FCC 47 CFR § 2.1093
IEEE Std 1528-2013

SAR EVALUATION REPORT

FOR

GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, UWB, NFC and WPT

MODEL NUMBER: SM-N985F/DS, SM-N985F

FCC ID: A3LSMN985F

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IAS ACCREDITED

Testing Laboratory

TL-637

Revision History

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V2	7/8/2020	Updated Sec.6.2. LTE Release version.	Sanghwa Lee

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1. Attestation of Test Results

Applicant Name		SAMSUNG ELECTRONICS CO.,LTD.			
FCC ID		A3LSMN985F			
Model Number		SM-N985F/DS, SM-N985F			
Applicable Standards		FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures			
Exposure Category		SAR Limits (W/Kg)			
		Peak spatial-average (1g of tissue)		Product Specific 10g (10g of tissue)	
General population / Uncontrolled exposure		1.6		4.0	
RF Exposure Conditions		Equipment Class - The Highest Reported SAR (W/kg)			
		PCE	DTS	NII	DSS
Head		0.29	0.48	< 0.10	0.57
Body-worn		1.02	0.15	0.76	< 0.10
Hotspot		1.33	0.41	1.16	0.21
Product Specific 10g		2.67	N/A	0.98	N/A
Simultaneous TX	Head	1.01	0.92	1.01	1.01
	Body-worn	1.57	1.42	1.57	1.57
	Hotspot	1.59	1.58	1.59	1.59
	Product Specific 10g	2.98	N/A	2.98	N/A
Date Tested		5/21/2020 to 6/29/2020			
Test Results		Pass			

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.

Note: SM-N985F/DS and SM-N985F have the same hardware but number of SIM card slot is different. SM-N985F is single SIM version and SM-N985F/DS is dual SIM version. This application was tested with SM-N986B/DS in all bands. 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.

Approved & Released By:	Prepared By:
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Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory	Sanghwa Lee Senior Laboratory Technician UL Korea, Ltd. Suwon Laboratory

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

Equipment Class	Band	The Highest Reported SAR (W/kg)			
		1g of tissue			10g of tissue
		Head Exposure condition	Body-worn Exposure condition	Hotspot Exposure condition	Product Specific Exposure condition
PCE	GSM 850	**0.288**	0.517	0.968	N/A
	GSM 1900	0.072	0.540	1.097	1.750
	WCDMA Band II	0.101	0.615	**1.330**	**2.670**
	WCDMA Band IV	0.139	**1.020**	1.321	2.354
	WCDMA Band V	0.239	0.399	0.753	N/A
	LTE Band 2	N/A	N/A	N/A	1.979
	LTE Band 4	N/A	N/A	N/A	1.866
	LTE Band 5	N/A	N/A	N/A	N/A
	LTE Band 12	0.156	0.208	0.371	N/A
	LTE Band 13	0.217	0.372	0.614	N/A
	LTE Band 17	N/A	N/A	N/A	N/A
	LTE Band 25	0.093	0.611	1.065	1.970
	LTE Band 26	0.215	0.406	0.761	N/A
	LTE Band 41	0.074	0.567	0.854	1.798
	LTE Band 66	0.117	0.730	1.209	1.957
DTS	2.4GHz WLAN	**0.480**	**0.150**	**0.410**	N/A
UNII	5GHz WLAN	**0.074**	**0.760**	**1.159**	**0.975**
DSS	Bluetooth	**0.572**	**0.079**	**0.214**	N/A

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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, ANSI C63.26-2015 the following FCC Published RF exposure KDB procedures:

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 648474 D04 Handset SAR v01r03
- 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
- 941225 D07 UMPC Mini Tablet v01r02
- 971168 D01 Power Meas License Digital System v03r01

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

- TCB workshop October, 2014; Page 36, RF Exposure Procedures Update (Overlapping LTE Bands)
- TCB workshop October, 2014; Page 37, RF Exposure Procedures Update (Other LTE Considerations)
- TCB workshop October, 2016; Page 7, RF Exposure Procedures (Bluetooth Duty Factor)
- TCB workshop October, 2016; Page 18, RF Exposure Procedures (DUT Holder Perturbations)
- TCB workshop May, 2017; Page 6, RF Exposure Procedures (LTE Test Conditions)
- TCB workshop May, 2017; Page 7, RF Exposure Procedures (LTE Band 41 Power Class 2)
- TCB workshop April, 2018; Page 3, RF Exposure Procedures (LTE DL CA SAR Test Exclusion Update)
- TCB workshop April, 2019 Page 19, RF Exposure Procedures (Tissue Simulating Liquids (TSL))
- TCB workshop November, 2019 Page 5, RF Exposure Procedures (SPLSR Hotspot Combination)

3. Facilities and Accreditation

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

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

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.
The full scope of accreditation can be viewed at https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf.

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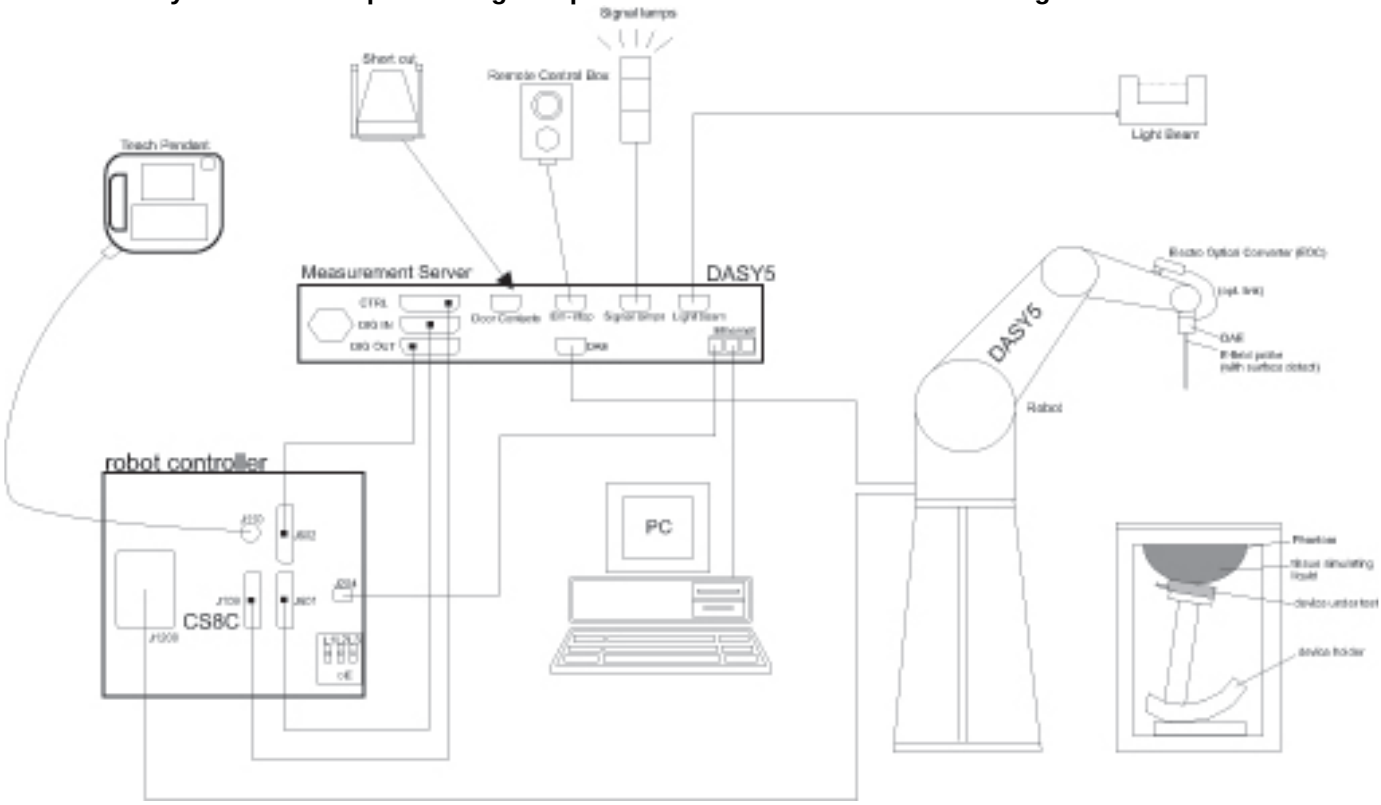
4. SAR Measurement System & Test Equipment

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.

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

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

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

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

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.

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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	8-7-2020
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	**6-18-2020**
Dielectric Assessment Kit	SPEAG	DAK-3.5	1046	4-28-2021
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3424	8-9-2020

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8-6-2020
Power Sensor	Agilent	U2000A	MY54260010	8-9-2020
Power Sensor	Agilent	U2000A	MY54260007	8-9-2020
Power Amplifier	EXODUS	1410025-AMP2027-10003	10003	8-8-2020
Directional Coupler	Agilent	772D	MY52180193	8-7-2020
Directional Coupler	Agilent	778D	MY52180432	8-7-2020
Low Pass Filter	MICROLAB	LA-15N	03943	8-7-2020
Low Pass Filter	FILTRON	L14012FL	1410003S	8-7-2020
Low Pass Filter	MICROLAB	LA-60N	03942	8-7-2020
Attenuator	Agilent	8491B/003	MY39269292	8-7-2020
Attenuator	Agilent	8491B/010	MY39269315	8-7-2020
Attenuator	Agilent	8491B/020	MY39269298	8-7-2020
E-Field Probe (SAR1)	SPEAG	EX3DV4	7313	2-25-2021
E-Field Probe (SAR3)	SPEAG	EX3DV4	7376	9-27-2020
E-Field Probe (SAR4)	SPEAG	EX3DV4	7545	9-23-2020
E-Field Probe (SAR5)	SPEAG	EX3DV4	3871	8-29-2020
Data Acquisition Electronics (SAR1)	SPEAG	DAE4	1494	7-18-2020
Data Acquisition Electronics (SAR3)	SPEAG	DAE4	1468	9-20-2020
Data Acquisition Electronics (SAR4)	SPEAG	DAE4	1591	9-11-2020
Data Acquisition Electronics (SAR5)	SPEAG	DAE4	1343	8-27-2020
System Validation Dipole	SPEAG	D750V3	1122	2-24-2022
System Validation Dipole	SPEAG	D835V2	4d174	2-24-2022
System Validation Dipole	SPEAG	D1750V2	1125	2-21-2022
System Validation Dipole	SPEAG	D1900V2	5d190	10-23-2020
System Validation Dipole	SPEAG	D1900V2	5d199	3-19-2022
System Validation Dipole	SPEAG	D2450V2	939	7-25-2021
System Validation Dipole	SPEAG	D2600V2	1097	9-19-2021
System Validation Dipole	SPEAG	D5GHzV2	1209	2-27-2022
Thermometer (SAR1)	Lutron	MHB-382SD	AH.50215	8-8-2020
Thermometer (SAR3)	Lutron	MHB-382SD	AH.50213	8-8-2020
Thermometer (SAR4),(SAR5)	Lutron	MHB-382SD	AH.91463	8-8-2020

Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	150313	8-8-2020
Base Station Simulator	R & S	CMW500	150314	8-8-2020
Base Station Simulator	R & S	CMW500	162790	8-9-2020
Wireless Connectivity Tester	R & S	CMW270	100982	8-5-2020
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	8-7-2020

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations. (D1900V2 (SN : 5d190), D5GHzV2 (SN : 1184))

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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 ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

5.1. DECISION RULE

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

6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	Refer to Appendix A.		
Back Cover	☒ The Back Cover is not removable.		
Battery Options	☒ The rechargeable battery is not user accessible		
Wireless Router (Hotspot)	Wi-Fi Hotspot mode permits the device to share its cellular data connection with other Wi-Fi-enabled devices. ☒ Mobile Hotspot (Wi-Fi 2.4 GHz : Ch.1 – Ch.11) ☒ Mobile Hotspot (Wi-Fi 5.8 GHz_UNII-3 (Ch.149(20MHz)/Ch.151(40MHz)/Ch.155(80MHz)))		
Wi-Fi Direct	Wi-Fi Direct enabled devices transfer data directly between each other ☒ Wi-Fi Direct (Wi-Fi 2.4 GHz : Ch.1 – Ch.11) ☒ Wi-Fi Direct (Wi-Fi 5.8 GHz_UNII-3 (Ch.149(20MHz)/Ch.151(40MHz)/Ch.155(80MHz)))		
Test Sample Information	**No.**	**S/N**	**Notes**
	1	R38N406VR4E	Main Conducted
	2	R38N406VW5R	Main Conducted
	3	4289f6b53f197ece	Wi-Fi & BT Conducted
	4	R38N406VS4J	SAR
	5	R38N406VWVH	SAR
	6	R38N406VT6N	SAR
	7	R38N406VT2X	SAR
	8	R38N406WLZB	SAR
	9	R38N406WJAW	SAR
	10	R38N406WEPX	SAR

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6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK) GPRS (GMSK) EGPRS (8PSK)	GPRS Multi-Slot Class: ☐ Class 8 - 1 Up, 4 Down ☐ Class 10 - 2 Up, 4 Down ☐ Class 12 - 4 Up, 4 Down ☒ Class 33 - 4 Up, 5 Down	GSM Voice: 12.5% (E)GPRS: 1 Slot: 12.5% 2 Slots: 25% 3 Slots: 37.5% 4 Slots: 50%
	Does this device support DTM (Dual Transfer Mode)? ☐ Yes ☒ No			
W-CDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Category 24) HSUPA (Category 6) DC-HSDPA (Category 24) HSPA+ (DL only)		100%
LTE	FDD Band 2 FDD Band 4 FDD Band 5 FDD Band 12 FDD Band 13 FDD Band 17 FDD Band 25 FDD Band 26 FDD Band 66 TDD Band 41 [3]	QPSK 16QAM 64QAM 256QAM Rel. 14 Carrier Aggregation (1 Uplink and 4 Downlinks)		100% (FDD) 63.3% (TDD) Power Class 3 43.3% (TDD) Power Class 2 Refer to Sec.6.6
	Does this device support SV-LTE (1xRTT-LTE)? ☐ Yes ☒ No			
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20) 802.11ax (HE20)		SISO mode : 99.5% (802.11b) MIMO mode : 96.5% (802.11g)
	5 GHz	802.11a 802.11n (HT20) 802.11n (HT40) 802.11ac (VHT20) 802.11ac (VHT40) 802.11ac (VHT80) 802.11ax (HE20) 802.11ax (HE40) 802.11ax (HE80)		SISO mode: 95.8% (802.11a) 96.6% (802.11ac 80MHz BW) MIMO mode: 96.6% (802.11a) 95.5% (802.11ac 80MHz BW)
	Does this device support bands 5.60 ~ 5.65 GHz? ☒ Yes ☐ No			
	Does this device support Band gap channel(s)? ☒ Yes ☐ No			
Bluetooth	2.4 GHz	Version 5.0 LE		76.9% (DH5)
NFC	13.56 MHz	Type A/B/F		N/A[4]
UWB	6.24 – 8.24 GHz	BPM-BPSK		N/A[4]

Notes:

1. The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 76.8% and was considered and used for SAR Testing.
2. Duty cycle for Wi-Fi is referenced from the DTS and UNII report.
3. This device supports Power Class 2 (HPUE) and Power Class 3 for LTE Band 41.
4. Measured Duty Cycle is not required due to SAR test exemption.

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6.3. Nominal and Maximum Output Power

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

RF Air interface	Antenna	Mode	Time Slots	Max. RF Output Power (dBm)		Reduced. RF Output Power (Hotspot & Proximity sensor & Earjack back-off) (dBm)	
				Tune-up Limit	Frame Pwr	Tune-up Limit	Frame Pwr
GSM850	Main 1 Ant.	Voice	1	**33.5**	**24.5**		
		GPRS	1	**33.5**	**24.5**		
		GPRS	2	**31.5**	**25.5**		
		GPRS	3	**30.5**	**26.2**		
		GPRS	4	**29.0**	**26.0**		
		EGPRS	1	**27.0**	**18.0**		
		EGPRS	2	**25.0**	**19.0**		
		EGPRS	3	**24.0**	**19.7**		
		EGPRS	4	**23.0**	**20.0**		
GSM1900	Main 1 Ant.	Voice	1	**30.5**	**21.5**	**27.0**	**18.0**
		GPRS	1	**30.5**	**21.5**	**27.0**	**18.0**
		GPRS	2	**27.0**	**21.0**	**24.5**	**18.5**
		GPRS	3	**25.5**	**21.2**	**22.5**	**18.2**
		GPRS	4	**23.5**	**20.5**	**21.0**	**18.0**
		EGPRS	1	**25.5**	**16.5**		
		EGPRS	2	**23.5**	**17.5**		
		EGPRS	3	**22.5**	**18.2**		
		EGPRS	4	**19.5**	**16.5**		

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (Hotspot & Proximity sensor & Earjack back-off) (dBm)
W-CDMA Band II	Main 1 Ant.	R99	**23.0**	**19.5**
		HSDPA	**22.5**	**19.0**
		HSUPA	**21.0**	**19.0**
		DC-HSDPA	**22.5**	**19.0**
W-CDMA Band IV	Main 1 Ant.	R99	**23.5**	**19.5**
		HSDPA	**22.5**	**19.0**
		HSUPA	**21.5**	**19.0**
		DC-HSDPA	**21.5**	**19.0**
W-CDMA Band V	Main 1 Ant.	R99	**25.0**	
		HSDPA	**23.0**	
		HSUPA	**23.0**	
		DC-HSDPA	**23.0**	

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RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)	
				(Hotspot & Earjack back-off)	(Proximity sensor back-off)
LTE Band 2	Main 1 Ant.	QPSK	**23.0**	**19.0**	**19.5**
LTE Band 4	Main 1 Ant.	QPSK	**23.0**	**19.5**	**20.0**
LTE Band 5	Main 1 Ant.	QPSK	**25.0**		
LTE Band 12	Main 1 Ant.	QPSK	**25.0**		
LTE Bans 13	Main 1 Ant.	QPSK	**25.0**		
LTE Band 17	Main 1 Ant.	QPSK	**25.0**		
LTE Band 25	Main 1 Ant.	QPSK	**23.0**	**19.0**	
LTE Band 26	Main 1 Ant.	QPSK	**25.0**		
LTE Band 66	Main 1 Ant.	QPSK	**23.0**	**19.5**	
LTE Band 41 Power Class 3	Main 2 Ant.	QPSK	**24.0**	**21.0**	
LTE Band 41 Power Class 2	Main 2 Ant.	QPSK	**25.5**		

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RF Air interface	Mode	Normal WLAN mode power (dBm)					
		Max. RF Output Power			Reduced RF Output Power		
		SISO	MIMO		SISO	MIMO	
		Ant.1, Ant.2	Ant.1, Ant.2	TOTAL	Ant.1, Ant.2	Ant.1, Ant.2	TOTAL
WiFi 2.4 GHz (Ch.1)	802.11b	**21.0**			**17.0**		
	802.11g	**17.0**	**15.0**	**18.0**	**17.0**	**15.0**	**18.0**
	802.11n HT20	**16.0**	**15.0**	**18.0**	**16.0**	**15.0**	**18.0**
	802.11ax HE20	**15.0**	**12.0**	**15.0**	**15.0**	**12.0**	**15.0**
WiFi 2.4 GHz (Ch.2 - Ch.10)	802.11b	**21.0**			**17.0**		
	802.11g	**18.0**	**16.0**	**19.0**	**17.0**	**16.0**	**19.0**
	802.11n HT20	**18.0**	**16.0**	**19.0**	**17.0**	**16.0**	**19.0**
	802.11ax HE20	**16.0**	**13.0**	**16.0**	**16.0**	**13.0**	**16.0**
WiFi 2.4 GHz (Ch.11)	802.11b	**21.0**			**17.0**		
	802.11g	**17.0**	**16.0**	**19.0**	**17.0**	**15.0**	**18.0**
	802.11n HT20	**16.0**	**15.0**	**18.0**	**16.0**	**15.0**	**18.0**
	802.11ax HE20	**16.0**	**13.0**	**16.0**	**16.0**	**13.0**	**16.0**
WiFi 2.4 GHz (Ch.12)	802.11b	**10.0**					
	802.11g	**10.0**	**10.0**	**13.0**			
	802.11n HT20	**10.0**	**10.0**	**13.0**			
	802.11ax HE20	**10.0**	**10.0**	**13.0**			
WiFi 2.4 GHz (Ch.13)	802.11b	**5.0**					
	802.11g	**5.0**	**5.0**	**8.0**			
	802.11n HT20	**5.0**	**5.0**	**8.0**			
	802.11ax HE20	**5.0**	**5.0**	**8.0**			
WiFi 5 GHz (UNII-1 & UNII-2A)	802.11a	**16.5**	**16.5**	**19.5**	**14.0**	**14.0**	**17.0**
	802.11n HT20	**16.5**	**16.5**	**19.5**	**14.0**	**14.0**	**17.0**
	802.11n HT40	**16.0**	**16.0**	**19.0**	**14.0**	**14.0**	**17.0**
	802.11ac VHT20	**16.5**	**16.5**	**19.5**	**14.0**	**14.0**	**17.0**
	802.11ac VHT40	**16.0**	**16.0**	**19.0**	**14.0**	**14.0**	**17.0**
	802.11ac VHT80	**15.0**	**15.0**	**18.0**	**14.0**	**14.0**	**17.0**
	802.11ax HE20	**16.0**	**13.0**	**16.0**	**14.0**	**13.0**	**16.0**
	802.11ax HE40	**14.0**	**11.0**	**14.0**	**14.0**	**11.0**	**14.0**
	802.11ax HE80	**13.0**	**10.0**	**13.0**	**13.0**	**10.0**	**13.0**
WiFi 5 GHz (UNII-2C)	802.11a	**17.0**	**17.0**	**20.0**	**14.0**	**14.0**	**17.0**
	802.11n HT20	**17.0**	**17.0**	**20.0**	**14.0**	**14.0**	**17.0**
	802.11n HT40	**16.0**	**16.0**	**19.0**	**14.0**	**14.0**	**17.0**
	802.11ac VHT20	**17.0**	**17.0**	**20.0**	**14.0**	**14.0**	**17.0**
	802.11ac VHT40	**16.0**	**16.0**	**19.0**	**14.0**	**14.0**	**17.0**
	802.11ac VHT80	**15.0**	**15.0**	**18.0**	**14.0**	**14.0**	**17.0**
	802.11ax HE20	**16.0**	**13.0**	**16.0**	**14.0**	**13.0**	**16.0**
	802.11ax HE40	**14.0**	**11.0**	**14.0**	**14.0**	**11.0**	**14.0**
	802.11ax HE80	**13.0**	**10.0**	**13.0**	**13.0**	**10.0**	**13.0**
WiFi 5 GHz (UNII-3)	802.11a	**18.0**	**18.0**	**21.0**	**14.0**	**14.0**	**17.0**
	802.11n HT20	**18.0**	**18.0**	**21.0**	**14.0**	**14.0**	**17.0**
	802.11n HT40	**16.0**	**16.0**	**19.0**	**14.0**	**14.0**	**17.0**
	802.11ac VHT20	**18.0**	**18.0**	**21.0**	**14.0**	**14.0**	**17.0**
	802.11ac VHT40	**16.0**	**16.0**	**19.0**	**14.0**	**14.0**	**17.0**
	802.11ac VHT80	**15.0**	**15.0**	**18.0**	**14.0**	**14.0**	**17.0**
	802.11ax HE20	**16.0**	**13.0**	**16.0**	**14.0**	**13.0**	**16.0**
	802.11ax HE40	**14.0**	**11.0**	**14.0**	**14.0**	**11.0**	**14.0**
	802.11ax HE80	**13.0**	**10.0**	**13.0**	**13.0**	**10.0**	**13.0**
Bluetooth (Ch.0 - Ch.78)		**17.5**					
Bluetooth-EDR (Ch.0 - Ch.78)		**11.0**					
Bluetooth-LE_1Mbps, 37 pkt		**8.0**					
Bluetooth-LE_2Mbps, 37 pkt		**9.0**					

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RF Air interface	Mode	RSDB WLAN mode power (dBm)					
		Max. RF Output Power			Reduced RF Output Power		
		SISO	MIMO		SISO	MIMO	
		Ant.1, Ant.2	Ant.1, Ant.2	TOTAL	Ant.1, Ant.2	Ant.1, Ant.2	TOTAL
WiFi 2.4 GHz (Ch.1)	802.11b	**17.0**			**14.0**		
	802.11g	**17.0**	**15.0**	**18.0**	**14.0**	**14.0**	**17.0**
	802.11n HT20	**16.0**	**15.0**	**18.0**	**14.0**	**14.0**	**17.0**
	802.11ax HE20	**15.0**	**12.0**	**15.0**	**14.0**	**12.0**	**15.0**
WiFi 2.4 GHz (Ch.2 - Ch.10)	802.11b	**17.0**			**14.0**		
	802.11g	**17.0**	**16.0**	**19.0**	**14.0**	**14.0**	**17.0**
	802.11n HT20	**17.0**	**16.0**	**19.0**	**14.0**	**14.0**	**17.0**
	802.11ax HE20	**16.0**	**13.0**	**16.0**	**14.0**	**13.0**	**16.0**
WiFi 2.4 GHz (Ch.11)	802.11b	**17.0**			**14.0**		
	802.11g	**17.0**	**16.0**	**19.0**	**14.0**	**14.0**	**17.0**
	802.11n HT20	**16.0**	**15.0**	**18.0**	**14.0**	**14.0**	**17.0**
	802.11ax HE20	**16.0**	**13.0**	**16.0**	**14.0**	**13.0**	**16.0**
WiFi 2.4 GHz (Ch.12)	802.11b	**10.0**					
	802.11g	**10.0**	**10.0**	**13.0**			
	802.11n HT20	**10.0**	**10.0**	**13.0**			
	802.11ax HE20	**10.0**	**10.0**	**13.0**			
WiFi 2.4 GHz (Ch.13)	802.11b	**5.0**					
	802.11g	**5.0**	**5.0**	**8.0**			
	802.11n HT20	**5.0**	**5.0**	**8.0**			
	802.11ax HE20	**5.0**	**5.0**	**8.0**			
WiFi 5 GHz	802.11a	**14.0**	**14.0**	**17.0**			
	802.11n HT20	**14.0**	**14.0**	**17.0**			
	802.11n HT40	**14.0**	**14.0**	**17.0**			
	802.11ac VHT20	**14.0**	**14.0**	**17.0**			
	802.11ac VHT40	**14.0**	**14.0**	**17.0**			
	802.11ac VHT80	**14.0**	**14.0**	**17.0**			
	802.11ax HE20	**14.0**	**13.0**	**16.0**			
	802.11ax HE40	**14.0**	**11.0**	**14.0**			
	802.11ax HE80	**13.0**	**10.0**	**13.0**			

Note(s):.

1. This device uses an independent fixed level power reduction mechanism for WLAN mode operations during RCV operation. Detailed descriptions of the power reduction mechanism are included in the operational description.
2. WLAN mode supports RSDB operation. Detail of RSDB operation scenario is mentioned in Sec.13.

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6.4. Power Back-off Operation

This device supports multiple power back-off modes: WWAN (Ear-jack), WWAN (Hotspot), WWAN (Proximity sensor), and WLAN (RCV). Each of the power back-off operates within specific exposure conditions for certain technologies. For full details on how each power back-off mode operates, refer to the Operational Description.

Power Back-off mode	Technologies Supported	Exposure Conditions Active			
		Head	Body-worn	Hotspot	Product Specific 10-g
WWAN (Ear-jack)	GSM 1900 W-CDMA B2/4 LTE B2/4/25/41[4]/66	N/A	✓	N/A	✓
WWAN (Hotspot)[1]	GSM 1900 W-CDMA B2/4 LTE B2/4/25/41[4]/66	N/A	N/A	✓	N/A
WWAN (Proximity sensor)[1]	GSM 1900 W-CDMA B2/4 LTE B2/4/25/41[4]/66	N/A	N/A	N/A	✓
WLAN (RCV)	Wi-Fi 2.4GHz Wi-Fi 5GHz	✓	N/A	N/A	N/A

Note(s):

1. Tune-up Limits for WWAN (Hotspot) and WWAN (Proximity Sensor) are all Reduced Average Powers. Please refer to Sec.9 for all conducted power measurements.
2. WWAN Back-off priority: Ear-jack → Proximity Sensor → Hotspot
3. Body-worn SAR with ear-jack connected at reduced power is not required due to Body-worn measured at max power is not over 1.2 W/kg.
4. LTE Band 41 Power Class 3.
5. Ear-jack and Proximity sensor back-off mode have the same reduced power level or Proximity sensor back-off level is higher than ear-jack in Product Specific 10g, therefore we tested using Proximity sensor back-off mode in Product Specific 10g.

