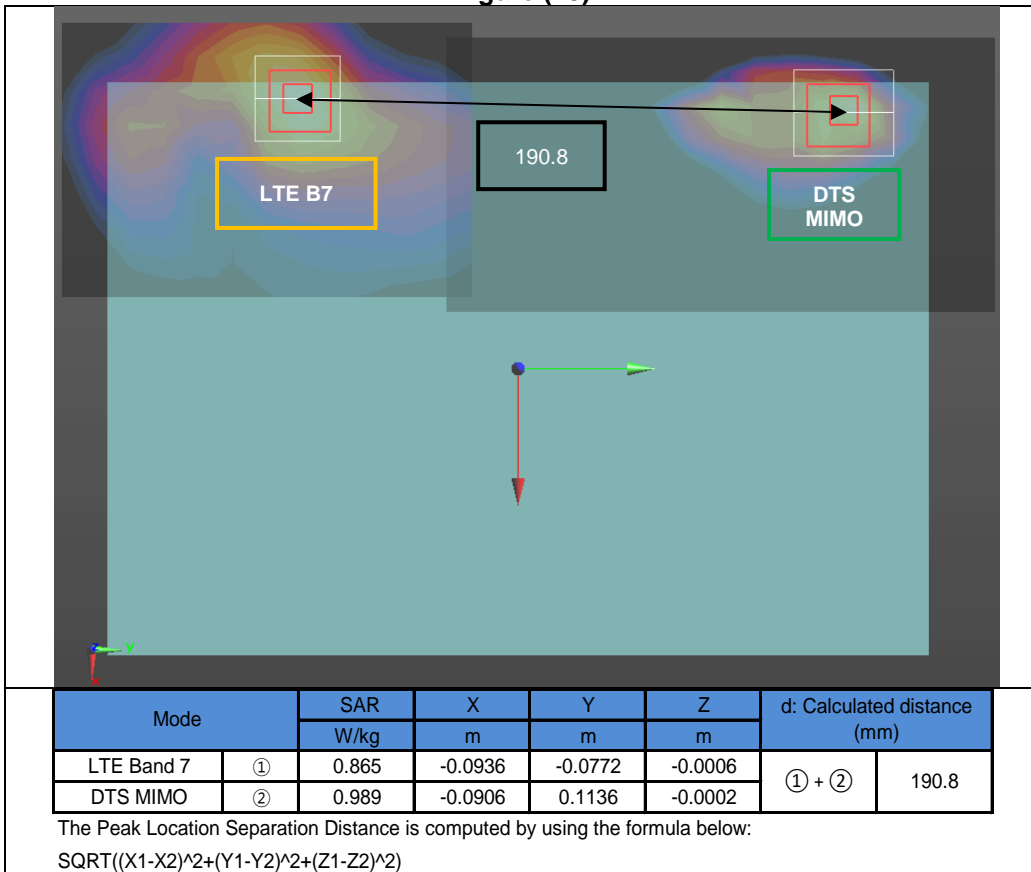


Figure (29)

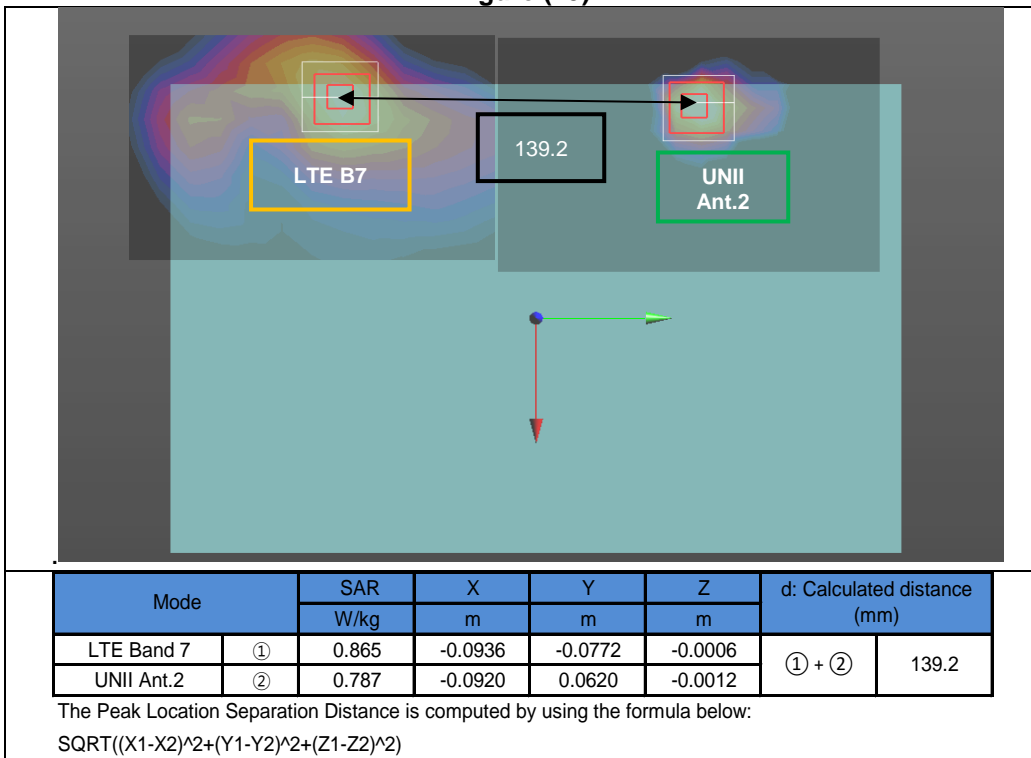


Figure (30)

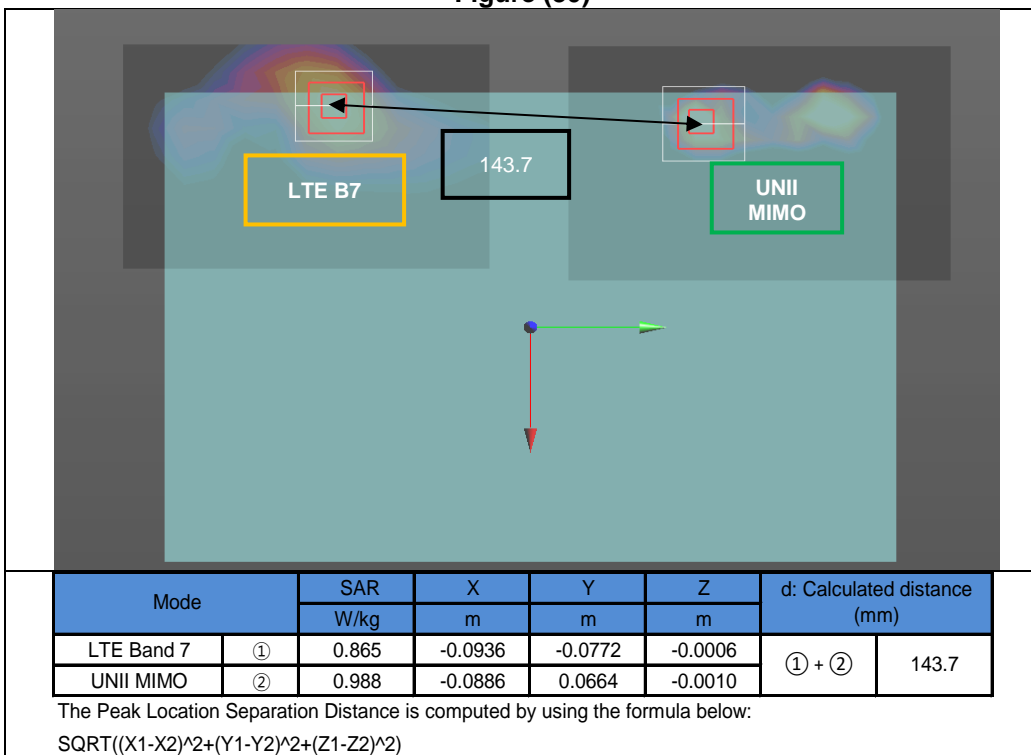


Figure (31)

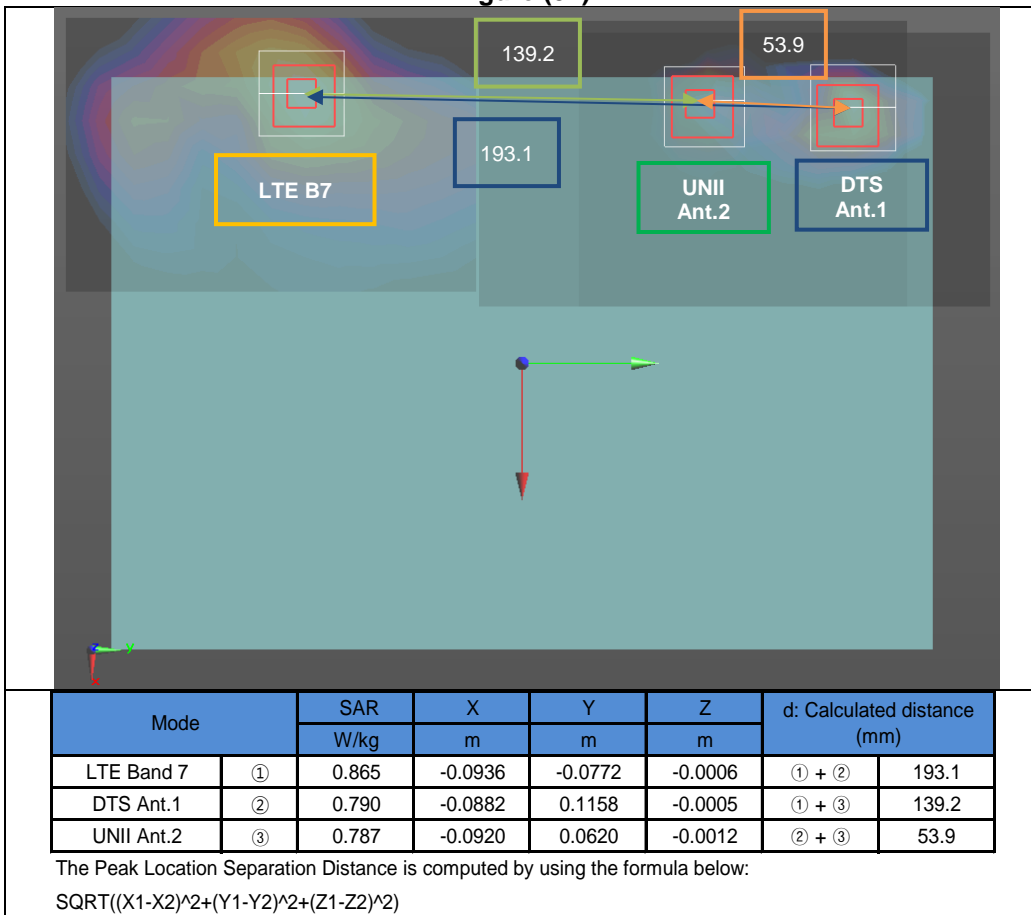


Figure (32)

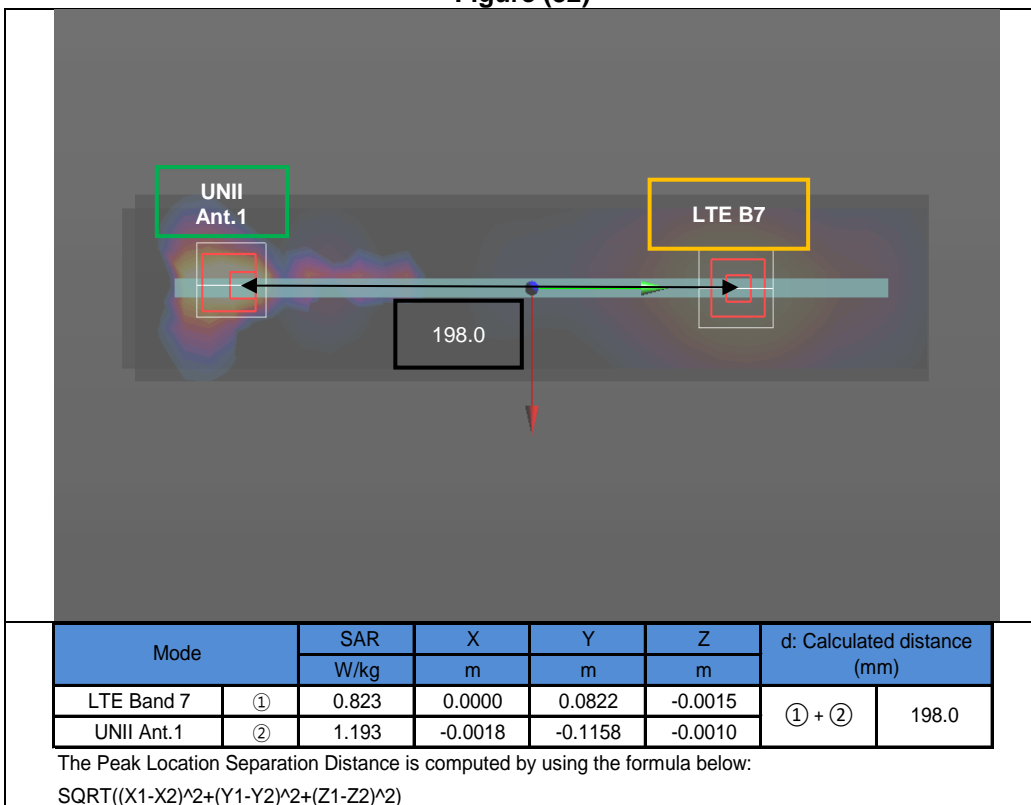


Figure (33)

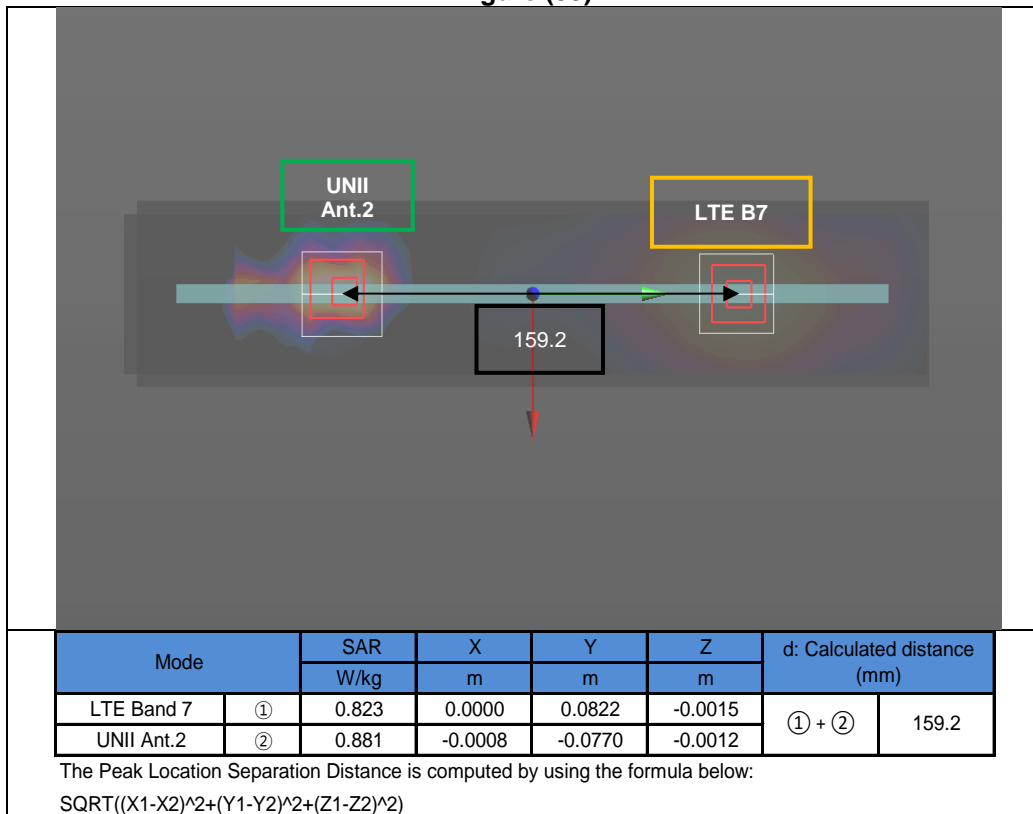


Figure (34)

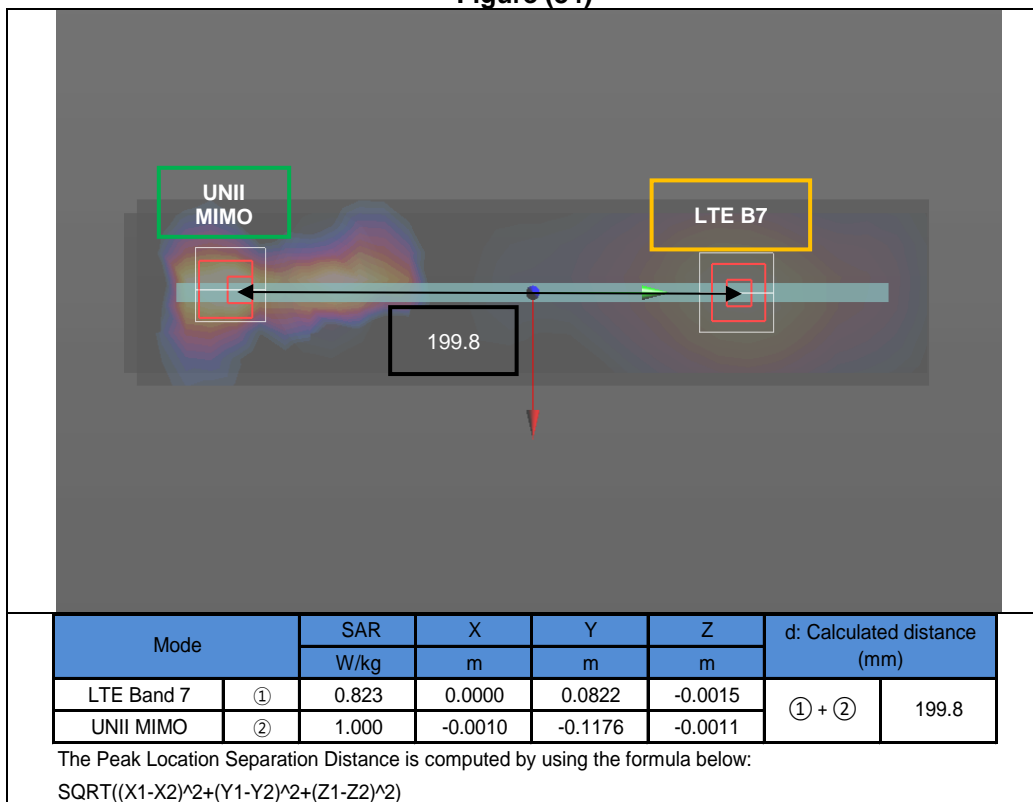


Figure (35)

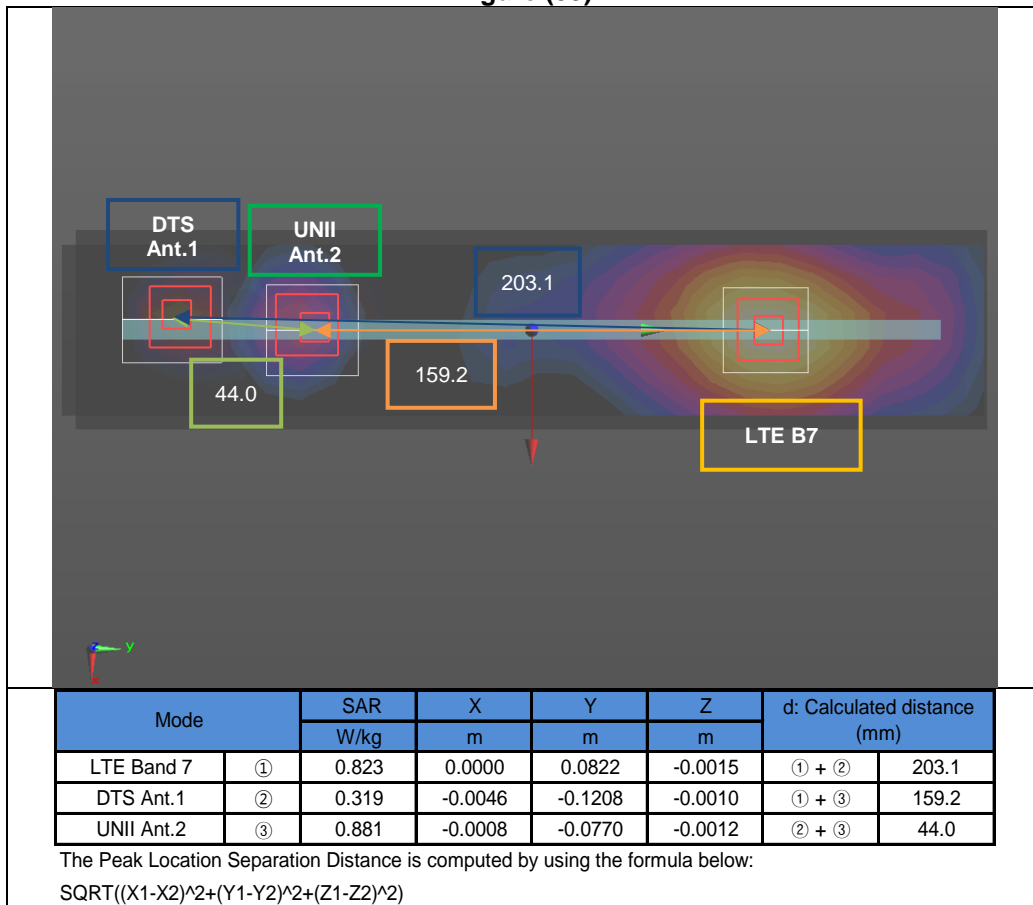


Figure (36)

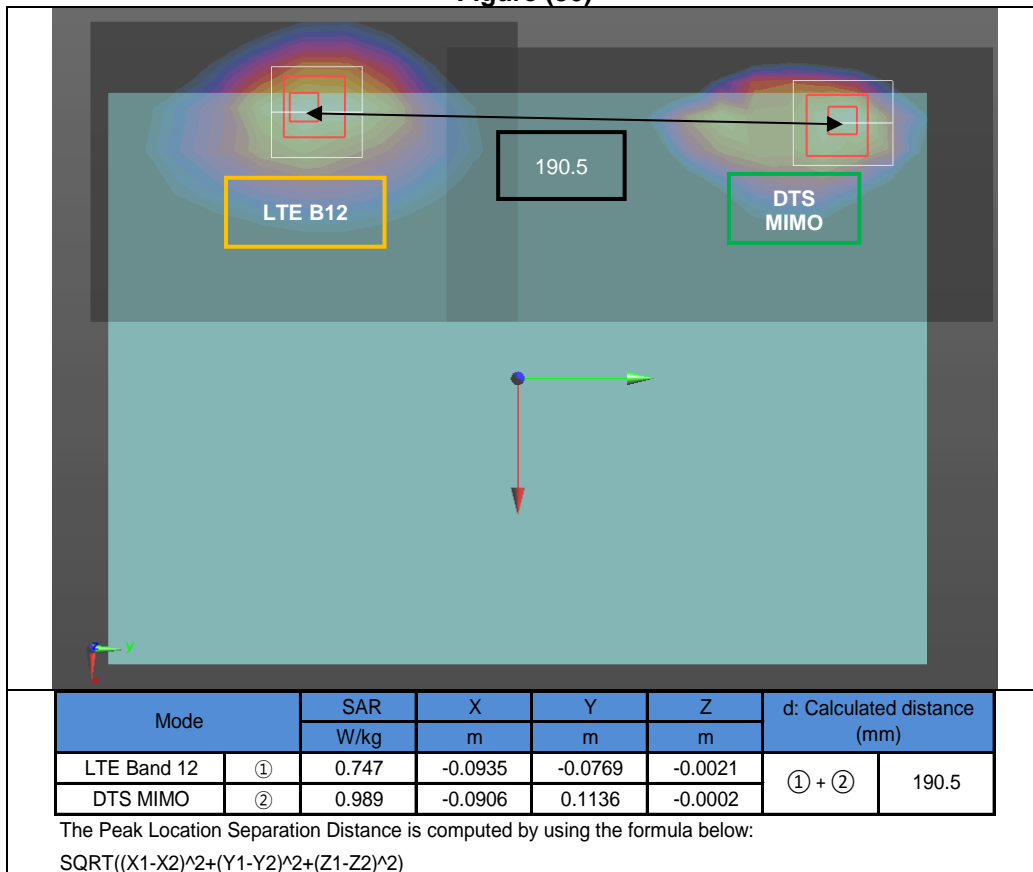


Figure (37)

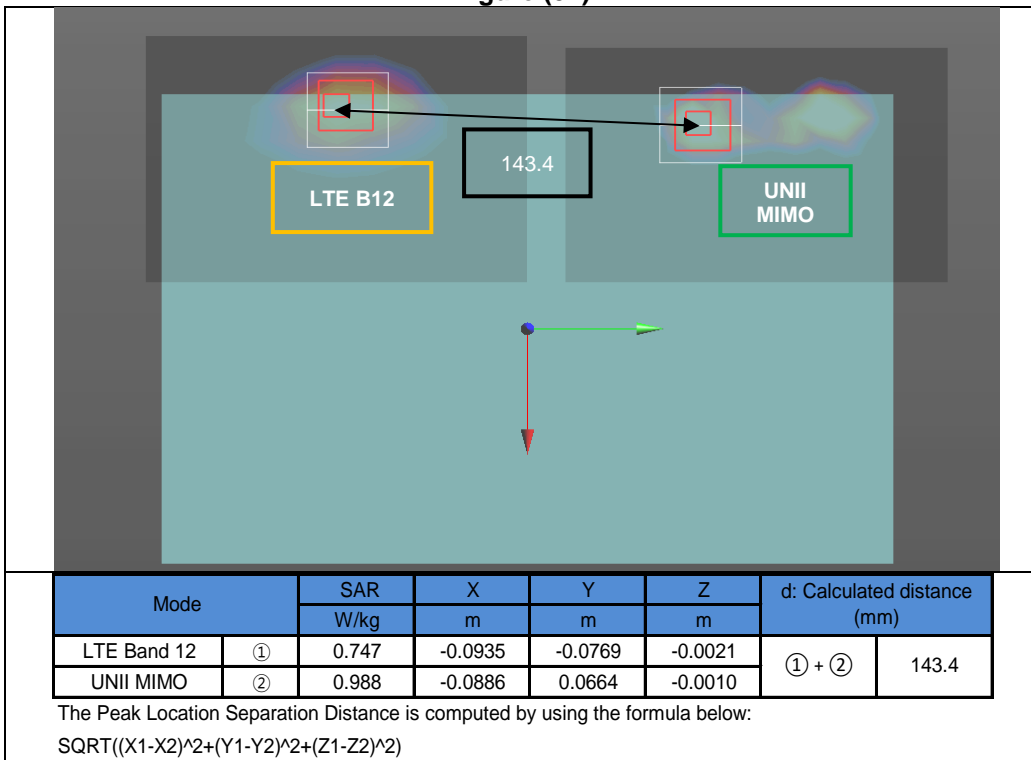


Figure (38)

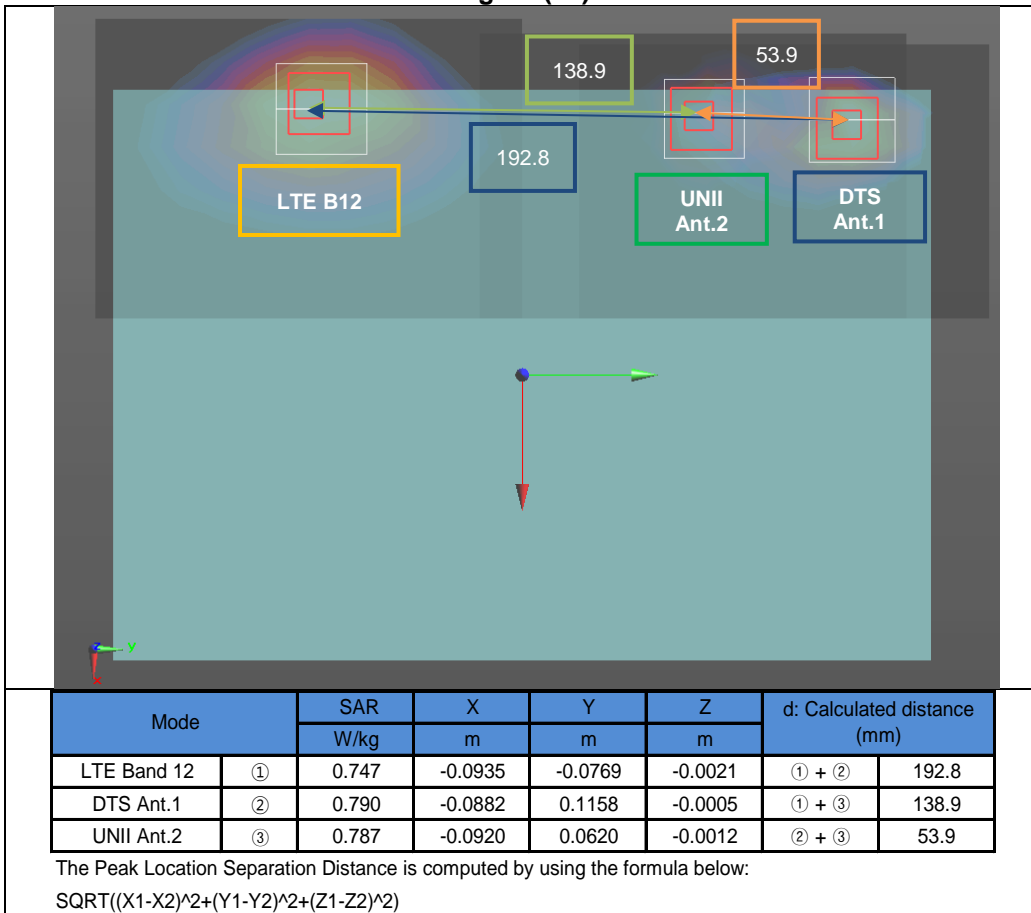


Figure (39)

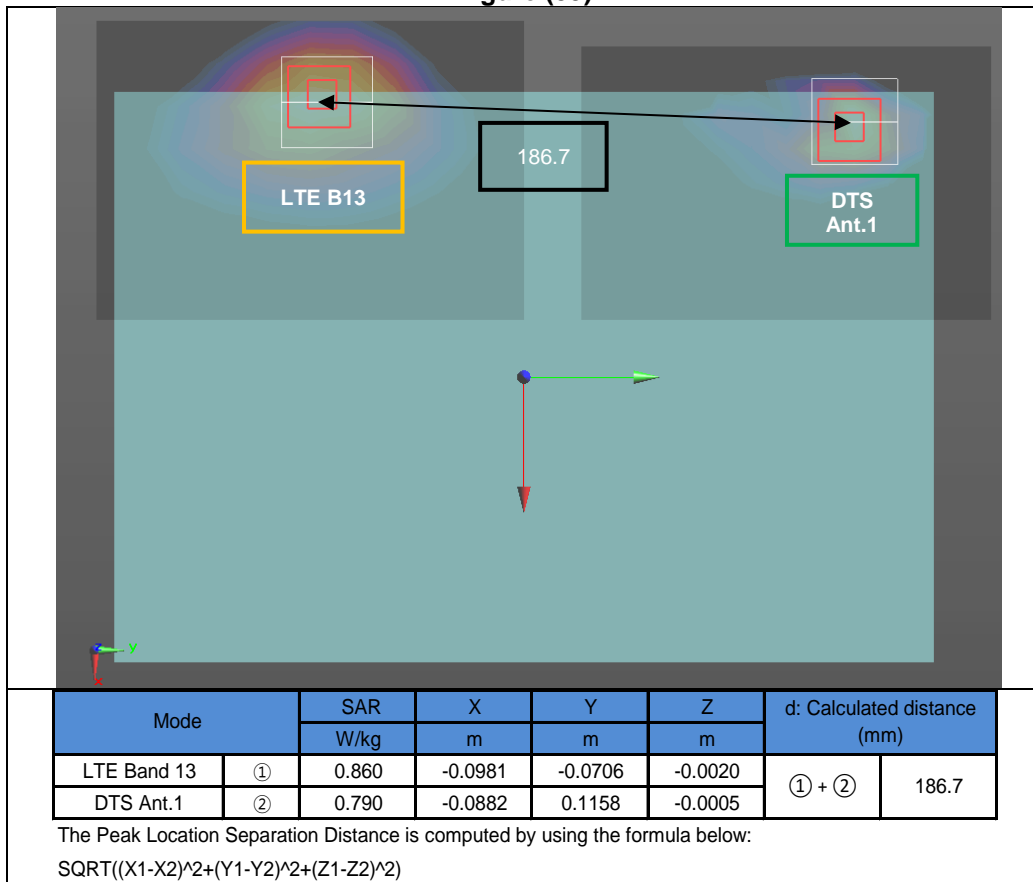


Figure (40)

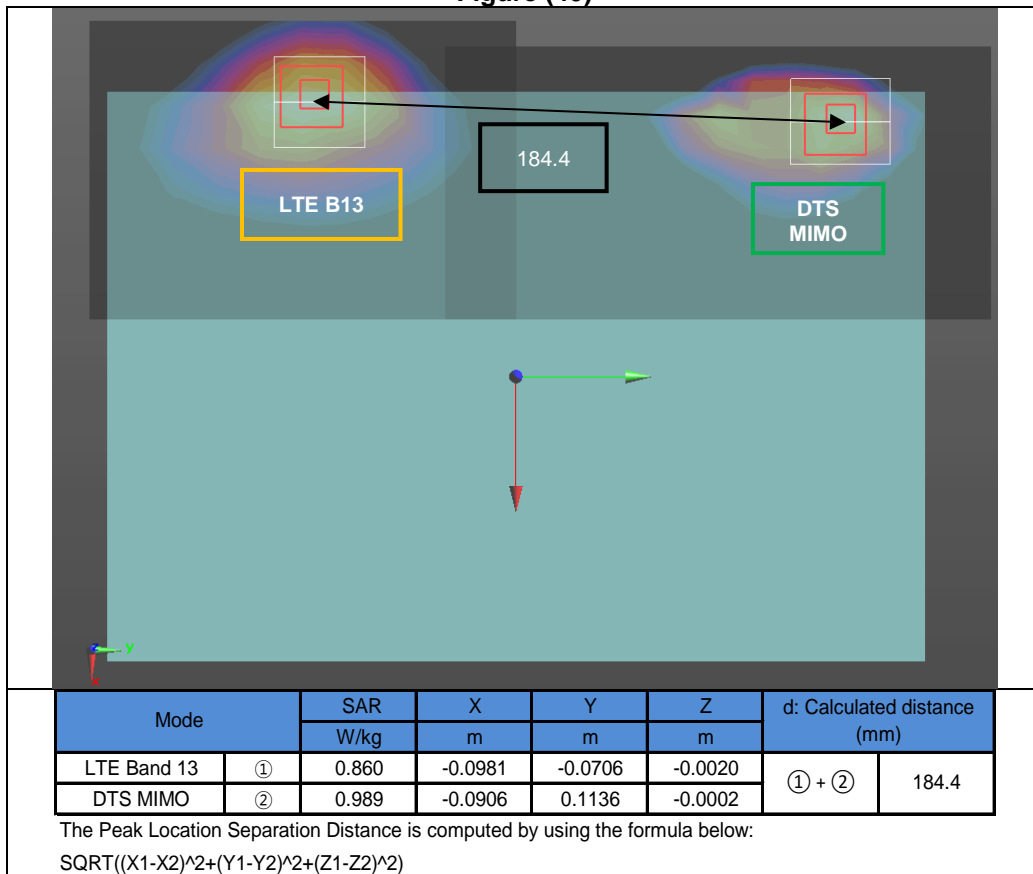


Figure (41)

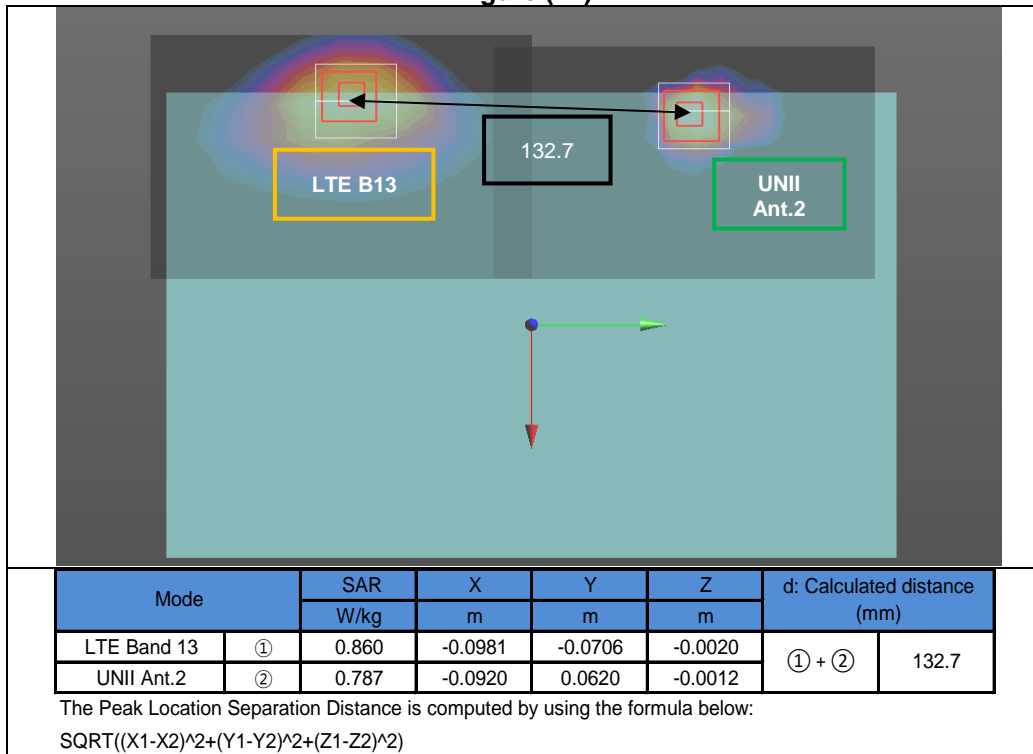


Figure (42)

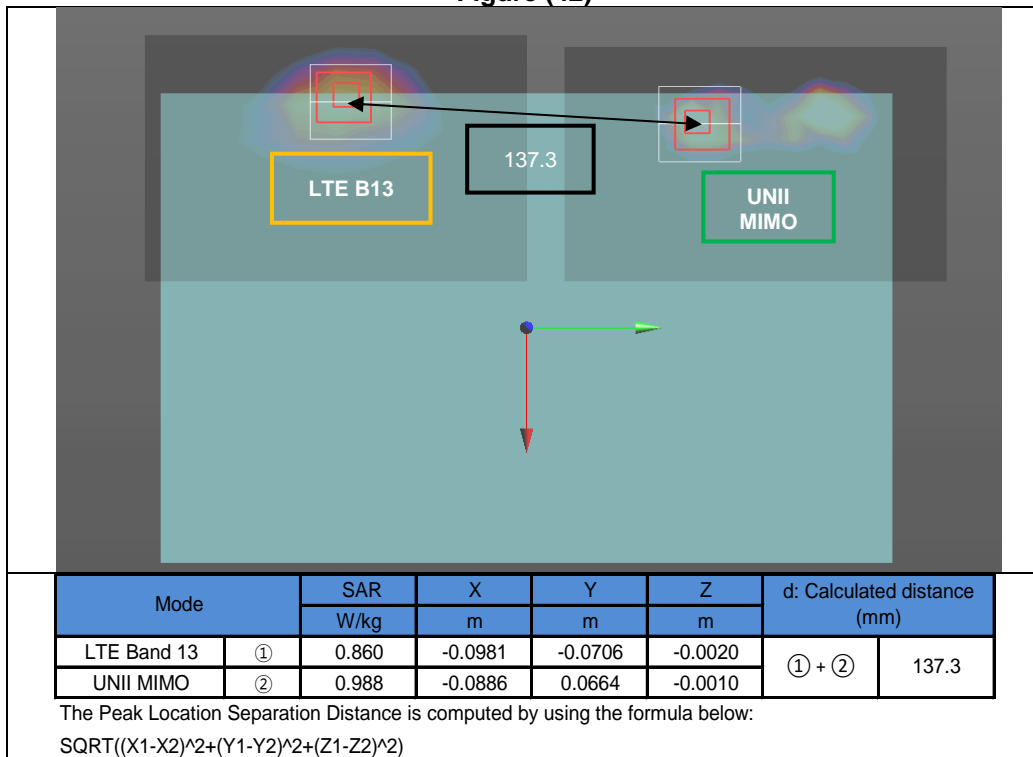


Figure (43)

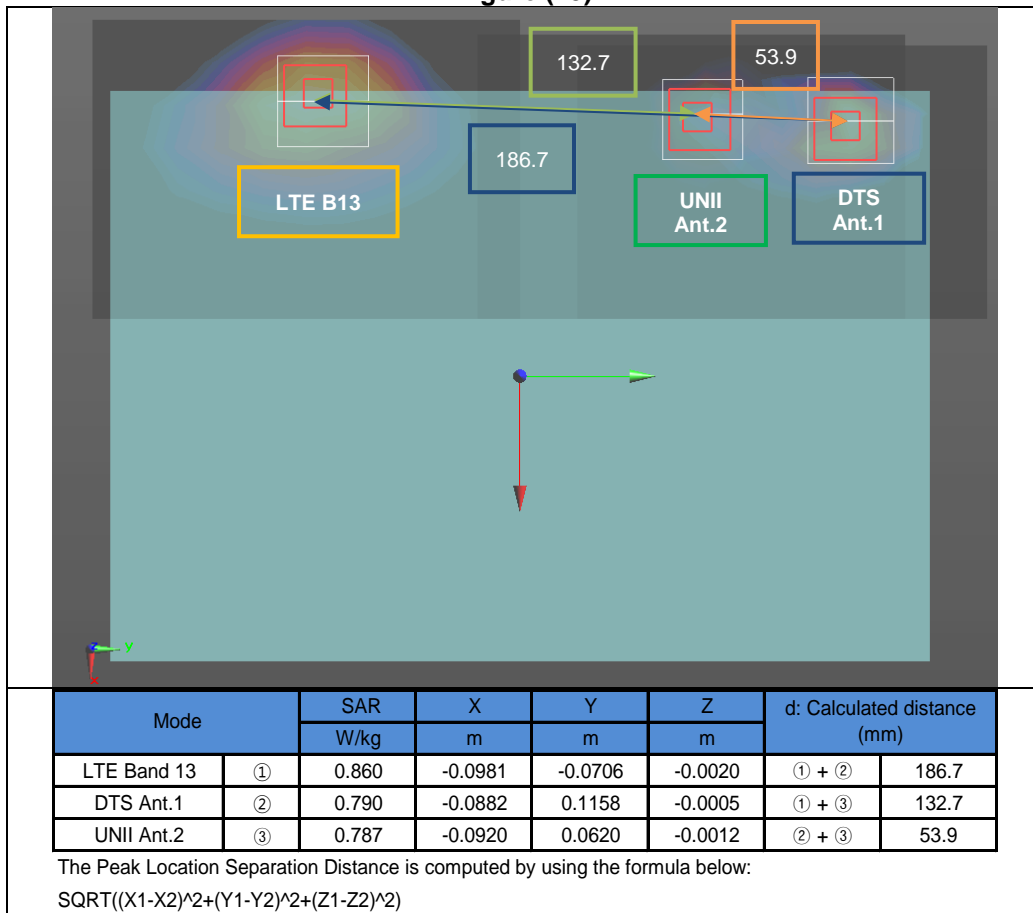


Figure (44)