Product Specific 10g Adjusted SAR Calculation

Wireless technologies	Max Tune-up Limit (dBm)	Reduced Tune-Up Limit (dBm)	Pow er Factor	Reported SAR Limit (W/kg)
GSM 1900	21.5	18.5	2.00	0.601
W-CDMA B2	23.0	19.5	2.24	0.536
W-CDMA B4	23.5	19.5	2.51	0.478
LTE B25 (2)	23.0	19.0	2.51	0.478
LTE B66 (4)	23.0	19.5	2.24	0.536
LTE B41	24.0	21.0	2.00	0.601

Note(s):

1. Tune-up limit powers for GSM 1900 are frame power(dBm).
2. Hotspot mode supports power reduction. When the measured SAR is scaled to the maximum tune-up limit, the adjusted SAR is < 1.2 W/kg. Therefore, Extremity SAR testing is not required for this band in accordance with KDB 648474 §2.5 b. Refer to §10 for Reported SAR results. If the Reported SAR 1g value in §10 is less than the Reported SAR Limit listed above, then Extremity SAR is not required.
3. LTE 50% RB is scaled up to the Max Tune-Up Limit with MPR included.
4. For Reported SAR limit in above table, it was calculated using Max tune-up Limit & Reduced Tune-up limit & Reported SAR 1.2 W/kg. (Reported SAR Limit = 1.2 W/kg / Power factor, Power factor = 10^((Max tune-up limit – Reduced tune-up limit)/10)

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6.5. 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 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		
	Band 17	Frequency range: 704 - 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			23780/ 709	23755/ 706.5		
	Mid			23790/ 710	23790/ 710		
	High			23800/ 711	23825/ 713.5		

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General LTE SAR Test and Reporting Considerations (Continued)

Frequency range, Channel Bandwidth, Numbers and Frequencies

Band 25	Frequency range: 1850 - 1915 MHz					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low	26140/ 1860	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

Band 26	Frequency range: 814 - 849 MHz					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low		26765/ 821.5	26740/ 819	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

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 41	Frequency range: 2496 - 2690 MHz					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low	39750 / 2506.0					
Low-Mid	40185 / 2549.5					
Mid	40620 / 2593.0					
Mid-High	41055 / 2636.5					
High	41490 / 2680.0					

LTE transmitter and antenna implementation

Refer to Appendix A.

Maximum power reduction (MPR)

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

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

Power reduction

Yes

Spectrum plots for RB configurations

A properly configured base station simulator was used for the SAR and power measurements; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.

Notes:

1. Maximum bandwidth does not support at least three non-overlapping channels in certain channel bandwidths. When a device supports Overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE devices.
2. LTE Band 41 test channels in accordance with October 2014 TCB workshop for all channels bandwidths.
3. SAR Testing for LTE was performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

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6.6. 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	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

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

<u>Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:</u>
Calculated Duty Cycle = 5120 x [1/(15000 x 2048)] x 2 + 6 ms = 63.33%
where
T_s = 1/(15000 x 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% (Power Class 3) and configuration 1 at 43.3% (Power Class 2) duty cycle.

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6.7. LTE Carrier Aggregation

DL Inter-Band

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_2A-4A (0)(1)(2)	Band 2	Yes	Yes	Yes	Yes	Yes	Yes	40 MHz
	Band 4			Yes	Yes	Yes	Yes	
	Band 2			Yes	Yes			20 MHz
	Band 4			Yes	Yes			
	Band 2			Yes	Yes	Yes	Yes	40 MHz
	Band 4			Yes	Yes	Yes	Yes	
CA_2A-5A(0)(1)	Band 2			Yes	Yes	Yes	Yes	30 MHz
	Band 5			Yes	Yes			
	Band 2			Yes	Yes			20 MHz
	Band 5			Yes	Yes			
CA_2A-12A (0)(1)(2)	Band 2			Yes	Yes	Yes	Yes	30 MHz
	Band 12			Yes	Yes			
	Band 2			Yes	Yes	Yes	Yes	30 MHz
	Band 12		Yes	Yes	Yes			
	Band 2			Yes	Yes			20 MHz
	Band 12			Yes	Yes			
CA_2A-13A(0)(1)	Band 2			Yes	Yes	Yes	Yes	30 MHz
	Band 13				Yes			
	Band 2			Yes	Yes			20 MHz
	Band 13				Yes			
CA_2A-17A(0)	Band 2			Yes	Yes			20 MHz
	Band 17			Yes	Yes			
CA_2A-66A (0)(1)(2)	Band 2	Yes	Yes	Yes	Yes	Yes	Yes	40 MHz
	Band 66			Yes	Yes	Yes	Yes	
	Band 2			Yes	Yes			20 MHz
	Band 66			Yes	Yes			
	Band 2			Yes	Yes	Yes	Yes	40 MHz
	Band 66			Yes	Yes	Yes	Yes	
CA_4A-12A (0)(1)(2)(3)(4)(5)	Band 4	Yes	Yes	Yes	Yes			20 MHz
	Band 12			Yes	Yes			
	Band 4	Yes	Yes	Yes	Yes	Yes	Yes	30 MHz
	Band 12			Yes	Yes			
	Band 4			Yes	Yes	Yes	Yes	30 MHz
	Band 12			Yes	Yes			
	Band 4			Yes	Yes			20 MHz
	Band 12			Yes	Yes			
	Band 4			Yes	Yes	Yes	Yes	30 MHz
	Band 12			Yes	Yes			
	Band 4			Yes	Yes	Yes		20 MHz
	Band 12			Yes				
CA_4A-5A(0)(1)	Band 4			Yes	Yes			20 MHz
	Band 5			Yes	Yes			
	Band 4			Yes	Yes	Yes	Yes	30 MHz
	Band 5			Yes	Yes			
CA_4A-13A(0)(1)	Band 4			Yes	Yes	Yes	Yes	30 MHz
	Band 13				Yes			
	Band 4			Yes	Yes			20 MHz
	Band 13				Yes			

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DL Inter-Band (Continued)

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_4A-17A(0)	Band 4			Yes	Yes			20 MHz
	Band 17			Yes	Yes			
CA_5A-66A(0)	Band 5			Yes	Yes			30 MHz
	Band 66			Yes	Yes	Yes	Yes	
CA_5A-41A(0)	Band 5			Yes	Yes			30 MHz
	Band 41						Yes	
CA_12A-66A (0)(1)(2)(3)(4)(5)	Band 12			Yes	Yes			20 MHz
	Band 66	Yes	Yes	Yes	Yes			
	Band 12			Yes	Yes			30 MHz
	Band 66	Yes	Yes	Yes	Yes	Yes	Yes	
	Band 12		Yes	Yes	Yes			30 MHz
	Band 66			Yes	Yes	Yes	Yes	
	Band 12			Yes	Yes			20 MHz
	Band 66			Yes	Yes			
	Band 12			Yes	Yes			30 MHz
	Band 66			Yes	Yes	Yes	Yes	
	Band 12			Yes				20 MHz
	Band 66			Yes	Yes	Yes		
CA_26A-41A(0)	Band 26			Yes	Yes	Yes		35 MHz
	Band 41			Yes	Yes	Yes	Yes	
CA_2A-4A-5A(0)	Band 2			Yes	Yes	Yes	Yes	50 MHz
	Band 4			Yes	Yes	Yes	Yes	
	Band 5			Yes	Yes			
CA_2A-4A-13A(0)	Band 2			Yes	Yes	Yes	Yes	50 MHz
	Band 4			Yes	Yes	Yes	Yes	
	Band 13				Yes			
CA_4A-4A-12A(0)	Band 4	4A-4A BCS 0						50 MHz
	Band 12			Yes	Yes			
CA_4A-4A-17A(0)	Band 4	4A-4A BCS 0						50 MHz
	Band 17				Yes			
CA_5A-66A-66A(0)	Band 5			Yes	Yes			50 MHz
	Band 66	66A-66A BCS 0						
CA_12A-66A-66A(0)	Band 12			Yes	Yes			50 MHz
	Band 66	66A-66A BCS 0						
CA_26A-41C(0)	Band 26			Yes	Yes	Yes		55 MHz
	Band 41	41C BCS 1						

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DL Inter-Band (Non-Contiguous)

E-UTRA CA configuration (BCS)	E-UTRA Band	Allowed Channel BW Per Carrier (MHz)				Max Aggregated BW
		1st Carrier	2nd Carrier	3rd Carrier	4th Carrier	
CA_2A-2A (0)	Band 2	5, 10, 15. 20	5, 10, 15. 20			40 MHz
CA_4A-4A (0)(1)	Band 4	5, 10, 15, 20	5, 10, 15, 20			40 MHz
		5, 10	5, 10			20 MHz
CA_41A-41A (0)(1)	Band 41	10, 15, 20	10, 15, 20			40 MHz
		5, 10, 15. 20	5, 10, 15. 20			
CA_66A-66A (0)	Band 66	5, 10, 15, 20	5, 10, 15, 20			40 MHz
CA_41A-41C(0)	Band 41	5, 10, 15. 20	41C BCS 1			60 MHz
		41C BCS 1		5, 10, 15. 20		
CA_41A-41D (0)	Band 41	5, 10, 15, 20	41D BCS 0			80 MHz
		41D BCS 0			5, 10, 15, 20	
CA_41C-41C (0)	Band 41	41C BCS 0		41C BCS 0		80 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	3rd Carrier	4th Carrier	
CA_41C (0)(1)(2)(3)	Band 41	10	20			40 MHz
		15	15,20			
		20	10,15,20			
	Band 41	5,10	20			40 MHz
		15	15,20			
		20	5,10,15,20			
	Band 41	10	15,20			40 MHz
		15	10,15,20			
		20	10,15,20			
	Band 41	10	20			40 MHz
		20	20			
CA_66B (0)	Band 66	5	5, 10, 15			20 MHz
		10	5, 10			
		15	5			
CA_66C (0)	Band 66	5	20			40 MHz
		10	15, 20			
		15	10, 15, 20			
		20	5, 10, 15, 20			
CA_41E (0)	Band 41	15,20	15,20	15,20	20	80 MHz

Note(s):

1. For supported channels, please refer to §6.5.
2. This device supports DL 4X4 MIMO for LTE Band 4, 66. Please refer to Sec.9.3.1 for detailed LTE CA combination with 4X4 DL MIMO.

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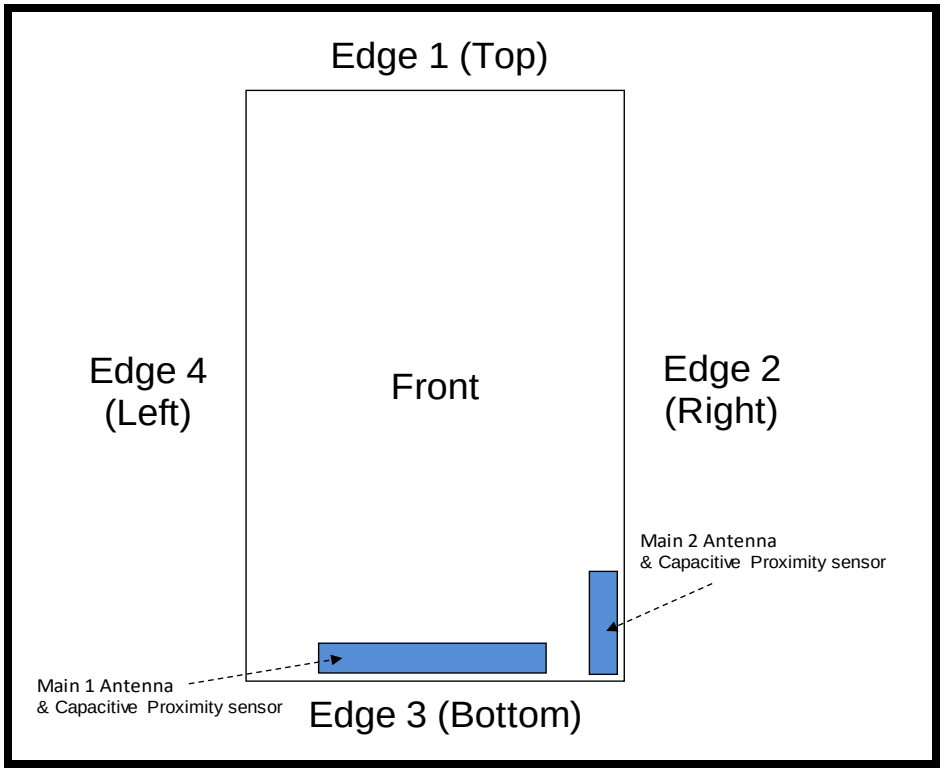
6.8. Proximity Sensor feature

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



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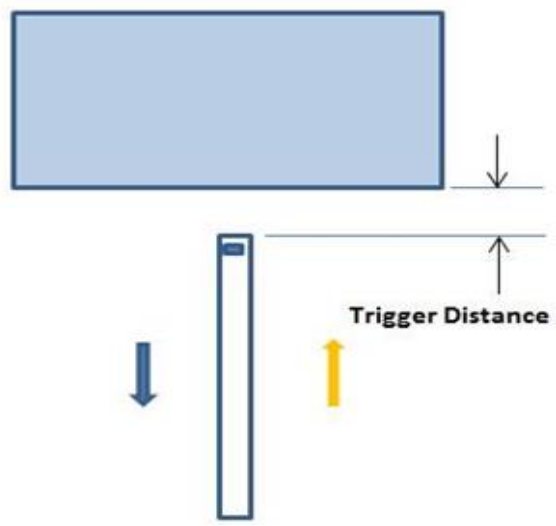
6.8.1. Proximity Sensor Triggering Distance (KDB 616217 §6.2)

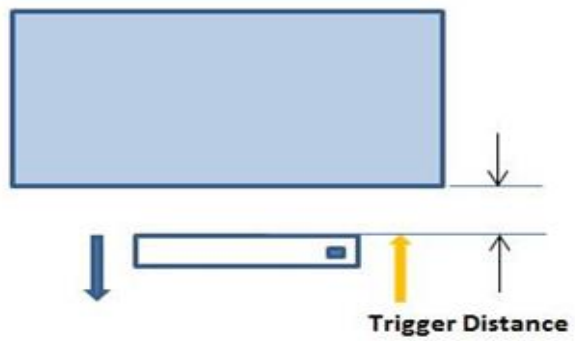
Rear, Front and Edge 3 of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger 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.



Proximity Sensor Trigger Distance Assessment
KDB 616217 §6.2, Edge 3



Proximity Sensor Trigger Distance Assessment
KDB 616217 §6.2, Rear, Front

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

Tissue simulating liquid	Antenna	Trigger distance – Rear		Trigger distance - Front		Trigger distance – Edge 3	
		Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom
1750 Head	Main 1 Ant.	9 mm	9 mm	8 mm	8 mm	12 mm	12 mm
1900 Head	Main 1 Ant.	9 mm	9 mm	8 mm	8 mm	12 mm	12 mm
2600 Head	Main 2 Ant.	9 mm	9 mm	8 mm	8 mm	12 mm	12 mm

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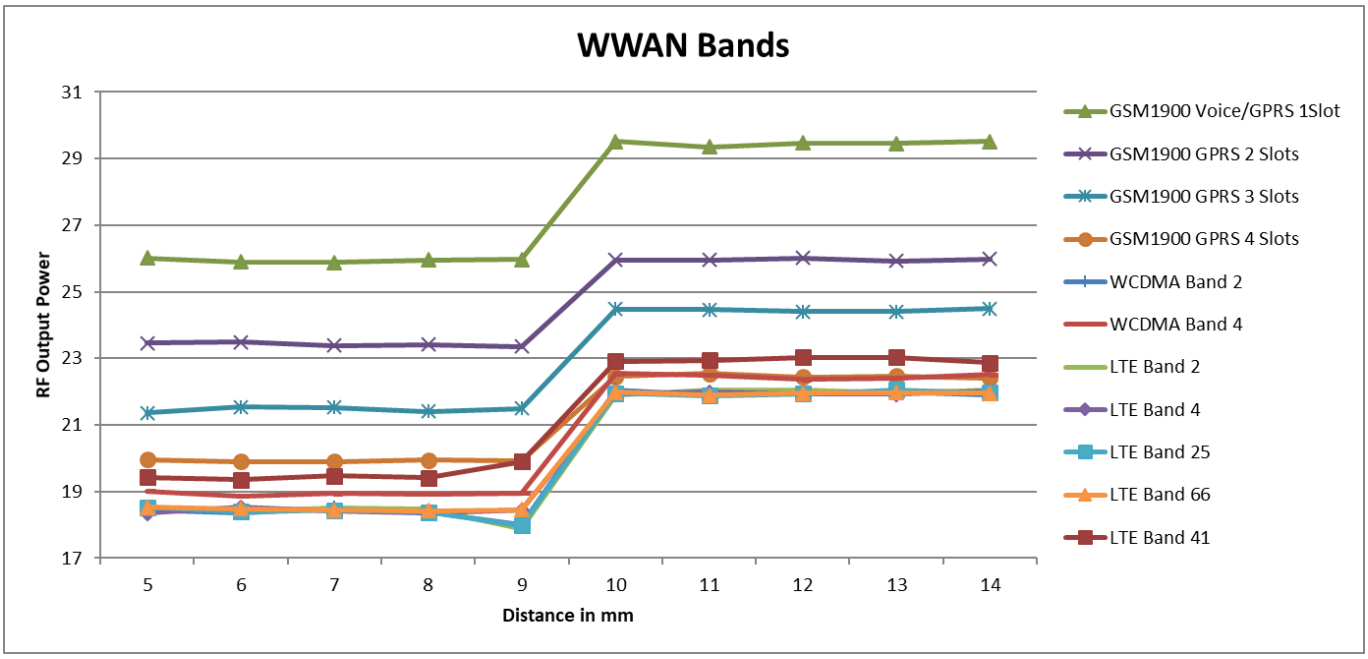
Proximity Sensor Triggering Distance Measurement Results

WWAN Bands

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

Distance to DUT vs. Output Power in dBm										
Distance (mm)	5	6	7	8	9	10	11	12	13	14
GSM1900 Voice/GPRS 1Slot	26.0	25.9	25.9	26.0	26.0	29.5	29.4	29.5	29.5	29.5
GSM1900 GPRS 2 Slots	23.5	23.5	23.4	23.4	23.4	26.0	26.0	26.0	25.9	26.0
GSM1900 GPRS 3 Slots	21.4	21.5	21.5	21.4	21.5	24.5	24.5	24.4	24.4	24.5
GSM1900 GPRS 4 Slots	20.0	19.9	19.9	19.9	19.9	22.5	22.5	22.4	22.5	22.4
WCDMA Band 2	18.5	18.4	18.5	18.4	18.0	22.1	21.9	22.0	22.0	21.9
WCDMA Band 4	19.0	18.9	18.9	18.9	19.0	22.6	22.5	22.4	22.4	22.5
LTE Band 2	18.5	18.4	18.5	18.5	17.9	21.9	22.0	22.0	22.0	22.0
LTE Band 4	18.4	18.5	18.4	18.4	18.4	21.9	22.0	21.9	21.9	22.0
LTE Band 25	18.5	18.4	18.4	18.4	18.0	22.0	21.9	21.9	22.1	22.0
LTE Band 66	18.5	18.5	18.4	18.4	18.5	22.0	21.9	22.0	22.0	22.0
LTE Band 41	19.4	19.4	19.5	19.4	19.9	22.9	23.0	23.0	23.0	22.9



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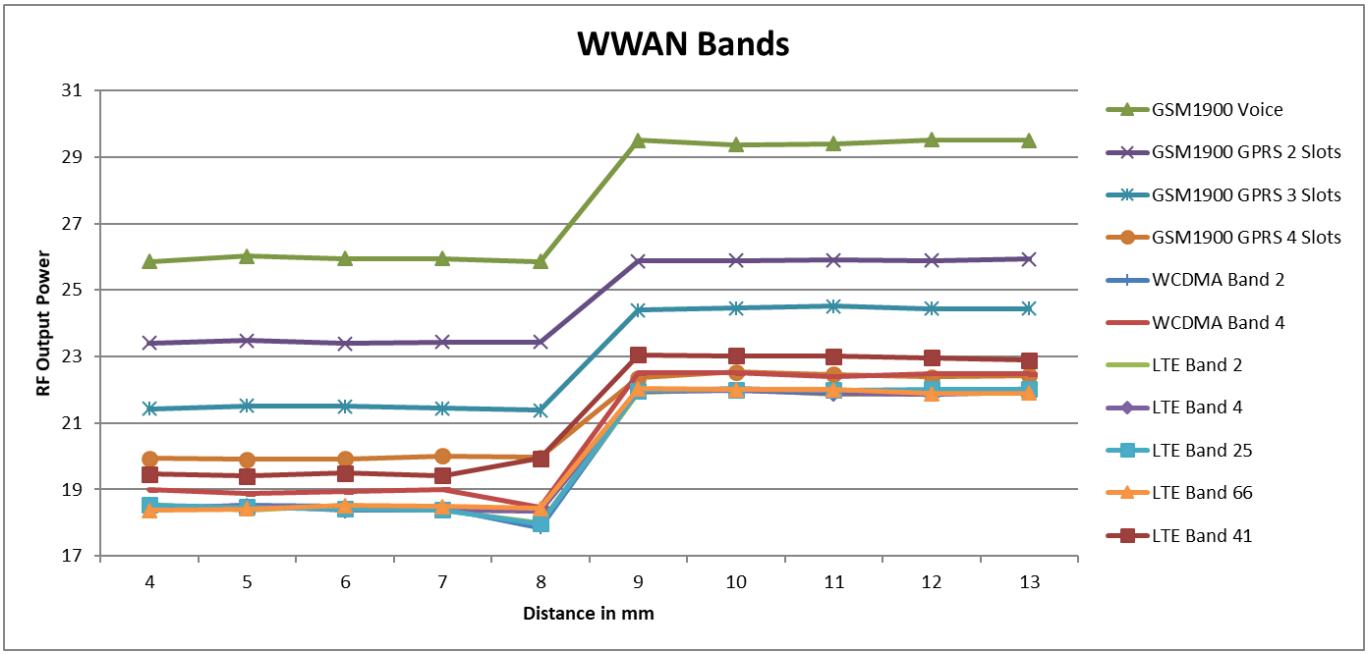
Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	4	5	6	7	8	9	10	11	12	13
GSM1900 Voice	25.9	26.0	26.0	26.0	25.9	29.5	29.4	29.4	29.5	29.5
GSM1900 GPRS 2 Slots	23.4	23.5	23.4	23.4	23.4	25.9	25.9	25.9	25.9	25.9
GSM1900 GPRS 3 Slots	21.4	21.5	21.5	21.4	21.4	24.4	24.5	24.5	24.4	24.4
GSM1900 GPRS 4 Slots	19.9	19.9	19.9	20.0	20.0	22.4	22.5	22.5	22.4	22.4
WCDMA Band 2	18.4	18.5	18.5	18.4	17.9	22.0	22.0	22.0	21.9	22.0
WCDMA Band 4	19.0	18.9	18.9	19.0	18.5	22.5	22.5	22.4	22.5	22.5
LTE Band 2	18.5	18.4	18.5	18.4	18.0	21.9	22.0	21.9	21.9	21.9
LTE Band 4	18.4	18.5	18.4	18.4	18.4	21.9	22.0	21.9	21.9	21.9
LTE Band 25	18.5	18.5	18.4	18.4	18.0	22.0	22.0	22.0	22.0	22.0
LTE Band 66	18.4	18.4	18.5	18.5	18.4	22.0	22.0	22.0	21.9	21.9
LTE Band 41	19.5	19.4	19.5	19.4	19.9	23.1	23.0	23.0	23.0	22.9



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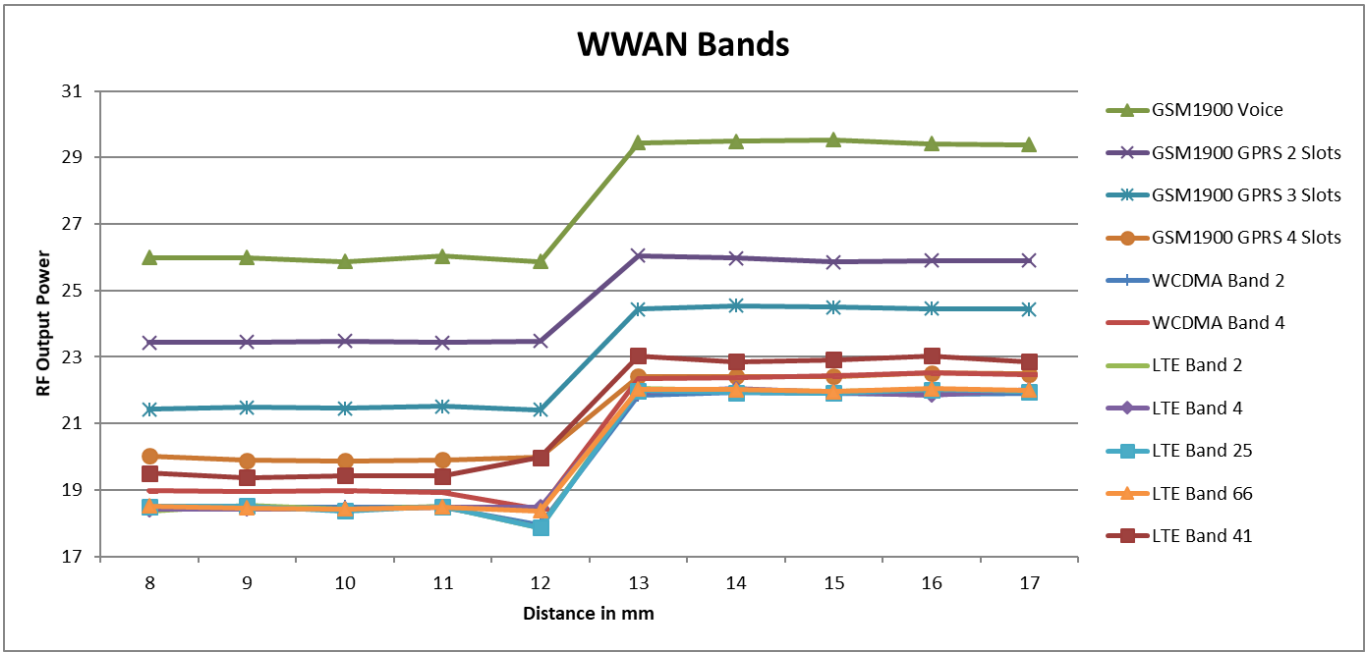
Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	8	9	10	11	12	13	14	15	16	17
GSM1900 Voice	26.0	26.0	25.9	26.0	25.9	29.4	29.5	29.5	29.4	29.4
GSM1900 GPRS 2 Slots	23.4	23.5	23.5	23.4	23.5	26.1	26.0	25.9	25.9	25.9
GSM1900 GPRS 3 Slots	21.4	21.5	21.5	21.5	21.4	24.4	24.5	24.5	24.5	24.4
GSM1900 GPRS 4 Slots	20.0	19.9	19.9	19.9	20.0	22.4	22.4	22.4	22.5	22.5
WCDMA Band 2	18.5	18.5	18.5	18.5	18.0	21.9	21.9	21.9	21.9	21.9
WCDMA Band 4	19.0	19.0	19.0	18.9	18.4	22.4	22.4	22.4	22.5	22.5
LTE Band 2	18.4	18.5	18.4	18.5	17.9	22.0	22.0	22.0	22.0	22.0
LTE Band 4	18.4	18.4	18.4	18.5	18.5	21.9	22.0	21.9	21.9	22.0
LTE Band 25	18.5	18.5	18.4	18.5	17.9	22.0	21.9	21.9	22.0	22.0
LTE Band 66	18.5	18.5	18.4	18.5	18.4	22.0	22.0	22.0	22.0	22.0
LTE Band 41	19.5	19.4	19.4	19.4	20.0	23.0	22.9	22.9	23.0	22.9



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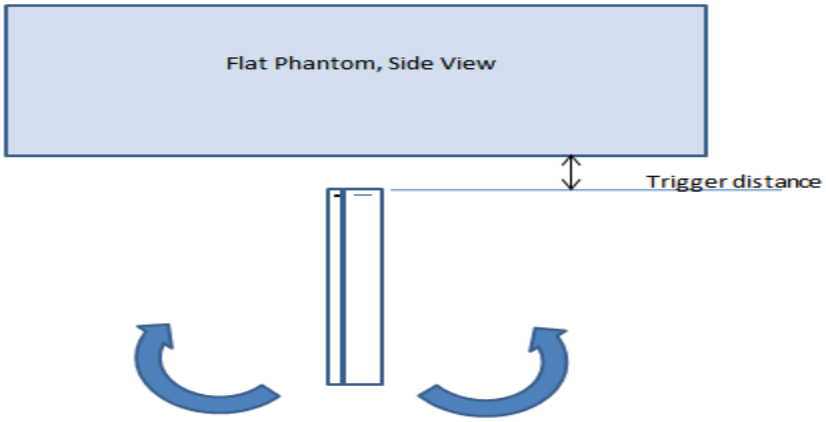
6.8.2. Proximity Sensor Coverage (KDB 616217 §6.3)

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

6.8.3. 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 3 parallel to the base of the flat phantom for each band.