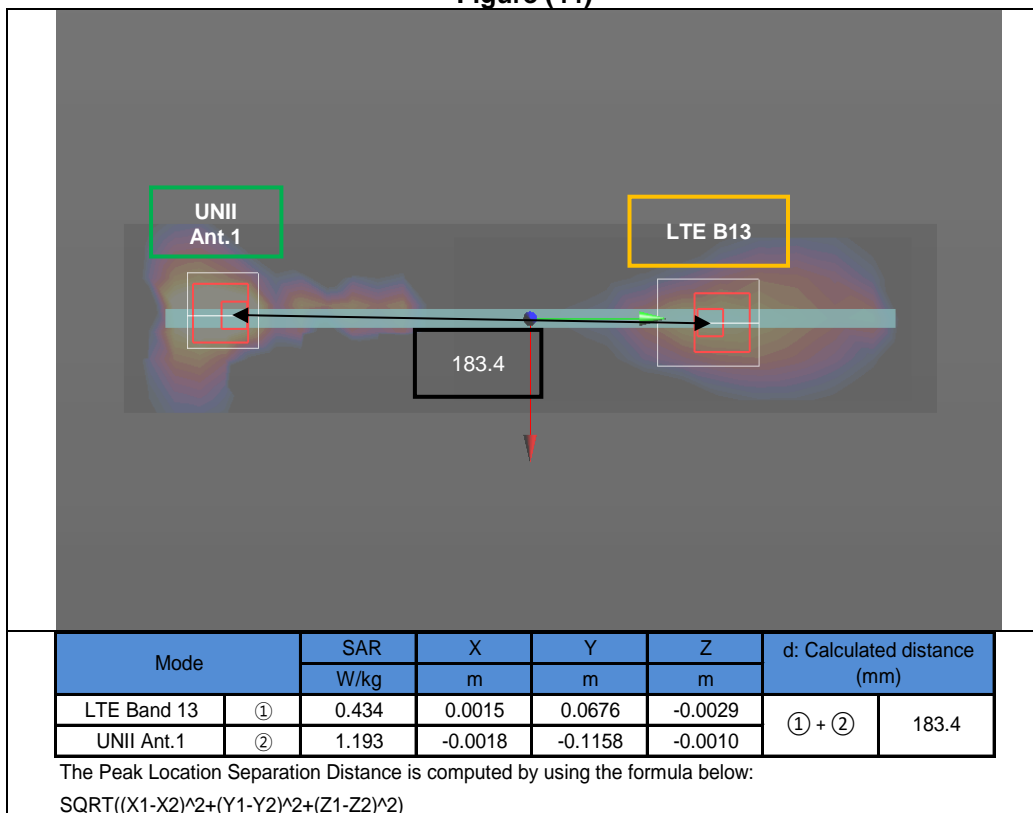


Figure (45)

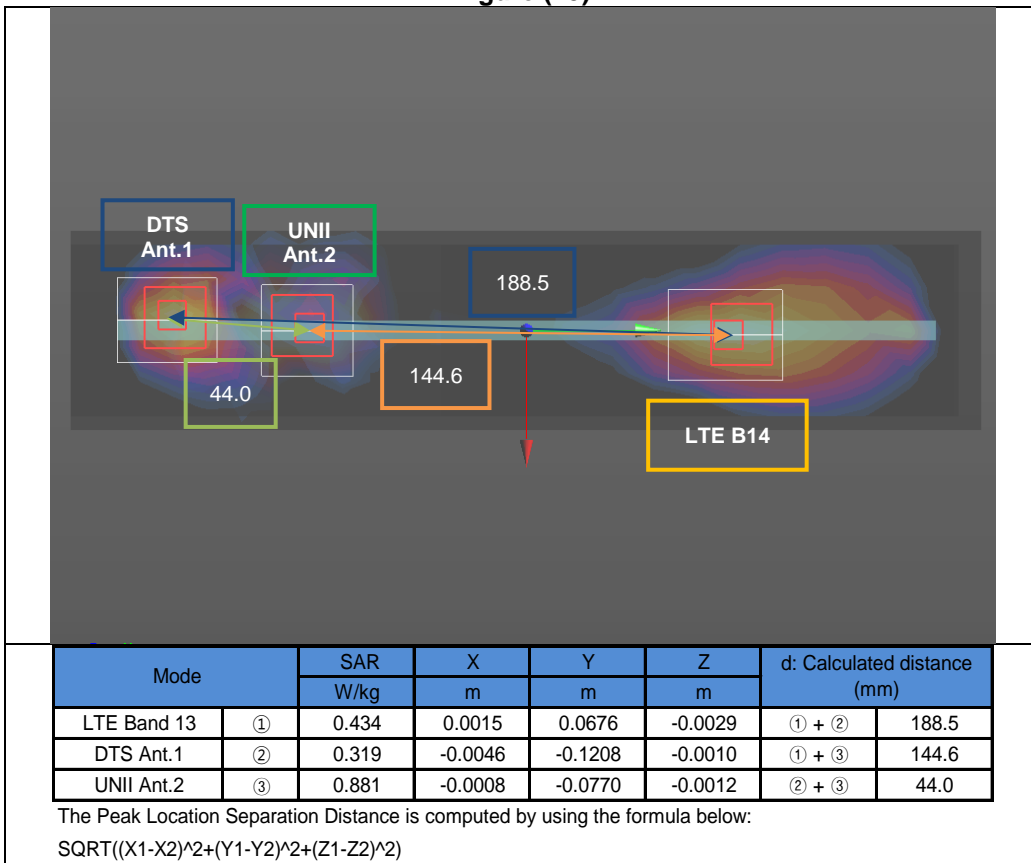


Figure (46)

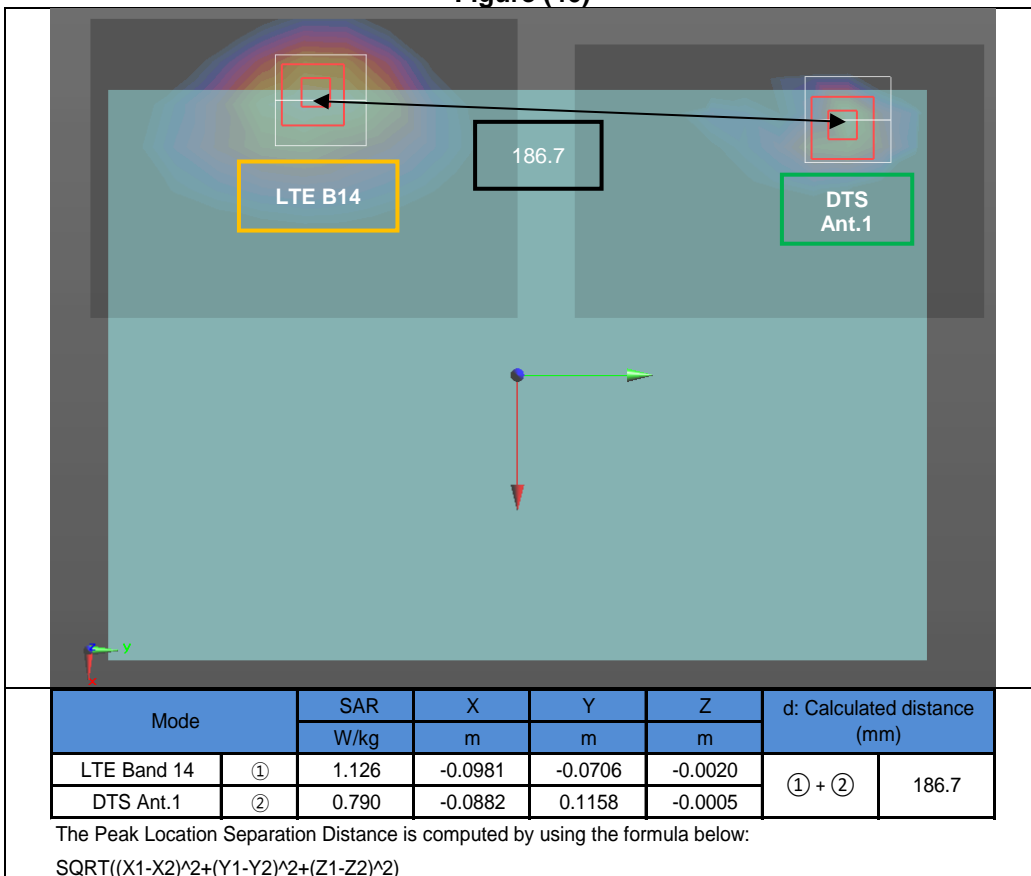


Figure (47)

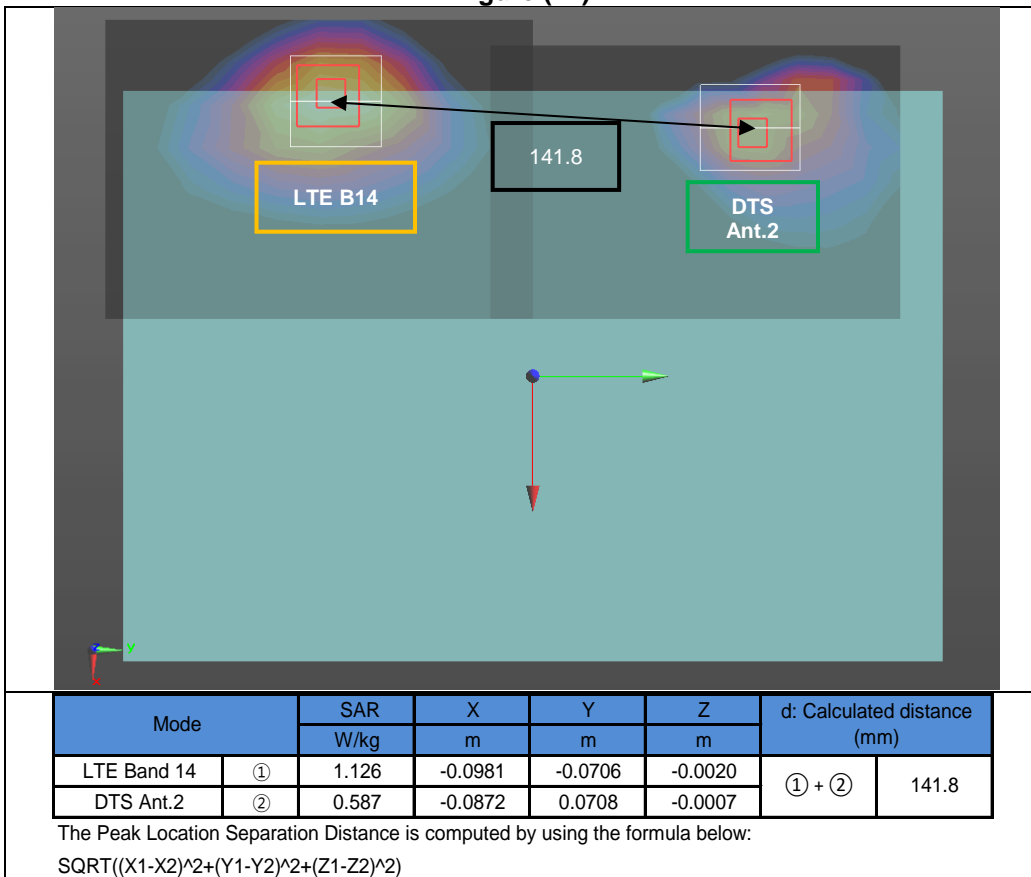


Figure (48)

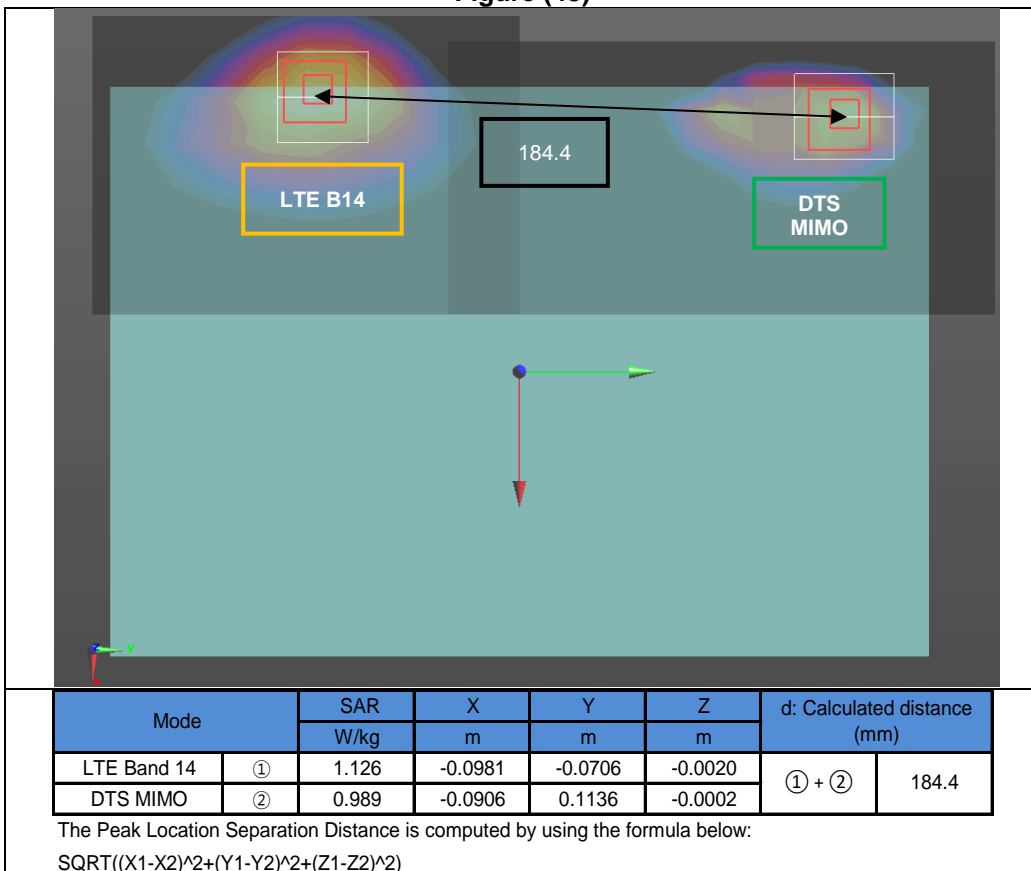


Figure (49)

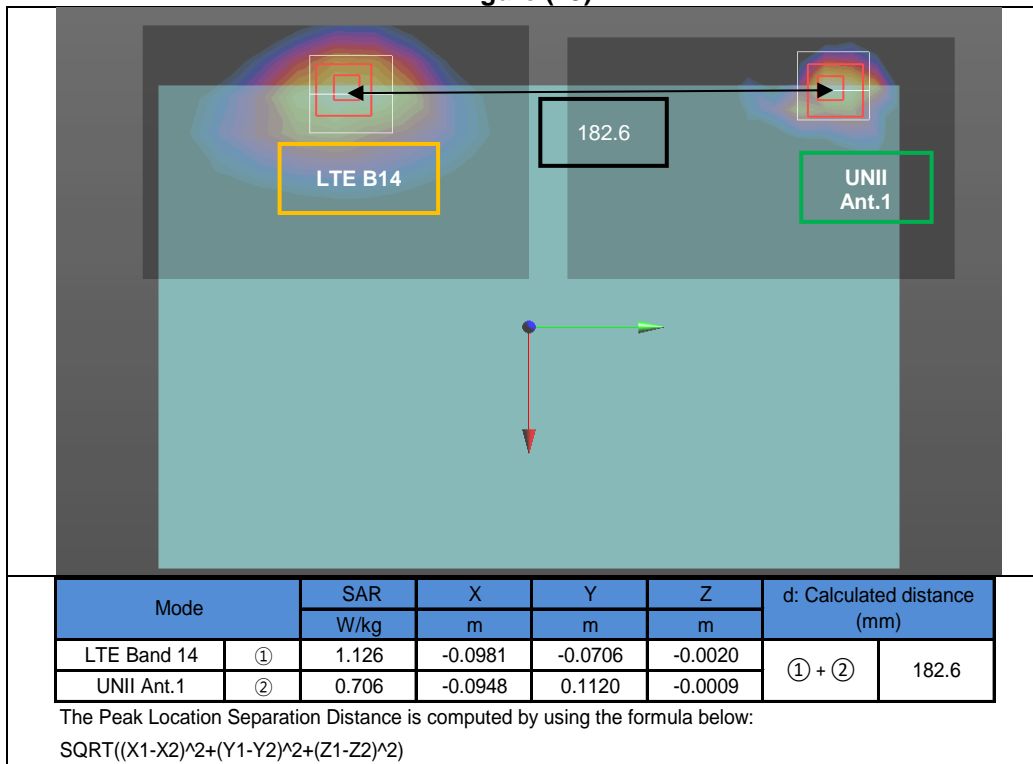


Figure (50)

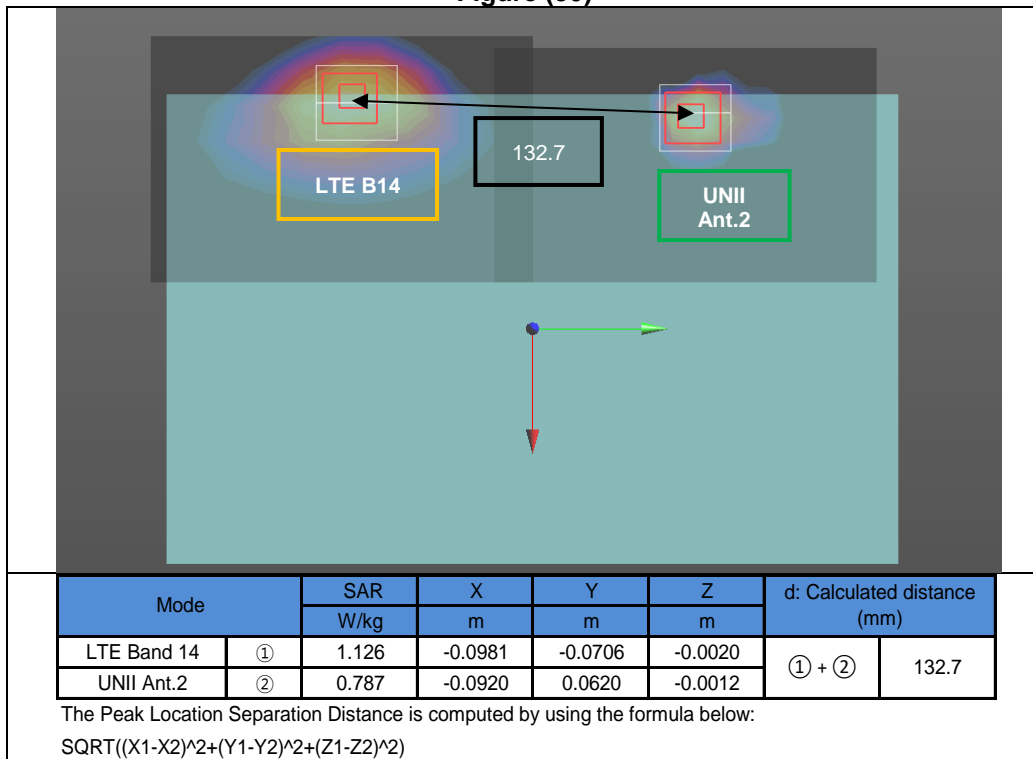


Figure (51)

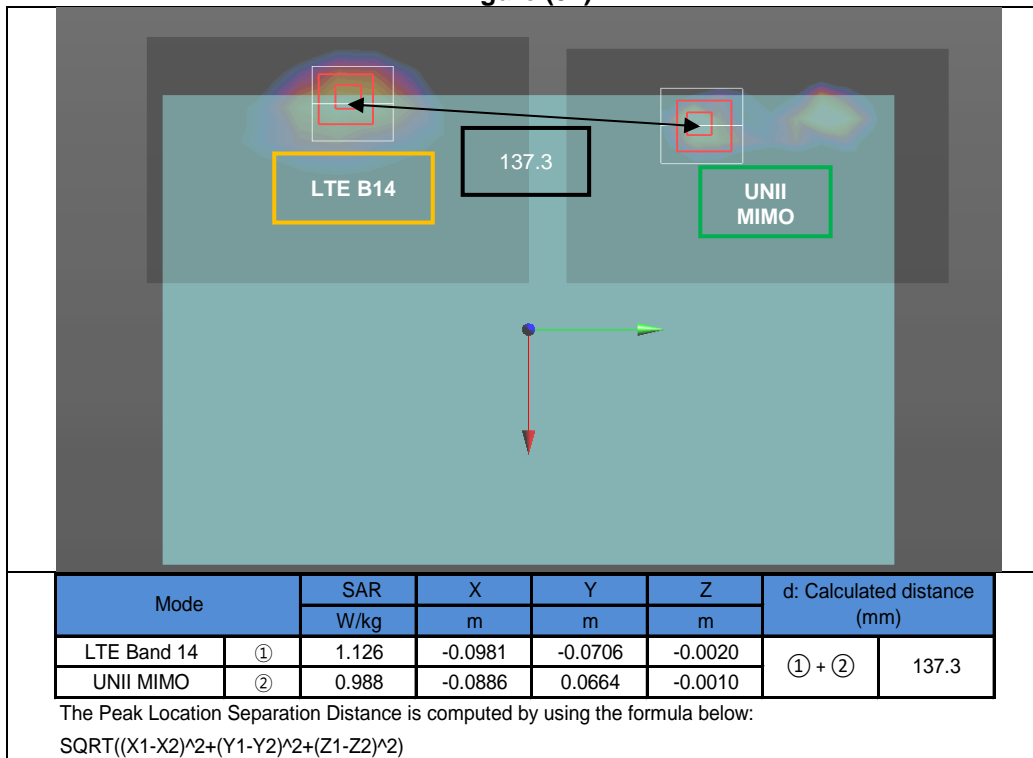


Figure (52)