The EUT was rotated about Edge 3 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 3) KDB 616217 §6.4

Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering (Edge 3)

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°
1750	12 mm	12 mm	On	On	On	On	On	On	On	On	On	On	On
1900	12 mm	12 mm	On	On	On	On	On	On	On	On	On	On	On
2600	12 mm	12 mm	On	On	On	On	On	On	On	On	On	On	On

6.8.4. Resulting test positions for SAR measurements

Wireless technologies	DUT Position	§6.2 Triggering Distance	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for SAR
WWAN (Main 1 Ant & Main 2 Ant)	Rear	9 mm	N/A	N/A	8 mm
	Front	8 mm	N/A	N/A	7 mm
	Edge 3	12 mm	N/A	12 mm	11 mm

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7. RF Exposure Conditions (Test Configurations)

Refer to Appendix A for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

Wireless technologies	RF Exposure Conditions	Antenaa	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	SAR Required	Note
WWAN	Head	Main 1 Ant. & Main 2 Ant.	0 mm	Left Touch	N/A	Yes	
				Left Tilt (15°)	N/A	Yes	
				Right Touch	N/A	Yes	
				Right Tilt (15°)	N/A	Yes	
	Body	Main 1 Ant. & Main 2 Ant.	15 mm	Rear	N/A	Yes	
				Front	N/A	Yes	
	Hotspot	Main 1 Ant.	10 mm	Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Edge 1 (Top)	> 25 mm	No	1
				Edge 2 (Right)	< 25 mm	Yes	
				Edge 3 (Bottom)	< 25 mm	Yes	
				Edge 4 (Left)	< 25 mm	Yes	
	Hotspot	Main 2 Ant.	10 mm	Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Edge 1 (Top)	> 25 mm	No	1
				Edge 2 (Right)	< 25 mm	Yes	
				Edge 3 (Bottom)	< 25 mm	Yes	
				Edge 4 (Left)	> 25 mm	No	1
	Product Specific 10-g	Main 1 Ant. & Main 2 Ant.	0 mm	Rear	Refer to notes 2 & 3		
				Front			
				Edge 1 (Top)			
				Edge 2 (Right)			
				Edge 3 (Bottom)			
				Edge 4 (Left)			
2.4GHz WLAN & 5GHz WLAN	Head	WiFi/BT Ant.1 & WiFi Ant.2	0 mm	Left Touch	N/A	Yes	
				Left Tilt (15°)	N/A	Yes	
				Right Touch	N/A	Yes	
				Right Tilt (15°)	N/A	Yes	
	Body		15 mm	Rear	N/A	Yes	
				Front	N/A	Yes	
	Hotspot		10 mm	Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Edge 1 (Top)	< 25 mm	Yes	
				Edge 2 (Right)	> 25 mm	No	1
				Edge 3 (Bottom)	> 25 mm	No	1
				Edge 4 (Left)	< 25 mm	Yes	
	Product Specific 10-g		0 mm	Rear	Refer to notes 2 & 4		
				Front			
				Edge 1 (Top)			
				Edge 2 (Right)			
				Edge 3 (Bottom)			
				Edge 4 (Left)			

Notes:

1. SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hot Spot SAR.
2. For Phablet devices: When hotspot mode applies, Product specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.
3. For Phablet devices: When hotspot mode applies and power reduction applies to hotspot mode, Product specific 10-g SAR is required for each test position that has and adjusted SAR to maximum power that is > 1.2 W/kg.
4. For Phablet devices: When hotspot mode is not supported, Product specific 10-g SAR is required for all surfaces and edges with an antenna located at ≤ 25mm from that surface or edge in direct contact with a flat phantom, to address interactive hand use exposure conditions.

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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 ± 2°C of the temperature when the tissue parameters are characterized.

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

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

Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

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

IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

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Dielectric Property Measurements Results:

SAR 1 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
6-24-2020	Head 5250	e'	36.3500	Relative Permittivity (ε_r):	36.35	35.93	1.16	5
		e"	15.8900	Conductivity (σ):	4.64	4.70	-1.35	5
	Head 5260	e'	36.3300	Relative Permittivity (ε_r):	36.33	35.92	1.14	5
		e"	15.9100	Conductivity (σ):	4.65	4.71	-1.25	5
	Head 5600	e'	35.6900	Relative Permittivity (ε_r):	35.69	35.53	0.44	5
		e"	16.0700	Conductivity (σ):	5.00	5.06	-1.11	5
	Head 5750	e'	35.5000	Relative Permittivity (ε_r):	35.50	35.36	0.39	5
		e"	16.1800	Conductivity (σ):	5.17	5.21	-0.78	5
	Head 5825	e'	35.3400	Relative Permittivity (ε_r):	35.34	35.30	0.11	5
		e"	16.2100	Conductivity (σ):	5.25	5.27	-0.38	5

SAR 3 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
5-27-2020	Head 1750	e'	39.1000	Relative Permittivity (ε_r):	39.10	40.08	-2.46	5
		e"	13.5200	Conductivity (σ):	1.32	1.37	-3.90	5
	Head 1710	e'	39.1400	Relative Permittivity (ε_r):	39.14	40.15	-2.51	5
		e"	13.6200	Conductivity (σ):	1.30	1.35	-3.82	5
	Head 1755	e'	39.1000	Relative Permittivity (ε_r):	39.10	40.08	-2.44	5
		e"	13.5100	Conductivity (σ):	1.32	1.37	-3.90	5
5-27-2020	Head 1900	e'	38.9300	Relative Permittivity (ε_r):	38.93	40.00	-2.68	5
		e"	13.3700	Conductivity (σ):	1.41	1.40	0.89	5
	Head 1850	e'	39.0300	Relative Permittivity (ε_r):	39.03	40.00	-2.43	5
		e"	13.4100	Conductivity (σ):	1.38	1.40	-1.47	5
	Head 1910	e'	38.9100	Relative Permittivity (ε_r):	38.91	40.00	-2.73	5
		e"	13.3800	Conductivity (σ):	1.42	1.40	1.50	5
5-31-2020	Head 1750	e'	39.2300	Relative Permittivity (ε_r):	39.23	40.08	-2.13	5
		e"	14.0900	Conductivity (σ):	1.37	1.37	0.15	5
	Head 1710	e'	39.3100	Relative Permittivity (ε_r):	39.31	40.15	-2.08	5
		e"	14.1900	Conductivity (σ):	1.35	1.35	0.21	5
	Head 1755	e'	39.2200	Relative Permittivity (ε_r):	39.22	40.08	-2.14	5
		e"	14.0700	Conductivity (σ):	1.37	1.37	0.09	5
5-31-2020	Head 1900	e'	39.0400	Relative Permittivity (ε_r):	39.04	40.00	-2.40	5
		e"	13.8000	Conductivity (σ):	1.46	1.40	4.14	5
	Head 1850	e'	39.0800	Relative Permittivity (ε_r):	39.08	40.00	-2.30	5
		e"	13.8800	Conductivity (σ):	1.43	1.40	1.98	5
	Head 1910	e'	39.0200	Relative Permittivity (ε_r):	39.02	40.00	-2.45	5
		e"	13.8000	Conductivity (σ):	1.47	1.40	4.68	5
6-1-2020	Head 2600	e'	39.3700	Relative Permittivity (ε_r):	39.37	39.01	0.92	5
		e"	13.6700	Conductivity (σ):	1.98	1.96	0.72	5
	Head 2500	e'	39.5300	Relative Permittivity (ε_r):	39.53	39.14	1.00	5
		e"	13.6200	Conductivity (σ):	1.89	1.85	2.12	5
	Head 2700	e'	39.1900	Relative Permittivity (ε_r):	39.19	38.88	0.79	5
		e"	13.7300	Conductivity (σ):	2.06	2.07	-0.44	5
6-3-2020	Head 2600	e'	39.0300	Relative Permittivity (ε_r):	39.03	39.01	0.05	5
		e"	13.3900	Conductivity (σ):	1.94	1.96	-1.35	5
	Head 2500	e'	39.1900	Relative Permittivity (ε_r):	39.19	39.14	0.14	5
		e"	13.3300	Conductivity (σ):	1.85	1.85	-0.06	5
	Head 2700	e'	38.8500	Relative Permittivity (ε_r):	38.85	38.88	-0.09	5
		e"	13.4200	Conductivity (σ):	2.01	2.07	-2.68	5
6-4-2020	Head 835	e'	41.2500	Relative Permittivity (ε_r):	41.25	41.50	-0.60	5
		e"	19.3900	Conductivity (σ):	0.90	0.90	0.03	5
	Head 820	e'	41.2900	Relative Permittivity (ε_r):	41.29	41.60	-0.75	5
		e"	19.5900	Conductivity (σ):	0.89	0.90	-0.59	5
	Head 850	e'	41.2100	Relative Permittivity (ε_r):	41.21	41.50	-0.70	5
		e"	19.1700	Conductivity (σ):	0.91	0.92	-0.98	5

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SAR 3 Room (Continued)

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
6-7-2020	Head 1750	e'	40.2200	Relative Permittivity (ε_r):	40.22	40.08	0.34	5
		e''	13.9400	Conductivity (σ):	1.36	1.37	-0.92	5
	Head 1710	e'	40.2800	Relative Permittivity (ε_r):	40.28	40.15	0.33	5
		e''	14.0900	Conductivity (σ):	1.34	1.35	-0.50	5
	Head 1755	e'	40.2100	Relative Permittivity (ε_r):	40.21	40.08	0.33	5
		e''	13.9200	Conductivity (σ):	1.36	1.37	-0.98	5
6-7-2020	Head 1900	e'	40.0500	Relative Permittivity (ε_r):	40.05	40.00	0.12	5
		e''	13.7600	Conductivity (σ):	1.45	1.40	3.83	5
	Head 1850	e'	40.1400	Relative Permittivity (ε_r):	40.14	40.00	0.35	5
		e''	13.8600	Conductivity (σ):	1.43	1.40	1.84	5
	Head 1910	e'	40.0300	Relative Permittivity (ε_r):	40.03	40.00	0.08	5
		e''	13.7600	Conductivity (σ):	1.46	1.40	4.38	5
6-7-2020	Head 2600	e'	38.9600	Relative Permittivity (ε_r):	38.96	39.01	-0.13	5
		e''	13.6900	Conductivity (σ):	1.98	1.96	0.87	5
	Head 2500	e'	39.1300	Relative Permittivity (ε_r):	39.13	39.14	-0.02	5
		e''	13.6200	Conductivity (σ):	1.89	1.85	2.12	5
	Head 2700	e'	38.7700	Relative Permittivity (ε_r):	38.77	38.88	-0.29	5
		e''	13.7800	Conductivity (σ):	2.07	2.07	-0.07	5
6-10-2020	Head 1900	e'	40.1700	Relative Permittivity (ε_r):	40.17	40.00	0.43	5
		e''	13.8100	Conductivity (σ):	1.46	1.40	4.21	5
	Head 1850	e'	40.2900	Relative Permittivity (ε_r):	40.29	40.00	0.72	5
		e''	13.9000	Conductivity (σ):	1.43	1.40	2.13	5
	Head 1910	e'	40.1400	Relative Permittivity (ε_r):	40.14	40.00	0.35	5
		e''	13.8000	Conductivity (σ):	1.47	1.40	4.68	5
6-14-2020	Head 1750	e'	39.7700	Relative Permittivity (ε_r):	39.77	40.08	-0.78	5
		e''	13.9300	Conductivity (σ):	1.36	1.37	-0.99	5
	Head 1710	e'	39.8600	Relative Permittivity (ε_r):	39.86	40.15	-0.71	5
		e''	14.0200	Conductivity (σ):	1.33	1.35	-0.99	5
	Head 1755	e'	39.7700	Relative Permittivity (ε_r):	39.77	40.08	-0.77	5
		e''	13.9200	Conductivity (σ):	1.36	1.37	-0.98	5
6-14-2020	Head 1900	e'	39.4800	Relative Permittivity (ε_r):	39.48	40.00	-1.30	5
		e''	13.7300	Conductivity (σ):	1.45	1.40	3.61	5
	Head 1850	e'	39.6100	Relative Permittivity (ε_r):	39.61	40.00	-0.98	5
		e''	13.7900	Conductivity (σ):	1.42	1.40	1.32	5
	Head 1910	e'	39.4500	Relative Permittivity (ε_r):	39.45	40.00	-1.37	5
		e''	13.7200	Conductivity (σ):	1.46	1.40	4.08	5
6-14-2020	Head 2600	e'	38.4100	Relative Permittivity (ε_r):	38.41	39.01	-1.54	5
		e''	13.4100	Conductivity (σ):	1.94	1.96	-1.20	5
	Head 2500	e'	38.6400	Relative Permittivity (ε_r):	38.64	39.14	-1.27	5
		e''	13.4400	Conductivity (σ):	1.87	1.85	0.77	5
	Head 2700	e'	38.3000	Relative Permittivity (ε_r):	38.30	38.88	-1.50	5
		e''	13.3500	Conductivity (σ):	2.00	2.07	-3.19	5
6-21-2020	Head 1750	e'	41.3100	Relative Permittivity (ε_r):	41.31	40.08	3.06	5
		e''	13.7600	Conductivity (σ):	1.34	1.37	-2.20	5
	Head 1710	e'	41.3800	Relative Permittivity (ε_r):	41.38	40.15	3.07	5
		e''	13.9800	Conductivity (σ):	1.33	1.35	-1.28	5
	Head 1755	e'	41.3100	Relative Permittivity (ε_r):	41.31	40.08	3.08	5
		e''	13.7400	Conductivity (σ):	1.34	1.37	-2.26	5
6-21-2020	Head 1900	e'	41.1600	Relative Permittivity (ε_r):	41.16	40.00	2.90	5
		e''	13.6100	Conductivity (σ):	1.44	1.40	2.70	5
	Head 1850	e'	41.2700	Relative Permittivity (ε_r):	41.27	40.00	3.18	5
		e''	13.7200	Conductivity (σ):	1.41	1.40	0.81	5
	Head 1910	e'	41.1500	Relative Permittivity (ε_r):	41.15	40.00	2.88	5
		e''	13.6300	Conductivity (σ):	1.45	1.40	3.40	5

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SAR 4 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
5-27-2020	Head 750	e'	41.6700	Relative Permittivity (ε_r):	41.67	41.96	-0.69	5
		e"	20.9900	Conductivity (σ):	0.88	0.89	-1.99	5
	Head 700	e'	41.8300	Relative Permittivity (ε_r):	41.83	42.22	-0.92	5
		e"	22.0200	Conductivity (σ):	0.86	0.89	-3.62	5
	Head 790	e'	41.5600	Relative Permittivity (ε_r):	41.56	41.76	-0.47	5
		e"	20.2100	Conductivity (σ):	0.89	0.90	-0.94	5
5-27-2020	Head 835	e'	41.4600	Relative Permittivity (ε_r):	41.46	41.50	-0.10	5
		e"	19.5200	Conductivity (σ):	0.91	0.90	0.70	5
	Head 820	e'	41.4900	Relative Permittivity (ε_r):	41.49	41.60	-0.27	5
		e"	19.7200	Conductivity (σ):	0.90	0.90	0.07	5
	Head 850	e'	41.4100	Relative Permittivity (ε_r):	41.41	41.50	-0.22	5
		e"	19.3000	Conductivity (σ):	0.91	0.92	-0.31	5
5-31-2020	Head 835	e'	41.7400	Relative Permittivity (ε_r):	41.74	41.50	0.58	5
		e"	19.0800	Conductivity (σ):	0.89	0.90	-1.57	5
	Head 820	e'	41.7500	Relative Permittivity (ε_r):	41.75	41.60	0.35	5
		e"	19.3000	Conductivity (σ):	0.88	0.90	-2.06	5
	Head 850	e'	41.7100	Relative Permittivity (ε_r):	41.71	41.50	0.51	5
		e"	18.8800	Conductivity (σ):	0.89	0.92	-2.48	5
5-31-2020	Head 2450	e'	38.5000	Relative Permittivity (ε_r):	38.50	39.20	-1.79	5
		e"	13.1100	Conductivity (σ):	1.79	1.80	-0.78	5
	Head 2400	e'	38.5600	Relative Permittivity (ε_r):	38.56	39.30	-1.87	5
		e"	13.1200	Conductivity (σ):	1.75	1.75	-0.05	5
	Head 2480	e'	38.4500	Relative Permittivity (ε_r):	38.45	39.16	-1.82	5
		e"	13.1100	Conductivity (σ):	1.81	1.83	-1.34	5
6-3-2020	Head 750	e'	41.6000	Relative Permittivity (ε_r):	41.60	41.96	-0.86	5
		e"	21.6300	Conductivity (σ):	0.90	0.89	1.00	5
	Head 700	e'	41.7700	Relative Permittivity (ε_r):	41.77	42.22	-1.06	5
		e"	22.7400	Conductivity (σ):	0.89	0.89	-0.47	5
	Head 790	e'	41.4800	Relative Permittivity (ε_r):	41.48	41.76	-0.66	5
		e"	20.8100	Conductivity (σ):	0.91	0.90	2.00	5
6-7-2020	Head 750	e'	41.2700	Relative Permittivity (ε_r):	41.27	41.96	-1.65	5
		e"	21.5700	Conductivity (σ):	0.90	0.89	0.72	5
	Head 700	e'	41.3500	Relative Permittivity (ε_r):	41.35	42.22	-2.06	5
		e"	22.6200	Conductivity (σ):	0.88	0.89	-0.99	5
	Head 790	e'	41.1600	Relative Permittivity (ε_r):	41.16	41.76	-1.43	5
		e"	20.7700	Conductivity (σ):	0.91	0.90	1.81	5
6-7-2020	Head 835	e'	41.0300	Relative Permittivity (ε_r):	41.03	41.50	-1.13	5
		e"	19.9900	Conductivity (σ):	0.93	0.90	3.12	5
	Head 820	e'	41.0600	Relative Permittivity (ε_r):	41.06	41.60	-1.30	5
		e"	20.2500	Conductivity (σ):	0.92	0.90	2.76	5
	Head 850	e'	41.0200	Relative Permittivity (ε_r):	41.02	41.50	-1.16	5
		e"	19.7500	Conductivity (σ):	0.93	0.92	2.02	5
6-7-2020	Head 2450	e'	38.4500	Relative Permittivity (ε_r):	38.45	39.20	-1.91	5
		e"	13.1900	Conductivity (σ):	1.80	1.80	-0.18	5
	Head 2400	e'	38.4900	Relative Permittivity (ε_r):	38.49	39.30	-2.05	5
		e"	13.1600	Conductivity (σ):	1.76	1.75	0.26	5
	Head 2480	e'	38.4000	Relative Permittivity (ε_r):	38.40	39.16	-1.95	5
		e"	13.1900	Conductivity (σ):	1.82	1.83	-0.74	5
6-10-2020	Head 2450	e'	39.2000	Relative Permittivity (ε_r):	39.20	39.20	0.00	5
		e"	13.2100	Conductivity (σ):	1.80	1.80	-0.02	5
	Head 2400	e'	39.2900	Relative Permittivity (ε_r):	39.29	39.30	-0.02	5
		e"	13.2400	Conductivity (σ):	1.77	1.75	0.87	5
	Head 2480	e'	39.1500	Relative Permittivity (ε_r):	39.15	39.16	-0.03	5
		e"	13.2000	Conductivity (σ):	1.82	1.83	-0.67	5
6-14-2020	Head 2450	e'	38.6300	Relative Permittivity (ε_r):	38.63	39.20	-1.45	5
		e"	13.2400	Conductivity (σ):	1.80	1.80	0.20	5
	Head 2400	e'	38.7000	Relative Permittivity (ε_r):	38.70	39.30	-1.52	5
		e"	13.2300	Conductivity (σ):	1.77	1.75	0.79	5
	Head 2480	e'	38.5700	Relative Permittivity (ε_r):	38.57	39.16	-1.51	5
		e"	13.2400	Conductivity (σ):	1.83	1.83	-0.37	5

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SAR 5 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
6-1-2020	Head 5250	e'	35.9500	Relative Permittivity (ε_r):	35.95	35.93	0.05	5
		e''	15.9000	Conductivity (σ):	4.64	4.70	-1.29	5
	Head 5260	e'	35.9500	Relative Permittivity (ε_r):	35.95	35.92	0.08	5
		e''	15.8900	Conductivity (σ):	4.65	4.71	-1.38	5
	Head 5600	e'	35.3700	Relative Permittivity (ε_r):	35.37	35.53	-0.46	5
		e''	16.0600	Conductivity (σ):	5.00	5.06	-1.18	5
	Head 5750	e'	35.1700	Relative Permittivity (ε_r):	35.17	35.36	-0.55	5
		e''	16.1600	Conductivity (σ):	5.17	5.21	-0.90	5
	Head 5825	e'	35.1000	Relative Permittivity (ε_r):	35.10	35.30	-0.57	5
		e''	16.1600	Conductivity (σ):	5.23	5.27	-0.68	5
6-3-2020	Head 5250	e'	35.4900	Relative Permittivity (ε_r):	35.49	35.93	-1.23	5
		e''	16.3900	Conductivity (σ):	4.78	4.70	1.75	5
	Head 5260	e'	35.4600	Relative Permittivity (ε_r):	35.46	35.92	-1.29	5
		e''	16.4000	Conductivity (σ):	4.80	4.71	1.79	5
	Head 5600	e'	34.9000	Relative Permittivity (ε_r):	34.90	35.53	-1.78	5
		e''	16.5800	Conductivity (σ):	5.16	5.06	2.02	5
	Head 5750	e'	34.6400	Relative Permittivity (ε_r):	34.64	35.36	-2.04	5
		e''	16.6600	Conductivity (σ):	5.33	5.21	2.16	5
	Head 5825	e'	34.5200	Relative Permittivity (ε_r):	34.52	35.30	-2.21	5
		e''	16.6900	Conductivity (σ):	5.41	5.27	2.57	5
6-8-2020	Head 5250	e'	36.2800	Relative Permittivity (ε_r):	36.28	35.93	0.97	5
		e''	16.1200	Conductivity (σ):	4.71	4.70	0.08	5
	Head 5260	e'	36.2500	Relative Permittivity (ε_r):	36.25	35.92	0.91	5
		e''	16.1300	Conductivity (σ):	4.72	4.71	0.11	5
	Head 5600	e'	35.7200	Relative Permittivity (ε_r):	35.72	35.53	0.52	5
		e''	16.3200	Conductivity (σ):	5.08	5.06	0.42	5
	Head 5750	e'	35.5000	Relative Permittivity (ε_r):	35.50	35.36	0.39	5
		e''	16.4100	Conductivity (σ):	5.25	5.21	0.63	5
	Head 5825	e'	35.3700	Relative Permittivity (ε_r):	35.37	35.30	0.20	5
		e''	16.4600	Conductivity (σ):	5.33	5.27	1.16	5
6-11-2020	Head 5250	e'	36.4600	Relative Permittivity (ε_r):	36.46	35.93	1.47	5
		e''	16.0500	Conductivity (σ):	4.69	4.70	-0.36	5
	Head 5260	e'	36.4400	Relative Permittivity (ε_r):	36.44	35.92	1.44	5
		e''	16.0600	Conductivity (σ):	4.70	4.71	-0.32	5
	Head 5600	e'	35.9200	Relative Permittivity (ε_r):	35.92	35.53	1.09	5
		e''	16.2000	Conductivity (σ):	5.04	5.06	-0.31	5
	Head 5750	e'	35.7000	Relative Permittivity (ε_r):	35.70	35.36	0.95	5
		e''	16.2800	Conductivity (σ):	5.21	5.21	-0.17	5
	Head 5825	e'	35.5800	Relative Permittivity (ε_r):	35.58	35.30	0.79	5
		e''	16.3100	Conductivity (σ):	5.28	5.27	0.24	5
6-15-2020	Head 5250	e'	36.4157	Relative Permittivity (ε_r):	36.42	35.93	1.34	5
		e''	15.6742	Conductivity (σ):	4.58	4.70	-2.69	5
	Head 5260	e'	36.4027	Relative Permittivity (ε_r):	36.40	35.92	1.34	5
		e''	15.6792	Conductivity (σ):	4.59	4.71	-2.69	5
	Head 5600	e'	35.9200	Relative Permittivity (ε_r):	35.92	35.53	1.09	5
		e''	15.8900	Conductivity (σ):	4.95	5.06	-2.22	5
	Head 5750	e'	35.6944	Relative Permittivity (ε_r):	35.69	35.36	0.94	5
		e''	15.9830	Conductivity (σ):	5.11	5.21	-1.99	5
	Head 5825	e'	35.6000	Relative Permittivity (ε_r):	35.60	35.30	0.85	5
		e''	16.0400	Conductivity (σ):	5.20	5.27	-1.42	5
6-18-2020	Head 2450	e'	38.6200	Relative Permittivity (ε_r):	38.62	39.20	-1.48	5
		e''	13.3700	Conductivity (σ):	1.82	1.80	1.19	5
	Head 2400	e'	38.7700	Relative Permittivity (ε_r):	38.77	39.30	-1.34	5
		e''	13.2300	Conductivity (σ):	1.77	1.75	0.79	5
	Head 2480	e'	38.5200	Relative Permittivity (ε_r):	38.52	39.16	-1.64	5
		e''	13.4800	Conductivity (σ):	1.86	1.83	1.44	5
6-18-2020	Head 5250	e'	35.5634	Relative Permittivity (ε_r):	35.56	35.93	-1.03	5
		e''	16.4067	Conductivity (σ):	4.79	4.70	1.86	5
	Head 5260	e'	35.5491	Relative Permittivity (ε_r):	35.55	35.92	-1.04	5
		e''	16.4128	Conductivity (σ):	4.80	4.71	1.87	5
	Head 5600	e'	36.0100	Relative Permittivity (ε_r):	36.01	35.53	1.34	5
		e''	16.5300	Conductivity (σ):	5.15	5.06	1.72	5
	Head 5750	e'	34.7697	Relative Permittivity (ε_r):	34.77	35.36	-1.68	5
		e''	16.6066	Conductivity (σ):	5.31	5.21	1.84	5
	Head 5825	e'	34.6500	Relative Permittivity (ε_r):	34.65	35.30	-1.84	5
		e''	16.6300	Conductivity (σ):	5.39	5.27	2.21	5

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SAR 5 Room (Continued)

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
6-25-2020	Head 5250	e'	35.8300	Relative Permittivity (ε_r):	35.83	35.93	-0.29	5
		e''	16.1500	Conductivity (σ):	4.71	4.70	0.26	5
	Head 5260	e'	35.8000	Relative Permittivity (ε_r):	35.80	35.92	-0.34	5
		e''	16.1500	Conductivity (σ):	4.72	4.71	0.23	5
	Head 5600	e'	35.2600	Relative Permittivity (ε_r):	35.26	35.53	-0.77	5
		e''	16.2500	Conductivity (σ):	5.06	5.06	-0.01	5
	Head 5750	e'	35.0500	Relative Permittivity (ε_r):	35.05	35.36	-0.88	5
		e''	16.3200	Conductivity (σ):	5.22	5.21	0.08	5
	Head 5825	e'	34.9400	Relative Permittivity (ε_r):	34.94	35.30	-1.02	5
		e''	16.3400	Conductivity (σ):	5.29	5.27	0.42	5
6-29-2020	Head 5250	e'	35.8600	Relative Permittivity (ε_r):	35.86	35.93	-0.20	5
		e''	15.9600	Conductivity (σ):	4.66	4.70	-0.92	5
	Head 5260	e'	35.8300	Relative Permittivity (ε_r):	35.83	35.92	-0.26	5
		e''	15.9700	Conductivity (σ):	4.67	4.71	-0.88	5
	Head 5600	e'	35.3400	Relative Permittivity (ε_r):	35.34	35.53	-0.55	5
		e''	16.1100	Conductivity (σ):	5.02	5.06	-0.87	5
	Head 5750	e'	35.1300	Relative Permittivity (ε_r):	35.13	35.36	-0.66	5
		e''	16.1700	Conductivity (σ):	5.17	5.21	-0.84	5
	Head 5825	e'	35.0200	Relative Permittivity (ε_r):	35.02	35.30	-0.79	5
		e''	16.2000	Conductivity (σ):	5.25	5.27	-0.44	5

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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.