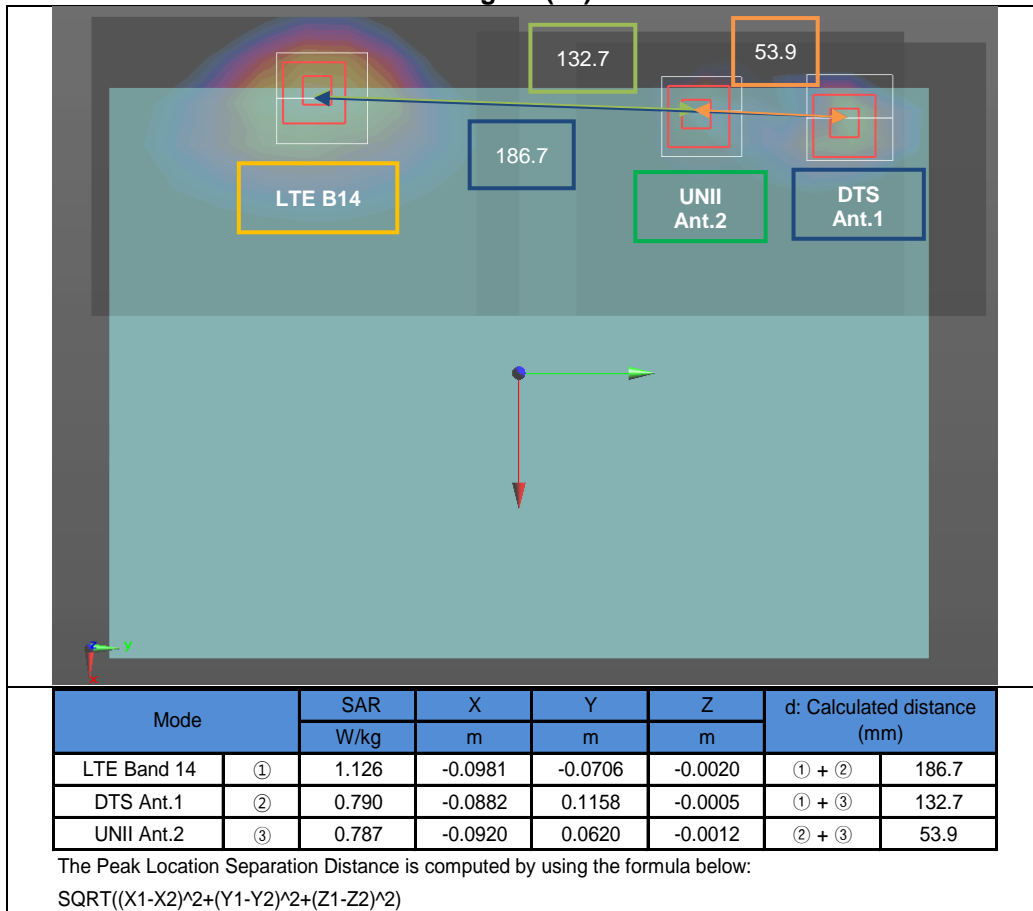


Figure (53)

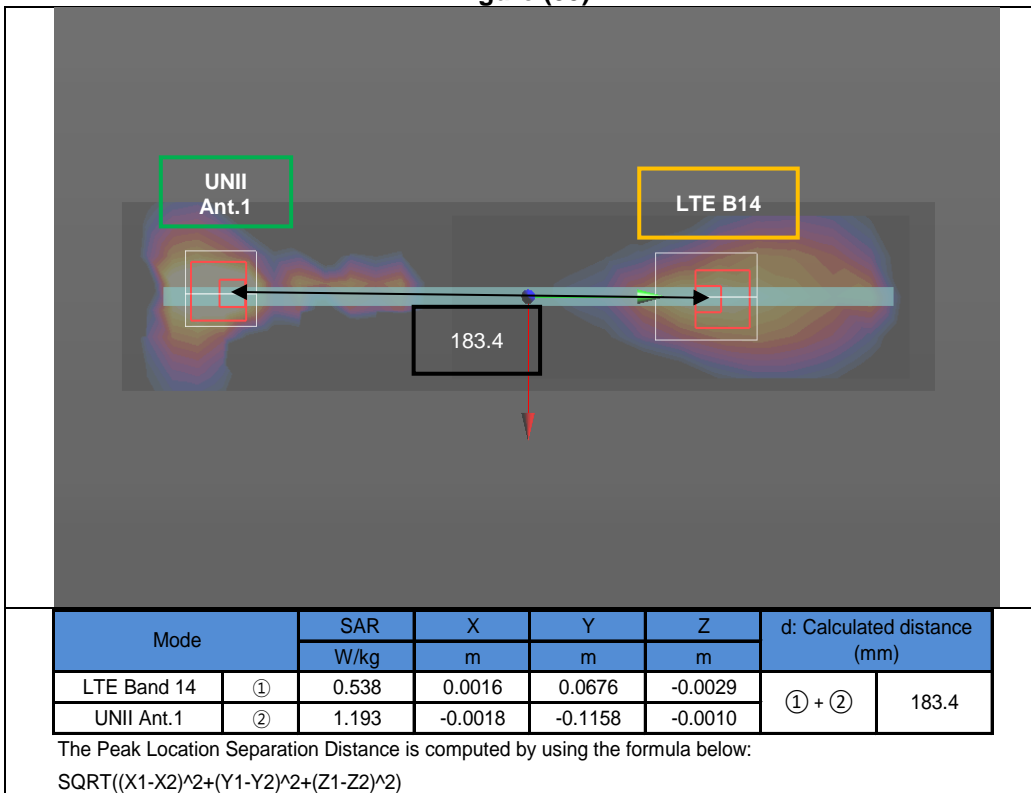


Figure (54)

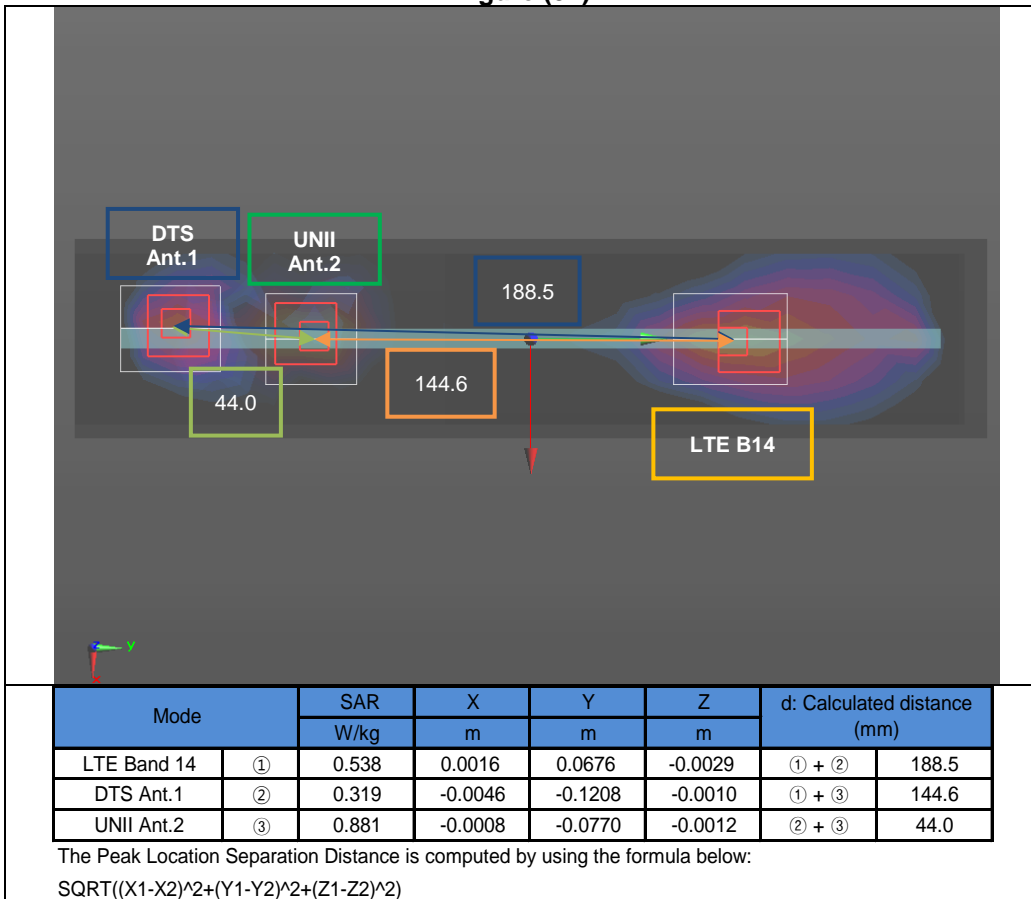


Figure (55)

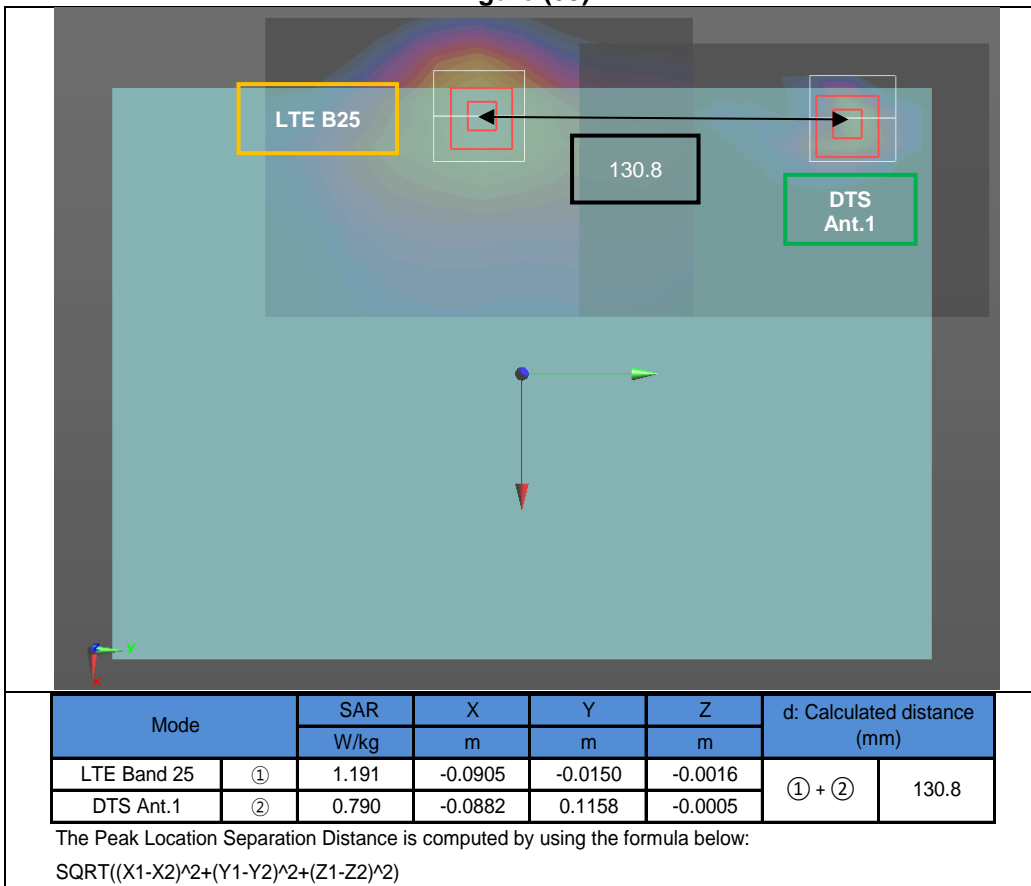


Figure (56)

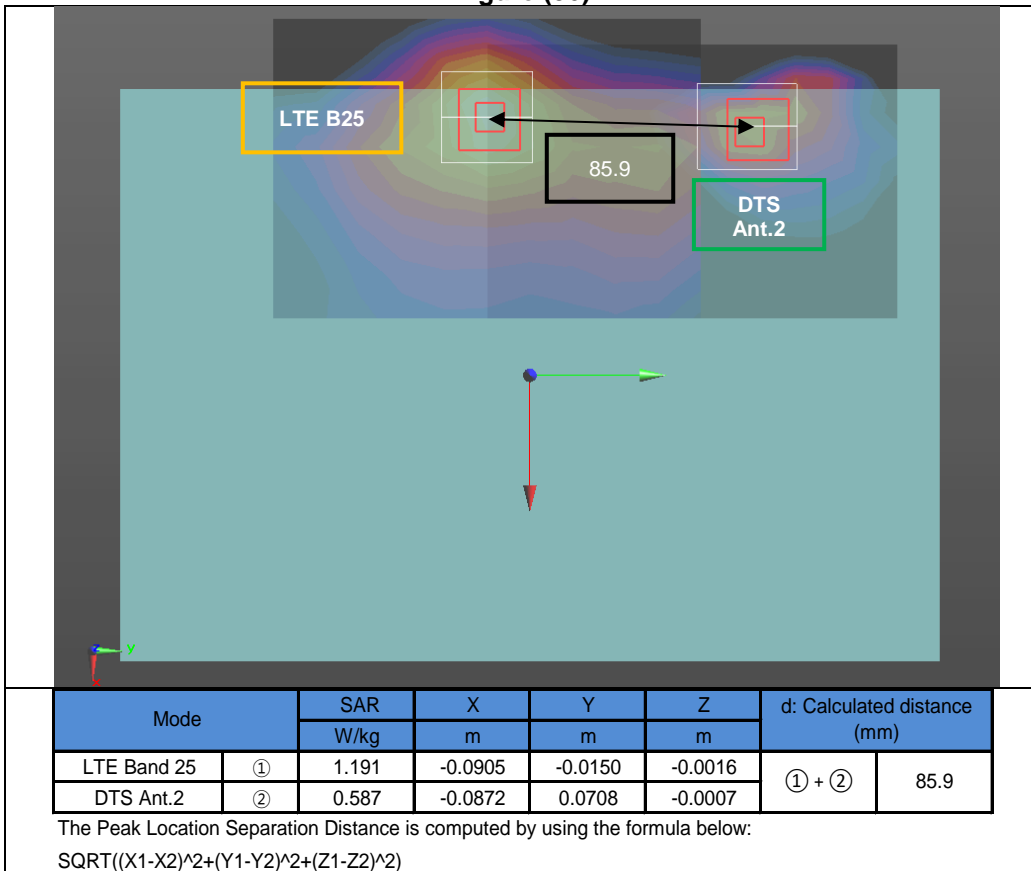


Figure (57)

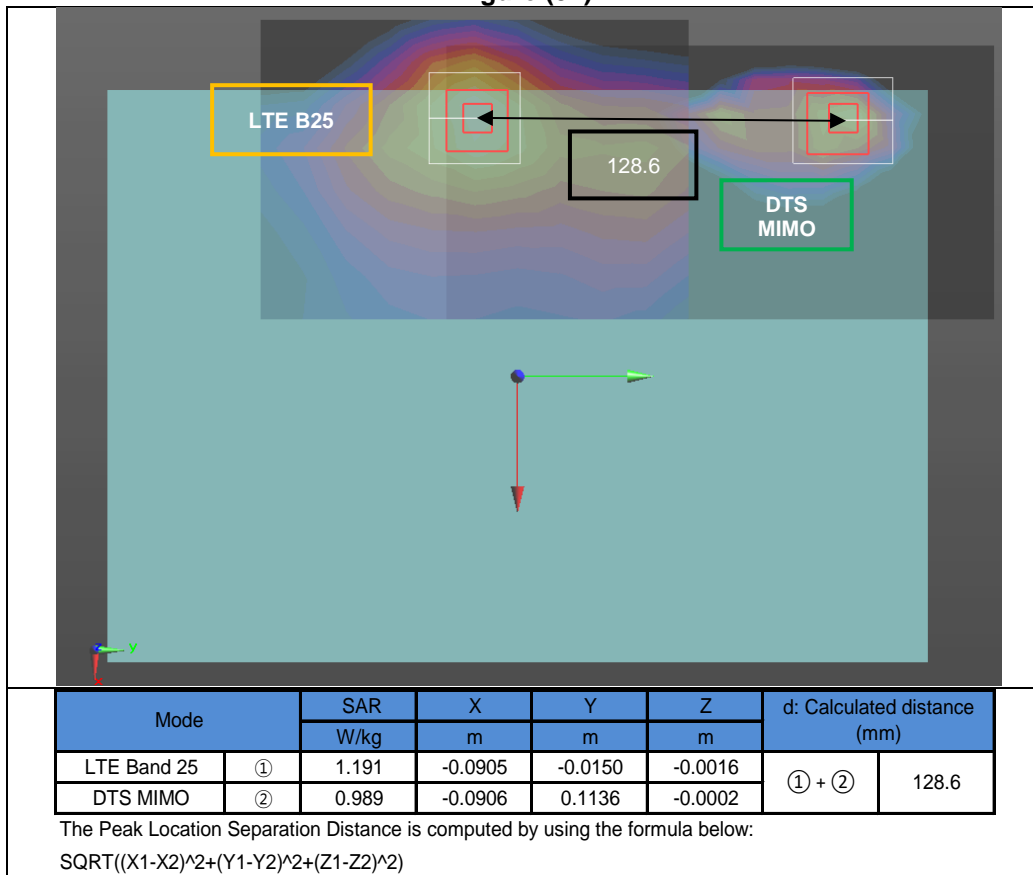


Figure (58)

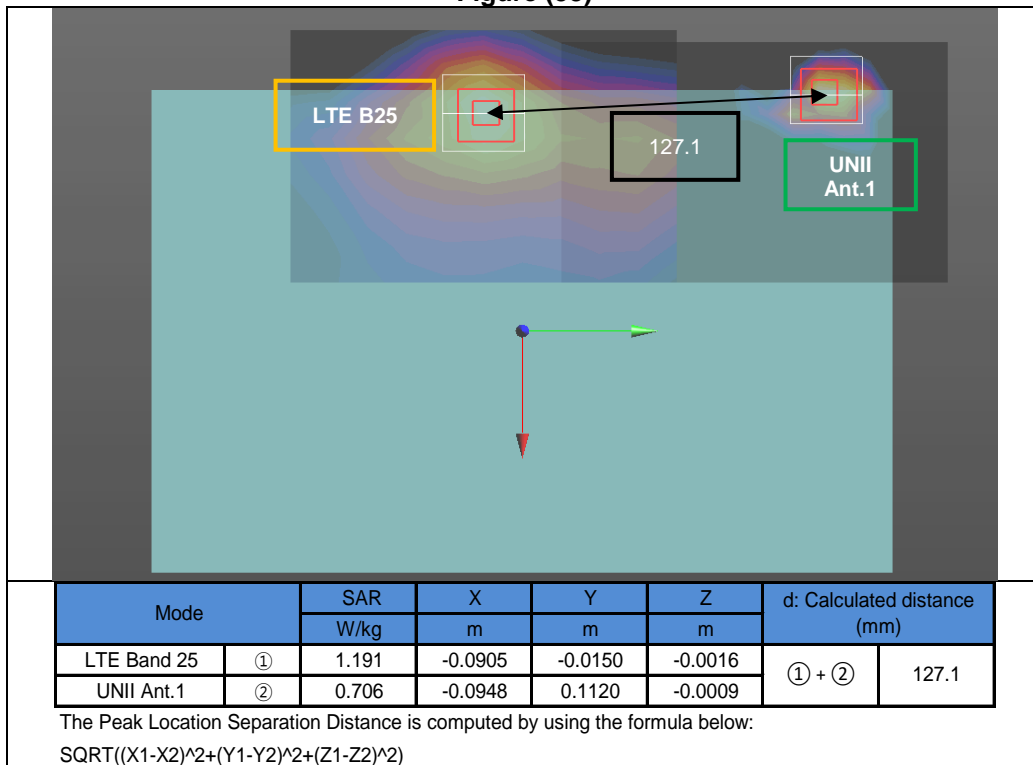


Figure (59)

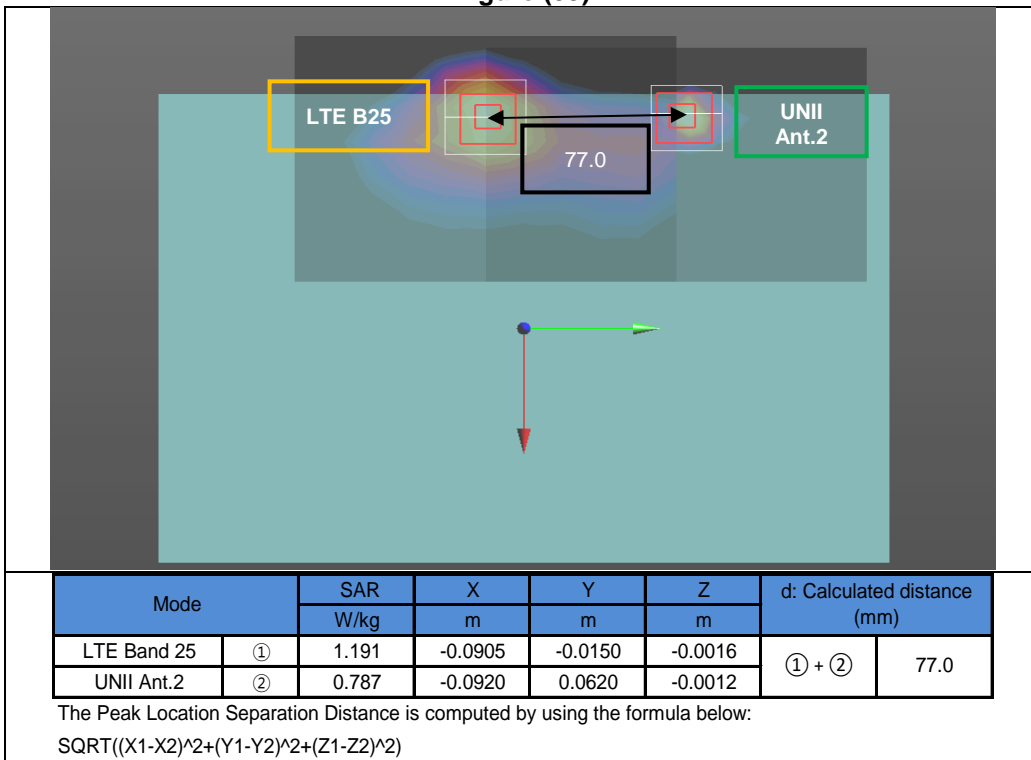


Figure (60)

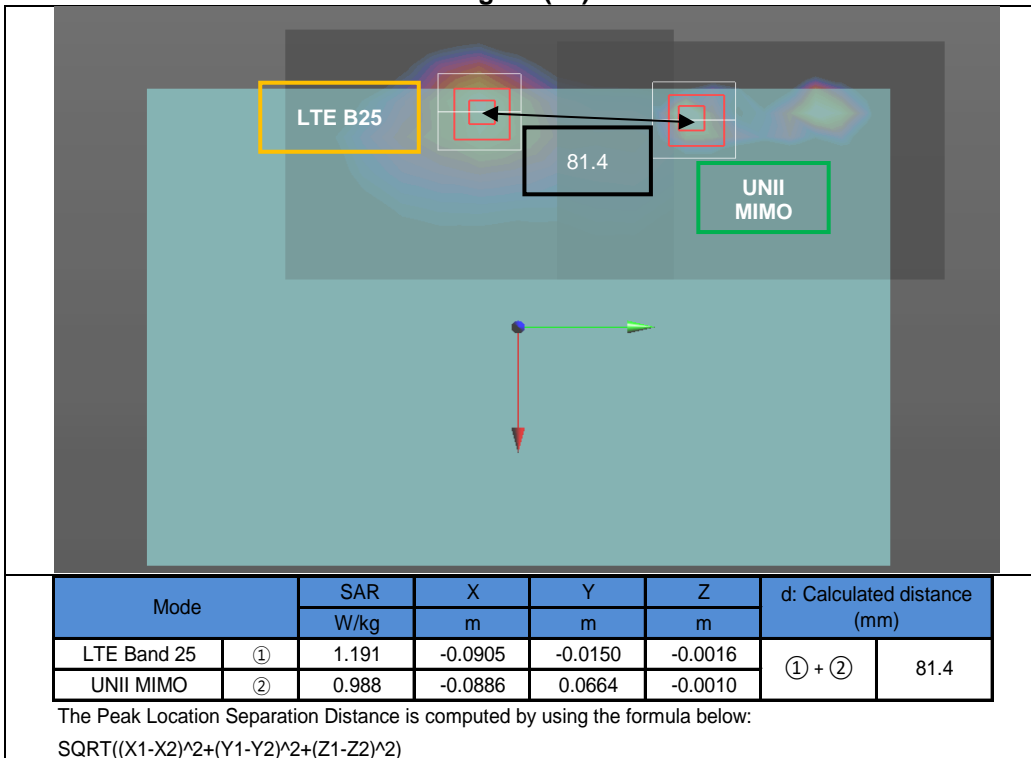


Figure (61)

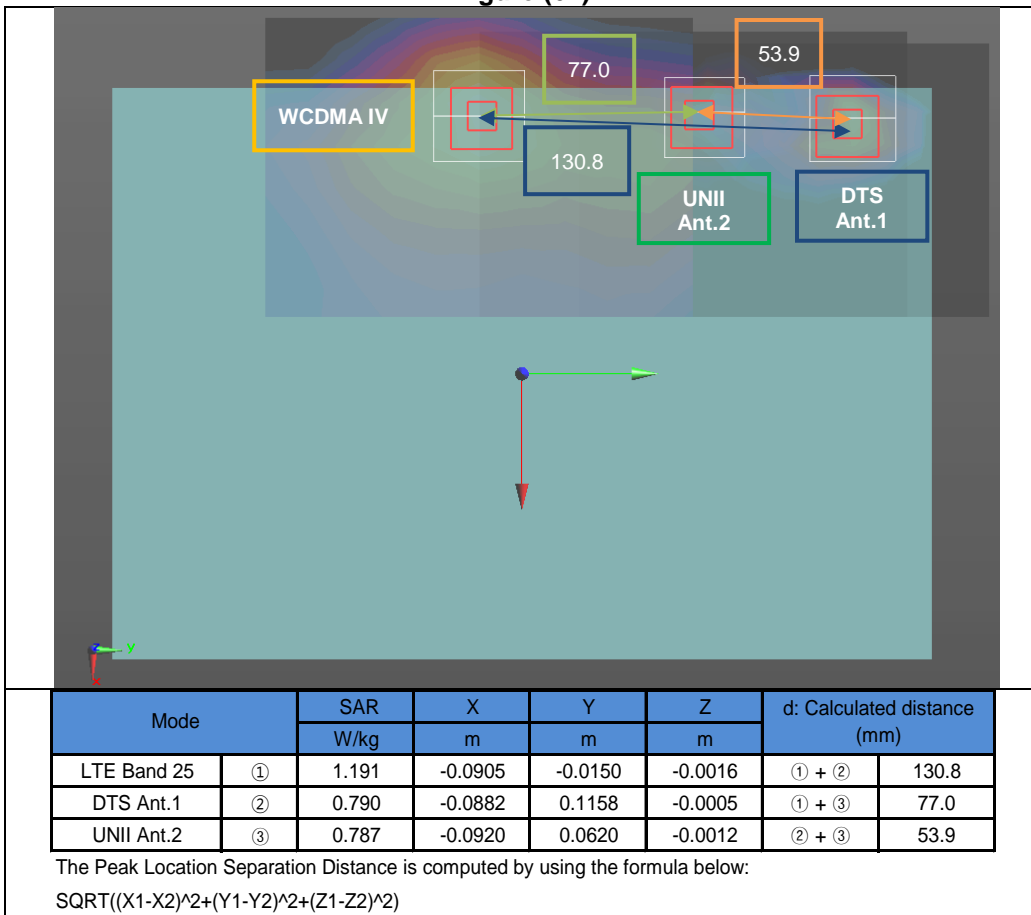


Figure (62)

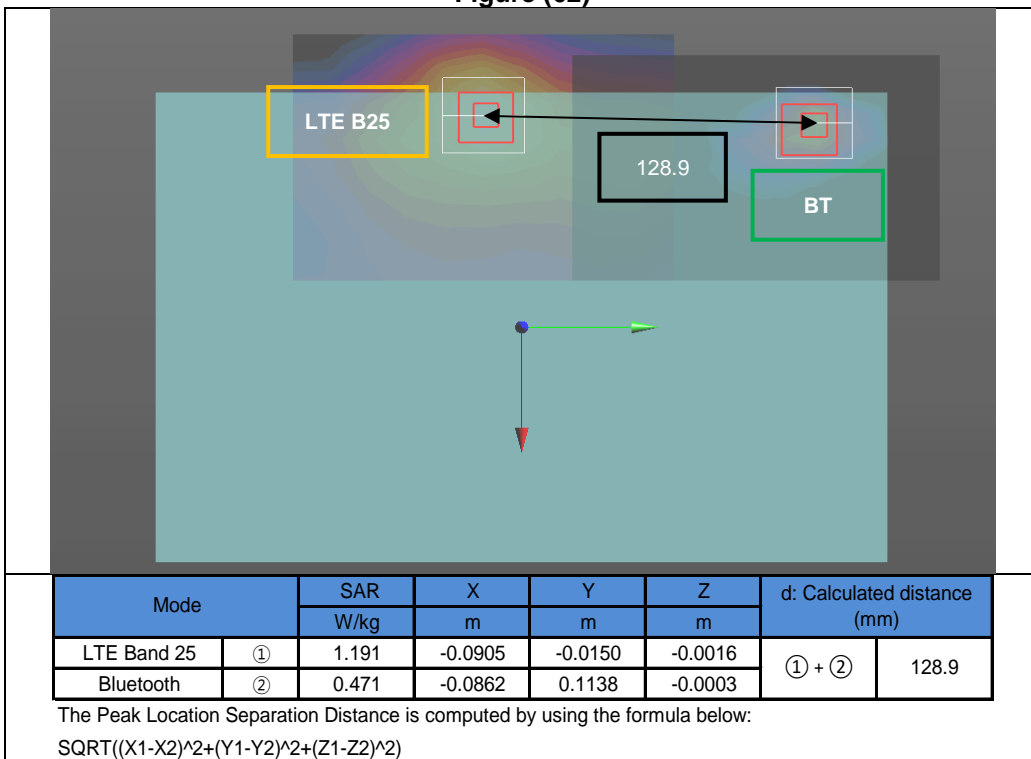


Figure (63)

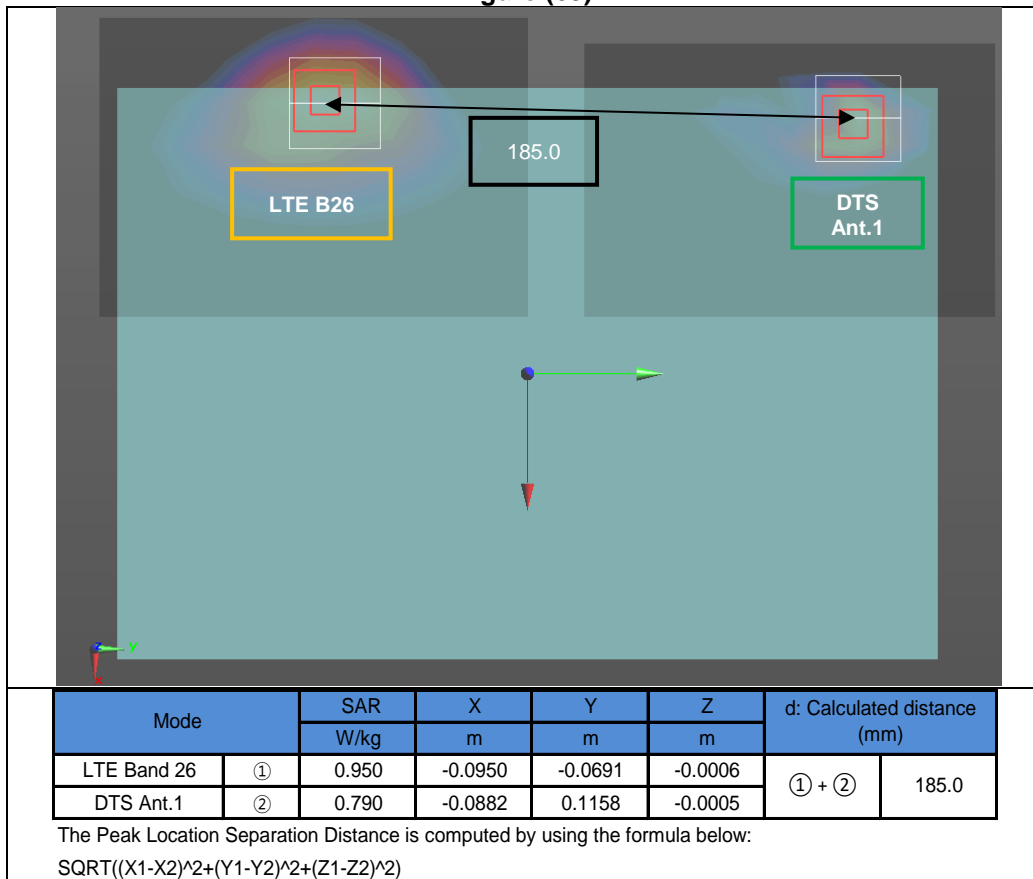


Figure (64)

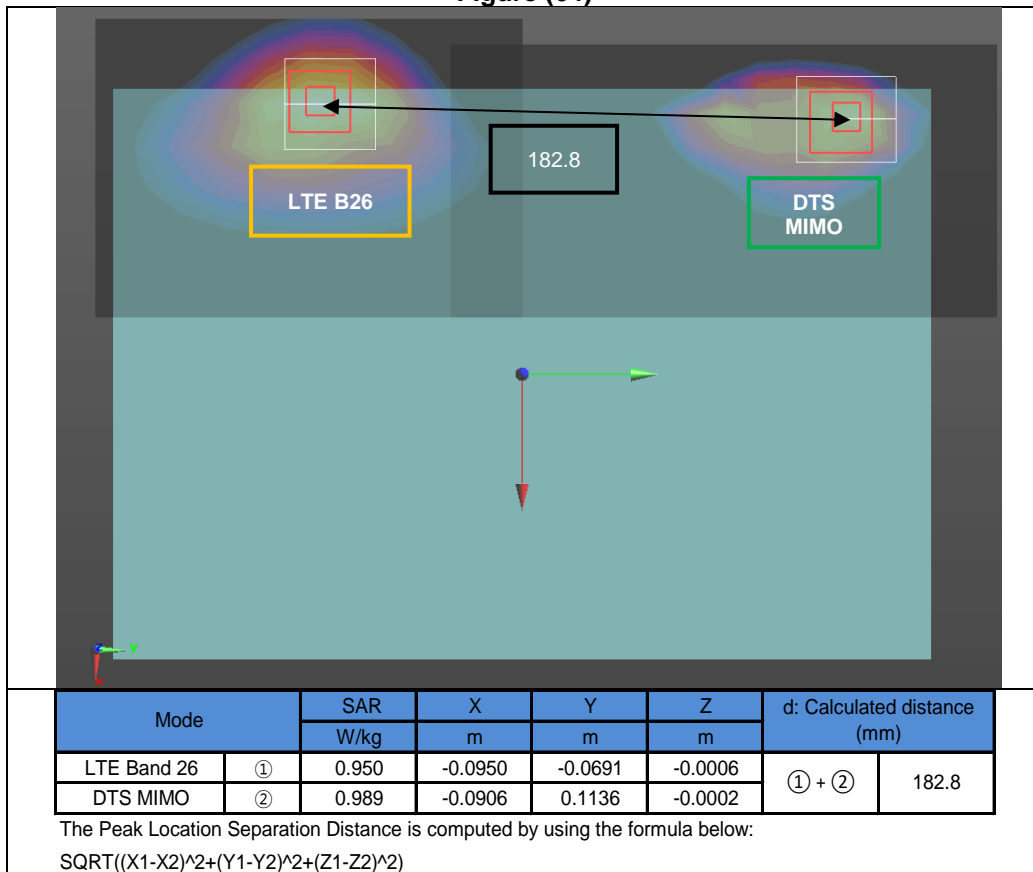


Figure (65)

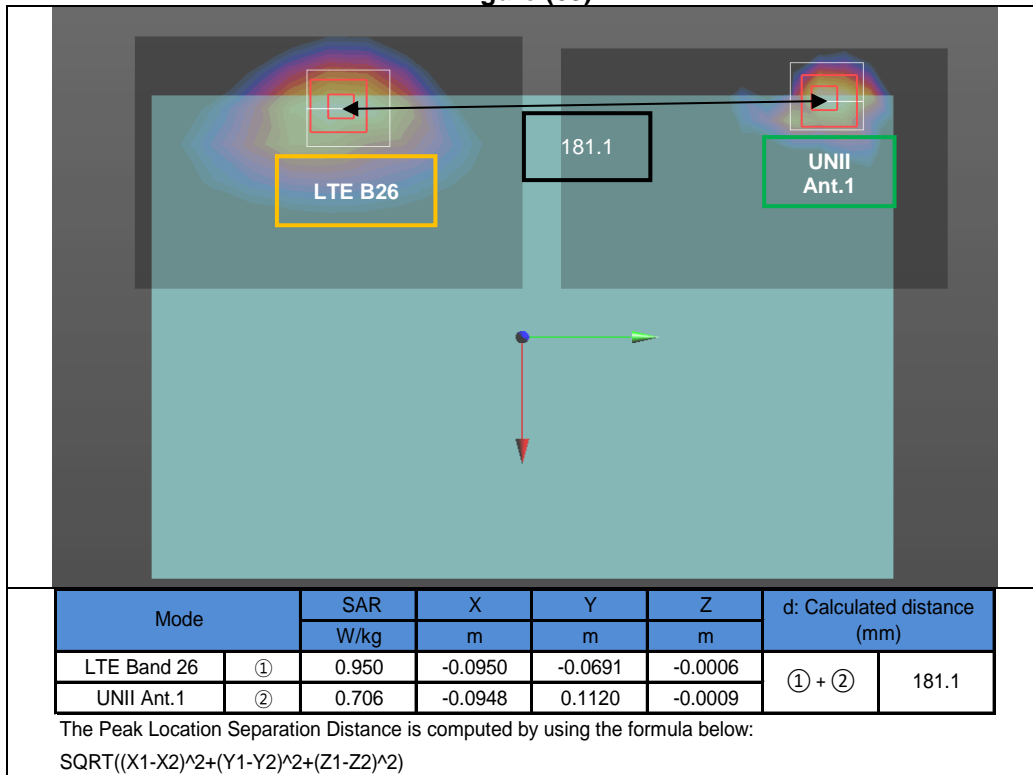


Figure (66)

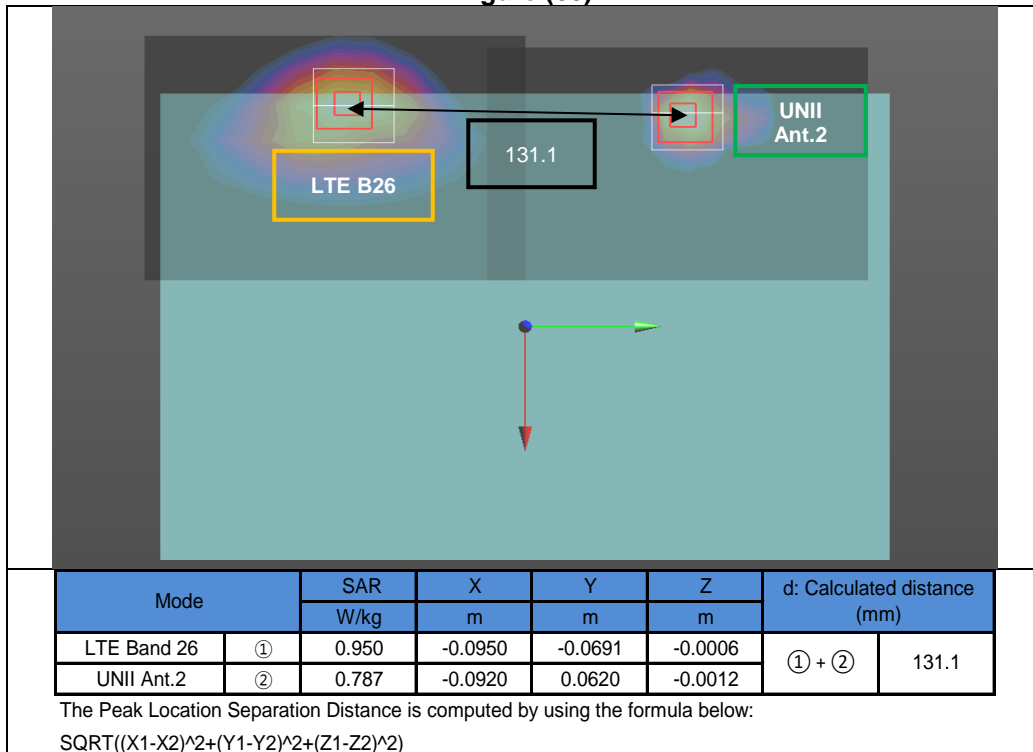


Figure (67)

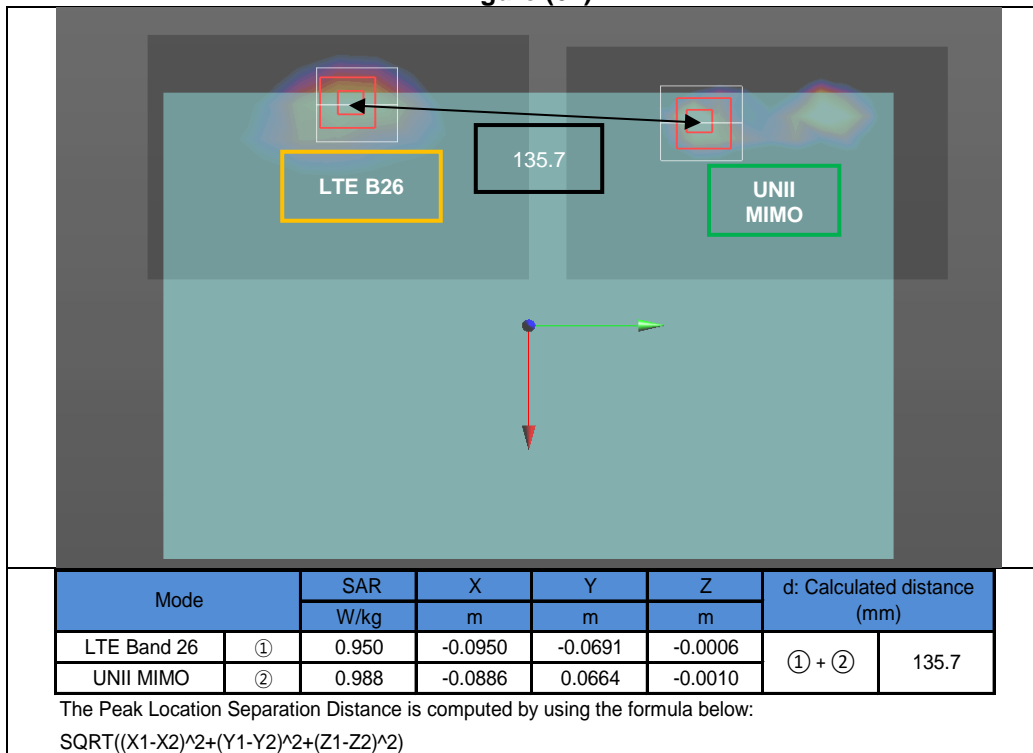


Figure (68)