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Reference Target SAR Values

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

System Dipole	Serial No.	Cal. Date	Freq. (MHz)	Target SAR Values (W/kg)	
				1g/10g	Head
D750V3	1122	2-24-2020	750	1g	8.54
				10g	5.59
D835V2	4d174	2-24-2020	835	1g	9.59
				10g	6.24
D1750V2	1125	2-21-2020	1750	1g	36.50
				10g	19.20
D1900V2	5d190	10-23-2018	1900	1g	39.10
				10g	20.40
D1900V2	5d199	3-19-2020	1900	1g	40.50
				10g	21.00
D2450V2	939	7-25-2019	2450	1g	53.20
				10g	25.10
D2600V2	1097	9-19-2019	2600	1g	57.30
				10g	25.70
D5GHzV2	1209	2-27-2020	5250	1g	79.90
				10g	22.60
			5600	1g	83.60
				10g	23.60
			5750	1g	80.20
				10g	22.60

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations. (D1900V2 (SN : 5d190), D5GHzV2 (SN : 1184))

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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			
6-24-2020	D5GHzV2	1209	Head	1g	7.96	79.60	80.20	-0.75	1, 2
				10g	2.26	22.60	22.60	0.00	

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			
5-27-2020	D1750V2	1125	Head	1g	3.35	33.50	36.50	-8.22	3, 4
				10g	1.78	17.80	19.20	-7.29	
5-27-2020	D1900V2	5d190	Head	1g	3.93	39.30	39.10	0.51	
				10g	2.04	20.40	20.40	0.00	
5-31-2020	D1750V2	1125	Head	1g	3.41	34.10	36.50	-6.58	
				10g	1.81	18.10	19.20	-5.73	
5-31-2020	D1900V2	5d199	Head	1g	3.88	38.80	40.50	-4.20	
				10g	2.01	20.10	21.00	-4.29	
6-1-2020	D2600V2	1097	Head	1g	5.67	56.70	57.30	-1.05	
				10g	2.55	25.50	25.70	-0.78	
6-3-2020	D2600V2	1097	Head	1g	5.43	54.30	57.30	-5.24	5, 6
				10g	2.44	24.40	25.70	-5.06	
6-4-2020	D835V2	4d174	Head	1g	0.91	9.12	9.59	-4.90	
				10g	0.59	5.94	6.24	-4.81	
6-7-2020	D1750V2	1125	Head	1g	3.47	34.70	36.50	-4.93	
				10g	1.84	18.40	19.20	-4.17	
6-7-2020	D1900V2	5d199	Head	1g	4.23	42.30	40.50	4.44	
				10g	2.20	22.00	21.00	4.76	
6-7-2020	D2600V2	1097	Head	1g	5.69	56.90	57.30	-0.70	
				10g	2.55	25.50	25.70	-0.78	
6-10-2020	D1900V2	5d199	Head	1g	4.27	42.70	40.50	5.43	7, 8
				10g	2.22	22.20	21.00	5.71	
6-14-2020	D1750V2	1125	Head	1g	3.52	35.20	36.50	-3.56	
				10g	1.89	18.90	19.20	-1.56	
6-14-2020	D1900V2	5d199	Head	1g	4.01	40.10	40.50	-0.99	
				10g	2.09	20.90	21.00	-0.48	
6-14-2020	D2600V2	1097	Head	1g	5.46	54.60	57.30	-4.71	
				10g	2.47	24.70	25.70	-3.89	
6-21-2020	D1750V2	1125	Head	1g	3.50	35.00	36.50	-4.11	
				10g	1.86	18.60	19.20	-3.12	
6-21-2020	D1900V2	5d199	Head	1g	4.23	42.30	40.50	4.44	
				10g	2.19	21.90	21.00	4.29	

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SAR 4 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
5-27-2020	D750V3	1122	Head	1g	0.82	8.17	8.54	-4.33	9, 10
				10g	0.53	5.33	5.59	-4.65	
5-27-2020	D835V2	4d174	Head	1g	0.98	9.83	9.59	2.50	11, 12
				10g	0.64	6.37	6.24	2.08	
5-31-2020	D835V2	4d174	Head	1g	0.91	9.14	9.59	-4.69	
				10g	0.59	5.93	6.24	-4.97	
5-31-2020	D2450V2	939	Head	1g	5.23	52.30	53.20	-1.69	
				10g	2.43	24.30	25.10	-3.19	
6-3-2020	D750V3	1122	Head	1g	0.82	8.18	8.54	-4.22	
				10g	0.54	5.40	5.59	-3.40	
6-7-2020	D750V3	1122	Head	1g	0.84	8.44	8.54	-1.17	
				10g	0.55	5.52	5.59	-1.25	
6-7-2020	D835V2	4d174	Head	1g	0.98	9.78	9.59	1.98	
				10g	0.63	6.31	6.24	1.12	
6-7-2020	D2450V2	939	Head	1g	5.38	53.80	53.20	1.13	
				10g	2.48	24.80	25.10	-1.20	
6-10-2020	D2450V2	939	Head	1g	5.66	56.60	53.20	6.39	
				10g	2.60	26.00	25.10	3.59	
6-14-2020	D2450V2	939	Head	1g	5.73	57.30	53.20	7.71	
				10g	2.64	26.40	25.10	5.18	

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SAR 5 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
6-1-2020	D5GHzV2 (5250)	1209	Head	1g	8.11	81.10	79.90	1.50	
				10g	2.33	23.30	22.60	3.10	
6-1-2020	D5GHzV2 (5600)	1209	Head	1g	8.23	82.30	83.60	-1.56	
				10g	2.35	23.50	23.60	-0.42	
6-1-2020	D5GHzV2 (5750)	1209	Head	1g	8.18	81.80	80.20	2.00	
				10g	2.30	23.00	22.60	1.77	
6-3-2020	D5GHzV2 (5600)	1209	Head	1g	8.85	88.50	83.60	5.86	
				10g	2.48	24.80	23.60	5.08	
6-3-2020	D5GHzV2 (5750)	1209	Head	1g	8.46	84.60	80.20	5.49	
				10g	2.38	23.80	22.60	5.31	
6-8-2020	D5GHzV2 (5250)	1209	Head	1g	8.28	82.80	79.90	3.63	
				10g	2.36	23.60	22.60	4.42	
6-8-2020	D5GHzV2 (5600)	1209	Head	1g	8.60	86.00	83.60	2.87	
				10g	2.45	24.50	23.60	3.81	
6-8-2020	D5GHzV2 (5750)	1209	Head	1g	8.40	84.00	80.20	4.74	
				10g	2.36	23.60	22.60	4.42	
6-11-2020	D5GHzV2 (5250)	1209	Head	1g	8.33	83.30	79.90	4.26	
				10g	2.37	23.70	22.60	4.87	
6-11-2020	D5GHzV2 (5600)	1209	Head	1g	8.74	87.40	83.60	4.55	
				10g	2.47	24.70	23.60	4.66	
6-11-2020	D5GHzV2 (5750)	1209	Head	1g	8.34	83.40	80.20	3.99	
				10g	2.35	23.50	22.60	3.98	
6-15-2020	D5GHzV2 (5250)	1209	Head	1g	8.02	80.20	79.90	0.38	
				10g	2.28	22.80	22.60	0.88	
6-15-2020	D5GHzV2 (5600)	1209	Head	1g	8.76	87.60	83.60	4.78	
				10g	2.48	24.80	23.60	5.08	
6-15-2020	D5GHzV2 (5750)	1209	Head	1g	8.38	83.80	80.20	4.49	
				10g	2.36	23.60	22.60	4.42	
6-18-2020	D2450V2	939	Head	1g	5.20	52.00	53.20	-2.26	13, 14
				10g	2.37	23.70	25.10	-5.58	
6-18-2020	D5GHzV2 (5250)	1209	Head	1g	7.43	74.30	79.90	-7.01	15, 16
				10g	2.13	21.30	22.60	-5.75	
6-18-2020	D5GHzV2 (5600)	1209	Head	1g	8.87	88.70	83.60	6.10	
				10g	2.52	25.20	23.60	6.78	
6-18-2020	D5GHzV2 (5750)	1209	Head	1g	8.22	82.20	80.20	2.49	
				10g	2.32	23.20	22.60	2.65	
6-25-2020	D5GHzV2 (5750)	1209	Head	1g	8.47	84.70	80.20	5.61	
				10g	2.40	24.00	22.60	6.19	
6-29-2020	D5GHzV2 (5750)	1209	Head	1g	8.30	83.00	80.20	3.49	
				10g	2.36	23.60	22.60	4.42	

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9. Conducted Output Power Measurements

9.1. GSM

Per KDB 941225 D01 3G SAR Procedures:

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

GSM850 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	128	824.2	32.7	23.7	33.5	24.5
			190	836.6	32.9	23.9		
			251	848.8	33.0	23.9		
GPRS (GMSK)	CS1	1	128	824.2	32.6	23.6	33.5	24.5
			190	836.6	32.9	23.9		
			251	848.8	32.9	23.9		
		2	128	824.2	30.4	24.4	31.5	25.5
			190	836.6	30.7	24.7		
			251	848.8	30.8	24.8		
		3	128	824.2	29.2	24.9	30.5	**26.2**
			190	836.6	29.5	25.3		
			251	848.8	29.6	25.4		
		4	128	824.2	28.3	25.3	29.0	26.0
			190	836.6	28.5	25.5		
			251	848.8	28.6	25.6		
EGPRS (8PSK)	MCS5	1	128	824.2	26.2	17.2	27.0	18.0
			190	836.6	26.6	17.6		
			251	848.8	26.7	17.6		
		2	128	824.2	24.1	18.1	25.0	19.0
			190	836.6	24.5	18.5		
			251	848.8	24.5	18.5		
		3	128	824.2	22.9	18.7	24.0	19.7
			190	836.6	23.3	19.0		
			251	848.8	23.3	19.1		
		4	128	824.2	21.7	18.7	23.0	20.0
			190	836.6	22.0	19.0		
			251	848.8	21.9	18.9		

Notes:

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

- GMSK (GPRS) mode with 3 time slots for Max power, based on the Tune-up Procedure. Refer to §6.3.
- SAR is not required for EGPRS (8PSK) mode because the maximum output power and tune-up limit is ≤ 1/4dB higher than GMSK GPRS or the adjusted SAR of the highest reported SAR of GMSK GPRS is ≤ 1.2W/kg.

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GSM1900 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)				Reduced Average Power (dBm) Hotspot back-off				Reduced Average Power (dBm) Proximity sensor back-off			
					Measured		Tune-up Limit		Measured		Tune-up Limit		Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	512	1850.2	28.8	19.7	30.5	21.5	26.6	17.5	27.0	18.0	26.6	17.5	27.0	18.0
			661	1880.0	28.8	19.8			26.7	17.7			26.7	17.7		
			810	1909.8	28.7	19.7			26.4	17.3			26.3	17.3		
GPRS (GMSK)	CS1	1	512	1850.2	28.8	19.7	30.5	21.5	26.5	17.5	27.0	18.0	26.5	17.5	27.0	18.0
			661	1880.0	28.9	19.8			26.7	17.7			26.7	17.6		
			810	1909.8	28.7	19.7			26.4	17.3			26.3	17.3		
		2	512	1850.2	25.5	19.5	27.0	21.0	23.7	17.7	24.5	18.5	23.7	17.6	24.5	18.5
			661	1880.0	25.9	19.9			23.8	17.8			23.8	17.8		
			810	1909.8	25.6	19.6			23.4	17.4			23.4	17.4		
		3	512	1850.2	24.1	19.8	25.5	21.2	21.7	17.5	22.5	18.2	21.7	17.5	22.5	18.2
			661	1880.0	24.4	20.1			21.9	17.7			21.9	17.6		
			810	1909.8	24.0	19.7			21.5	17.2			21.5	17.2		
		4	512	1850.2	22.5	19.5	23.5	20.5	20.3	17.3	21.0	18.0	20.3	17.3	21.0	18.0
			661	1880.0	22.9	19.9			20.5	17.5			20.5	17.4		
			810	1909.8	22.7	19.7			20.0	17.0			20.0	17.0		
EGPRS (8PSK)	MCS5	1	512	1850.2	24.1	15.1	25.5	16.5								
			661	1880.0	24.2	15.2										
			810	1909.8	23.8	14.8										
		2	512	1850.2	22.2	16.2	23.5	17.5								
			661	1880.0	22.3	16.3										
			810	1909.8	22.1	16.1										
		3	512	1850.2	20.6	16.4	22.5	18.2								
			661	1880.0	20.8	16.5										
			810	1909.8	20.5	16.3										
		4	512	1850.2	19.4	16.4	19.5	16.5								
			661	1880.0	19.5	16.5										
			810	1909.8	19.1	16.1										

Notes:

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

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

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9.2. W-CDMA

Release 99 Setup Procedures used to establish the test signals

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

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

HSDPA Setup Procedures used to establish the test signals

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

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
W-CDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set 1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	11/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	11/15	15/8	15/4
	βhs	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			
	Ahs=βhs/βc	30/15			

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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
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	-
	βhs	22/15	12/15	30/15	4/15	5/15
	βed	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				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	E-DPDCH	6	8	8	5	0
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	12
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	67
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E-TFCIs	5	5	2	5	1
	Reference E-TFCI	11	11	11	11	67
	Reference E-TFCI PO	4	4	4	4	18
	Reference E-TFCI	67	67	92	67	67
	Reference E-TFCI PO	18	18	18	18	18
	Reference E-TFCI	71	71	71	71	71
	Reference E-TFCI PO	23	23	23	23	23
	Reference E-TFCI	75	75	75	75	75
	Reference E-TFCI PO	26	26	26	26	26
	Reference E-TFCI	81	81	81	81	81
	Reference E-TFCI PO	27	27	27	27	27
	Maximum Channelization Codes	2xSF2				SF4

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DC-HSDPA Setup Procedures used to establish the test signals

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

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

Table E.5.0: Levels for HSDPA connection setup

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

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

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

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

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK

Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.

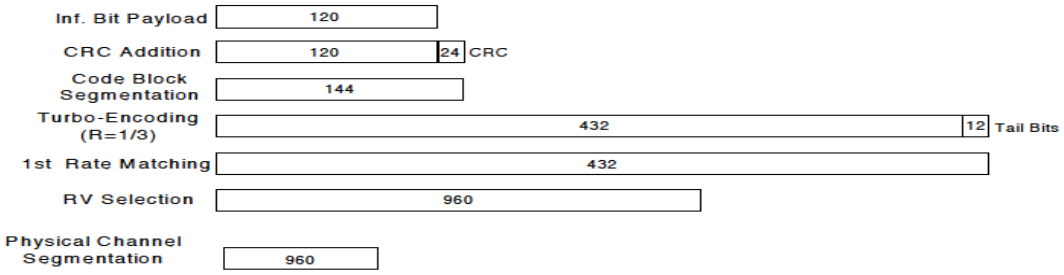

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set 12			
	Power Control Algorithm	Algorithm2			
	βc	2/15	11/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/βd	2/15	11/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack Repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs = βhs/ βc	30/15			

HSPA+

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

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W-CDMA Band II Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Hotspot back-off			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	21.9	N/A	23.0	17.6	N/A	19.5	17.6	N/A	19.5
		9400	1880.0	22.0			17.8			17.7		
		9538	1907.6	21.8			17.5			17.5		
HSDPA	Subtest 1	9262	1852.4	21.7	0	22.5	17.6	0	19.0	17.6	0	19.0
		9400	1880.0	21.6			17.7			17.7		
		9538	1907.6	21.4			17.5			17.5		
	Subtest 2	9262	1852.4	21.0	0	22.5	17.6	0	19.0	17.6	0	19.0
		9400	1880.0	21.1			17.7			17.6		
		9538	1907.6	20.8			17.4			17.4		
	Subtest 3	9262	1852.4	20.5	0.5	22.0	17.6	0	19.0	17.6	0	19.0
		9400	1880.0	20.6			17.7			17.7		
		9538	1907.6	20.4			17.4			17.4		
	Subtest 4	9262	1852.4	20.5	0.5	22.0	17.6	0	19.0	17.6	0	19.0
		9400	1880.0	20.7			17.7			17.7		
		9538	1907.6	20.4			17.4			17.4		
HSUPA	Subtest 1	9262	1852.4	18.5	1	20.0	16.5	0	19.0	16.5	0	19.0
		9400	1880.0	18.6			16.7			16.7		
		9538	1907.6	18.4			16.8			16.8		
	Subtest 2	9262	1852.4	17.1	2	19.0	16.5	0	19.0	16.5	0	19.0
		9400	1880.0	17.1			16.6			16.6		
		9538	1907.6	16.9			16.8			16.8		
	Subtest 3	9262	1852.4	20.6	0	21.0	16.5	0	19.0	16.5	0	19.0
		9400	1880.0	20.6			16.6			16.6		
		9538	1907.6	20.4			16.9			16.8		
	Subtest 4	9262	1852.4	17.1	2	19.0	16.6	0	19.0	16.5	0	19.0
		9400	1880.0	17.2			16.6			16.6		
		9538	1907.6	16.9			17.0			17.0		
	Subtest 5	9262	1852.4	19.6	0	21.0	17.7	0	19.0	17.7	0	19.0
		9400	1880.0	19.7			17.8			17.8		
		9538	1907.6	19.4			17.5			17.5		
DC-HSDPA	Subtest 1	9262	1852.4	21.5	0	22.5	17.7	0	19.0	17.7	0	19.0
		9400	1880.0	21.6			17.6			17.6		
		9538	1907.6	21.3			17.4			17.4		
	Subtest 2	9262	1852.4	21.0	0	22.5	17.6	0	19.0	17.6	0	19.0
		9400	1880.0	21.0			17.6			17.6		
		9538	1907.6	20.8			17.4			17.4		
	Subtest 3	9262	1852.4	20.1	0.5	22.0	17.6	0	19.0	17.6	0	19.0
		9400	1880.0	20.1			17.6			17.6		
		9538	1907.6	19.8			17.4			17.4		
	Subtest 4	9262	1852.4	20.6	0.5	22.0	17.7	0	19.0	17.6	0	19.0
		9400	1880.0	20.6			17.6			17.6		
		9538	1907.6	20.3			17.4			17.4		

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W-CDMA Band IV Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Hotspot back-off			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	22.0	N/A	23.5	18.0	N/A	19.5	18.0	N/A	19.5
		1413	1732.6	22.1			18.2			18.1		
		1513	1752.6	21.9			18.0			18.0		
HSDPA	Subtest 1	1312	1712.4	21.0	0	22.5	18.0	0	19.0	18.0	0	19.0
		1413	1732.6	21.2			18.1			18.1		
		1513	1752.6	20.9			17.9			17.9		
	Subtest 2	1312	1712.4	20.5	0	22.5	18.0	0	19.0	18.0	0	19.0
		1413	1732.6	20.6			18.1			18.1		
		1513	1752.6	20.4			17.8			17.8		
	Subtest 3	1312	1712.4	21.0	0.5	22.0	18.0	0	19.0	18.0	0	19.0
		1413	1732.6	21.1			18.1			18.1		
		1513	1752.6	20.9			17.8			17.8		
	Subtest 4	1312	1712.4	20.5	0.5	22.0	18.0	0	19.0	18.0	0	19.0
		1413	1732.6	20.6			18.1			18.1		
		1513	1752.6	20.4			17.9			17.8		
HSUPA	Subtest 1	1312	1712.4	19.5	0	21.5	16.9	0	19.0	16.9	0	19.0
		1413	1732.6	19.6			17.1			17.1		
		1513	1752.6	19.3			16.8			16.8		
	Subtest 2	1312	1712.4	18.5	2	19.5	16.9	0	19.0	16.9	0	19.0
		1413	1732.6	18.5			17.0			17.1		
		1513	1752.6	18.3			16.8			16.8		
	Subtest 3	1312	1712.4	21.0	0	21.5	16.9	0	19.0	16.9	0	19.0
		1413	1732.6	21.1			17.1			17.1		
		1513	1752.6	20.9			16.8			16.8		
	Subtest 4	1312	1712.4	18.5	2	19.5	16.9	0	19.0	16.9	0	19.0
		1413	1732.6	18.5			17.1			17.1		
		1513	1752.6	18.3			16.8			16.8		
	Subtest 5	1312	1712.4	20.6	0	21.5	18.1	0	19.0	18.1	0	19.0
		1413	1732.6	20.7			18.2			18.2		
		1513	1752.6	20.4			18.0			18.0		
DC-HSDPA	Subtest 1	1312	1712.4	21.0	0	21.5	18.0	0	19.0	18.0	0	19.0
		1413	1732.6	21.3			18.2			18.2		
		1513	1752.6	20.9			17.9			17.9		
	Subtest 2	1312	1712.4	20.5	0	21.5	18.0	0	19.0	18.0	0	19.0
		1413	1732.6	20.8			18.2			18.2		
		1513	1752.6	20.4			17.9			17.9		
	Subtest 3	1312	1712.4	19.5	0.5	21.0	18.0	0	19.0	18.0	0	19.0
		1413	1732.6	19.7			18.2			18.2		
		1513	1752.6	19.4			17.9			17.9		
	Subtest 4	1312	1712.4	20.5	0.5	21.0	18.0	0	19.0	18.0	0	19.0
		1413	1732.6	20.8			18.2			18.2		
		1513	1752.6	20.4			17.9			17.9		

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W-CDMA Band V Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)		
				Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	4132	826.4	24.1	N/A	25.0
		4183	836.6	24.2		
		4233	846.6	24.1		
HSDPA	Subtest 1	4132	826.4	22.4	0	23.0
		4183	836.6	22.5		
		4233	846.6	22.5		
	Subtest 2	4132	826.4	21.9	0	23.0
		4183	836.6	22.0		
		4233	846.6	22.0		
	Subtest 3	4132	826.4	21.3	0.5	22.5
		4183	836.6	21.4		
		4233	846.6	21.4		
	Subtest 4	4132	826.4	20.9	0.5	22.5
		4183	836.6	20.9		
		4233	846.6	20.9		
HSUPA	Subtest 1	4132	826.4	21.3	0	23.0
		4183	836.6	21.4		
		4233	846.6	21.4		
	Subtest 2	4132	826.4	19.4	2	21.0
		4183	836.6	19.5		
		4233	846.6	19.4		
	Subtest 3	4132	826.4	20.3	1	22.0
		4183	836.6	20.4		
		4233	846.6	20.4		
	Subtest 4	4132	826.4	19.4	2	21.0
		4183	836.6	19.5		
		4233	846.6	19.4		
	Subtest 5	4132	826.4	22.5	0	23.0
		4183	836.6	22.5		
		4233	846.6	22.5		
DC-HSDPA	Subtest 1	4132	826.4	22.4	0	23.0
		4183	836.6	22.6		
		4233	846.6	22.5		
	Subtest 2	4132	826.4	21.9	0	23.0
		4183	836.6	22.1		
		4233	846.6	22.0		
	Subtest 3	4132	826.4	20.3	0.5	22.5
		4183	836.6	20.6		
		4233	846.6	20.4		
	Subtest 4	4132	826.4	20.9	0.5	22.5
		4183	836.6	21.1		
		4233	846.6	21.0		

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9.3. LTE

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

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

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

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

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

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

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

Maximum Output Power (Tune-up Limit) for LTE

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

a) The maximum output power, including tolerance, for the smaller band must be ≤ the larger band to qualify for the SAR test exclusion.
b) The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.

- LTE Band 2 (1850 – 1910 MHz) is covered by LTE Band 25 (1850 – 1915 MHz)
- LTE Band 5 (824 – 849 MHz) is covered by LTE Band 26 (814 – 849 MHz)
- LTE Band 4 (1710 – 1755 MHz) is covered by LTE Band 66 (1710 – 1780 MHz)
- LTE Band 17 (704 – 716 MHz) is covered by LTE Band 12 (699 – 716 MHz)

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

When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE Devices.

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

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

Note(s):

For Proximity Sensor back-off mode, LTE Band 2/4 have higher target power than LTE Band 25/66, therefore power measurement and required SAR test in Product Specific 10-g SAR with 0mm for LTE Band 2/4 were performed.

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1. Max power Results

LTE Band 12 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				23060	23095	23130		
				704 MHz	707.5 MHz	711 MHz		
10 MHz	QPSK	1	0		24.5		0.0	25.0
		1	25		24.2		0.0	25.0
		1	49		24.2		0.0	25.0
		25	0		23.4		1.0	24.0
		25	12		23.3		1.0	24.0
		25	25		23.3		1.0	24.0
		50	0		23.3		1.0	24.0
	16QAM	1	0		23.7		1.0	24.0
		1	25		23.4		1.0	24.0
		1	49		23.5		1.0	24.0
		25	0		22.4		2.0	23.0
		25	12		22.3		2.0	23.0
		25	25		22.3		2.0	23.0
		50	0		22.3		2.0	23.0
	64QAM	1	0		22.5		2.0	23.0
		1	25		22.5		2.0	23.0
		1	49		22.5		2.0	23.0
		25	0		21.8		3.0	22.0
		25	12		21.4		3.0	22.0
		25	25		21.3		3.0	22.0
		50	0		21.2		3.0	22.0
	256QAM	1	0		19.6		5.0	20.0
		1	25		19.4		5.0	20.0
		1	49		19.5		5.0	20.0
		25	0		19.4		5.0	20.0
		25	12		19.3		5.0	20.0
		25	25		19.3		5.0	20.0
		50	0		19.3		5.0	20.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23035	23095	23155		
				701.5 MHz	707.5 MHz	713.5 MHz		
5 MHz	QPSK	1	0	24.3	24.3	24.3	0.0	25.0
		1	12	24.2	24.3	24.5	0.0	25.0
		1	24	24.3	24.3	24.4	0.0	25.0
		12	0	23.3	23.3	23.3	1.0	24.0
		12	7	23.3	23.3	23.3	1.0	24.0
		12	13	23.3	23.3	23.3	1.0	24.0
		25	0	23.3	23.3	23.3	1.0	24.0
	16QAM	1	0	23.8	23.5	23.7	1.0	24.0
		1	12	23.8	23.6	23.6	1.0	24.0
		1	24	23.6	23.6	23.8	1.0	24.0
		12	0	22.3	22.3	22.4	2.0	23.0
		12	7	22.3	22.3	22.3	2.0	23.0
		12	13	22.2	22.3	22.4	2.0	23.0
		25	0	22.2	22.3	22.3	2.0	23.0
	64QAM	1	0	22.4	22.2	22.5	2.0	23.0
		1	12	22.3	22.2	22.5	2.0	23.0
		1	24	22.6	22.2	22.5	2.0	23.0
		12	0	21.3	21.3	21.4	3.0	22.0
		12	7	21.2	21.3	21.3	3.0	22.0
		12	13	21.3	21.3	21.3	3.0	22.0
		25	0	21.2	21.3	21.4	3.0	22.0
	256QAM	1	0	19.1	19.3	19.7	5.0	20.0
		1	12	19.1	19.4	19.9	5.0	20.0
		1	24	19.2	19.4	19.7	5.0	20.0
		12	0	19.3	19.3	19.3	5.0	20.0
		12	7	19.2	19.3	19.3	5.0	20.0
		12	13	19.2	19.3	19.3	5.0	20.0
		25	0	19.2	19.2	19.2	5.0	20.0

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LTE Band 12 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23025	23095	23165		
				700.5 MHz	707.5 MHz	714.5 MHz		
3 MHz	QPSK	1	0	24.3	24.3	24.4	0.0	25.0
		1	8	24.5	24.1	24.6	0.0	25.0
		1	14	24.3	24.2	24.5	0.0	25.0
		8	0	23.3	23.3	23.3	1.0	24.0
		8	4	23.2	23.3	23.4	1.0	24.0
		8	7	23.3	23.3	23.4	1.0	24.0
		15	0	23.3	23.3	23.3	1.0	24.0
	16QAM	1	0	23.4	23.8	23.8	1.0	24.0
		1	8	23.5	23.6	23.4	1.0	24.0
		1	14	23.5	23.5	23.8	1.0	24.0
		8	0	22.2	22.4	22.3	2.0	23.0
		8	4	22.3	22.4	22.4	2.0	23.0
		8	7	22.3	22.4	22.4	2.0	23.0
		15	0	22.3	22.3	22.3	2.0	23.0
	64QAM	1	0	22.5	22.2	22.2	2.0	23.0
		1	8	22.4	22.3	22.2	2.0	23.0
		1	14	22.3	22.3	22.3	2.0	23.0
		8	0	21.2	21.3	21.3	3.0	22.0
		8	4	21.1	21.2	21.3	3.0	22.0
		8	7	21.2	21.3	21.3	3.0	22.0
		15	0	21.1	21.2	21.3	3.0	22.0
	256QAM	1	0	19.4	19.5	19.5	5.0	20.0
		1	8	19.7	19.7	19.4	5.0	20.0
		1	14	19.4	19.4	19.5	5.0	20.0
		8	0	19.3	19.2	19.3	5.0	20.0
		8	4	19.2	19.2	19.3	5.0	20.0
		8	7	19.2	19.2	19.3	5.0	20.0
		15	0	19.2	19.2	19.3	5.0	20.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23017	23095	23173		
				699.7 MHz	707.5 MHz	715.3 MHz		
1.4 MHz	QPSK	1	0	23.3	24.4	24.4	0.0	25.0
		1	3	24.4	24.4	24.4	0.0	25.0
		1	5	24.4	24.4	24.4	0.0	25.0
		3	0	24.3	24.3	24.4	0.0	25.0
		3	1	24.3	24.4	24.5	0.0	25.0
		3	3	24.4	24.3	24.5	0.0	25.0
		6	0	23.1	23.2	23.3	1.0	24.0
	16QAM	1	0	23.5	23.5	23.7	1.0	24.0
		1	3	23.5	23.5	23.7	1.0	24.0
		1	5	23.5	23.5	23.6	1.0	24.0
		3	0	23.3	23.3	23.7	1.0	24.0
		3	1	23.4	23.4	23.7	1.0	24.0
		3	3	23.4	23.4	23.6	1.0	24.0
		6	0	22.3	22.3	22.2	2.0	23.0
	64QAM	1	0	22.2	22.3	22.4	2.0	23.0
		1	3	22.3	22.2	22.2	2.0	23.0
		1	5	22.2	22.0	22.2	2.0	23.0
		3	0	22.3	22.2	22.3	2.0	23.0
		3	1	22.3	22.0	22.3	2.0	23.0
		3	3	22.3	22.3	22.2	2.0	23.0
		6	0	21.1	21.3	21.3	3.0	22.0
	256QAM	1	0	19.2	19.3	19.5	5.0	20.0
		1	3	18.9	18.9	19.5	5.0	20.0
		1	5	19.1	19.5	19.3	5.0	20.0
		3	0	19.0	19.1	19.3	5.0	20.0
		3	1	19.0	19.2	19.4	5.0	20.0
		3	3	19.0	19.1	19.3	5.0	20.0
		6	0	19.0	19.2	19.2	5.0	20.0