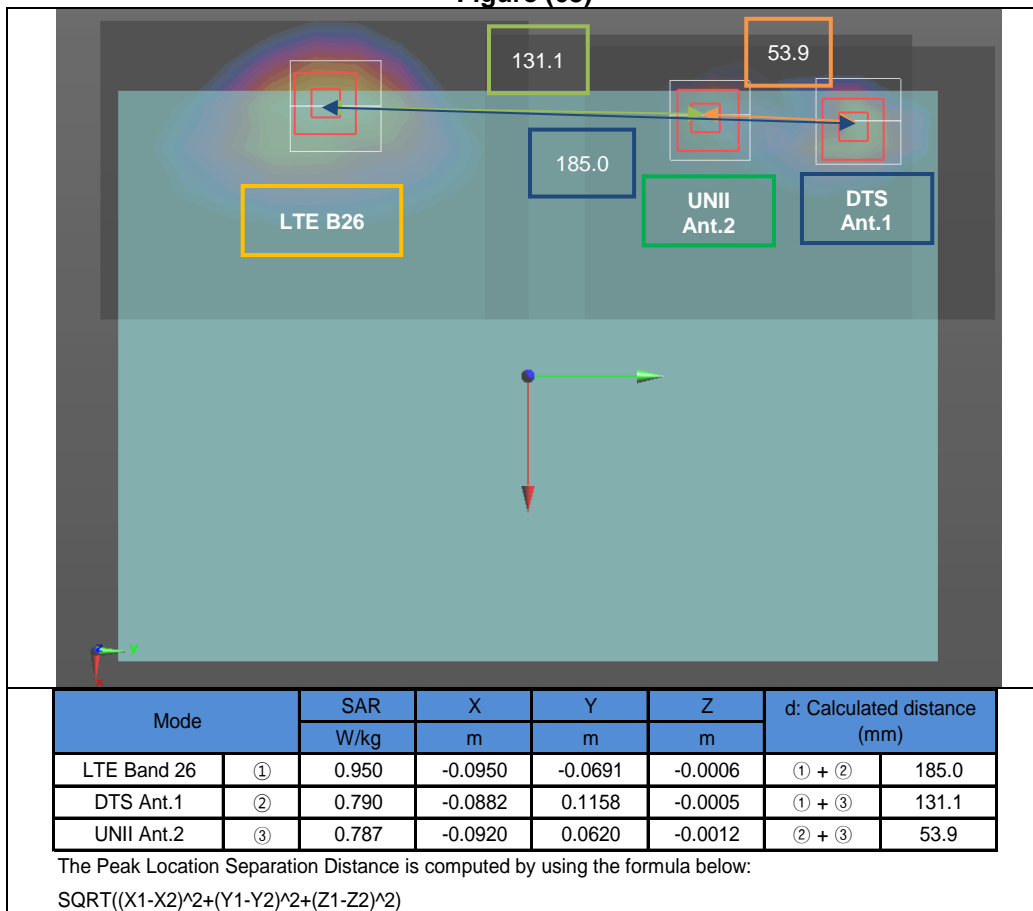


Figure (69)

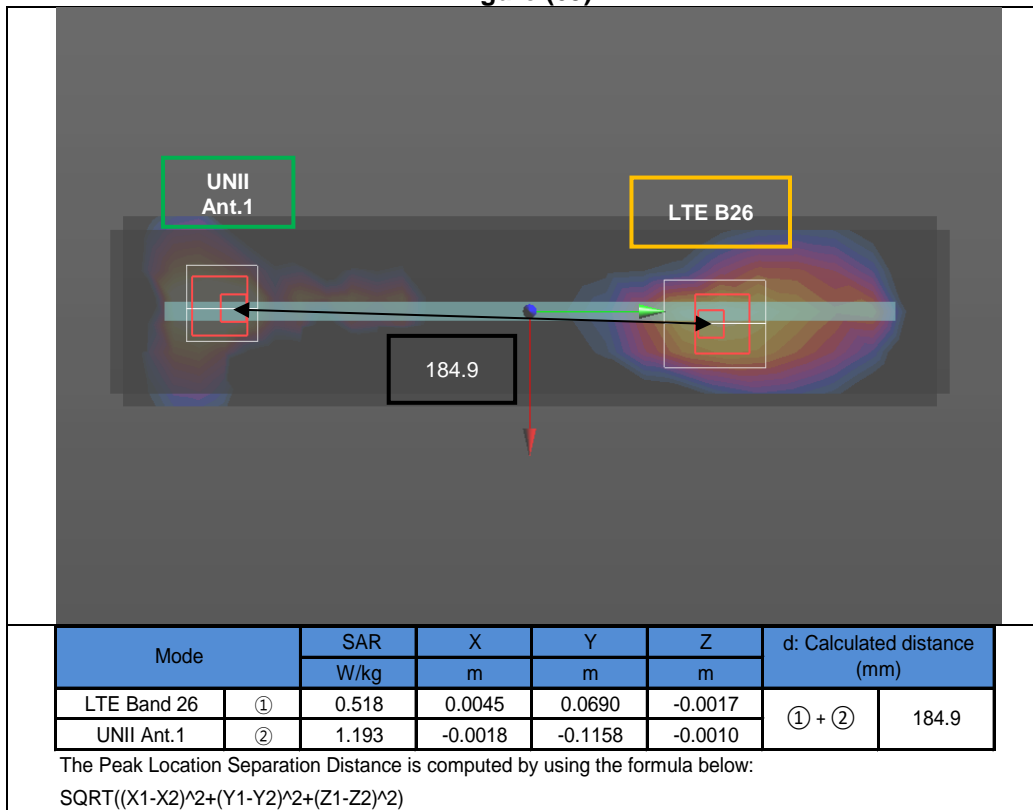


Figure (70)

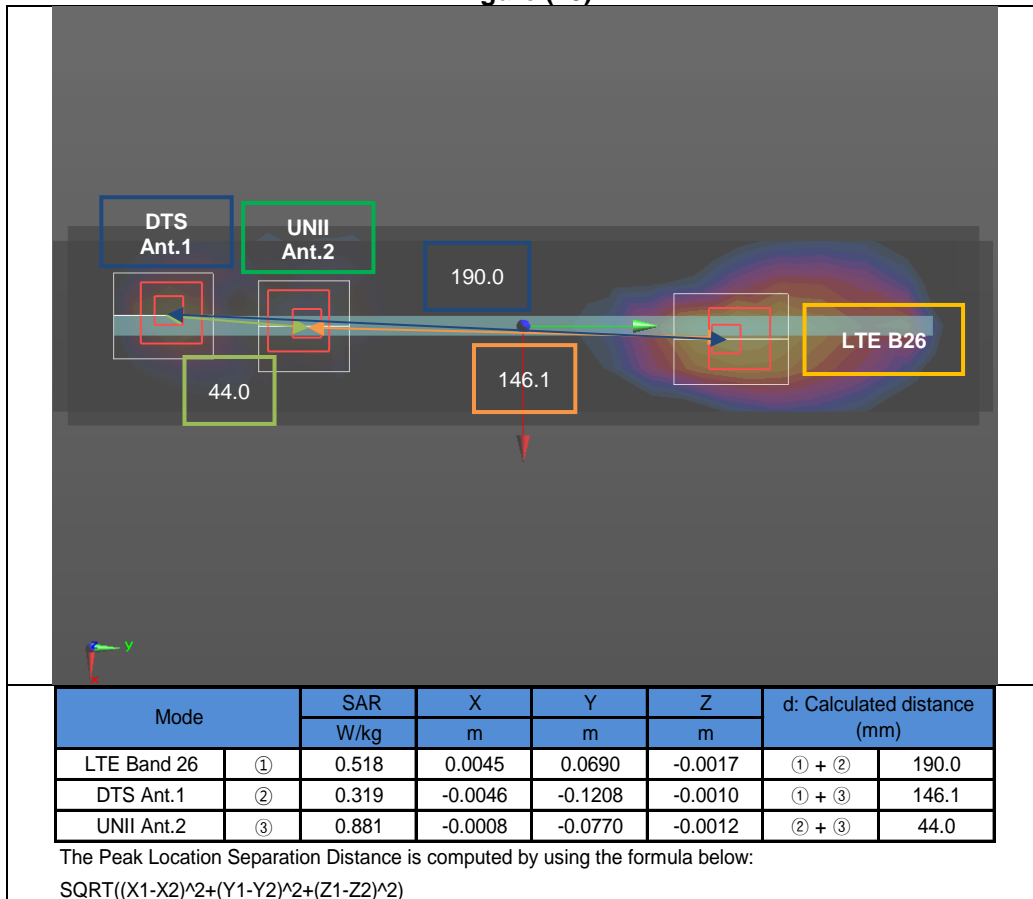


Figure (71)

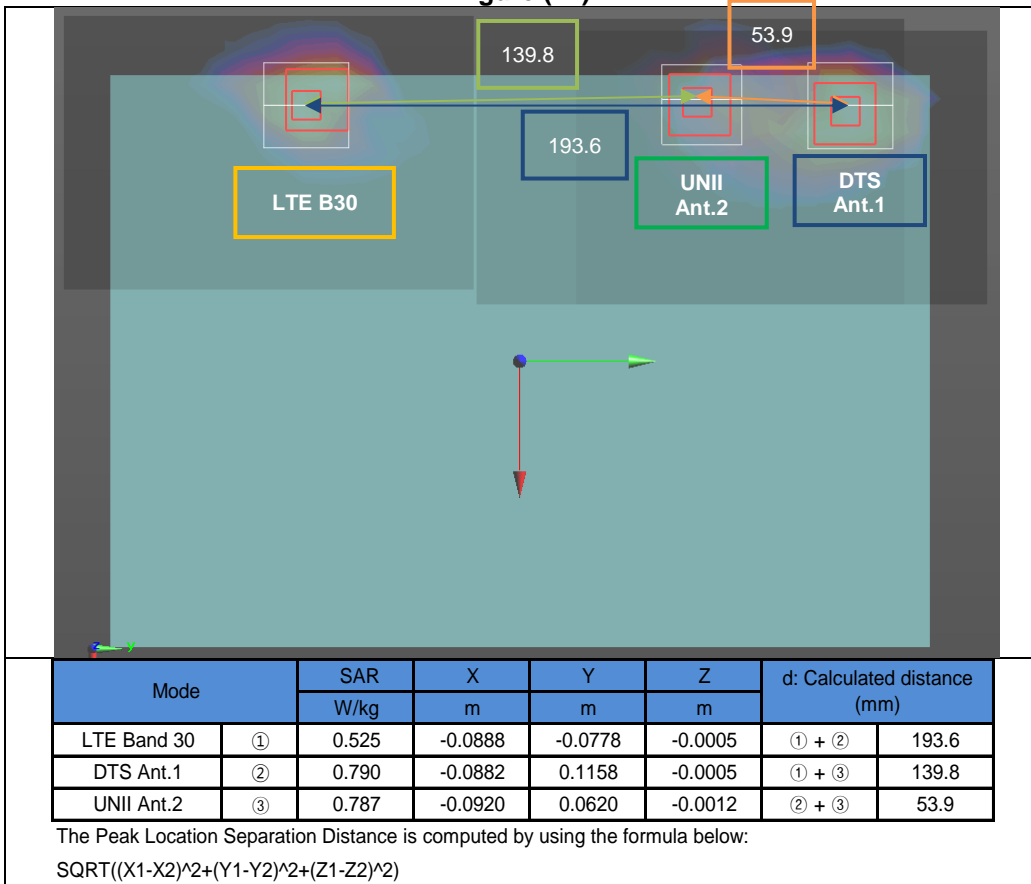


Figure (72)

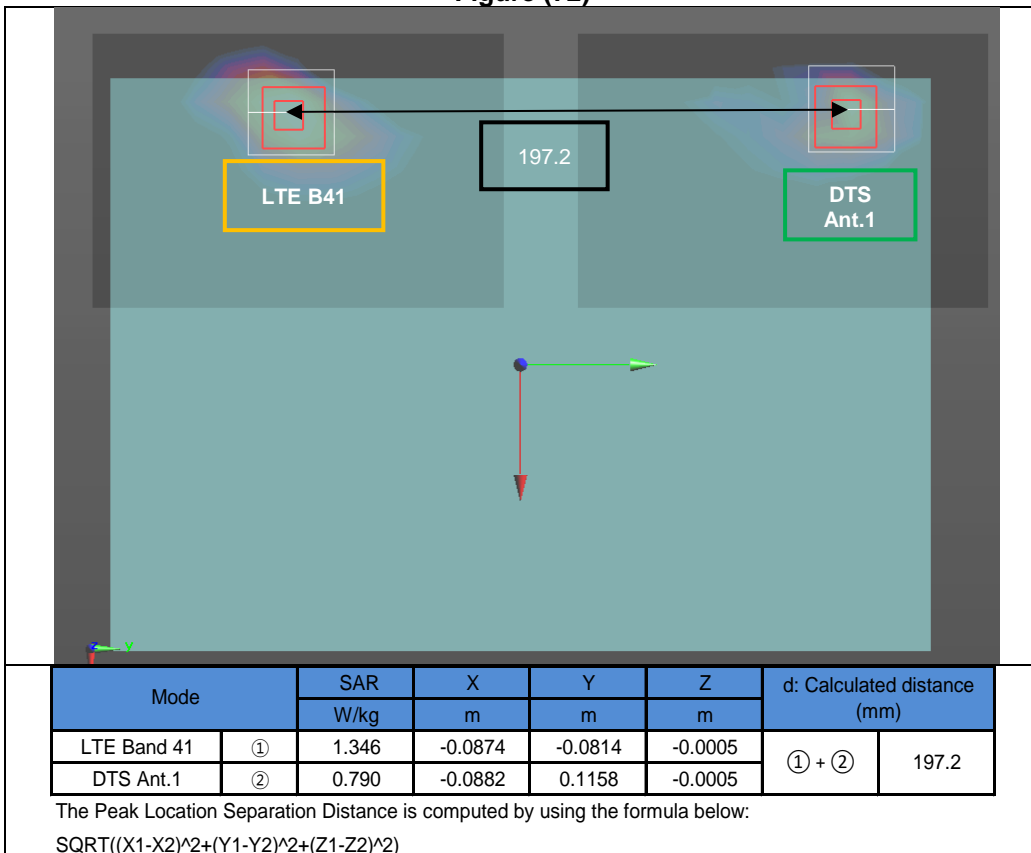


Figure (73)

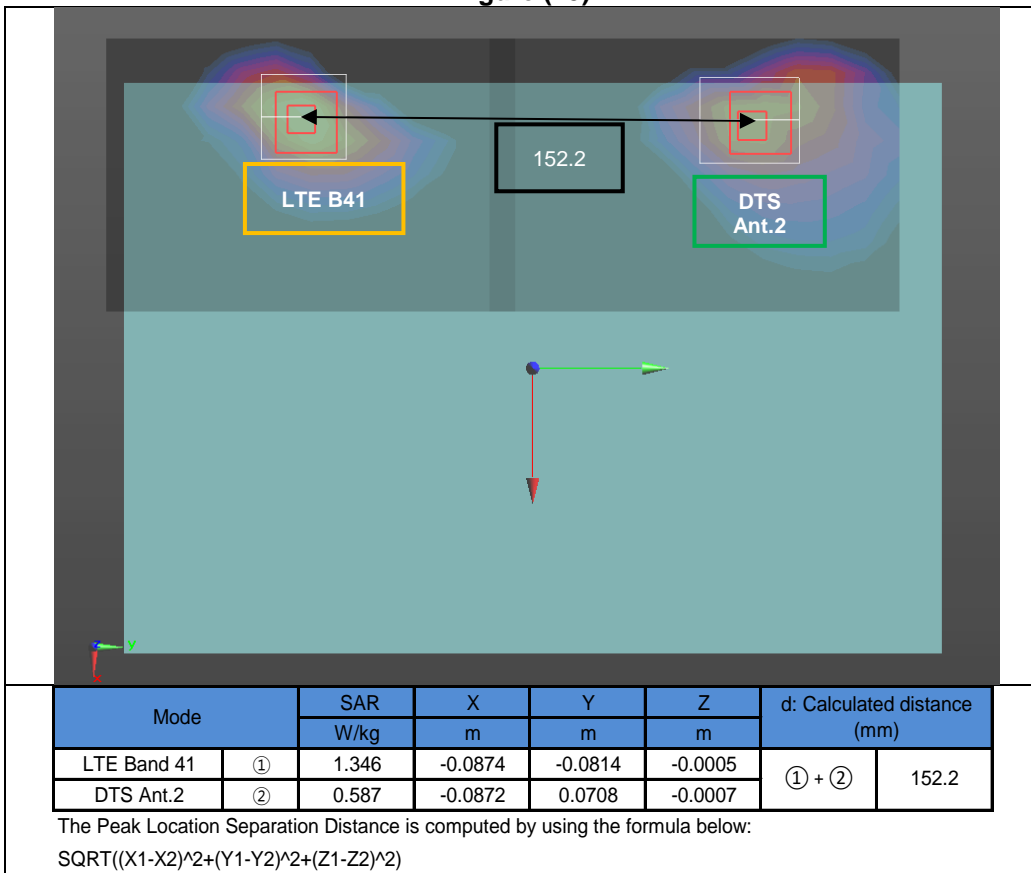


Figure (74)

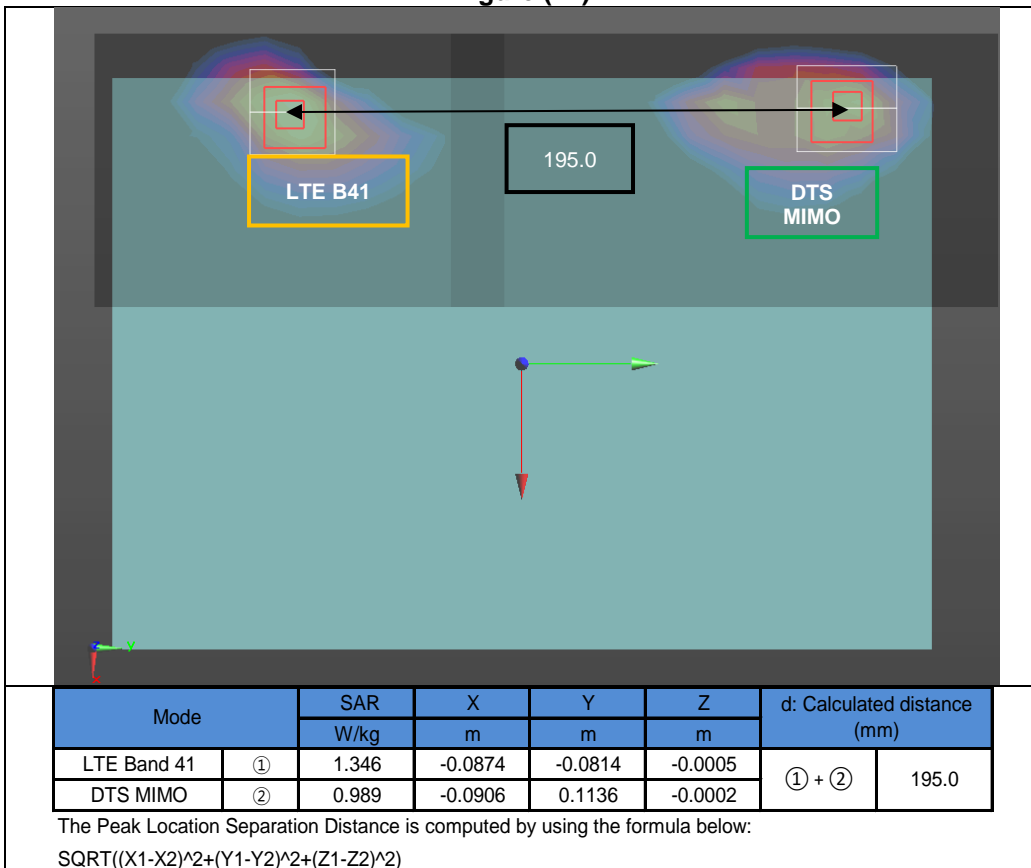


Figure (75)

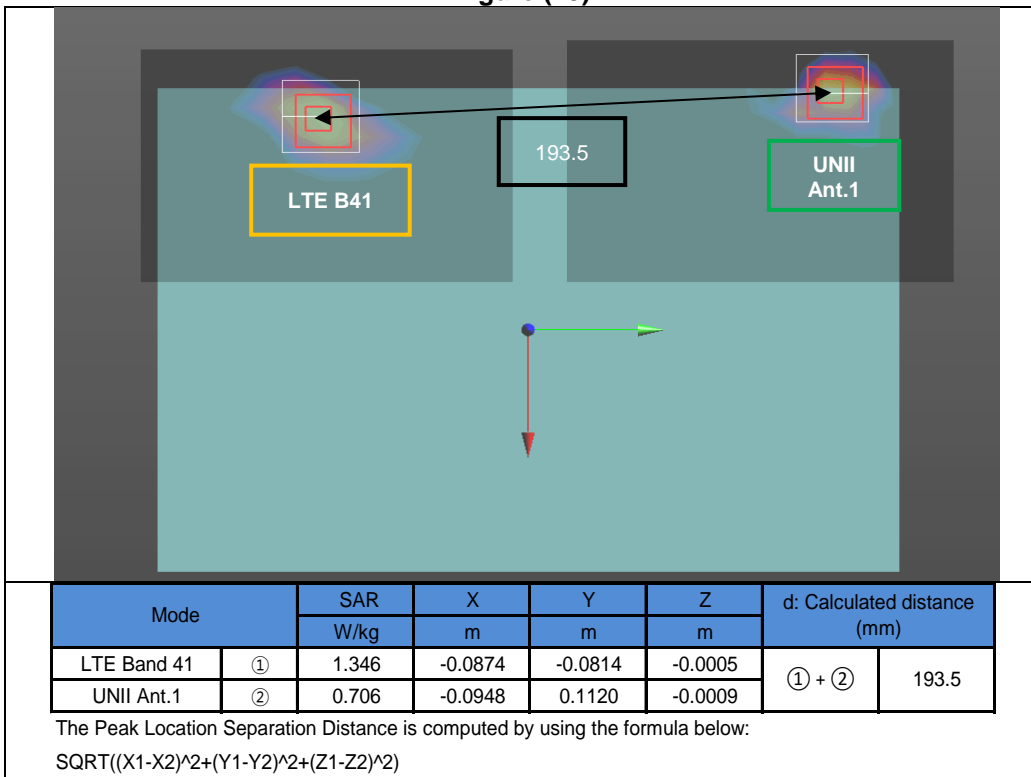


Figure (76)