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LTE Band 13 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
					23230			
					782 MHz			
10 MHz	QPSK	1	0		23.9		0.0	25.0
		1	25		24.0		0.0	25.0
		1	49		24.0		0.0	25.0
		25	0		23.0		1.0	24.0
		25	12		23.0		1.0	24.0
		25	25		23.0		1.0	24.0
		50	0		23.0		1.0	24.0
	16QAM	1	0		22.9		1.0	24.0
		1	25		22.9		1.0	24.0
		1	49		23.1		1.0	24.0
		25	0		22.0		2.0	23.0
		25	12		22.0		2.0	23.0
		25	25		22.1		2.0	23.0
		50	0		22.0		2.0	23.0
	64QAM	1	0		21.9		2.0	23.0
		1	25		21.9		2.0	23.0
		1	49		22.0		2.0	23.0
		25	0		21.0		3.0	22.0
		25	12		21.1		3.0	22.0
		25	25		21.1		3.0	22.0
		50	0		21.0		3.0	22.0
	256QAM	1	0		18.9		5.0	20.0
		1	25		19.0		5.0	20.0
		1	49		19.0		5.0	20.0
		25	0		19.0		5.0	20.0
		25	12		19.1		5.0	20.0
		25	25		19.1		5.0	20.0
		50	0		19.0		5.0	20.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23205	23230	23255		
				779.5 MHz	782 MHz	784.5 MHz		
5 MHz	QPSK	1	0		24.0		0.0	25.0
		1	12		24.2		0.0	25.0
		1	24		24.1		0.0	25.0
		12	0		23.0		1.0	24.0
		12	7		23.1		1.0	24.0
		12	13		23.1		1.0	24.0
		25	0		23.0		1.0	24.0
	16QAM	1	0		23.2		1.0	24.0
		1	12		23.4		1.0	24.0
		1	24		23.4		1.0	24.0
		12	0		22.0		2.0	23.0
		12	7		22.0		2.0	23.0
		12	13		22.1		2.0	23.0
		25	0		22.0		2.0	23.0
	64QAM	1	0		22.3		2.0	23.0
		1	12		22.3		2.0	23.0
		1	24		22.4		2.0	23.0
		12	0		21.1		3.0	22.0
		12	7		21.1		3.0	22.0
		12	13		21.1		3.0	22.0
		25	0		21.1		3.0	22.0
	256QAM	1	0		19.3		5.0	20.0
		1	12		19.6		5.0	20.0
		1	24		19.4		5.0	20.0
		12	0		19.0		5.0	20.0
		12	7		19.0		5.0	20.0
		12	13		19.1		5.0	20.0
		25	0		18.9		5.0	20.0

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LTE Band 25 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				26140	26365	26590		
				1860 MHz	1882.5 MHz	1905 MHz		
20 MHz	QPSK	1	0	22.2	22.2	22.3	0.0	23.0
		1	49	22.0	22.1	21.9	0.0	23.0
		1	99	22.1	22.1	21.9	0.0	23.0
		50	0	21.2	21.2	21.2	1.0	22.0
		50	24	21.2	21.2	21.0	1.0	22.0
		50	50	21.1	21.1	20.9	1.0	22.0
		100	0	21.1	21.1	21.0	1.0	22.0
	16QAM	1	0	21.6	21.7	21.3	1.0	22.0
		1	49	21.4	21.5	21.2	1.0	22.0
		1	99	21.6	21.5	21.2	1.0	22.0
		50	0	20.2	20.3	20.1	2.0	21.0
		50	24	20.2	20.2	20.0	2.0	21.0
		50	50	20.2	20.2	19.9	2.0	21.0
		100	0	20.2	20.2	20.0	2.0	21.0
	64QAM	1	0	20.4	20.5	20.0	2.0	21.0
		1	49	20.3	20.4	20.0	2.0	21.0
		1	99	20.4	20.4	20.0	2.0	21.0
		50	0	19.2	19.4	19.4	2.0	21.0
		50	24	19.2	19.4	19.3	2.0	21.0
		50	50	19.2	19.4	19.3	2.0	21.0
		100	0	19.2	19.5	19.4	2.0	21.0
	256QAM	1	0	17.4	17.5	17.2	5.0	18.0
		1	49	17.2	17.4	17.0	5.0	18.0
		1	99	17.4	17.4	17.0	5.0	18.0
		50	0	17.1	17.1	16.9	5.0	18.0
		50	24	17.1	17.1	16.9	5.0	18.0
		50	50	17.0	17.0	16.8	5.0	18.0
		100	0	17.1	17.1	16.9	5.0	18.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26115	26365	26615		
				1857.5 MHz	1882.5 MHz	1907.5 MHz		
15 MHz	QPSK	1	0	22.3	22.1	22.2	0.0	23.0
		1	37	22.1	21.9	22.2	0.0	23.0
		1	74	22.2	22.1	22.0	0.0	23.0
		36	0	21.2	21.1	21.0	1.0	22.0
		36	20	21.2	21.1	20.9	1.0	22.0
		36	39	21.2	21.1	20.9	1.0	22.0
		75	0	21.2	21.1	20.9	1.0	22.0
	16QAM	1	0	21.5	21.6	21.4	1.0	22.0
		1	37	21.4	21.5	21.3	1.0	22.0
		1	74	21.5	21.5	21.1	1.0	22.0
		36	0	20.2	20.2	20.0	2.0	21.0
		36	20	20.1	20.1	20.0	2.0	21.0
		36	39	20.2	20.1	19.9	2.0	21.0
		75	0	20.2	20.1	20.0	2.0	21.0
	64QAM	1	0	20.5	20.6	20.2	2.0	21.0
		1	37	20.5	20.6	20.3	2.0	21.0
		1	74	20.6	20.6	20.3	2.0	21.0
		36	0	19.2	19.4	19.2	2.0	21.0
		36	20	19.2	19.4	19.2	2.0	21.0
		36	39	19.1	19.4	19.3	2.0	21.0
		75	0	19.2	19.3	19.3	2.0	21.0
	256QAM	1	0	17.3	17.3	17.0	5.0	18.0
		1	37	17.2	17.3	17.2	5.0	18.0
		1	74	17.3	17.2	16.9	5.0	18.0
		36	0	17.2	17.1	17.0	5.0	18.0
		36	20	17.2	17.1	16.9	5.0	18.0
		36	39	17.1	17.1	16.9	5.0	18.0
		75	0	17.1	17.1	16.9	5.0	18.0

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LTE Band 25 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26090	26365	26640		
				1855 MHz	1882.5 MHz	1910 MHz		
10 MHz	QPSK	1	0	22.2	22.2	22.0	0.0	23.0
		1	25	22.1	22.0	21.8	0.0	23.0
		1	49	22.2	22.1	21.9	0.0	23.0
		25	0	21.2	21.2	21.0	1.0	22.0
		25	12	21.1	21.1	20.9	1.0	22.0
		25	25	21.1	21.1	20.9	1.0	22.0
		50	0	21.2	21.1	20.9	1.0	22.0
	16QAM	1	0	21.1	21.6	21.4	1.0	22.0
		1	25	21.0	21.3	21.3	1.0	22.0
		1	49	21.2	21.4	21.3	1.0	22.0
		25	0	20.2	20.2	20.0	2.0	21.0
		25	12	20.2	20.2	19.9	2.0	21.0
		25	25	20.2	20.2	19.9	2.0	21.0
		50	0	20.2	20.2	19.9	2.0	21.0
	64QAM	1	0	20.5	20.3	20.0	2.0	21.0
		1	25	20.3	20.3	20.0	2.0	21.0
		1	49	20.4	20.3	20.0	2.0	21.0
		25	0	19.2	19.4	19.3	2.0	21.0
		25	12	19.2	19.4	19.3	2.0	21.0
		25	25	19.2	19.3	19.2	2.0	21.0
		50	0	19.2	19.3	19.2	2.0	21.0
	256QAM	1	0	17.2	17.3	17.1	5.0	18.0
		1	25	17.1	17.1	16.9	5.0	18.0
		1	49	17.2	17.2	16.9	5.0	18.0
		25	0	17.2	17.1	16.9	5.0	18.0
		25	12	17.1	17.1	16.9	5.0	18.0
		25	25	17.2	17.1	16.8	5.0	18.0
		50	0	17.1	17.1	16.8	5.0	18.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26065	26365	26665		
				1852.5 MHz	1882.5 MHz	1912.5 MHz		
5 MHz	QPSK	1	0	22.2	22.1	21.9	0.0	23.0
		1	12	22.3	22.2	22.0	0.0	23.0
		1	24	22.3	22.2	22.0	0.0	23.0
		12	0	21.2	21.2	20.9	1.0	22.0
		12	7	21.2	21.1	20.9	1.0	22.0
		12	13	21.2	21.2	20.9	1.0	22.0
		25	0	21.2	21.1	20.9	1.0	22.0
	16QAM	1	0	21.7	21.4	21.4	1.0	22.0
		1	12	21.7	21.4	21.2	1.0	22.0
		1	24	21.6	21.5	21.4	1.0	22.0
		12	0	20.2	20.2	20.1	2.0	21.0
		12	7	20.3	20.1	20.1	2.0	21.0
		12	13	20.2	20.2	20.1	2.0	21.0
		25	0	20.2	20.2	19.9	2.0	21.0
	64QAM	1	0	20.6	20.4	20.1	2.0	21.0
		1	12	20.5	20.4	20.1	2.0	21.0
		1	24	20.4	20.3	20.1	2.0	21.0
		12	0	19.2	19.4	19.4	2.0	21.0
		12	7	19.2	19.3	19.3	2.0	21.0
		12	13	19.3	19.3	19.3	2.0	21.0
		25	0	19.2	19.3	19.3	2.0	21.0
	256QAM	1	0	17.6	17.1	17.0	5.0	18.0
		1	12	17.8	17.0	17.1	5.0	18.0
		1	24	17.6	17.1	17.0	5.0	18.0
		12	0	17.2	17.1	16.9	5.0	18.0
		12	7	17.1	17.1	16.9	5.0	18.0
		12	13	17.2	17.1	16.9	5.0	18.0
		25	0	17.1	17.1	16.8	5.0	18.0

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LTE Band 25 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26055	26365	26675		
				1851.5 MHz	1882.5 MHz	1913.5 MHz		
3 MHz	QPSK	1	0	22.3	22.2	22.1	0.0	23.0
		1	8	22.2	22.1	22.3	0.0	23.0
		1	14	22.4	22.1	22.1	0.0	23.0
		8	0	21.2	21.1	21.0	1.0	22.0
		8	4	21.2	21.1	20.9	1.0	22.0
		8	7	21.2	21.1	21.0	1.0	22.0
		15	0	21.2	21.1	20.9	1.0	22.0
	16QAM	1	0	21.4	21.6	21.3	1.0	22.0
		1	8	21.6	21.5	21.3	1.0	22.0
		1	14	21.5	21.4	21.4	1.0	22.0
		8	0	20.1	20.3	20.0	2.0	21.0
		8	4	20.2	20.2	20.0	2.0	21.0
		8	7	20.2	20.3	20.0	2.0	21.0
		15	0	20.2	20.2	20.0	2.0	21.0
	64QAM	1	0	20.4	20.3	20.0	2.0	21.0
		1	8	20.4	20.2	19.8	2.0	21.0
		1	14	20.2	20.4	19.9	2.0	21.0
		8	0	19.1	19.3	19.4	2.0	21.0
		8	4	19.1	19.2	19.2	2.0	21.0
		8	7	19.1	19.1	19.5	2.0	21.0
		15	0	19.1	19.5	19.2	2.0	21.0
	256QAM	1	0	17.2	17.4	17.2	5.0	18.0
		1	8	17.5	17.5	17.1	5.0	18.0
		1	14	17.4	17.4	16.9	5.0	18.0
		8	0	17.2	17.1	16.9	5.0	18.0
		8	4	17.1	17.2	16.9	5.0	18.0
		8	7	17.2	17.2	17.0	5.0	18.0
		15	0	17.2	17.1	16.9	5.0	18.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26047	26365	26683		
				1850.7 MHz	1882.5 MHz	1914.3 MHz		
1.4 MHz	QPSK	1	0	22.1	22.1	21.9	0.0	23.0
		1	3	22.0	22.0	21.8	0.0	23.0
		1	5	22.1	22.1	21.9	0.0	23.0
		3	0	22.0	22.0	21.8	0.0	23.0
		3	1	21.9	22.0	21.8	0.0	23.0
		3	3	22.0	22.0	21.8	0.0	23.0
		6	0	21.1	21.1	20.8	1.0	22.0
	16QAM	1	0	21.2	21.5	21.0	1.0	22.0
		1	3	21.1	21.2	20.6	1.0	22.0
		1	5	21.2	21.4	21.0	1.0	22.0
		3	0	21.1	21.2	20.8	1.0	22.0
		3	1	21.0	21.3	20.7	1.0	22.0
		3	3	21.1	21.2	20.8	1.0	22.0
		6	0	20.2	20.0	19.9	2.0	21.0
	64QAM	1	0	20.3	20.1	19.8	2.0	21.0
		1	3	20.4	20.1	20.1	2.0	21.0
		1	5	20.3	20.1	19.7	2.0	21.0
		3	0	20.2	20.0	19.8	2.0	21.0
		3	1	20.2	20.2	19.8	2.0	21.0
		3	3	20.2	20.1	20.1	2.0	21.0
		6	0	19.1	20.0	19.9	2.0	21.0
	256QAM	1	0	16.9	16.8	16.9	5.0	18.0
		1	3	16.9	16.9	16.9	5.0	18.0
		1	5	17.0	17.3	16.8	5.0	18.0
		3	0	16.9	16.8	16.8	5.0	18.0
		3	1	16.9	16.9	16.8	5.0	18.0
		3	3	16.9	16.8	16.9	5.0	18.0
		6	0	17.0	17.0	16.8	5.0	18.0

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LTE Band 26 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				26765	26865	26965		
				821.5 MHz	831.5 MHz	841.5 MHz		
15 MHz	QPSK	1	0	[redacted]	24.3	[redacted]	0.0	25.0
		1	37	[redacted]	24.3	[redacted]	0.0	25.0
		1	74	[redacted]	24.1	[redacted]	0.0	25.0
		36	0	[redacted]	23.3	[redacted]	1.0	24.0
		36	20	[redacted]	23.2	[redacted]	1.0	24.0
		36	39	[redacted]	23.2	[redacted]	1.0	24.0
		75	0	[redacted]	23.2	[redacted]	1.0	24.0
	16QAM	1	0	[redacted]	23.6	[redacted]	1.0	24.0
		1	37	[redacted]	23.6	[redacted]	1.0	24.0
		1	74	[redacted]	23.4	[redacted]	1.0	24.0
		36	0	[redacted]	22.2	[redacted]	2.0	23.0
		36	20	[redacted]	22.2	[redacted]	2.0	23.0
		36	39	[redacted]	22.2	[redacted]	2.0	23.0
		75	0	[redacted]	22.2	[redacted]	2.0	23.0
	64QAM	1	0	[redacted]	22.3	[redacted]	2.0	23.0
		1	37	[redacted]	22.3	[redacted]	2.0	23.0
		1	74	[redacted]	22.4	[redacted]	2.0	23.0
		36	0	[redacted]	21.2	[redacted]	3.0	22.0
		36	20	[redacted]	21.1	[redacted]	3.0	22.0
		36	39	[redacted]	21.1	[redacted]	3.0	22.0
		75	0	[redacted]	21.1	[redacted]	3.0	22.0
	256QAM	1	0	[redacted]	19.6	[redacted]	5.0	20.0
		1	37	[redacted]	19.6	[redacted]	5.0	20.0
		1	74	[redacted]	19.5	[redacted]	5.0	20.0
		36	0	[redacted]	19.2	[redacted]	5.0	20.0
		36	20	[redacted]	19.2	[redacted]	5.0	20.0
		36	39	[redacted]	19.2	[redacted]	5.0	20.0
		75	0	[redacted]	19.2	[redacted]	5.0	20.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26740	26865	26990		
				819 MHz	831.5 MHz	844 MHz		
10 MHz	QPSK	1	0	24.0	24.3	24.2	0.0	25.0
		1	25	23.9	24.1	24.2	0.0	25.0
		1	49	24.0	24.1	24.2	0.0	25.0
		25	0	23.0	23.2	23.2	1.0	24.0
		25	12	23.0	23.1	23.2	1.0	24.0
		25	25	23.0	23.1	23.2	1.0	24.0
		50	0	23.0	23.2	23.2	1.0	24.0
	16QAM	1	0	23.1	23.5	23.5	1.0	24.0
		1	25	23.0	23.2	23.5	1.0	24.0
		1	49	23.2	23.3	23.6	1.0	24.0
		25	0	22.0	22.2	22.2	2.0	23.0
		25	12	22.0	22.2	22.2	2.0	23.0
		25	25	22.0	22.1	22.2	2.0	23.0
		50	0	22.0	22.1	22.2	2.0	23.0
	64QAM	1	0	22.3	22.2	22.1	2.0	23.0
		1	25	22.1	22.2	22.1	2.0	23.0
		1	49	22.2	22.2	22.1	2.0	23.0
		25	0	21.0	21.1	21.1	3.0	22.0
		25	12	21.1	21.1	21.1	3.0	22.0
		25	25	21.0	21.1	21.0	3.0	22.0
		50	0	21.0	21.0	21.0	3.0	22.0
	256QAM	1	0	19.1	19.5	19.2	5.0	20.0
		1	25	19.0	19.3	19.2	5.0	20.0
		1	49	19.1	19.4	19.3	5.0	20.0
		25	0	19.0	19.3	19.1	5.0	20.0
		25	12	19.1	19.2	19.2	5.0	20.0
		25	25	19.1	19.2	19.2	5.0	20.0
		50	0	19.0	19.2	19.2	5.0	20.0

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LTE Band 26 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26715	26865	27015		
				816.5 MHz	831.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	23.8	24.2	24.1	0.0	25.0
		1	12	23.9	24.2	24.2	0.0	25.0
		1	24	23.9	24.2	24.2	0.0	25.0
		12	0	22.9	23.2	23.2	1.0	24.0
		12	7	22.9	23.2	23.2	1.0	24.0
		12	13	23.0	23.1	23.2	1.0	24.0
		25	0	22.9	23.1	23.2	1.0	24.0
	16QAM	1	0	23.3	23.3	23.6	1.0	24.0
		1	12	23.5	23.3	23.5	1.0	24.0
		1	24	23.2	23.4	23.7	1.0	24.0
		12	0	22.0	22.2	22.3	2.0	23.0
		12	7	22.0	22.1	22.3	2.0	23.0
		12	13	22.0	22.2	22.3	2.0	23.0
		25	0	21.9	22.1	22.2	2.0	23.0
	64QAM	1	0	22.0	22.2	22.3	2.0	23.0
		1	12	21.7	22.2	22.3	2.0	23.0
		1	24	22.2	22.2	22.3	2.0	23.0
		12	0	20.9	21.0	20.9	3.0	22.0
		12	7	21.0	21.0	21.0	3.0	22.0
		12	13	21.0	21.0	20.9	3.0	22.0
		25	0	20.9	21.0	20.9	3.0	22.0
	256QAM	1	0	19.0	19.3	19.6	5.0	20.0
		1	12	19.1	19.5	19.8	5.0	20.0
		1	24	19.1	19.2	19.6	5.0	20.0
		12	0	18.9	19.2	19.2	5.0	20.0
		12	7	19.0	19.2	19.2	5.0	20.0
		12	13	19.0	19.2	19.2	5.0	20.0
		25	0	19.0	19.2	19.1	5.0	20.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26705	26865	27025		
				815.5 MHz	831.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	23.9	24.2	24.1	0.0	25.0
		1	8	24.2	24.0	24.3	0.0	25.0
		1	14	24.0	24.1	24.2	0.0	25.0
		8	0	22.9	23.1	23.1	1.0	24.0
		8	4	22.8	23.1	23.1	1.0	24.0
		8	7	22.8	23.1	23.1	1.0	24.0
		15	0	22.9	23.1	23.1	1.0	24.0
	16QAM	1	0	23.1	23.6	23.5	1.0	24.0
		1	8	23.2	23.5	23.7	1.0	24.0
		1	14	23.2	23.5	23.5	1.0	24.0
		8	0	21.9	22.2	22.1	2.0	23.0
		8	4	21.9	22.1	22.1	2.0	23.0
		8	7	21.9	22.1	22.1	2.0	23.0
		15	0	21.9	22.2	22.2	2.0	23.0
	64QAM	1	0	22.1	22.2	22.2	2.0	23.0
		1	8	22.0	22.4	22.1	2.0	23.0
		1	14	22.0	22.4	22.1	2.0	23.0
		8	0	20.8	21.1	21.1	3.0	22.0
		8	4	20.8	21.1	21.0	3.0	22.0
		8	7	20.9	21.1	20.9	3.0	22.0
		15	0	20.9	21.0	20.9	3.0	22.0
	256QAM	1	0	19.0	19.3	19.3	5.0	20.0
		1	8	19.1	19.5	19.4	5.0	20.0
		1	14	19.1	19.4	19.5	5.0	20.0
		8	0	19.0	19.2	19.2	5.0	20.0
		8	4	18.9	19.2	19.2	5.0	20.0
		8	7	18.9	19.1	19.2	5.0	20.0
		15	0	19.0	19.1	19.2	5.0	20.0

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LTE Band 26 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26697	26865	27033		
				814.7 MHz	831.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	23.7	24.1	24.0	0.0	25.0
		1	3	23.7	24.0	23.9	0.0	25.0
		1	5	23.7	24.1	24.0	0.0	25.0
		3	0	23.7	24.0	23.9	0.0	25.0
		3	1	23.7	24.0	24.0	0.0	25.0
		3	3	23.8	24.1	24.0	0.0	25.0
		6	0	22.7	23.0	23.0	1.0	24.0
	16QAM	1	0	22.9	23.3	23.1	1.0	24.0
		1	3	22.8	23.2	23.0	1.0	24.0
		1	5	22.9	23.3	23.0	1.0	24.0
		3	0	22.8	23.0	23.0	1.0	24.0
		3	1	22.8	23.1	22.9	1.0	24.0
		3	3	22.9	23.0	23.0	1.0	24.0
		6	0	21.9	22.0	22.0	2.0	23.0
	64QAM	1	0	22.0	22.2	22.3	2.0	23.0
		1	3	22.0	22.3	21.9	2.0	23.0
		1	5	21.9	22.2	22.3	2.0	23.0
		3	0	21.8	22.0	22.3	2.0	23.0
		3	1	21.9	22.0	22.3	2.0	23.0
		3	3	21.8	22.0	22.3	2.0	23.0
		6	0	20.9	21.1	21.0	3.0	22.0
	256QAM	1	0	18.9	19.1	18.9	5.0	20.0
		1	3	19.0	19.0	18.6	5.0	20.0
		1	5	19.0	19.0	18.9	5.0	20.0
		3	0	18.8	19.1	19.0	5.0	20.0
		3	1	18.9	19.1	19.0	5.0	20.0
		3	3	18.8	19.1	19.0	5.0	20.0
		6	0	18.8	19.0	19.0	5.0	20.0

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LTE Band 66 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	22.4	22.4	22.1	0.0	23
		1	49	22.3	22.3	21.9	0.0	23
		1	99	22.3	22.3	22.0	0.0	23
		50	0	21.4	21.4	21.0	1.0	22
		50	24	21.4	21.3	21.0	1.0	22
		50	50	21.4	21.3	21.0	1.0	22
		100	0	21.4	21.4	21.0	1.0	22
	16QAM	1	0	21.8	21.8	21.4	1.0	22
		1	49	21.7	21.6	21.2	1.0	22
		1	99	21.8	21.7	21.3	1.0	22
		50	0	20.5	20.4	20.1	2.0	21
		50	24	20.5	20.4	20.1	2.0	21
		50	50	20.4	20.4	20.0	2.0	21
		100	0	20.4	20.4	20.0	2.0	21
	64QAM	1	0	20.8	20.6	20.3	2.0	21
		1	49	20.8	20.6	20.2	2.0	21
		1	99	20.9	20.6	20.3	2.0	21
		50	0	19.5	19.5	19.2	2.0	21
		50	24	19.5	19.5	19.2	2.0	21
		50	50	19.5	19.5	19.2	2.0	21
		100	0	19.4	19.5	19.2	2.0	21
	256QAM	1	0	17.8	17.6	17.3	5.0	18
		1	49	17.7	17.4	17.1	5.0	18
		1	99	17.7	17.5	17.2	5.0	18
		50	0	17.4	17.3	17.0	5.0	18
		50	24	17.4	17.3	16.9	5.0	18
		50	50	17.3	17.3	16.9	5.0	18
		100	0	17.3	17.3	16.9	5.0	18
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132047	132322	132597		
				1717.5 MHz	1745 MHz	1772.5 MHz		
15 MHz	QPSK	1	0	22.5	22.4	22.2	0.0	23
		1	37	22.3	22.3	22.3	0.0	23
		1	74	22.3	22.3	22.1	0.0	23
		36	0	21.5	21.4	21.2	1.0	22
		36	20	21.4	21.3	21.1	1.0	22
		36	39	21.4	21.3	21.1	1.0	22
		75	0	21.4	21.4	21.2	1.0	22
	16QAM	1	0	21.6	21.7	21.6	1.0	22
		1	37	21.7	21.7	21.5	1.0	22
		1	74	21.7	21.8	21.5	1.0	22
		36	0	20.4	20.4	20.2	2.0	21
		36	20	20.3	20.4	20.1	2.0	21
		36	39	20.3	20.3	20.1	2.0	21
		75	0	20.4	20.4	20.2	2.0	21
	64QAM	1	0	20.6	20.7	20.5	2.0	21
		1	37	20.5	20.7	20.5	2.0	21
		1	74	20.7	20.7	20.5	2.0	21
		36	0	19.4	19.5	19.3	2.0	21
		36	20	19.3	19.5	19.3	2.0	21
		36	39	19.3	19.4	19.2	2.0	21
		75	0	19.4	19.4	19.2	2.0	21
	256QAM	1	0	17.6	17.5	17.2	5.0	18
		1	37	17.4	17.7	17.3	5.0	18
		1	74	17.4	17.4	17.2	5.0	18
		36	0	17.4	17.4	17.1	5.0	18
		36	20	17.3	17.3	17.1	5.0	18
		36	39	17.3	17.3	17.1	5.0	18
		75	0	17.3	17.3	17.1	5.0	18

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LTE Band 66 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622		
				1715 MHz	1745 MHz	1775 MHz		
10 MHz	QPSK	1	0	22.3	22.4	22.1	0.0	23
		1	25	22.3	22.2	22.0	0.0	23
		1	49	22.4	22.3	22.1	0.0	23
		25	0	21.3	21.3	21.1	1.0	22
		25	12	21.3	21.3	21.0	1.0	22
		25	25	21.3	21.3	21.0	1.0	22
		50	0	21.3	21.4	21.1	1.0	22
	16QAM	1	0	21.5	21.7	21.6	1.0	22
		1	25	21.4	21.5	21.5	1.0	22
		1	49	21.6	21.6	21.6	1.0	22
		25	0	20.3	20.4	20.1	2.0	21
		25	12	20.3	20.4	20.1	2.0	21
		25	25	20.3	20.4	20.1	2.0	21
		50	0	20.3	20.4	20.1	2.0	21
	64QAM	1	0	20.5	20.3	20.3	2.0	21
		1	25	20.3	20.3	20.3	2.0	21
		1	49	20.4	20.3	20.3	2.0	21
		25	0	19.4	19.5	19.1	2.0	21
		25	12	19.3	19.5	19.2	2.0	21
		25	25	19.4	19.5	19.2	2.0	21
		50	0	19.3	19.4	19.1	2.0	21
	256QAM	1	0	17.4	17.4	17.1	5.0	18
		1	25	17.2	17.3	16.9	5.0	18
		1	49	17.3	17.4	17.0	5.0	18
		25	0	17.4	17.3	17.0	5.0	18
		25	12	17.3	17.3	17.0	5.0	18
		25	25	17.3	17.3	17.0	5.0	18
		50	0	17.3	17.3	17.0	5.0	18