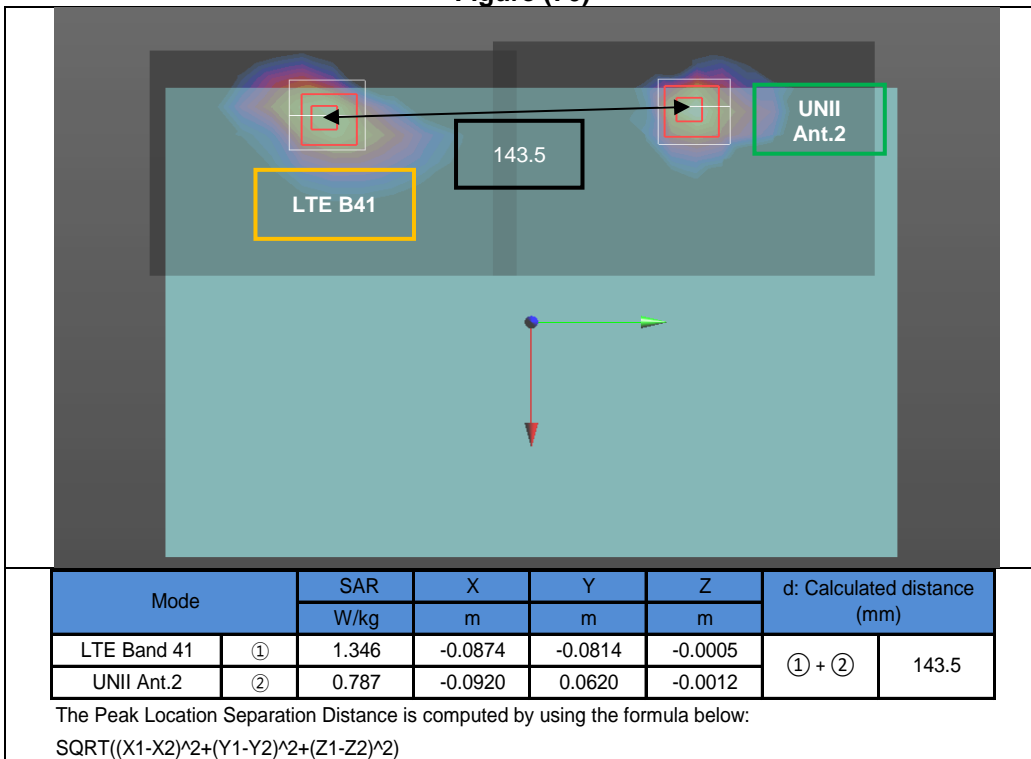


Figure (77)

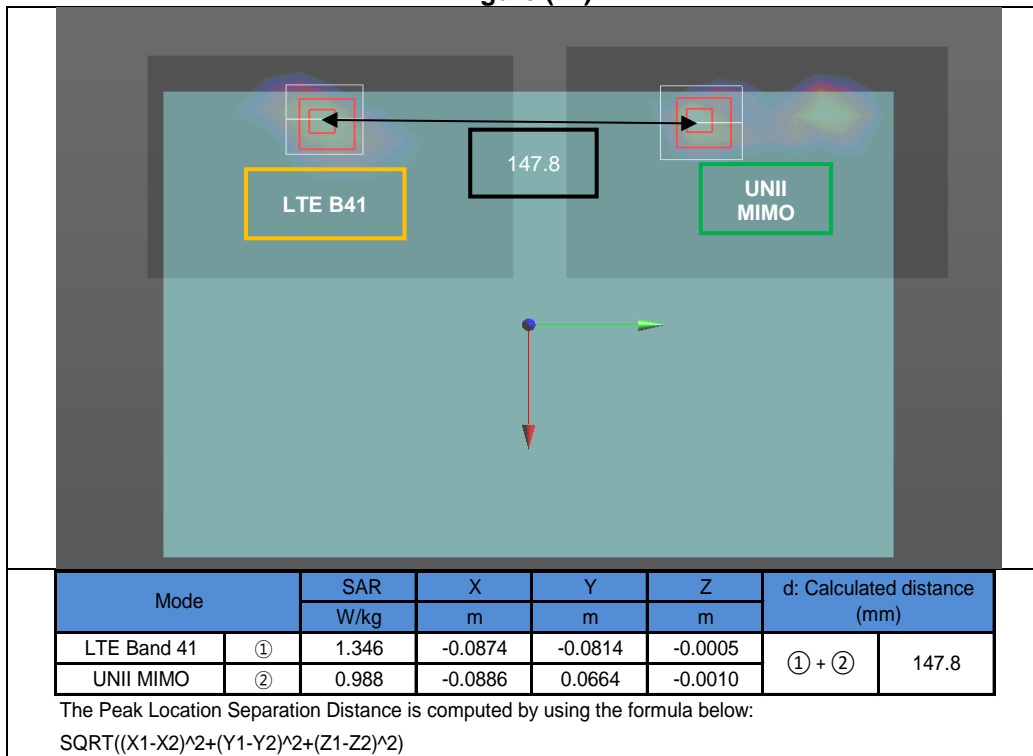


Figure (78)

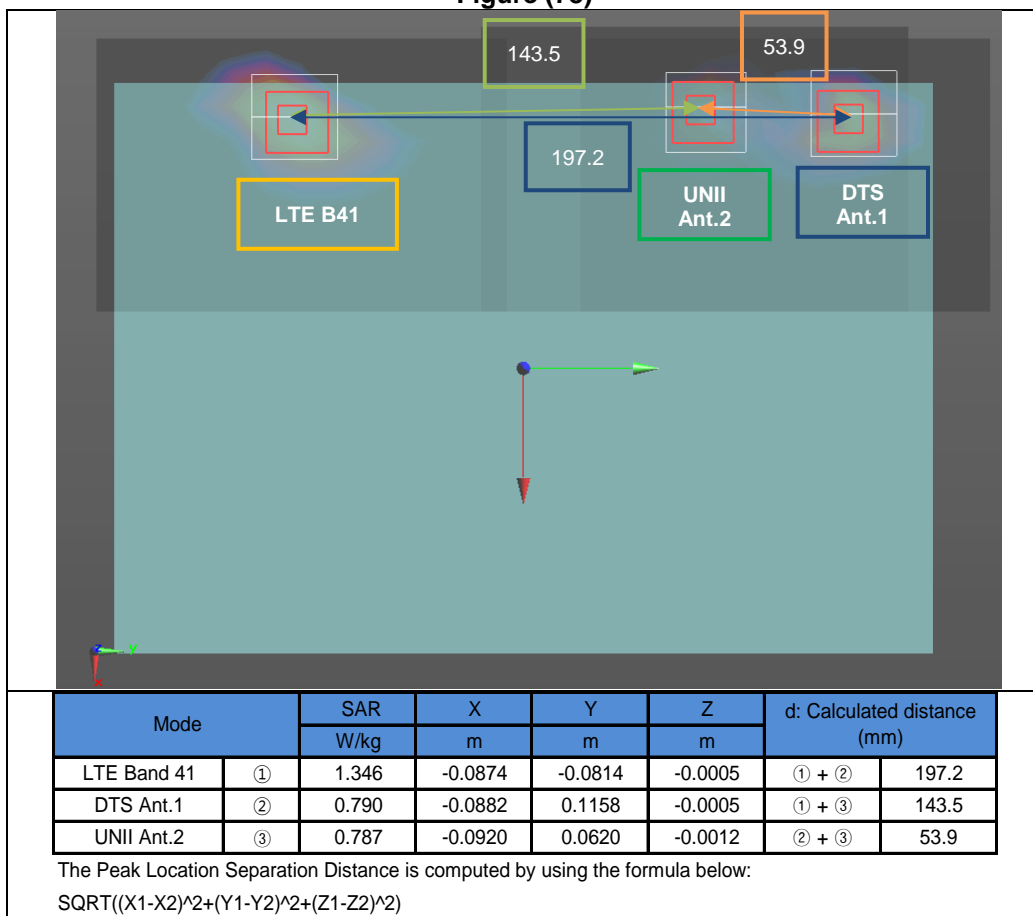


Figure (79)

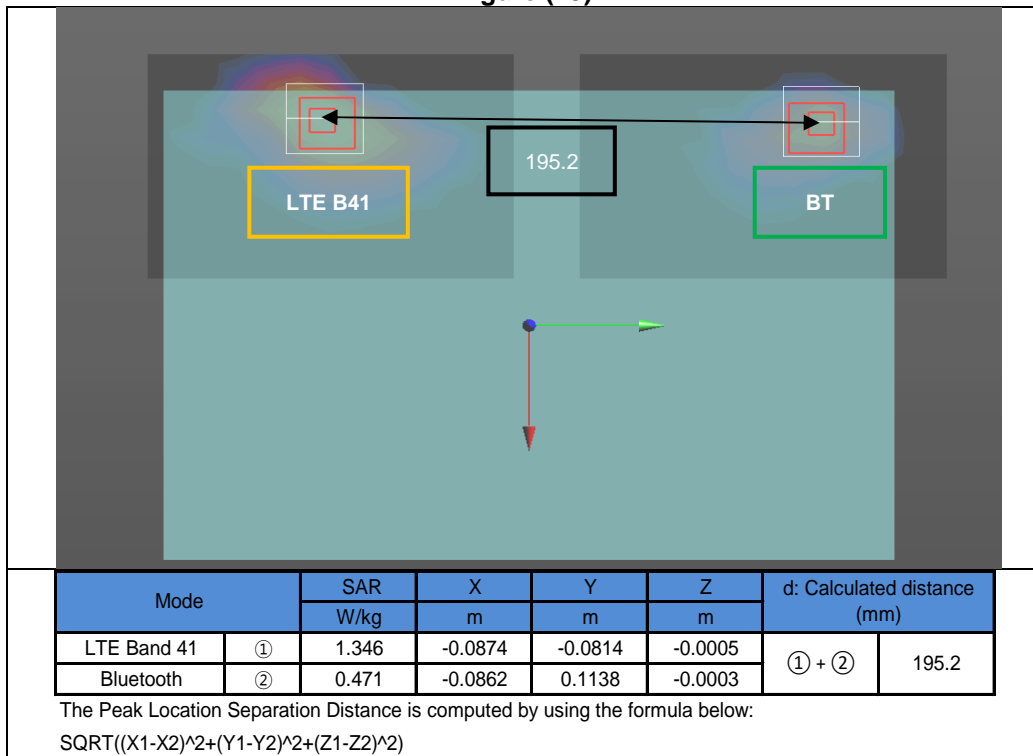


Figure (80)

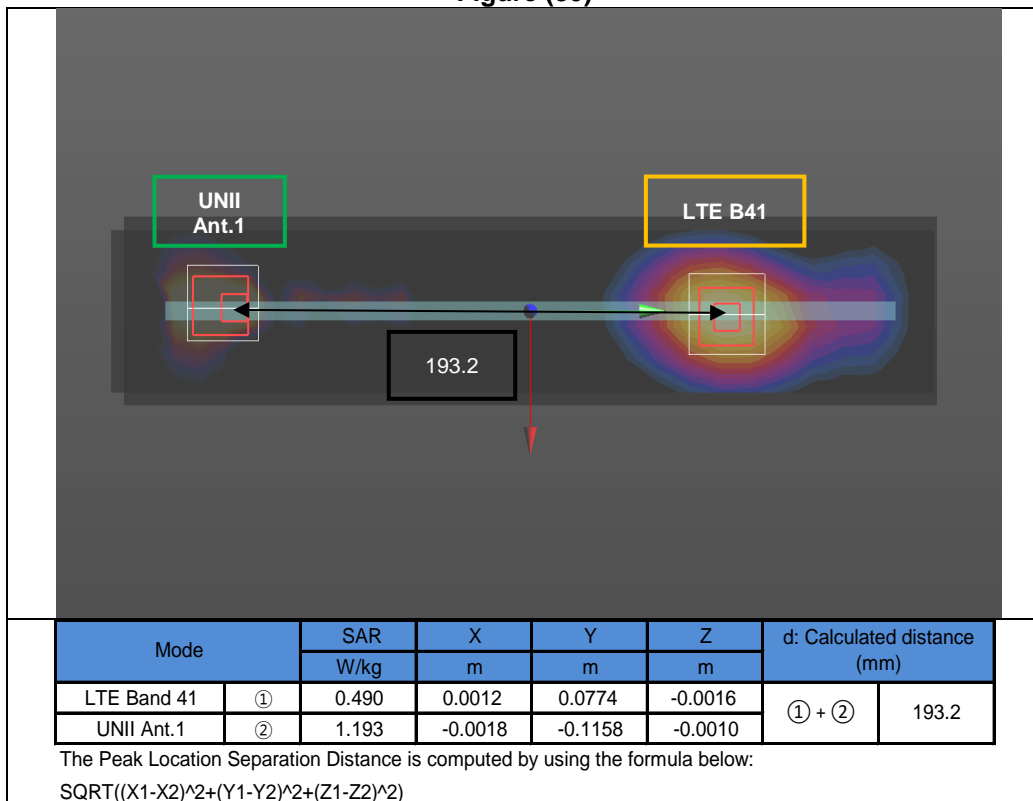


Figure (81)

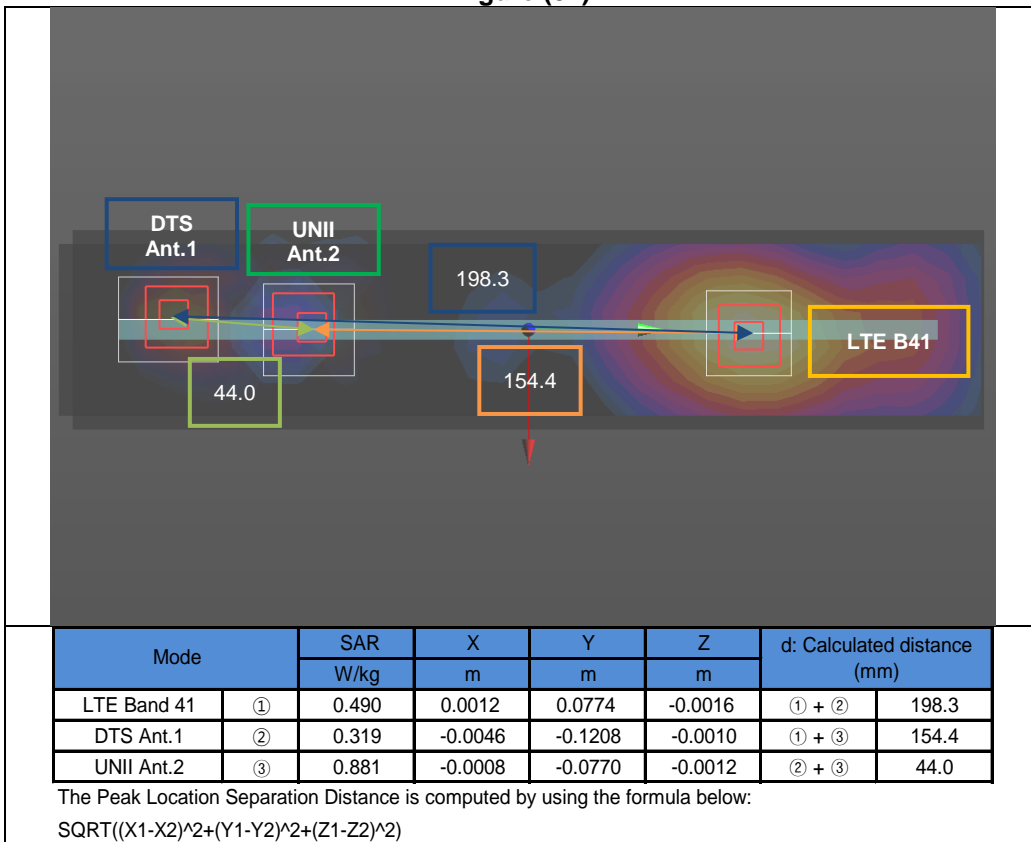


Figure (82)

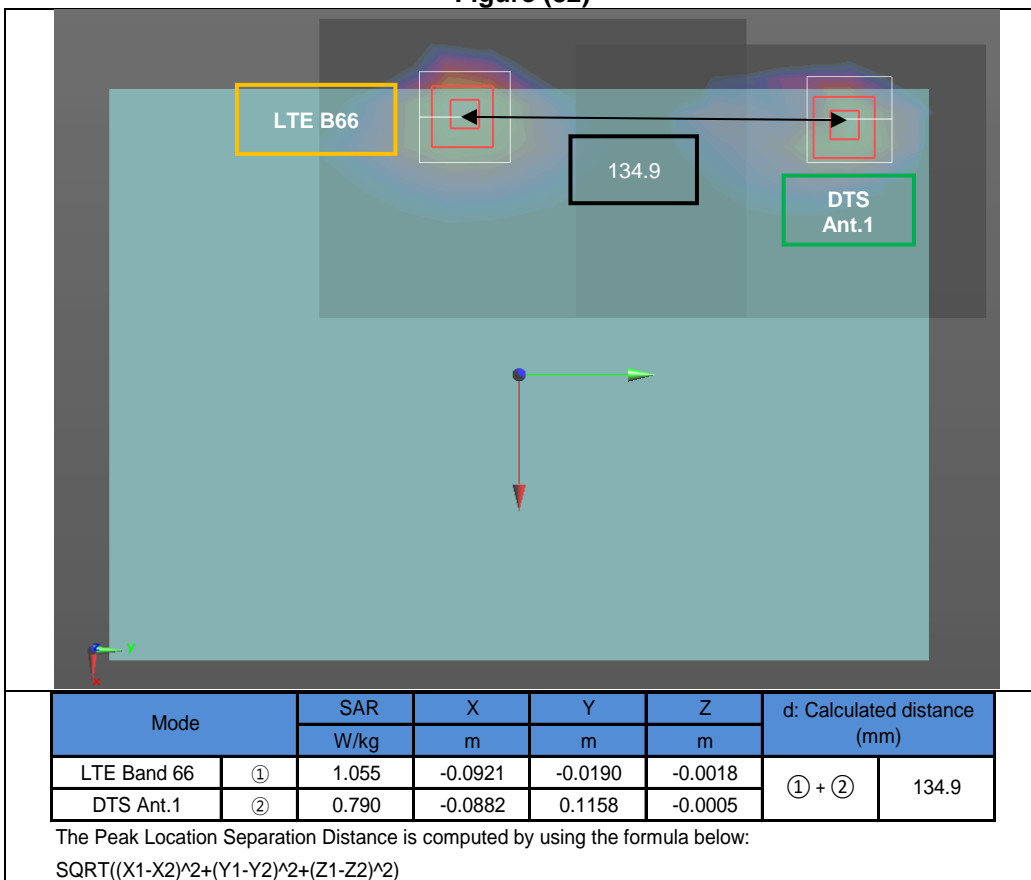


Figure (83)

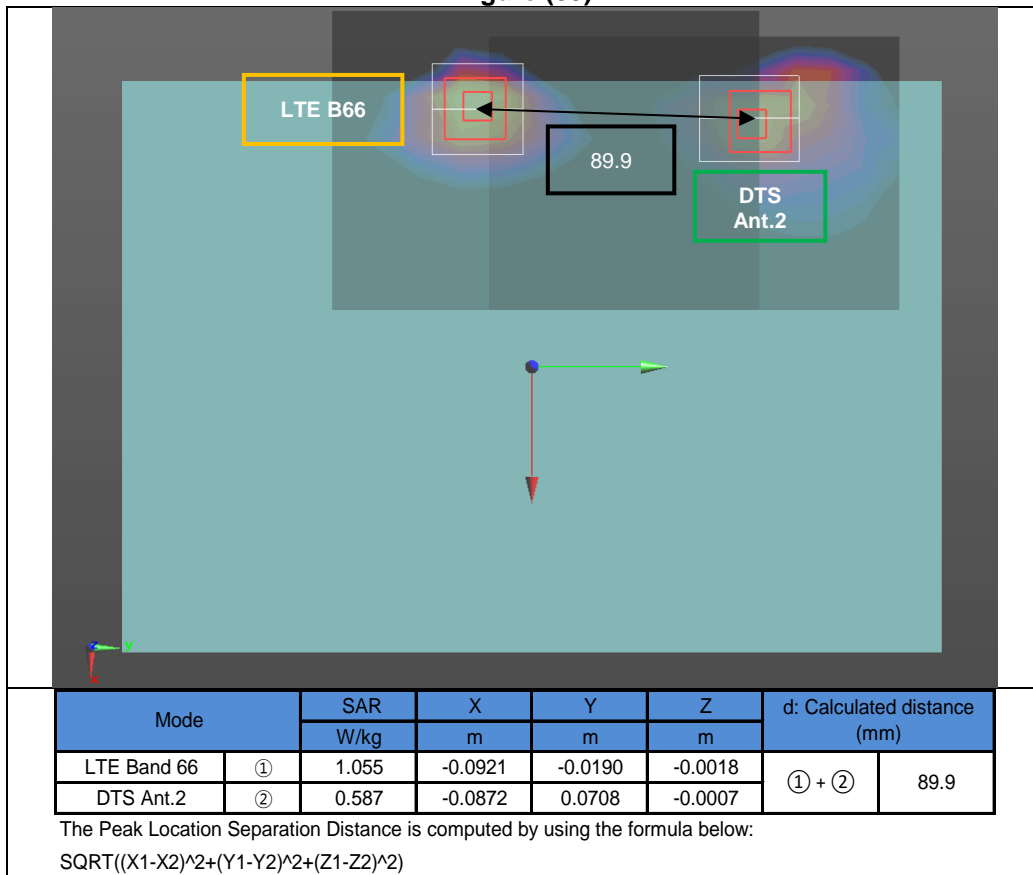


Figure (84)