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131997	132322	132647		
				1712.5 MHz	1745 MHz	1777.5 MHz		
5 MHz	QPSK	1	0	22.3	22.2	22.0	0.0	23
		1	12	22.5	22.3	22.2	0.0	23
		1	24	22.4	22.4	22.1	0.0	23
		12	0	21.4	21.3	21.1	1.0	22
		12	7	21.4	21.3	21.1	1.0	22
		12	13	21.4	21.3	21.1	1.0	22
		25	0	21.3	21.3	21.0	1.0	22
	16QAM	1	0	21.7	21.9	21.3	1.0	22
		1	12	21.7	21.9	21.4	1.0	22
		1	24	21.8	21.8	21.4	1.0	22
		12	0	20.5	20.4	20.1	2.0	21
		12	7	20.5	20.3	20.1	2.0	21
		12	13	20.5	20.3	20.1	2.0	21
		25	0	20.4	20.3	20.1	2.0	21
	64QAM	1	0	20.4	20.4	20.4	2.0	21
		1	12	20.5	20.4	20.4	2.0	21
		1	24	20.6	20.4	20.4	2.0	21
		12	0	19.4	19.3	19.3	2.0	21
		12	7	19.4	19.2	19.3	2.0	21
		12	13	19.4	19.3	19.2	2.0	21
		25	0	19.3	19.3	19.1	2.0	21
	256QAM	1	0	17.6	17.6	17.4	5.0	18
		1	12	17.6	17.6	17.6	5.0	18
		1	24	17.6	17.6	17.3	5.0	18
		12	0	17.4	17.3	17.0	5.0	18
		12	7	17.4	17.3	17.0	5.0	18
		12	13	17.4	17.3	17.0	5.0	18
		25	0	17.4	17.3	16.9	5.0	18

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LTE Band 66 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657		
				1711.5 MHz	1745 MHz	1778.5 MHz		
3 MHz	QPSK	1	0	22.4	22.4	22.1	0.0	23
		1	8	22.3	22.6	22.1	0.0	23
		1	14	22.4	22.4	22.2	0.0	23
		8	0	21.4	21.3	21.1	1.0	22
		8	4	21.4	21.3	21.0	1.0	22
		8	7	21.4	21.3	21.0	1.0	22
		15	0	21.4	21.3	21.1	1.0	22
	16QAM	1	0	21.7	21.7	21.3	1.0	22
		1	8	21.5	21.9	21.5	1.0	22
		1	14	21.5	22.0	21.4	1.0	22
		8	0	20.4	20.4	20.1	2.0	21
		8	4	20.4	20.4	20.1	2.0	21
		8	7	20.4	20.4	20.1	2.0	21
		15	0	20.4	20.4	20.1	2.0	21
	64QAM	1	0	20.5	20.7	20.2	2.0	21
		1	8	20.5	20.7	20.2	2.0	21
		1	14	20.4	20.7	20.1	2.0	21
		8	0	19.3	19.1	19.1	2.0	21
		8	4	19.3	19.2	19.1	2.0	21
		8	7	19.3	19.2	19.1	2.0	21
		15	0	19.3	19.2	19.0	2.0	21
	256QAM	1	0	17.8	17.4	17.1	5.0	18
		1	8	18.0	17.6	17.4	5.0	18
		1	14	17.5	17.6	17.1	5.0	18
		8	0	17.4	17.3	17.0	5.0	18
		8	4	17.3	17.4	17.0	5.0	18
		8	7	17.4	17.4	17.1	5.0	18
		15	0	17.4	17.3	17.1	5.0	18

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131979	132322	132665		
				1710.7 MHz	1745 MHz	1779.3 MHz		
1.4 MHz	QPSK	1	0	22.3	22.3	22.0	0.0	23
		1	3	22.1	22.1	21.9	0.0	23
		1	5	22.3	22.3	22.0	0.0	23
		3	0	22.3	22.2	21.9	0.0	23
		3	1	22.2	22.2	21.9	0.0	23
		3	3	22.3	22.2	21.9	0.0	23
		6	0	21.3	21.2	20.9	1.0	22
	16QAM	1	0	21.4	21.6	21.2	1.0	22
		1	3	21.3	21.8	21.1	1.0	22
		1	5	21.4	21.7	21.2	1.0	22
		3	0	21.3	21.3	21.1	1.0	22
		3	1	21.3	21.4	21.1	1.0	22
		3	3	21.3	21.3	21.1	1.0	22
		6	0	20.3	20.3	20.0	2.0	21
	64QAM	1	0	20.3	20.3	20.0	2.0	21
		1	3	20.4	20.4	20.1	2.0	21
		1	5	20.5	20.4	20.0	2.0	21
		3	0	20.3	20.3	20.0	2.0	21
		3	1	20.3	20.3	20.1	2.0	21
		3	3	20.2	20.3	20.0	2.0	21
		6	0	19.3	19.3	19.2	2.0	21
	256QAM	1	0	17.3	17.3	17.1	5.0	18
		1	3	17.0	17.1	16.7	5.0	18
		1	5	17.1	17.1	17.0	5.0	18
		3	0	17.1	17.0	16.9	5.0	18
		3	1	17.1	17.1	16.9	5.0	18
		3	3	17.1	17.0	16.9	5.0	18
		6	0	17.3	17.3	17.0	5.0	18

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2. Reduced power Results

LTE Band 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	18.7	18.8	18.5	0.0	19.5
		1	49	18.6	18.6	18.3	0.0	19.5
		1	99	18.6	18.6	18.3	0.0	19.5
		50	0	18.7	18.7	18.5	0.0	19.5
		50	24	18.7	18.7	18.4	0.0	19.5
		50	50	18.6	18.6	18.4	0.0	19.5
		100	0	18.7	18.7	18.4	0.0	19.5
	16QAM	1	0	19.1	19.2	19.0	0.0	19.5
		1	49	18.9	18.9	18.9	0.0	19.5
		1	99	19.0	19.0	19.0	0.0	19.5
		50	0	18.7	18.8	18.5	0.0	19.5
		50	24	18.7	18.7	18.4	0.0	19.5
		50	50	18.7	18.6	18.4	0.0	19.5
		100	0	18.7	18.7	18.5	0.0	19.5
	64QAM	1	0	18.9	19.0	18.7	0.0	19.5
		1	49	18.9	19.1	18.6	0.0	19.5
		1	99	19.0	19.0	18.5	0.0	19.5
		50	0	18.9	19.0	18.7	0.0	19.5
		50	24	19.0	19.0	18.6	0.0	19.5
		50	50	18.9	19.0	18.6	0.0	19.5
		100	0	18.9	19.0	18.7	0.0	19.5
	256QAM	1	0	16.9	17.0	16.7	2.0	17.5
		1	49	16.7	16.8	16.5	2.0	17.5
		1	99	16.8	16.9	16.5	2.0	17.5
		50	0	16.6	16.6	16.4	2.0	17.5
		50	24	16.6	16.6	16.4	2.0	17.5
		50	50	16.6	16.6	16.3	2.0	17.5
		100	0	16.6	16.6	16.4	2.0	17.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18675	18900	19125		
				1857.5 MHz	1880 MHz	1902.5 MHz		
15 MHz	QPSK	1	0	18.8	18.8	18.5	0.0	19.5
		1	37	18.7	18.7	18.5	0.0	19.5
		1	74	18.8	18.7	18.4	0.0	19.5
		36	0	18.7	18.7	18.4	0.0	19.5
		36	20	18.7	18.7	18.3	0.0	19.5
		36	39	18.7	18.7	18.3	0.0	19.5
		75	0	18.7	18.7	18.4	0.0	19.5
	16QAM	1	0	19.0	19.1	18.9	0.0	19.5
		1	37	19.1	19.1	18.8	0.0	19.5
		1	74	19.1	19.0	18.7	0.0	19.5
		36	0	18.8	18.7	18.5	0.0	19.5
		36	20	18.8	18.7	18.4	0.0	19.5
		36	39	18.8	18.7	18.4	0.0	19.5
		75	0	18.8	18.7	18.4	0.0	19.5
	64QAM	1	0	19.2	19.1	18.7	0.0	19.5
		1	37	19.0	19.1	18.6	0.0	19.5
		1	74	19.0	19.1	18.6	0.0	19.5
		36	0	18.8	19.1	18.6	0.0	19.5
		36	20	18.7	19.1	18.7	0.0	19.5
		36	39	18.7	19.1	18.7	0.0	19.5
		75	0	18.7	19.1	18.7	0.0	19.5
	256QAM	1	0	17.0	16.7	16.8	2.0	17.5
		1	37	17.1	16.7	16.5	2.0	17.5
		1	74	17.0	16.6	16.6	2.0	17.5
		36	0	16.7	16.7	16.4	2.0	17.5
		36	20	16.7	16.6	16.3	2.0	17.5
		36	39	16.7	16.6	16.3	2.0	17.5
		75	0	16.7	16.6	16.3	2.0	17.5

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LTE Band 2 Measured Results(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18650	18900	19150		
				1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	18.7	18.8	18.5	0.0	19.5
		1	25	18.6	18.7	18.2	0.0	19.5
		1	49	18.6	18.8	18.3	0.0	19.5
		25	0	18.7	18.7	18.4	0.0	19.5
		25	12	18.6	18.7	18.4	0.0	19.5
		25	25	18.6	18.7	18.4	0.0	19.5
		50	0	18.7	18.7	18.4	0.0	19.5
	16QAM	1	0	19.0	18.9	19.0	0.0	19.5
		1	25	18.9	18.7	18.6	0.0	19.5
		1	49	18.9	18.8	18.8	0.0	19.5
		25	0	18.7	18.7	18.5	0.0	19.5
		25	12	18.7	18.7	18.4	0.0	19.5
		25	25	18.7	18.7	18.4	0.0	19.5
		50	0	18.6	18.7	18.4	0.0	19.5
	64QAM	1	0	18.8	19.0	18.6	0.0	19.5
		1	25	18.8	18.8	18.6	0.0	19.5
		1	49	18.9	18.8	18.6	0.0	19.5
		25	0	18.7	18.8	18.6	0.0	19.5
		25	12	18.7	18.8	18.6	0.0	19.5
		25	25	18.7	18.7	18.6	0.0	19.5
		50	0	18.7	18.7	18.6	0.0	19.5
	256QAM	1	0	16.9	16.9	16.6	2.0	17.5
		1	25	16.7	16.8	16.5	2.0	17.5
		1	49	16.8	16.8	16.6	2.0	17.5
		25	0	16.6	16.7	16.4	2.0	17.5
		25	12	16.6	16.7	16.4	2.0	17.5
		25	25	16.6	16.7	16.4	2.0	17.5
		50	0	16.6	16.6	16.4	2.0	17.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18625	18900	19175		
				1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	18.7	18.7	18.5	0.0	19.5
		1	12	18.8	18.7	18.6	0.0	19.5
		1	24	18.8	18.8	18.5	0.0	19.5
		12	0	18.7	18.7	18.4	0.0	19.5
		12	7	18.6	18.7	18.4	0.0	19.5
		12	13	18.7	18.7	18.4	0.0	19.5
		25	0	18.6	18.7	18.4	0.0	19.5
	16QAM	1	0	18.9	19.1	18.8	0.0	19.5
		1	12	18.9	19.1	18.8	0.0	19.5
		1	24	19.0	19.0	18.8	0.0	19.5
		12	0	18.7	18.7	18.5	0.0	19.5
		12	7	18.7	18.7	18.5	0.0	19.5
		12	13	18.7	18.6	18.5	0.0	19.5
		25	0	18.7	18.7	18.5	0.0	19.5
	64QAM	1	0	18.7	19.0	18.9	0.0	19.5
		1	12	19.2	19.0	18.9	0.0	19.5
		1	24	19.3	18.9	18.9	0.0	19.5
		12	0	18.8	19.0	18.9	0.0	19.5
		12	7	18.8	18.9	18.9	0.0	19.5
		12	13	18.8	19.0	18.9	0.0	19.5
		25	0	18.8	18.9	18.9	0.0	19.5
	256QAM	1	0	16.9	16.9	16.8	2.0	17.5
		1	12	16.9	16.9	16.7	2.0	17.5
		1	24	16.9	16.8	16.7	2.0	17.5
		12	0	16.7	16.7	16.5	2.0	17.5
		12	7	16.7	16.7	16.5	2.0	17.5
		12	13	16.7	16.7	16.5	2.0	17.5
		25	0	16.7	16.7	16.5	2.0	17.5

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LTE Band 2 Measured Results(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18615	18900	19185		
				1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	18.7	18.8	18.5	0.0	19.5
		1	8	18.7	18.9	18.3	0.0	19.5
		1	14	18.8	18.8	18.3	0.0	19.5
		8	0	18.6	18.6	18.3	0.0	19.5
		8	4	18.6	18.7	18.4	0.0	19.5
		8	7	18.6	18.7	18.3	0.0	19.5
		15	0	18.6	18.6	18.4	0.0	19.5
	16QAM	1	0	18.8	19.2	18.8	0.0	19.5
		1	8	19.1	19.2	18.7	0.0	19.5
		1	14	19.0	19.2	18.5	0.0	19.5
		8	0	18.7	18.7	18.4	0.0	19.5
		8	4	18.7	18.7	18.4	0.0	19.5
		8	7	18.7	18.7	18.4	0.0	19.5
		15	0	18.7	18.7	18.4	0.0	19.5
	64QAM	1	0	18.8	18.8	18.8	0.0	19.5
		1	8	18.7	18.8	18.7	0.0	19.5
		1	14	19.0	18.8	18.7	0.0	19.5
		8	0	18.7	18.8	18.8	0.0	19.5
		8	4	18.6	18.8	18.9	0.0	19.5
		8	7	18.7	18.8	18.9	0.0	19.5
		15	0	18.6	18.8	18.7	0.0	19.5
	256QAM	1	0	17.1	16.8	16.5	2.0	17.5
		1	8	17.2	16.7	16.5	2.0	17.5
		1	14	17.0	16.7	16.5	2.0	17.5
		8	0	16.7	16.6	16.3	2.0	17.5
		8	4	16.6	16.6	16.3	2.0	17.5
		8	7	16.6	16.6	16.3	2.0	17.5
		15	0	16.6	16.6	16.3	2.0	17.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18607	18900	19193		
				1850.7 MHz	1880 MHz	1909.3 MHz		
1.4 MHz	QPSK	1	0	18.6	18.6	18.3	0.0	19.5
		1	3	18.4	18.6	18.1	0.0	19.5
		1	5	18.6	18.6	18.3	0.0	19.5
		3	0	18.5	18.5	18.2	0.0	19.5
		3	1	18.5	18.5	18.2	0.0	19.5
		3	3	18.5	18.5	18.2	0.0	19.5
		6	0	18.6	18.6	18.2	0.0	19.5
	16QAM	1	0	18.8	19.0	18.5	0.0	19.5
		1	3	18.7	18.7	18.2	0.0	19.5
		1	5	18.8	19.0	18.5	0.0	19.5
		3	0	18.6	18.6	18.3	0.0	19.5
		3	1	18.5	18.7	18.3	0.0	19.5
		3	3	18.6	18.5	18.3	0.0	19.5
		6	0	18.7	18.6	18.4	0.0	19.5
	64QAM	1	0	18.8	18.8	18.5	0.0	19.5
		1	3	18.6	18.8	18.3	0.0	19.5
		1	5	18.9	18.9	18.3	0.0	19.5
		3	0	18.6	19.0	18.5	0.0	19.5
		3	1	18.7	18.8	18.3	0.0	19.5
		3	3	18.6	19.0	18.3	0.0	19.5
		6	0	18.6	18.8	18.3	0.0	19.5
	256QAM	1	0	16.6	16.4	16.2	2.0	17.5
		1	3	16.5	16.6	16.1	2.0	17.5
		1	5	16.7	16.3	16.2	2.0	17.5
		3	0	16.6	16.4	16.2	2.0	17.5
		3	1	16.6	16.3	16.2	2.0	17.5
		3	3	16.7	16.3	16.2	2.0	17.5
		6	0	16.5	16.5	16.3	2.0	17.5

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LTE Band 4 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Proximity sensor back-off			MPR	Tune-up Limit
				Measured Pwr (dBm)				
				[redacted]	20175	[redacted]		
				[redacted]	1732.5 MHz	[redacted]		
20 MHz	QPSK	1	0	[redacted]	19.1	[redacted]	0.0	20.0
		1	49	[redacted]	19.0	[redacted]	0.0	20.0
		1	99	[redacted]	19.0	[redacted]	0.0	20.0
		50	0	[redacted]	19.1	[redacted]	0.0	20.0
		50	24	[redacted]	19.1	[redacted]	0.0	20.0
		50	50	[redacted]	19.0	[redacted]	0.0	20.0
		100	0	[redacted]	19.1	[redacted]	0.0	20.0
	16QAM	1	0	[redacted]	19.6	[redacted]	0.0	20.0
		1	49	[redacted]	19.3	[redacted]	0.0	20.0
		1	99	[redacted]	19.5	[redacted]	0.0	20.0
		50	0	[redacted]	19.1	[redacted]	0.0	20.0
		50	24	[redacted]	19.1	[redacted]	0.0	20.0
		50	50	[redacted]	19.1	[redacted]	0.0	20.0
		100	0	[redacted]	19.1	[redacted]	0.0	20.0
	64QAM	1	0	[redacted]	19.4	[redacted]	0.0	20.0
		1	49	[redacted]	19.4	[redacted]	0.0	20.0
		1	99	[redacted]	19.4	[redacted]	0.0	20.0
		50	0	[redacted]	19.4	[redacted]	0.0	20.0
		50	24	[redacted]	19.4	[redacted]	0.0	20.0
		50	50	[redacted]	19.4	[redacted]	0.0	20.0
		100	0	[redacted]	19.4	[redacted]	0.0	20.0
	256QAM	1	0	[redacted]	17.4	[redacted]	1.0	19.0
		1	49	[redacted]	17.3	[redacted]	1.0	19.0
		1	99	[redacted]	17.3	[redacted]	1.0	19.0
		50	0	[redacted]	17.1	[redacted]	1.0	19.0
		50	24	[redacted]	17.0	[redacted]	1.0	19.0
		50	50	[redacted]	17.0	[redacted]	1.0	19.0
		100	0	[redacted]	17.0	[redacted]	1.0	19.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				20025	20175	20325		
				1717.5 MHz	1732.5 MHz	1747.5 MHz		
15 MHz	QPSK	1	0	19.1	19.2	18.9	0.0	20.0
		1	37	19.0	19.1	19.0	0.0	20.0
		1	74	19.0	19.1	18.8	0.0	20.0
		36	0	19.0	19.1	18.8	0.0	20.0
		36	20	18.9	19.0	18.7	0.0	20.0
		36	39	18.9	19.0	18.7	0.0	20.0
		75	0	18.9	19.0	18.7	0.0	20.0
	16QAM	1	0	19.2	19.4	19.3	0.0	20.0
		1	37	19.0	19.4	19.2	0.0	20.0
		1	74	19.1	19.4	19.1	0.0	20.0
		36	0	19.0	19.1	18.8	0.0	20.0
		36	20	18.9	19.1	18.7	0.0	20.0
		36	39	18.9	19.1	18.7	0.0	20.0
		75	0	19.0	19.1	18.8	0.0	20.0
	64QAM	1	0	19.4	19.3	19.1	0.0	20.0
		1	37	19.4	19.3	19.0	0.0	20.0
		1	74	19.4	19.3	19.1	0.0	20.0
		36	0	19.0	19.3	19.1	0.0	20.0
		36	20	18.9	19.3	19.1	0.0	20.0
		36	39	18.9	19.3	19.1	0.0	20.0
		75	0	18.9	19.3	19.1	0.0	20.0
	256QAM	1	0	17.1	17.4	16.9	1.0	19.0
		1	37	17.0	17.5	16.8	1.0	19.0
		1	74	17.0	17.3	16.9	1.0	19.0
		36	0	16.9	17.1	16.7	1.0	19.0
		36	20	16.9	17.1	16.7	1.0	19.0
		36	39	16.9	17.1	16.7	1.0	19.0
		75	0	16.9	17.1	16.7	1.0	19.0

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LTE Band 4 Measured Results(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				20000	20175	20350		
				1715 MHz	1732.5 MHz	1750 MHz		
10 MHz	QPSK	1	0	18.9	19.2	18.8	0.0	20.0
		1	25	18.9	19.0	18.7	0.0	20.0
		1	49	19.0	19.0	18.8	0.0	20.0
		25	0	18.9	19.1	18.8	0.0	20.0
		25	12	18.9	19.1	18.8	0.0	20.0
		25	25	18.9	19.0	18.7	0.0	20.0
		50	0	18.9	19.1	18.8	0.0	20.0
	16QAM	1	0	19.1	19.6	19.2	0.0	20.0
		1	25	19.0	19.4	19.2	0.0	20.0
		1	49	19.2	19.5	19.3	0.0	20.0
		25	0	18.9	19.1	18.8	0.0	20.0
		25	12	18.9	19.1	18.8	0.0	20.0
		25	25	18.9	19.1	18.8	0.0	20.0
		50	0	18.9	19.1	18.8	0.0	20.0
	64QAM	1	0	19.0	19.0	18.8	0.0	20.0
		1	25	18.8	19.1	18.8	0.0	20.0
		1	49	18.8	19.1	18.8	0.0	20.0
		25	0	19.0	19.1	18.8	0.0	20.0
		25	12	19.0	19.1	18.8	0.0	20.0
		25	25	18.9	19.1	18.8	0.0	20.0
		50	0	18.9	19.1	18.8	0.0	20.0
	256QAM	1	0	16.9	17.4	16.9	1.0	19.0
		1	25	16.8	17.3	16.7	1.0	19.0
		1	49	16.9	17.3	16.8	1.0	19.0
		25	0	16.9	17.1	16.7	1.0	19.0
		25	12	16.9	17.1	16.7	1.0	19.0
		25	25	16.9	17.1	16.7	1.0	19.0
		50	0	16.8	17.0	16.7	1.0	19.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				19975	20175	20375		
				1712.5 MHz	1732.5 MHz	1752.5 MHz		
5 MHz	QPSK	1	0	18.9	19.1	18.7	0.0	20.0
		1	12	18.9	19.1	18.8	0.0	20.0
		1	24	18.9	19.2	18.8	0.0	20.0
		12	0	18.9	19.0	18.7	0.0	20.0
		12	7	18.9	19.0	18.7	0.0	20.0
		12	13	18.9	19.1	18.7	0.0	20.0
		25	0	18.8	19.0	18.7	0.0	20.0
	16QAM	1	0	19.4	19.5	19.1	0.0	20.0
		1	12	19.4	19.6	19.2	0.0	20.0
		1	24	19.5	19.4	19.2	0.0	20.0
		12	0	18.9	19.1	18.8	0.0	20.0
		12	7	18.9	19.0	18.8	0.0	20.0
		12	13	18.9	19.1	18.8	0.0	20.0
		25	0	18.9	19.1	18.7	0.0	20.0
	64QAM	1	0	19.3	19.3	18.7	0.0	20.0
		1	12	19.4	19.3	18.7	0.0	20.0
		1	24	19.2	19.3	18.7	0.0	20.0
		12	0	18.9	19.3	18.7	0.0	20.0
		12	7	18.9	19.3	18.7	0.0	20.0
		12	13	18.9	19.3	18.7	0.0	20.0
		25	0	19.0	19.3	18.7	0.0	20.0
	256QAM	1	0	17.2	17.2	16.8	1.0	19.0
		1	12	17.2	17.1	17.0	1.0	19.0
		1	24	17.2	17.2	16.8	1.0	19.0
		12	0	16.9	17.1	16.6	1.0	19.0
		12	7	16.9	17.1	16.6	1.0	19.0
		12	13	16.9	17.1	16.6	1.0	19.0
		25	0	16.8	17.0	16.6	1.0	19.0

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LTE Band 4 Measured Results(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				19965	20175	20385		
				1711.5 MHz	1732.5 MHz	1753.5 MHz		
3 MHz	QPSK	1	0	19.0	19.1	18.7	0.0	20.0
		1	8	18.9	19.0	18.9	0.0	20.0
		1	14	19.1	19.0	18.8	0.0	20.0
		8	0	18.9	19.0	18.6	0.0	20.0
		8	4	18.8	19.0	18.5	0.0	20.0
		8	7	18.9	19.0	18.5	0.0	20.0
		15	0	18.9	19.0	18.6	0.0	20.0
	16QAM	1	0	19.1	19.5	19.0	0.0	20.0
		1	8	19.3	19.6	19.0	0.0	20.0
		1	14	19.2	19.5	19.1	0.0	20.0
		8	0	18.9	19.1	18.6	0.0	20.0
		8	4	18.9	19.1	18.6	0.0	20.0
		8	7	18.9	19.1	18.6	0.0	20.0
		15	0	18.9	19.1	18.6	0.0	20.0
	64QAM	1	0	19.1	19.3	18.9	0.0	20.0
		1	8	19.1	19.3	18.9	0.0	20.0
		1	14	19.1	19.3	18.8	0.0	20.0
		8	0	18.9	19.3	18.9	0.0	20.0
		8	4	18.9	19.1	18.9	0.0	20.0
		8	7	18.9	19.1	18.9	0.0	20.0
		15	0	18.9	19.0	18.8	0.0	20.0
	256QAM	1	0	17.1	17.2	17.0	1.0	19.0
		1	8	17.0	17.4	17.2	1.0	19.0
		1	14	17.0	17.2	17.0	1.0	19.0
		8	0	16.9	17.1	16.6	1.0	19.0
		8	4	16.9	17.0	16.6	1.0	19.0
		8	7	16.9	17.1	16.6	1.0	19.0
		15	0	16.9	17.0	16.6	1.0	19.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				19957	20175	20393		
				1710.7 MHz	1732.5 MHz	1754.3 MHz		
1.4 MHz	QPSK	1	0	18.8	19.1	18.5	0.0	20.0
		1	3	18.8	18.9	18.4	0.0	20.0
		1	5	18.8	19.0	18.5	0.0	20.0
		3	0	18.8	18.9	18.4	0.0	20.0
		3	1	18.8	18.9	18.5	0.0	20.0
		3	3	18.8	18.9	18.4	0.0	20.0
		6	0	18.8	19.0	18.5	0.0	20.0
	16QAM	1	0	19.1	19.3	18.7	0.0	20.0
		1	3	18.9	19.1	18.6	0.0	20.0
		1	5	19.0	19.3	18.6	0.0	20.0
		3	0	18.9	19.0	18.6	0.0	20.0
		3	1	18.8	19.1	18.6	0.0	20.0
		3	3	18.9	19.1	18.6	0.0	20.0
		6	0	18.9	19.0	18.6	0.0	20.0
	64QAM	1	0	19.1	19.2	18.6	0.0	20.0
		1	3	19.2	19.1	18.6	0.0	20.0
		1	5	19.1	19.2	18.6	0.0	20.0
		3	0	18.9	18.9	18.6	0.0	20.0
		3	1	18.9	19.2	18.6	0.0	20.0
		3	3	18.9	19.1	18.6	0.0	20.0
		6	0	18.8	19.0	18.6	0.0	20.0
	256QAM	1	0	16.8	16.9	16.6	1.0	19.0
		1	3	16.7	16.8	16.5	1.0	19.0
		1	5	16.8	16.9	16.6	1.0	19.0
		3	0	16.7	16.9	16.5	1.0	19.0
		3	1	16.6	17.0	16.5	1.0	19.0
		3	3	16.7	16.9	16.5	1.0	19.0
		6	0	16.7	17.0	16.5	1.0	19.0