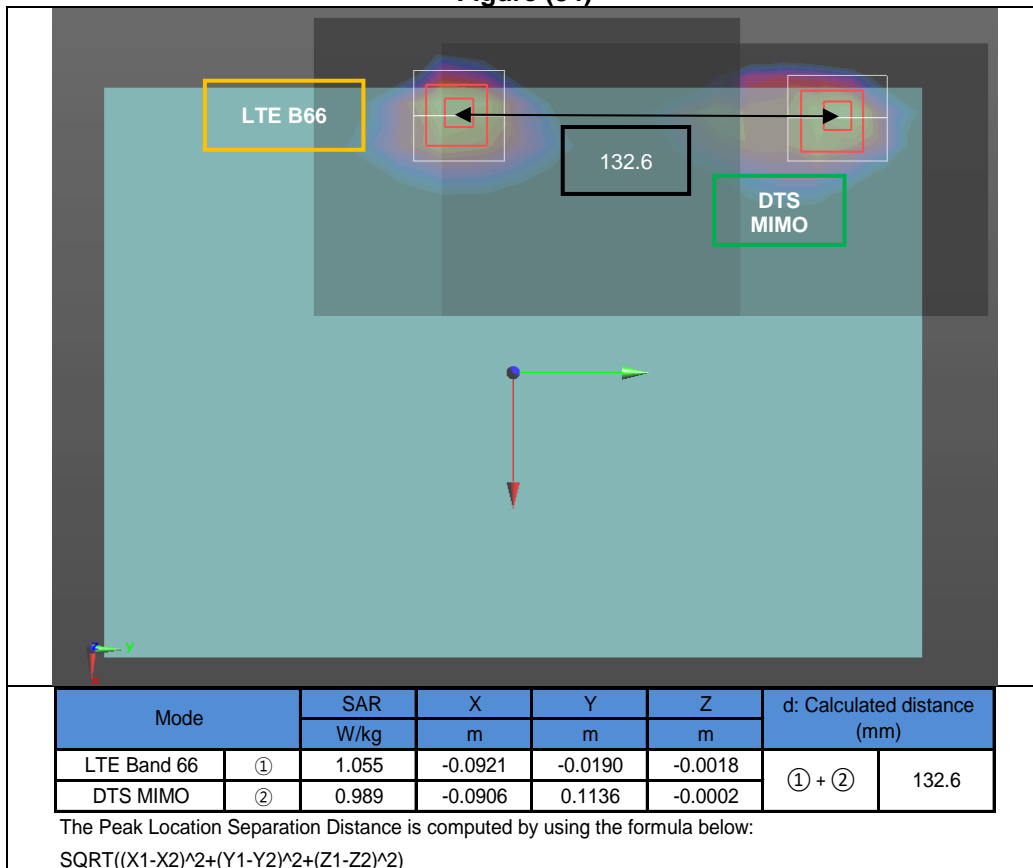


Figure (85)

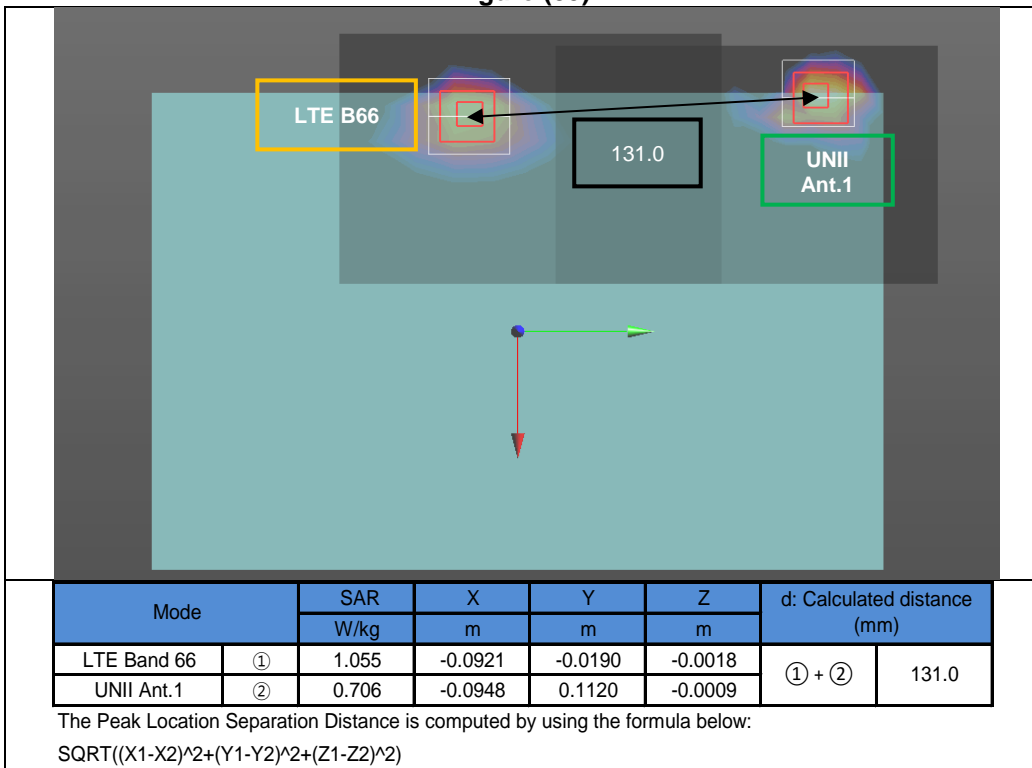


Figure (86)

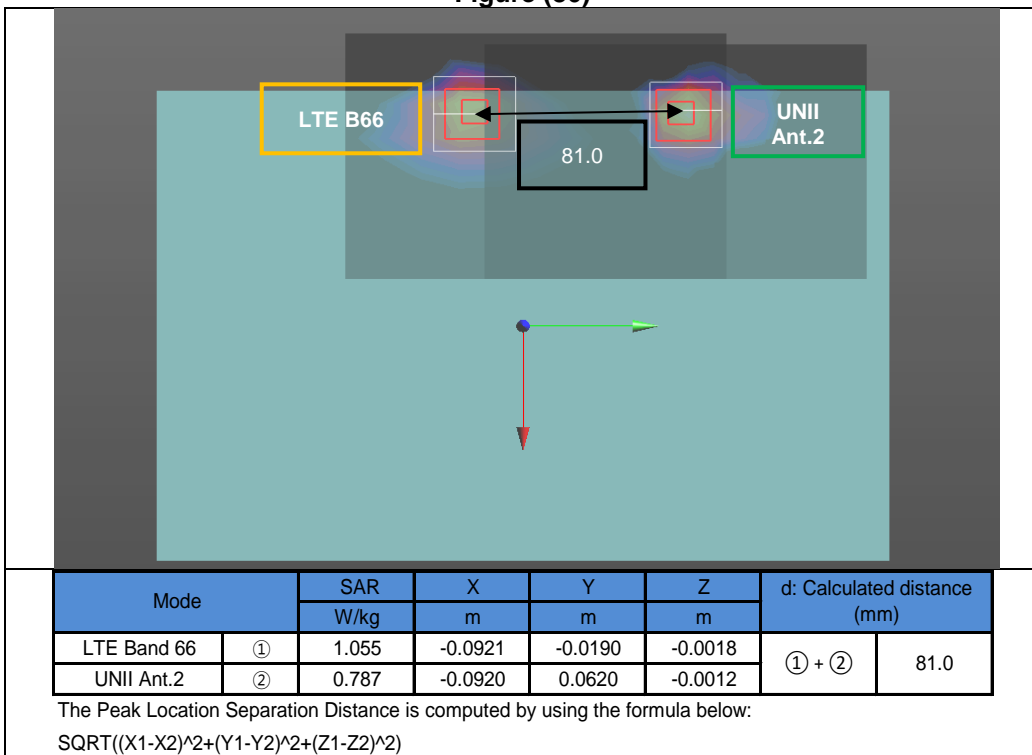


Figure (87)

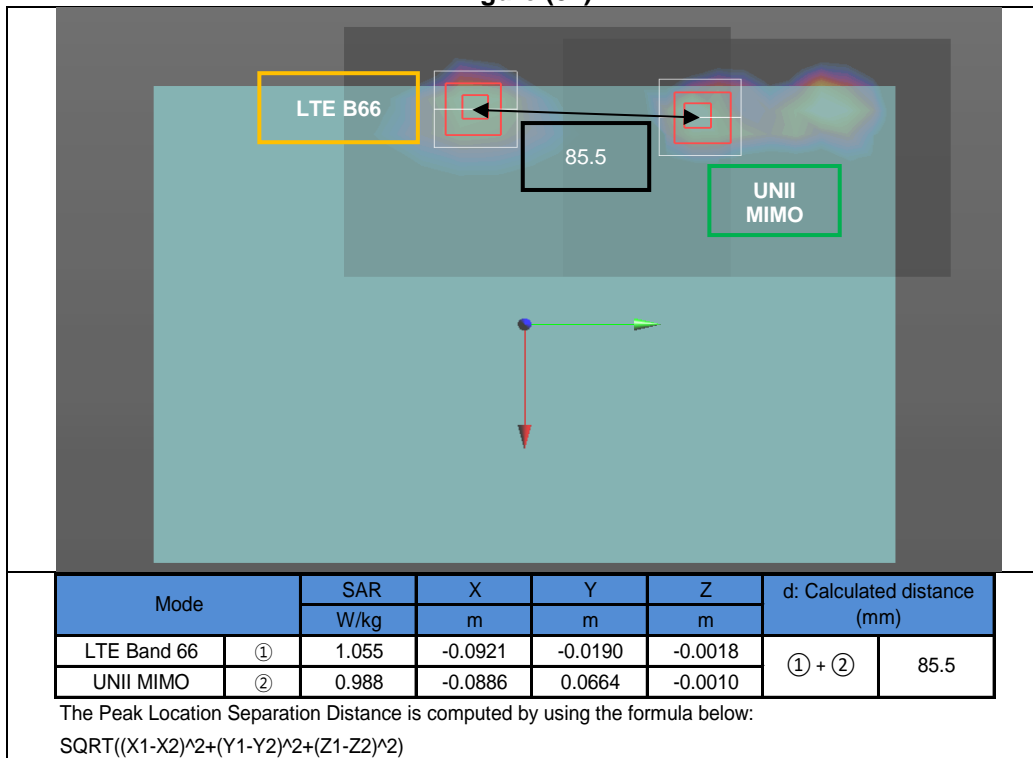


Figure (88)

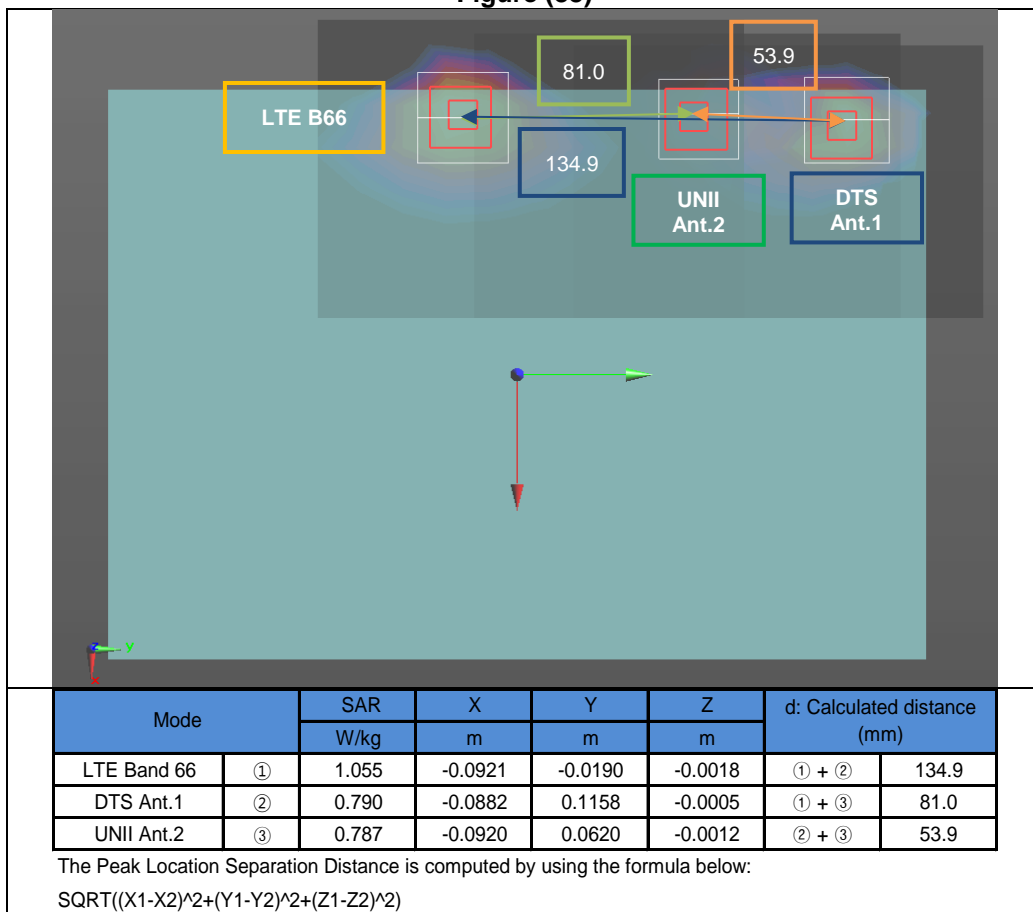


Figure (89)

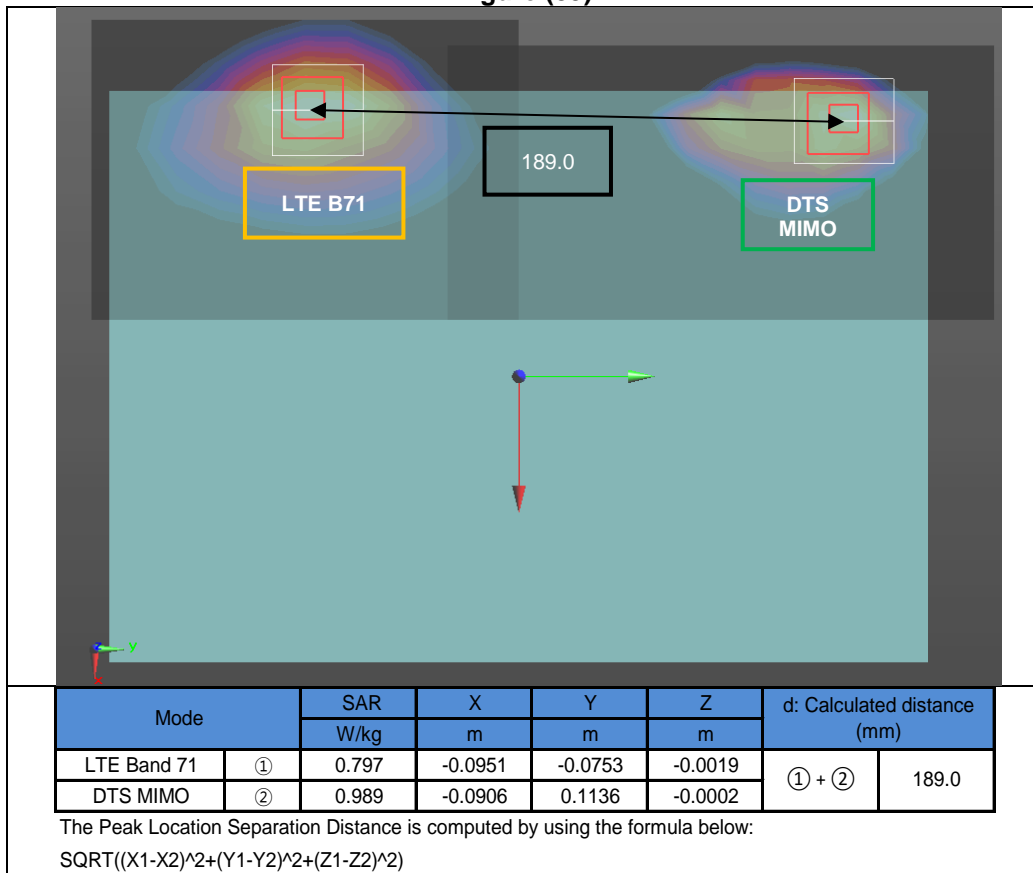


Figure (90)

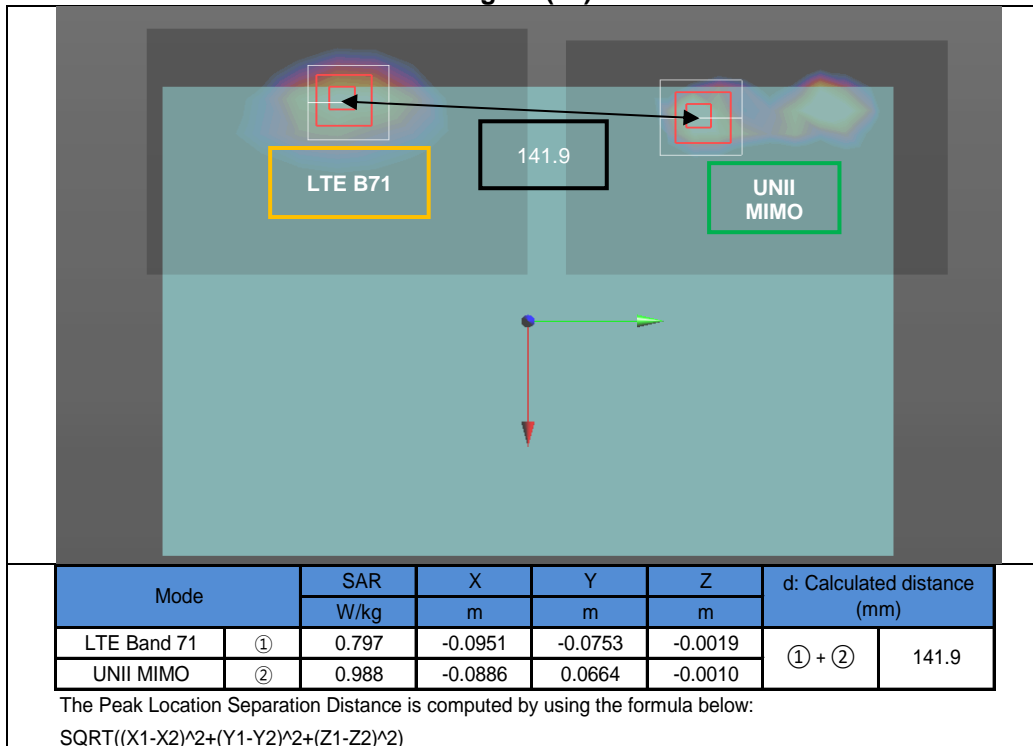
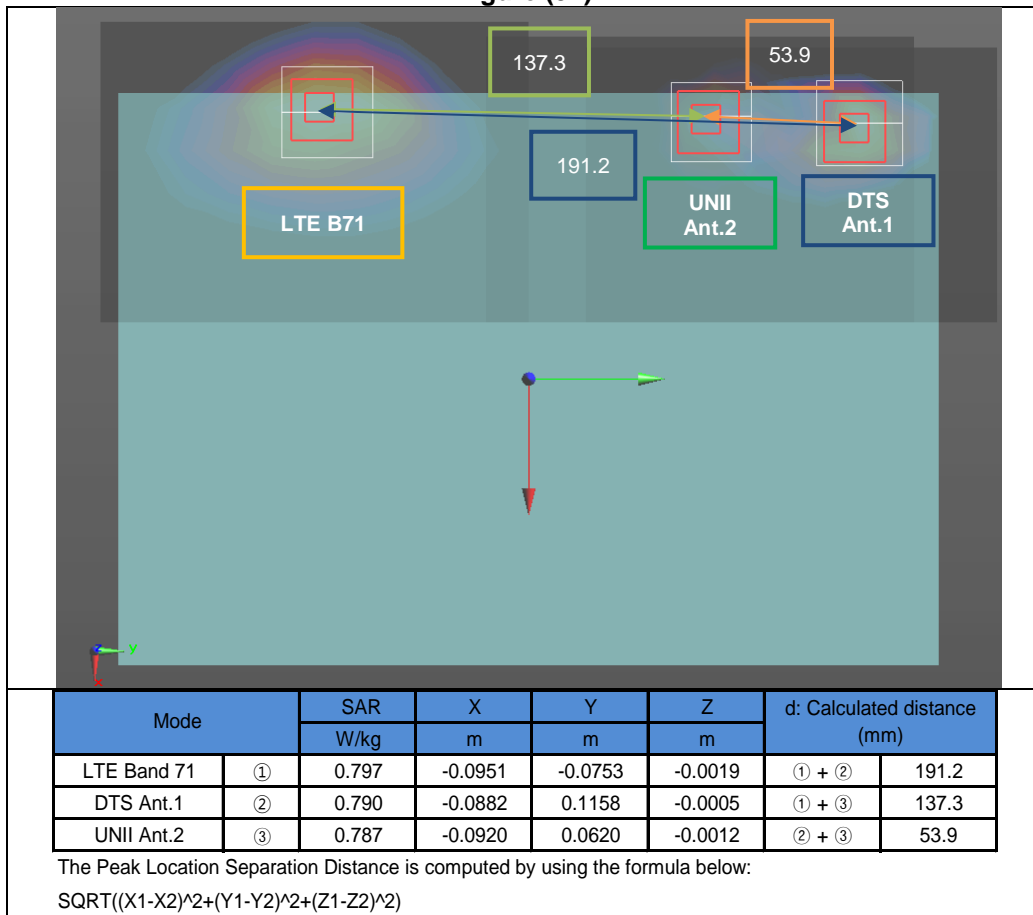


Figure (91)



Appendixes

Refer to separated files for the following appendixes.

4788556585-S1V1 FCC Report SAR_App A_Photos & Ant. Locations

4788556585-S1V1 FCC Report SAR_App B_Highest SAR Test Plots

4788556585-S1V1 FCC Report SAR_App C_System Check Plots

4788556585-S1V1 FCC Report SAR_App D_SAR Tissue Ingredients

4788556585-S1V1 FCC Report SAR_App E_Probe Cal. Certificates

4788556585-S1V1 FCC Report SAR_App F_Dipole Cal. Certificates

END OF REPORT