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LTE Band 25 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26140	26365	26590			26140	26365	26590		
				1860 MHz	1882.5 MHz	1905 MHz			1860 MHz	1882.5 MHz	1905 MHz		
20 MHz	QPSK	1	0	18.2	18.2	18.3	0.0	19.0	18.2	18.2	18.3	0.0	19.0
		1	49	18.1	18.2	17.9	0.0	19.0	18.1	18.1	18.0	0.0	19.0
		1	99	18.2	18.2	17.9	0.0	19.0	18.2	18.2	18.0	0.0	19.0
		50	0	18.2	18.2	18.3	0.0	19.0	18.2	18.2	18.3	0.0	19.0
		50	24	18.2	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
		50	50	18.2	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
		100	0	18.2	18.2	18.3	0.0	19.0	18.2	18.2	18.0	0.0	19.0
	16QAM	1	0	18.5	18.7	18.3	0.0	19.0	18.5	18.7	18.5	0.0	19.0
		1	49	18.4	18.5	18.1	0.0	19.0	18.3	18.4	18.2	0.0	19.0
		1	99	18.5	18.5	18.2	0.0	19.0	18.5	18.5	18.3	0.0	19.0
		50	0	18.2	18.3	18.1	0.0	19.0	18.2	18.3	18.1	0.0	19.0
		50	24	18.2	18.2	18.0	0.0	19.0	18.2	18.3	18.0	0.0	19.0
		50	50	18.2	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
		100	0	18.2	18.2	18.0	0.0	19.0	18.2	18.3	18.0	0.0	19.0
	64QAM	1	0	18.5	18.3	18.3	0.0	19.0	18.7	18.3	18.3	0.0	19.0
		1	49	18.4	18.3	18.4	0.0	19.0	18.6	18.2	18.3	0.0	19.0
		1	99	18.4	18.4	18.4	0.0	19.0	18.6	18.2	18.3	0.0	19.0
		50	0	18.3	18.3	18.4	0.0	19.0	18.3	18.3	18.3	0.0	19.0
		50	24	18.3	18.3	18.3	0.0	19.0	18.3	18.3	18.3	0.0	19.0
		50	50	18.3	18.3	18.4	0.0	19.0	18.3	18.3	18.3	0.0	19.0
		100	0	18.2	18.3	18.3	0.0	19.0	18.3	18.3	18.3	0.0	19.0
	256QAM	1	0	17.5	17.6	17.3	1.0	18.0	17.6	17.5	17.4	1.0	18.0
		1	49	17.3	17.5	17.1	1.0	18.0	17.4	17.2	17.2	1.0	18.0
		1	99	17.4	17.5	17.1	1.0	18.0	17.5	17.4	17.3	1.0	18.0
		50	0	17.2	17.2	17.0	1.0	18.0	17.2	17.2	17.0	1.0	18.0
		50	24	17.1	17.1	16.9	1.0	18.0	17.2	17.2	17.0	1.0	18.0
		50	50	17.1	17.1	16.9	1.0	18.0	17.2	17.2	16.9	1.0	18.0
		100	0	17.2	17.1	17.0	1.0	18.0	17.2	17.2	17.0	1.0	18.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26115	26365	26615			26115	26365	26615		
				1857.5 MHz	1882.5 MHz	1907.5 MHz			1857.5 MHz	1882.5 MHz	1907.5 MHz		
15 MHz	QPSK	1	0	18.4	18.3	18.2	0.0	19.0	18.4	18.2	18.2	0.0	19.0
		1	37	18.2	18.1	18.2	0.0	19.0	18.3	18.2	18.2	0.0	19.0
		1	74	18.3	18.2	18.0	0.0	19.0	18.3	18.2	18.0	0.0	19.0
		36	0	18.3	18.2	18.0	0.0	19.0	18.3	18.2	18.0	0.0	19.0
		36	20	18.2	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
		36	39	18.2	18.2	18.0	0.0	19.0	18.2	18.2	17.9	0.0	19.0
		75	0	18.2	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
	16QAM	1	0	18.6	18.6	18.6	0.0	19.0	18.6	18.5	18.5	0.0	19.0
		1	37	18.6	18.4	18.4	0.0	19.0	18.5	18.5	18.4	0.0	19.0
		1	74	18.6	18.5	18.4	0.0	19.0	18.6	18.5	18.3	0.0	19.0
		36	0	18.3	18.2	18.1	0.0	19.0	18.3	18.2	18.1	0.0	19.0
		36	20	18.2	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
		36	39	18.2	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
		75	0	18.3	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
	64QAM	1	0	18.6	18.4	18.1	0.0	19.0	18.5	18.6	18.2	0.0	19.0
		1	37	18.5	18.4	18.1	0.0	19.0	18.5	18.6	18.2	0.0	19.0
		1	74	18.6	18.4	18.1	0.0	19.0	18.6	18.6	18.2	0.0	19.0
		36	0	18.3	18.4	18.1	0.0	19.0	18.3	18.6	18.2	0.0	19.0
		36	20	18.3	18.4	18.1	0.0	19.0	18.3	18.6	18.2	0.0	19.0
		36	39	18.2	18.4	18.1	0.0	19.0	18.3	18.6	18.2	0.0	19.0
		75	0	18.3	18.4	18.1	0.0	19.0	18.3	18.6	18.2	0.0	19.0
	256QAM	1	0	17.4	17.6	17.1	1.0	18.0	17.4	17.7	17.1	1.0	18.0
		1	37	17.2	17.7	17.1	1.0	18.0	17.3	17.9	17.2	1.0	18.0
		1	74	17.3	17.4	17.0	1.0	18.0	17.3	17.5	17.0	1.0	18.0
		36	0	17.3	17.2	17.0	1.0	18.0	17.3	17.3	17.1	1.0	18.0
		36	20	17.2	17.2	17.0	1.0	18.0	17.3	17.3	17.0	1.0	18.0
		36	39	17.2	17.2	17.0	1.0	18.0	17.3	17.2	17.0	1.0	18.0
		75	0	17.2	17.2	17.0	1.0	18.0	17.3	17.2	17.0	1.0	18.0

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LTE Band 25 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26090	26365	26640			26090	26365	26640		
				1855 MHz	1882.5 MHz	1910 MHz			1855 MHz	1882.5 MHz	1910 MHz		
10 MHz	QPSK	1	0	18.3	18.3	18.0	0.0	19.0	18.3	18.3	18.0	0.0	19.0
		1	25	18.2	18.1	17.9	0.0	19.0	18.2	18.1	17.9	0.0	19.0
		1	49	18.3	18.2	18.0	0.0	19.0	18.3	18.2	18.0	0.0	19.0
		25	0	18.2	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
		25	12	18.2	18.2	18.0	0.0	19.0	18.2	18.2	17.9	0.0	19.0
		25	25	18.2	18.2	18.0	0.0	19.0	18.2	18.2	17.9	0.0	19.0
		50	0	18.2	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
	16QAM	1	0	18.5	18.7	18.5	0.0	19.0	18.4	18.7	18.5	0.0	19.0
		1	25	18.4	18.4	18.4	0.0	19.0	18.3	18.4	18.3	0.0	19.0
		1	49	18.5	18.5	18.4	0.0	19.0	18.5	18.5	18.4	0.0	19.0
		25	0	18.3	18.3	18.0	0.0	19.0	18.2	18.3	18.0	0.0	19.0
		25	12	18.3	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
		25	25	18.3	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
		50	0	18.3	18.2	18.0	0.0	19.0	18.3	18.2	18.0	0.0	19.0
	64QAM	1	0	18.5	18.3	18.2	0.0	19.0	18.6	18.4	18.1	0.0	19.0
		1	25	18.3	18.3	18.2	0.0	19.0	18.3	18.4	18.1	0.0	19.0
		1	49	18.3	18.3	18.2	0.0	19.0	18.5	18.4	18.1	0.0	19.0
		25	0	18.3	18.3	18.2	0.0	19.0	18.3	18.4	18.1	0.0	19.0
		25	12	18.3	18.3	18.2	0.0	19.0	18.3	18.4	18.1	0.0	19.0
		25	25	18.3	18.3	18.2	0.0	19.0	18.3	18.4	18.1	0.0	19.0
		50	0	18.3	18.3	18.2	0.0	19.0	18.3	18.4	18.1	0.0	19.0
	256QAM	1	0	17.3	17.5	17.1	1.0	18.0	17.3	17.4	17.1	1.0	18.0
		1	25	17.2	17.4	16.9	1.0	18.0	17.2	17.3	16.9	1.0	18.0
		1	49	17.3	17.4	17.0	1.0	18.0	17.3	17.3	17.0	1.0	18.0
		25	0	17.3	17.2	17.0	1.0	18.0	17.3	17.2	17.0	1.0	18.0
		25	12	17.2	17.2	17.0	1.0	18.0	17.3	17.2	17.0	1.0	18.0
		25	25	17.2	17.2	16.9	1.0	18.0	17.3	17.2	17.0	1.0	18.0
		50	0	17.2	17.2	16.9	1.0	18.0	17.2	17.2	16.9	1.0	18.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26065	26365	26665			26065	26365	26665		
				1852.5 MHz	1882.5 MHz	1912.5 MHz			1852.5 MHz	1882.5 MHz	1912.5 MHz		
5 MHz	QPSK	1	0	18.3	18.2	18.1	0.0	19.0	18.3	18.2	18.0	0.0	19.0
		1	12	18.4	18.2	18.2	0.0	19.0	18.5	18.2	18.2	0.0	19.0
		1	24	18.4	18.2	18.1	0.0	19.0	18.4	18.2	18.1	0.0	19.0
		12	0	18.3	18.2	18.0	0.0	19.0	18.3	18.2	18.0	0.0	19.0
		12	7	18.3	18.2	18.0	0.0	19.0	18.3	18.2	18.0	0.0	19.0
		12	13	18.3	18.2	18.0	0.0	19.0	18.3	18.2	18.0	0.0	19.0
		25	0	18.3	18.2	18.0	0.0	19.0	18.3	18.2	18.0	0.0	19.0
	16QAM	1	0	18.5	18.7	18.2	0.0	19.0	18.6	18.2	18.3	0.0	19.0
		1	12	18.5	18.8	18.2	0.0	19.0	18.6	18.6	18.2	0.0	19.0
		1	24	18.6	18.6	18.3	0.0	19.0	18.7	18.6	18.3	0.0	19.0
		12	0	18.3	18.2	18.1	0.0	19.0	18.4	18.2	18.0	0.0	19.0
		12	7	18.4	18.2	18.1	0.0	19.0	18.4	18.2	18.0	0.0	19.0
		12	13	18.4	18.2	18.1	0.0	19.0	18.4	18.2	18.1	0.0	19.0
		25	0	18.3	18.2	18.0	0.0	19.0	18.3	18.2	18.0	0.0	19.0
	64QAM	1	0	18.8	18.4	18.2	0.0	19.0	18.7	18.4	18.2	0.0	19.0
		1	12	18.6	18.4	18.2	0.0	19.0	18.7	18.4	18.2	0.0	19.0
		1	24	18.6	18.4	18.2	0.0	19.0	18.6	18.4	18.2	0.0	19.0
		12	0	18.3	18.4	18.2	0.0	19.0	18.3	18.4	18.2	0.0	19.0
		12	7	18.3	18.4	18.2	0.0	19.0	18.3	18.4	18.2	0.0	19.0
		12	13	18.3	18.4	18.2	0.0	19.0	18.3	18.4	18.2	0.0	19.0
		25	0	18.3	18.4	18.2	0.0	19.0	18.3	18.4	18.2	0.0	19.0
	256QAM	1	0	17.7	17.3	17.1	1.0	18.0	17.6	17.2	17.2	1.0	18.0
		1	12	17.5	17.2	17.1	1.0	18.0	17.6	17.3	17.4	1.0	18.0
		1	24	17.6	17.2	17.1	1.0	18.0	17.6	17.2	17.1	1.0	18.0
		12	0	17.3	17.2	17.0	1.0	18.0	17.3	17.2	17.0	1.0	18.0
		12	7	17.3	17.2	17.0	1.0	18.0	17.2	17.2	17.0	1.0	18.0
		12	13	17.3	17.2	17.0	1.0	18.0	17.3	17.2	17.0	1.0	18.0
		25	0	17.2	17.2	17.0	1.0	18.0	17.2	17.2	17.0	1.0	18.0

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LTE Band 25 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26055	26365	26675			26055	26365	26675		
				1851.5 MHz	1882.5 MHz	1913.5 MHz			1851.5 MHz	1882.5 MHz	1913.5 MHz		
3 MHz	QPSK	1	0	18.3	18.3	18.1	0.0	19.0	18.3	18.3	18.1	0.0	19.0
		1	8	18.3	18.2	18.3	0.0	19.0	18.4	18.2	18.3	0.0	19.0
		1	14	18.4	18.2	18.1	0.0	19.0	18.4	18.2	18.2	0.0	19.0
		8	0	18.2	18.2	18.0	0.0	19.0	18.3	18.2	18.0	0.0	19.0
		8	4	18.2	18.2	18.0	0.0	19.0	18.3	18.2	18.0	0.0	19.0
		8	7	18.2	18.2	18.0	0.0	19.0	18.3	18.2	18.0	0.0	19.0
		15	0	18.2	18.2	18.0	0.0	19.0	18.2	18.2	18.0	0.0	19.0
	16QAM	1	0	18.4	18.5	18.3	0.0	19.0	18.5	18.5	18.4	0.0	19.0
		1	8	18.5	18.4	18.5	0.0	19.0	18.6	18.6	18.5	0.0	19.0
		1	14	18.5	18.4	18.5	0.0	19.0	18.6	18.4	18.4	0.0	19.0
		8	0	18.3	18.2	18.1	0.0	19.0	18.4	18.3	18.0	0.0	19.0
		8	4	18.3	18.2	18.1	0.0	19.0	18.3	18.2	18.0	0.0	19.0
		8	7	18.3	18.3	18.1	0.0	19.0	18.4	18.2	18.0	0.0	19.0
		15	0	18.2	18.3	18.0	0.0	19.0	18.3	18.3	18.1	0.0	19.0
	64QAM	1	0	18.7	18.5	17.9	0.0	19.0	18.7	18.5	18.1	0.0	19.0
		1	8	18.7	18.6	17.9	0.0	19.0	18.6	18.6	18.0	0.0	19.0
		1	14	18.6	18.5	18.1	0.0	19.0	18.6	18.5	18.3	0.0	19.0
		8	0	18.2	18.6	18.1	0.0	19.0	18.3	18.6	18.1	0.0	19.0
		8	4	18.2	18.4	18.1	0.0	19.0	18.3	18.6	18.2	0.0	19.0
		8	7	18.2	18.6	18.1	0.0	19.0	18.3	18.6	18.2	0.0	19.0
		15	0	18.2	18.6	18.0	0.0	19.0	18.3	18.6	18.1	0.0	19.0
	256QAM	1	0	17.3	17.4	17.2	1.0	18.0	17.3	17.3	17.2	1.0	18.0
		1	8	17.3	17.7	17.3	1.0	18.0	17.3	17.5	17.1	1.0	18.0
		1	14	17.4	17.3	17.1	1.0	18.0	17.2	17.3	17.2	1.0	18.0
		8	0	17.2	17.2	17.0	1.0	18.0	17.3	17.3	17.0	1.0	18.0
		8	4	17.2	17.2	17.0	1.0	18.0	17.2	17.3	17.0	1.0	18.0
		8	7	17.3	17.2	17.0	1.0	18.0	17.3	17.3	17.1	1.0	18.0
		15	0	17.3	17.2	17.1	1.0	18.0	17.3	17.2	17.1	1.0	18.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26047	26365	26683			26047	26365	26683		
				1850.7 MHz	1882.5 MHz	1914.3 MHz			1850.7 MHz	1882.5 MHz	1914.3 MHz		
1.4 MHz	QPSK	1	0	18.2	18.1	17.9	0.0	19.0	18.1	18.2	17.9	0.0	19.0
		1	3	18.1	18.1	17.8	0.0	19.0	18.1	18.0	17.9	0.0	19.0
		1	5	18.2	18.2	18.0	0.0	19.0	18.2	18.1	17.9	0.0	19.0
		3	0	18.1	18.1	17.8	0.0	19.0	18.1	18.1	17.8	0.0	19.0
		3	1	18.0	18.1	17.9	0.0	19.0	18.1	18.2	17.8	0.0	19.0
		3	3	18.1	18.1	17.9	0.0	19.0	18.1	18.1	17.9	0.0	19.0
		6	0	18.2	18.1	17.9	0.0	19.0	18.2	18.1	17.9	0.0	19.0
	16QAM	1	0	18.3	18.6	18.2	0.0	19.0	18.3	18.2	18.0	0.0	19.0
		1	3	18.2	18.4	18.0	0.0	19.0	18.4	18.1	17.8	0.0	19.0
		1	5	18.3	18.6	18.1	0.0	19.0	18.6	18.3	18.0	0.0	19.0
		3	0	18.3	18.3	18.0	0.0	19.0	18.2	18.2	17.9	0.0	19.0
		3	1	18.1	18.4	17.9	0.0	19.0	18.3	18.1	17.9	0.0	19.0
		3	3	18.2	18.2	18.0	0.0	19.0	18.2	18.2	17.9	0.0	19.0
		6	0	18.3	18.1	18.0	0.0	19.0	18.1	18.3	18.0	0.0	19.0
	64QAM	1	0	18.3	18.4	18.0	0.0	19.0	18.5	18.2	18.2	0.0	19.0
		1	3	18.2	18.4	18.0	0.0	19.0	18.4	18.2	18.1	0.0	19.0
		1	5	18.3	18.0	18.0	0.0	19.0	18.5	18.5	18.2	0.0	19.0
		3	0	18.3	18.4	18.0	0.0	19.0	18.3	18.2	18.3	0.0	19.0
		3	1	18.3	18.2	18.0	0.0	19.0	18.3	18.2	18.1	0.0	19.0
		3	3	18.3	18.1	18.0	0.0	19.0	18.3	18.2	18.2	0.0	19.0
		6	0	18.2	18.0	18.0	0.0	19.0	18.2	18.4	18.2	0.0	19.0
	256QAM	1	0	17.0	17.3	16.9	1.0	18.0	16.8	17.3	16.9	1.0	18.0
		1	3	17.0	16.8	16.9	1.0	18.0	16.8	17.2	16.9	1.0	18.0
		1	5	17.0	17.0	16.9	1.0	18.0	17.1	17.2	16.9	1.0	18.0
		3	0	17.1	17.0	16.9	1.0	18.0	17.0	17.0	16.9	1.0	18.0
		3	1	17.1	17.1	17.0	1.0	18.0	17.0	17.0	17.0	1.0	18.0
		3	3	17.1	17.0	16.9	1.0	18.0	17.0	17.0	16.9	1.0	18.0
		6	0	17.2	17.2	17.0	1.0	18.0	17.2	17.2	17.0	1.0	18.0

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LTE Band 66 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572			132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	18.4	18.4	18.1	0.0	19.5	18.6	18.4	18.1	0.0	19.5
		1	49	18.2	18.3	17.9	0.0	19.5	18.4	18.2	17.9	0.0	19.5
		1	99	18.3	18.3	18.0	0.0	19.5	18.4	18.4	18.0	0.0	19.5
		50	0	18.5	18.4	18.1	0.0	19.5	18.5	18.4	18.1	0.0	19.5
		50	24	18.4	18.4	18.0	0.0	19.5	18.5	18.4	18.0	0.0	19.5
		50	50	18.4	18.4	18.0	0.0	19.5	18.4	18.4	18.0	0.0	19.5
		100	0	18.4	18.4	18.0	0.0	19.5	18.5	18.4	18.0	0.0	19.5
	16QAM	1	0	18.8	19.0	18.4	0.0	19.5	18.9	18.8	18.5	0.0	19.5
		1	49	18.7	18.8	18.2	0.0	19.5	18.6	18.7	18.4	0.0	19.5
		1	99	18.7	18.8	18.4	0.0	19.5	18.9	18.8	18.5	0.0	19.5
		50	0	18.5	18.4	18.1	0.0	19.5	18.6	18.4	18.1	0.0	19.5
		50	24	18.5	18.4	18.1	0.0	19.5	18.5	18.4	18.1	0.0	19.5
		50	50	18.4	18.4	18.1	0.0	19.5	18.5	18.4	18.1	0.0	19.5
		100	0	18.4	18.4	18.1	0.0	19.5	18.5	18.4	18.1	0.0	19.5
	64QAM	1	0	18.8	18.6	18.3	0.0	19.5	18.8	19.0	18.5	0.0	19.5
		1	49	18.7	18.6	18.3	0.0	19.5	18.6	18.8	18.3	0.0	19.5
		1	99	18.8	18.7	18.3	0.0	19.5	18.7	19.0	18.3	0.0	19.5
		50	0	18.6	18.7	18.3	0.0	19.5	18.6	18.6	18.2	0.0	19.5
		50	24	18.5	18.7	18.3	0.0	19.5	18.5	18.5	18.2	0.0	19.5
		50	50	18.5	18.6	18.3	0.0	19.5	18.5	18.5	18.1	0.0	19.5
		100	0	18.5	18.6	18.3	0.0	19.5	18.5	18.5	18.2	0.0	19.5
	256QAM	1	0	17.7	17.7	17.4	1.0	18.5	17.8	17.8	17.3	1.0	18.5
		1	49	17.5	17.5	17.4	1.0	18.5	17.6	17.7	17.2	1.0	18.5
		1	99	17.6	17.6	17.4	1.0	18.5	17.7	17.8	17.3	1.0	18.5
		50	0	17.5	17.3	17.0	1.0	18.5	17.4	17.4	17.1	1.0	18.5
		50	24	17.4	17.3	17.0	1.0	18.5	17.4	17.4	17.0	1.0	18.5
		50	50	17.4	17.3	16.9	1.0	18.5	17.4	17.3	17.0	1.0	18.5
		100	0	17.4	17.3	17.0	1.0	18.5	17.4	17.4	17.1	1.0	18.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132047	132322	132597			132047	132322	132597		
				1717.5 MHz	1745 MHz	1772.5 MHz			1717.5 MHz	1745 MHz	1772.5 MHz		
15 MHz	QPSK	1	0	18.5	18.4	18.3	0.0	19.5	18.5	18.4	18.3	0.0	19.5
		1	37	18.3	18.4	18.5	0.0	19.5	18.3	18.3	18.4	0.0	19.5
		1	74	18.3	18.4	18.2	0.0	19.5	18.4	18.4	18.2	0.0	19.5
		36	0	18.4	18.4	18.1	0.0	19.5	18.4	18.4	18.1	0.0	19.5
		36	20	18.3	18.3	18.1	0.0	19.5	18.4	18.3	18.1	0.0	19.5
		36	39	18.3	18.3	18.1	0.0	19.5	18.4	18.3	18.1	0.0	19.5
		75	0	18.4	18.3	18.1	0.0	19.5	18.4	18.3	18.1	0.0	19.5
	16QAM	1	0	18.7	18.7	18.7	0.0	19.5	18.7	18.8	18.8	0.0	19.5
		1	37	18.6	18.6	18.7	0.0	19.5	18.6	18.7	18.9	0.0	19.5
		1	74	18.7	18.7	18.6	0.0	19.5	18.7	18.8	18.7	0.0	19.5
		36	0	18.4	18.4	18.2	0.0	19.5	18.4	18.4	18.2	0.0	19.5
		36	20	18.3	18.4	18.2	0.0	19.5	18.4	18.4	18.2	0.0	19.5
		36	39	18.3	18.3	18.1	0.0	19.5	18.4	18.4	18.2	0.0	19.5
		75	0	18.4	18.4	18.1	0.0	19.5	18.4	18.4	18.2	0.0	19.5
	64QAM	1	0	18.7	18.8	18.5	0.0	19.5	18.7	19.0	18.5	0.0	19.5
		1	37	18.5	18.8	18.5	0.0	19.5	18.6	19.0	18.5	0.0	19.5
		1	74	18.7	18.8	18.5	0.0	19.5	18.7	19.0	18.5	0.0	19.5
		36	0	18.4	18.8	18.5	0.0	19.5	18.4	19.0	18.5	0.0	19.5
		36	20	18.4	18.8	18.5	0.0	19.5	18.4	19.0	18.5	0.0	19.5
		36	39	18.4	18.8	18.5	0.0	19.5	18.4	19.0	18.5	0.0	19.5
		75	0	18.4	18.9	18.5	0.0	19.5	18.4	19.0	18.5	0.0	19.5
	256QAM	1	0	17.6	17.6	17.4	1.0	18.5	17.4	17.7	17.3	1.0	18.5
		1	37	17.5	17.8	17.3	1.0	18.5	17.3	17.7	17.2	1.0	18.5
		1	74	17.5	17.6	17.3	1.0	18.5	17.3	17.6	17.2	1.0	18.5
		36	0	17.4	17.4	17.1	1.0	18.5	17.4	17.4	17.2	1.0	18.5
		36	20	17.4	17.4	17.1	1.0	18.5	17.4	17.4	17.1	1.0	18.5
		36	39	17.3	17.4	17.1	1.0	18.5	17.4	17.4	17.1	1.0	18.5
		75	0	17.4	17.4	17.1	1.0	18.5	17.4	17.4	17.1	1.0	18.5

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LTE Band 66 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622			132022	132322	132622		
				1715 MHz	1745 MHz	1775 MHz			1715 MHz	1745 MHz	1775 MHz		
10 MHz	QPSK	1	0	18.3	18.4	18.1	0.0	19.5	18.4	18.5	18.1	0.0	19.5
		1	25	18.2	18.2	18.0	0.0	19.5	18.3	18.3	18.0	0.0	19.5
		1	49	18.3	18.3	18.1	0.0	19.5	18.4	18.3	18.1	0.0	19.5
		25	0	18.3	18.4	18.0	0.0	19.5	18.4	18.4	18.1	0.0	19.5
		25	12	18.3	18.3	18.0	0.0	19.5	18.3	18.4	18.1	0.0	19.5
		25	25	18.3	18.3	18.0	0.0	19.5	18.3	18.4	18.1	0.0	19.5
		50	0	18.3	18.3	18.0	0.0	19.5	18.4	18.4	18.1	0.0	19.5
	16QAM	1	0	18.5	18.8	18.5	0.0	19.5	18.6	18.8	18.6	0.0	19.5
		1	25	18.4	18.5	18.4	0.0	19.5	18.5	18.5	18.5	0.0	19.5
		1	49	18.5	18.6	18.5	0.0	19.5	18.6	18.6	18.6	0.0	19.5
		25	0	18.4	18.4	18.1	0.0	19.5	18.4	18.5	18.2	0.0	19.5
		25	12	18.4	18.4	18.1	0.0	19.5	18.4	18.4	18.1	0.0	19.5
		25	25	18.4	18.4	18.1	0.0	19.5	18.4	18.4	18.1	0.0	19.5
		50	0	18.3	18.4	18.1	0.0	19.5	18.4	18.4	18.1	0.0	19.5
	64QAM	1	0	18.7	18.6	18.2	0.0	19.5	18.5	18.5	18.3	0.0	19.5
		1	25	18.5	18.6	18.2	0.0	19.5	18.3	18.5	18.3	0.0	19.5
		1	49	18.5	18.6	18.2	0.0	19.5	18.4	18.5	18.3	0.0	19.5
		25	0	18.4	18.6	18.2	0.0	19.5	18.4	18.5	18.3	0.0	19.5
		25	12	18.4	18.6	18.2	0.0	19.5	18.4	18.5	18.3	0.0	19.5
		25	25	18.4	18.6	18.2	0.0	19.5	18.4	18.5	18.3	0.0	19.5
		50	0	18.4	18.6	18.2	0.0	19.5	18.4	18.5	18.3	0.0	19.5
	256QAM	1	0	17.5	17.7	17.1	1.0	18.5	17.5	17.6	17.1	1.0	18.5
		1	25	17.3	17.5	17.0	1.0	18.5	17.4	17.4	17.0	1.0	18.5
		1	49	17.4	17.6	17.1	1.0	18.5	17.4	17.6	17.1	1.0	18.5
		25	0	17.4	17.4	17.1	1.0	18.5	17.4	17.4	17.1	1.0	18.5
		25	12	17.4	17.4	17.0	1.0	18.5	17.4	17.4	17.0	1.0	18.5
		25	25	17.4	17.4	17.0	1.0	18.5	17.4	17.4	17.0	1.0	18.5
		50	0	17.3	17.3	17.0	1.0	18.5	17.3	17.3	17.0	1.0	18.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131997	132322	132647			131997	132322	132647		
				1712.5 MHz	1745 MHz	1777.5 MHz			1712.5 MHz	1745 MHz	1777.5 MHz		
5 MHz	QPSK	1	0	18.4	18.4	18.0	0.0	19.5	18.4	18.4	18.1	0.0	19.5
		1	12	18.4	18.5	18.0	0.0	19.5	18.5	18.4	18.2	0.0	19.5
		1	24	18.5	18.4	18.1	0.0	19.5	18.5	18.4	18.2	0.0	19.5
		12	0	18.4	18.3	18.0	0.0	19.5	18.4	18.4	18.1	0.0	19.5
		12	7	18.4	18.3	18.0	0.0	19.5	18.4	18.4	18.1	0.0	19.5
		12	13	18.4	18.4	18.0	0.0	19.5	18.4	18.4	18.1	0.0	19.5
		25	0	18.4	18.3	18.0	0.0	19.5	18.4	18.4	18.1	0.0	19.5
	16QAM	1	0	18.9	18.6	18.4	0.0	19.5	18.8	19.0	18.3	0.0	19.5
		1	12	19.0	18.7	18.4	0.0	19.5	18.7	19.0	18.3	0.0	19.5
		1	24	18.8	18.8	18.5	0.0	19.5	18.8	18.9	18.4	0.0	19.5
		12	0	18.4	18.4	18.2	0.0	19.5	18.5	18.4	18.1	0.0	19.5
		12	7	18.4	18.4	18.2	0.0	19.5	18.5	18.4	18.1	0.0	19.5
		12	13	18.4	18.5	18.2	0.0	19.5	18.5	18.4	18.2	0.0	19.5
		25	0	18.4	18.4	18.0	0.0	19.5	18.4	18.4	18.1	0.0	19.5
	64QAM	1	0	18.5	18.7	18.5	0.0	19.5	18.9	18.7	18.3	0.0	19.5
		1	12	18.3	18.7	18.5	0.0	19.5	18.8	18.7	18.3	0.0	19.5
		1	24	18.6	18.7	18.5	0.0	19.5	18.8	18.7	18.3	0.0	19.5
		12	0	18.4	18.7	18.5	0.0	19.5	18.4	18.7	18.3	0.0	19.5
		12	7	18.4	18.7	18.5	0.0	19.5	18.4	18.7	18.3	0.0	19.5
		12	13	18.4	18.7	18.5	0.0	19.5	18.4	18.7	18.3	0.0	19.5
		25	0	18.4	18.7	18.4	0.0	19.5	18.4	18.7	18.3	0.0	19.5
	256QAM	1	0	17.5	17.9	17.0	1.0	18.5	17.8	17.5	17.1	1.0	18.5
		1	12	17.5	18.1	16.9	1.0	18.5	17.8	17.6	17.3	1.0	18.5
		1	24	17.5	17.9	17.0	1.0	18.5	17.7	17.5	17.1	1.0	18.5
		12	0	17.4	17.4	17.1	1.0	18.5	17.4	17.4	17.0	1.0	18.5
		12	7	17.4	17.4	17.0	1.0	18.5	17.4	17.3	17.0	1.0	18.5
		12	13	17.4	17.4	17.1	1.0	18.5	17.4	17.3	17.1	1.0	18.5
		25	0	17.4	17.3	17.0	1.0	18.5	17.3	17.3	17.1	1.0	18.5

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LTE Band 66 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657			131987	132322	132657		
				1711.5 MHz	1745 MHz	1778.5 MHz			1711.5 MHz	1745 MHz	1778.5 MHz		
3 MHz	QPSK	1	0	18.4	18.4	18.1	0.0	19.5	18.5	18.4	18.2	0.0	19.5
		1	8	18.3	18.2	18.2	0.0	19.5	18.4	18.3	18.3	0.0	19.5
		1	14	18.5	18.3	18.2	0.0	19.5	18.6	18.3	18.2	0.0	19.5
		8	0	18.4	18.3	18.0	0.0	19.5	18.4	18.3	18.0	0.0	19.5
		8	4	18.3	18.3	17.9	0.0	19.5	18.4	18.3	18.0	0.0	19.5
		8	7	18.3	18.3	18.0	0.0	19.5	18.4	18.3	18.0	0.0	19.5
		15	0	18.3	18.3	18.0	0.0	19.5	18.4	18.3	18.1	0.0	19.5
	16QAM	1	0	18.5	18.7	18.5	0.0	19.5	18.6	18.9	18.4	0.0	19.5
		1	8	18.8	18.6	18.6	0.0	19.5	18.7	18.8	18.8	0.0	19.5
		1	14	18.7	18.6	18.6	0.0	19.5	18.7	18.7	18.7	0.0	19.5
		8	0	18.4	18.4	18.0	0.0	19.5	18.4	18.4	18.1	0.0	19.5
		8	4	18.4	18.4	18.1	0.0	19.5	18.4	18.4	18.1	0.0	19.5
		8	7	18.4	18.4	18.0	0.0	19.5	18.4	18.5	18.1	0.0	19.5
		15	0	18.4	18.4	18.1	0.0	19.5	18.5	18.4	18.2	0.0	19.5
	64QAM	1	0	18.7	18.7	18.2	0.0	19.5	18.6	18.7	18.1	0.0	19.5
		1	8	18.8	18.5	18.0	0.0	19.5	18.5	18.7	18.1	0.0	19.5
		1	14	18.7	18.7	18.0	0.0	19.5	18.4	18.6	18.1	0.0	19.5
		8	0	18.4	18.5	18.0	0.0	19.5	18.4	18.7	18.1	0.0	19.5
		8	4	18.4	18.6	18.2	0.0	19.5	18.4	18.6	18.1	0.0	19.5
		8	7	18.4	18.6	18.0	0.0	19.5	18.4	18.7	18.1	0.0	19.5
		15	0	18.4	18.5	18.0	0.0	19.5	18.4	18.7	18.1	0.0	19.5
	256QAM	1	0	17.7	17.3	17.4	1.0	18.5	17.6	17.6	17.2	1.0	18.5
		1	8	17.7	17.3	17.3	1.0	18.5	17.6	17.7	17.2	1.0	18.5
		1	14	17.8	17.3	17.4	1.0	18.5	17.5	17.5	17.1	1.0	18.5
		8	0	17.4	17.4	17.0	1.0	18.5	17.5	17.4	17.1	1.0	18.5
		8	4	17.3	17.4	17.0	1.0	18.5	17.3	17.4	17.0	1.0	18.5
		8	7	17.4	17.4	17.1	1.0	18.5	17.5	17.4	17.1	1.0	18.5
		15	0	17.4	17.4	17.1	1.0	18.5	17.4	17.3	17.1	1.0	18.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131979	132322	132665			131979	132322	132665		
				1710.7 MHz	1745 MHz	1779.3 MHz			1710.7 MHz	1745 MHz	1779.3 MHz		
1.4 MHz	QPSK	1	0	18.3	18.3	17.9	0.0	19.5	18.3	18.3	18.0	0.0	19.5
		1	3	18.2	18.2	17.8	0.0	19.5	18.2	18.2	17.9	0.0	19.5
		1	5	18.3	18.3	18.0	0.0	19.5	18.4	18.3	18.0	0.0	19.5
		3	0	18.2	18.2	17.9	0.0	19.5	18.3	18.2	17.9	0.0	19.5
		3	1	18.2	18.2	17.8	0.0	19.5	18.3	18.3	17.9	0.0	19.5
		3	3	18.2	18.2	18.0	0.0	19.5	18.3	18.3	18.0	0.0	19.5
		6	0	18.2	18.2	17.9	0.0	19.5	18.3	18.3	17.9	0.0	19.5
	16QAM	1	0	18.8	18.4	18.1	0.0	19.5	18.7	18.4	18.2	0.0	19.5
		1	3	18.6	17.9	18.0	0.0	19.5	18.6	18.3	17.8	0.0	19.5
		1	5	18.7	18.1	18.2	0.0	19.5	18.8	18.4	18.2	0.0	19.5
		3	0	18.4	18.3	17.9	0.0	19.5	18.5	18.2	18.1	0.0	19.5
		3	1	18.5	18.2	17.8	0.0	19.5	18.6	18.3	18.1	0.0	19.5
		3	3	18.4	18.3	17.9	0.0	19.5	18.5	18.3	18.1	0.0	19.5
		6	0	18.3	18.3	18.0	0.0	19.5	18.3	18.4	18.0	0.0	19.5
	64QAM	1	0	18.6	18.5	18.1	0.0	19.5	18.7	18.2	18.2	0.0	19.5
		1	3	18.4	18.5	18.0	0.0	19.5	18.7	18.3	18.3	0.0	19.5
		1	5	18.5	18.3	18.0	0.0	19.5	18.6	18.2	18.2	0.0	19.5
		3	0	18.4	18.8	18.1	0.0	19.5	18.4	18.6	18.3	0.0	19.5
		3	1	18.5	18.6	18.0	0.0	19.5	18.4	18.2	18.2	0.0	19.5
		3	3	18.4	18.9	18.0	0.0	19.5	18.4	18.6	18.2	0.0	19.5
		6	0	18.5	18.5	18.2	0.0	19.5	18.4	18.2	18.3	0.0	19.5
	256QAM	1	0	17.5	17.2	16.9	1.0	18.5	17.1	17.6	17.0	1.0	18.5
		1	3	17.4	17.1	16.5	1.0	18.5	17.5	17.4	17.3	1.0	18.5
		1	5	17.5	17.2	16.6	1.0	18.5	17.3	17.3	16.9	1.0	18.5
		3	0	17.2	17.3	16.8	1.0	18.5	17.2	17.2	17.0	1.0	18.5
		3	1	17.2	17.3	16.7	1.0	18.5	17.2	17.3	17.0	1.0	18.5
		3	3	17.2	17.3	16.8	1.0	18.5	17.2	17.2	17.0	1.0	18.5
		6	0	17.3	17.3	17.0	1.0	18.5	17.3	17.3	17.0	1.0	18.5

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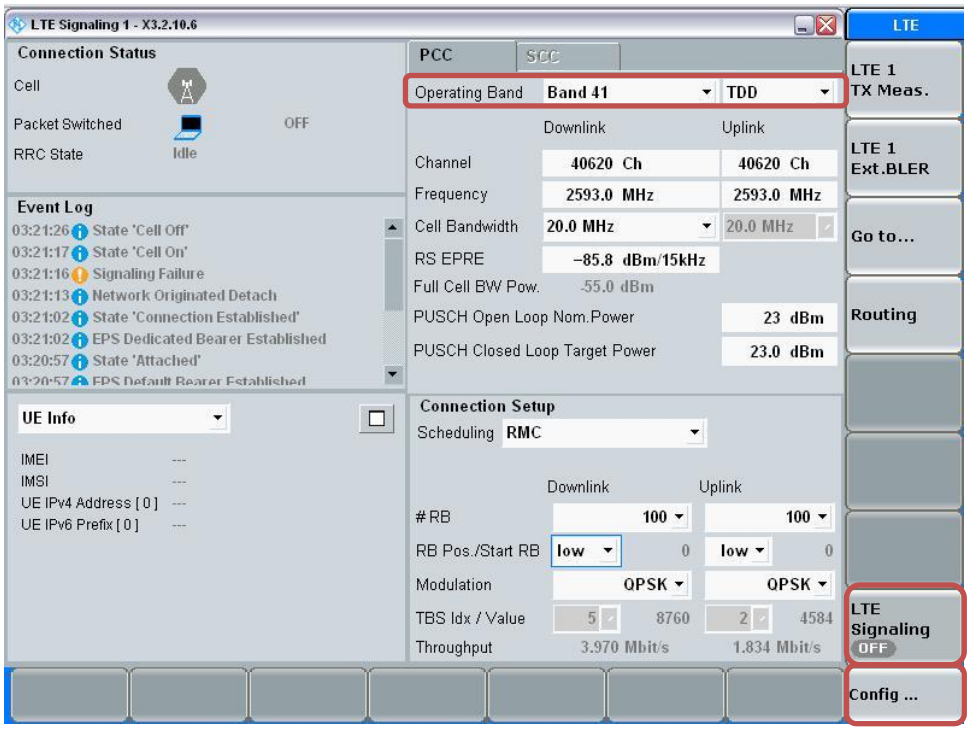
LTE Band TDD Measured Results

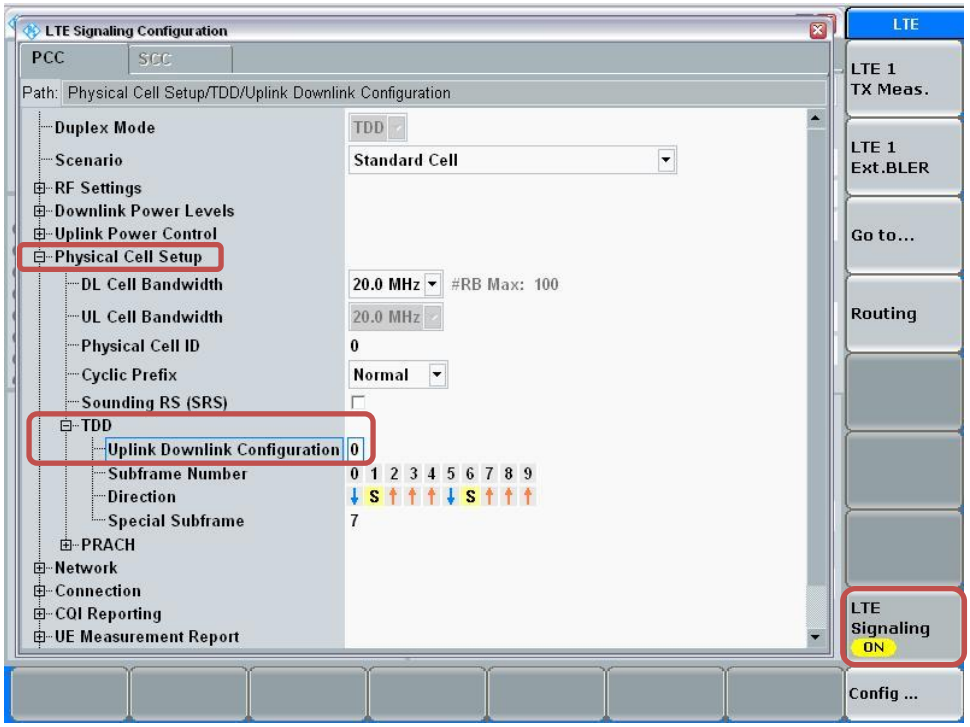
Procedure used to establish SAR test signal for LTE TDD Band

Set to CMW-500 with following parameters:

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



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



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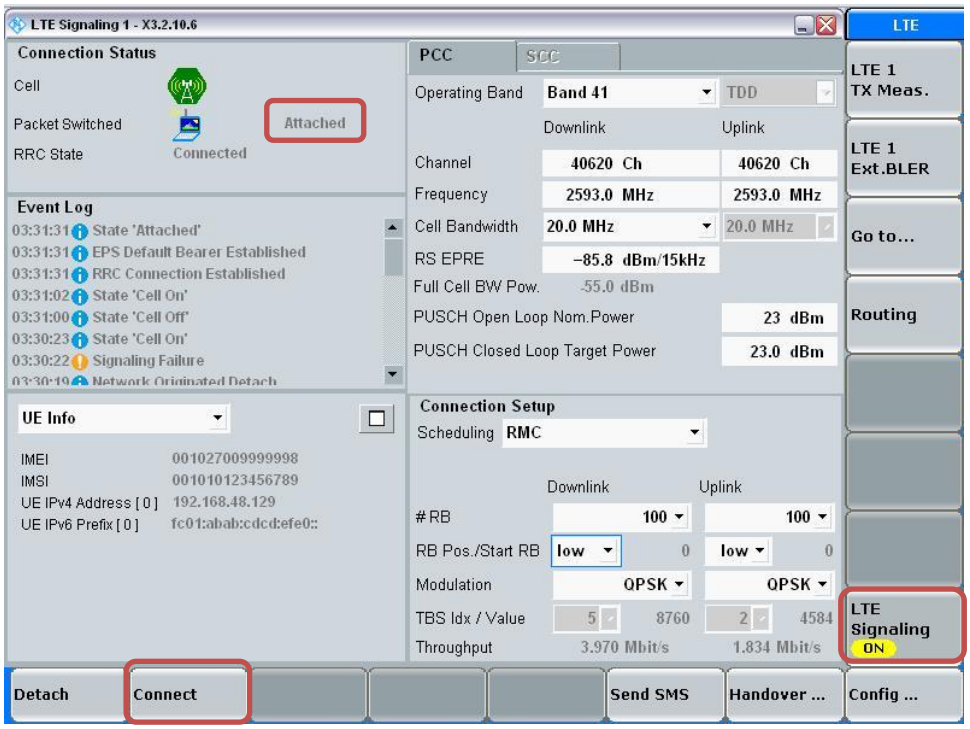
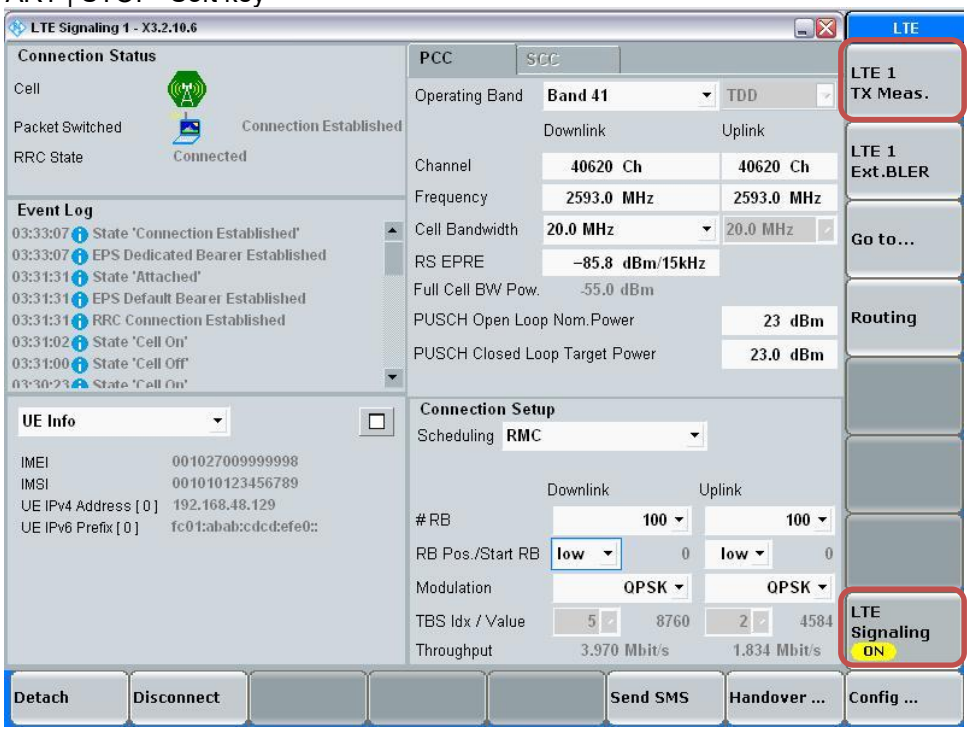
Connect to EUT

- 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



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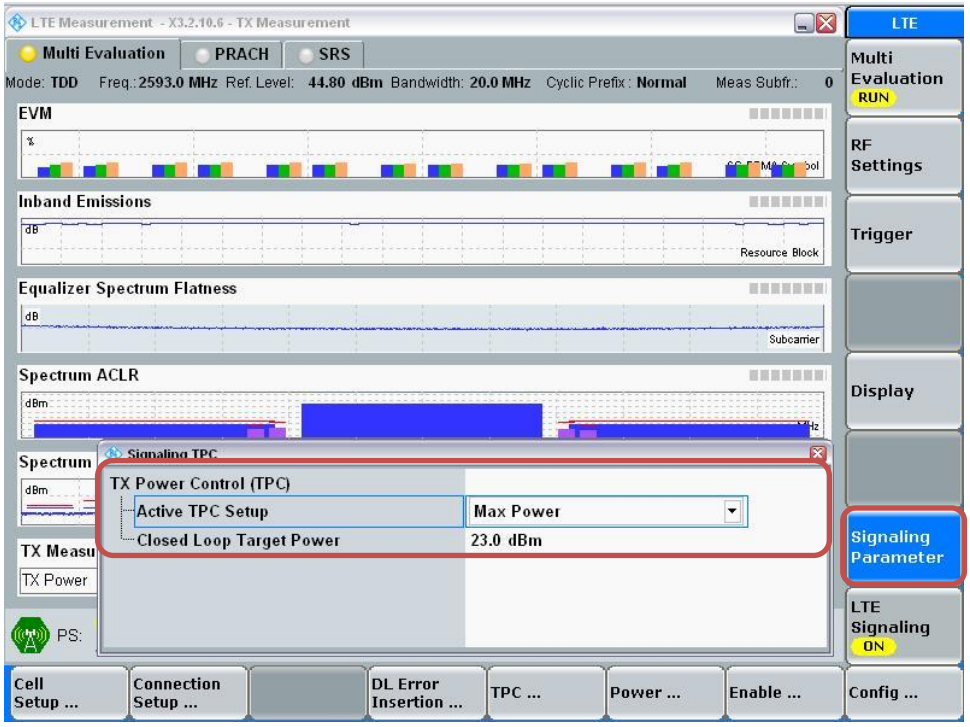
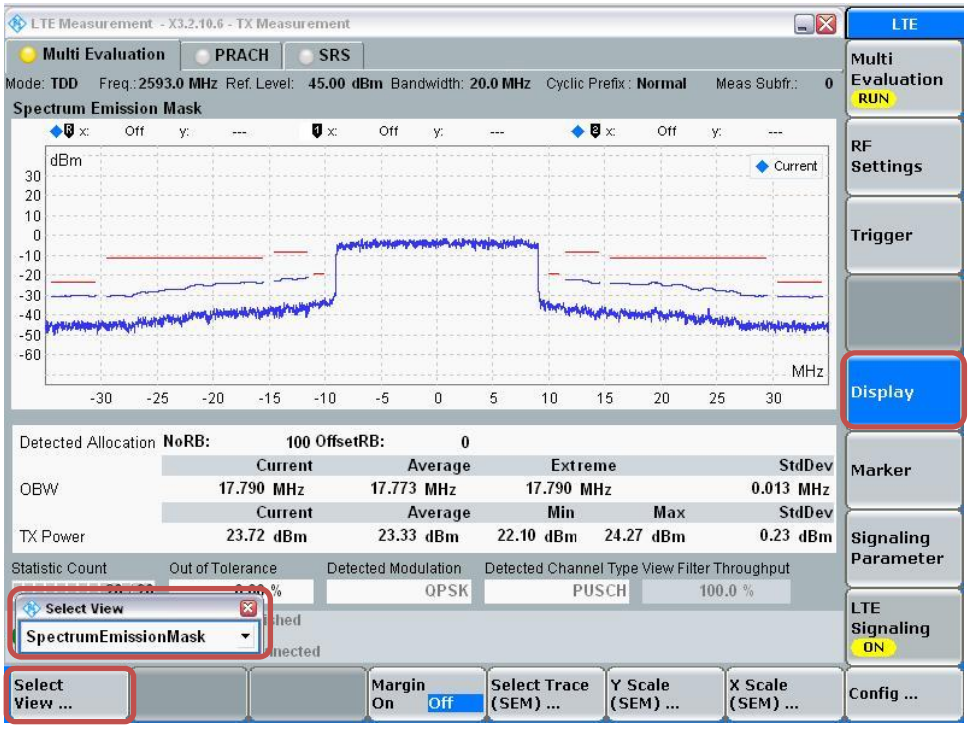
- Select “Signaling Parameter”
- Select “TX Power Control (TPC)” > Select “Active TPC Setup” to “Max Power” > Set “Closed Loop Target Power” to “23 dBm”



View TX Power

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



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1. Max power Results

LTE Band 41 Power Class 3 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)						
				Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	22.6	22.7	22.5	22.2	22.1	0.0	24.0
		1	49	22.6	22.5	22.4	22.1	22.1	0.0	24.0
		1	99	22.6	22.6	22.4	22.3	22.1	0.0	24.0
		50	0	21.8	21.9	21.7	21.2	21.2	1.0	23.0
		50	24	21.8	21.6	21.6	21.2	21.2	1.0	23.0
		50	50	21.8	21.6	21.6	21.2	21.1	1.0	23.0
		100	0	21.8	21.7	21.6	21.2	21.1	1.0	23.0
	16QAM	1	0	21.6	21.7	21.8	21.4	21.3	1.0	23.0
		1	49	21.7	21.5	21.7	21.3	20.9	1.0	23.0
		1	99	21.9	21.5	21.5	21.4	21.5	1.0	23.0
		50	0	20.8	20.7	20.7	20.2	20.2	2.0	22.0
		50	24	20.8	20.6	20.7	20.2	20.2	2.0	22.0
		50	50	20.8	20.6	20.6	20.2	20.2	2.0	22.0
		100	0	20.9	20.6	20.6	20.2	20.1	2.0	22.0
	64QAM	1	0	20.7	20.6	21.0	20.5	20.4	2.0	22.0
		1	49	20.7	20.6	20.4	20.5	20.1	2.0	22.0
		1	99	20.9	20.8	20.6	20.3	20.0	2.0	22.0
		50	0	20.7	20.5	20.7	20.2	19.2	3.0	21.0
		50	24	20.7	21.0	20.8	20.5	19.2	3.0	21.0
		50	50	20.9	20.8	21.0	20.5	19.1	3.0	21.0
		100	0	20.7	20.6	20.6	20.2	19.1	3.0	21.0
	256QAM	1	0	17.7	17.4	17.7	17.4	17.4	5.0	19.0
		1	49	17.6	17.2	17.7	17.3	17.1	5.0	19.0
		1	99	17.9	17.3	17.5	17.3	17.4	5.0	19.0
		50	0	17.7	17.7	17.6	17.2	17.1	5.0	19.0
		50	24	17.7	17.6	17.6	17.2	17.1	5.0	19.0
		50	50	17.7	17.6	17.6	17.2	17.1	5.0	19.0
		100	0	17.7	17.6	17.6	17.2	17.1	5.0	19.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
15 MHz	QPSK	1	0	22.8	22.6	22.6	22.2	22.1	0.0	24.0
		1	37	22.8	22.6	22.3	22.1	22.0	0.0	24.0
		1	74	22.7	22.6	22.5	22.2	22.0	0.0	24.0
		36	0	21.8	21.7	21.6	21.2	21.1	1.0	23.0
		36	20	21.8	21.7	21.6	21.2	21.1	1.0	23.0
		36	39	21.8	21.6	21.6	21.2	21.1	1.0	23.0
		75	0	21.8	21.7	21.6	21.2	21.1	1.0	23.0
	16QAM	1	0	21.9	21.7	21.2	21.3	21.0	1.0	23.0
		1	37	21.6	21.5	20.9	20.8	21.0	1.0	23.0
		1	74	21.5	21.6	21.4	21.2	20.9	1.0	23.0
		36	0	20.8	20.7	20.6	20.2	20.1	2.0	22.0
		36	20	20.8	20.6	20.6	20.2	20.1	2.0	22.0
		36	39	20.8	20.6	20.6	20.2	20.1	2.0	22.0
		75	0	20.8	20.6	20.6	20.2	20.1	2.0	22.0
	64QAM	1	0	20.7	20.7	20.9	20.3	19.9	2.0	22.0
		1	37	20.3	20.6	20.8	20.0	19.7	2.0	22.0
		1	74	20.6	20.9	20.8	20.2	20.2	2.0	22.0
		36	0	19.6	20.3	20.8	20.3	19.1	3.0	21.0
		36	20	19.7	20.6	20.6	20.0	19.1	3.0	21.0
		36	39	19.7	20.6	20.9	20.1	19.1	3.0	21.0
		75	0	19.7	20.6	20.8	20.3	19.1	3.0	21.0
	256QAM	1	0	17.8	17.7	17.2	17.2	17.2	5.0	19.0
		1	37	17.3	17.9	16.9	16.6	17.2	5.0	19.0
		1	74	17.6	17.6	17.2	17.3	17.2	5.0	19.0
		36	0	17.7	17.7	17.6	17.3	17.2	5.0	19.0
		36	20	17.7	17.6	17.6	17.3	17.1	5.0	19.0
		36	39	17.7	17.6	17.6	17.3	17.2	5.0	19.0
		75	0	17.7	17.7	17.6	17.3	17.2	5.0	19.0

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LTE Band 41 Power Class 3 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	22.8	22.7	22.6	22.2	22.1	0.0	24.0
		1	25	22.7	22.5	22.5	22.2	22.0	0.0	24.0
		1	49	22.8	22.6	22.5	22.2	22.0	0.0	24.0
		25	0	21.9	21.7	21.7	21.3	21.2	1.0	23.0
		25	12	21.9	21.7	21.6	21.2	21.2	1.0	23.0
		25	25	21.9	21.7	21.6	21.2	21.2	1.0	23.0
		50	0	21.9	21.7	21.6	21.2	21.1	1.0	23.0
	16QAM	1	0	21.7	21.9	21.5	21.1	21.3	1.0	23.0
		1	25	21.6	21.7	21.3	21.0	21.2	1.0	23.0
		1	49	21.7	21.8	21.4	21.1	21.3	1.0	23.0
		25	0	20.9	20.7	20.7	20.2	20.1	2.0	22.0
		25	12	20.9	20.7	20.6	20.2	20.1	2.0	22.0
		25	25	20.8	20.7	20.7	20.2	20.1	2.0	22.0
		50	0	20.9	20.7	20.7	20.2	20.2	2.0	22.0
	64QAM	1	0	20.6	20.8	20.7	20.1	20.3	2.0	22.0
		1	25	20.4	20.8	20.7	20.0	20.2	2.0	22.0
		1	49	20.6	20.8	20.7	20.1	20.2	2.0	22.0
		25	0	19.8	20.8	20.7	20.1	19.1	3.0	21.0
		25	12	19.8	20.8	20.7	20.1	19.1	3.0	21.0
		25	25	19.8	20.8	20.7	20.1	19.1	3.0	21.0
		50	0	19.7	20.8	20.7	20.1	19.1	3.0	21.0
	256QAM	1	0	17.6	17.4	17.5	17.1	16.9	5.0	19.0
		1	25	17.5	17.3	17.3	17.0	16.8	5.0	19.0
		1	49	17.5	17.3	17.4	17.1	16.8	5.0	19.0
		25	0	17.7	17.6	17.6	17.2	17.2	5.0	19.0
		25	12	17.8	17.6	17.6	17.2	17.1	5.0	19.0
		25	25	17.7	17.6	17.5	17.2	17.1	5.0	19.0
		50	0	17.8	17.6	17.6	17.2	17.1	5.0	19.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
5 MHz	QPSK	1	0	22.8	22.8	22.7	22.3	22.3	0.0	24.0
		1	12	22.7	22.5	22.4	22.3	22.3	0.0	24.0
		1	24	22.7	22.7	22.6	22.3	22.3	0.0	24.0
		12	0	21.9	21.7	21.7	21.3	21.3	1.0	23.0
		12	7	21.8	21.7	21.7	21.3	21.3	1.0	23.0
		12	13	21.8	21.7	21.7	21.4	21.3	1.0	23.0
		25	0	21.9	21.7	21.7	21.3	21.3	1.0	23.0
	16QAM	1	0	21.9	21.7	21.7	21.4	21.2	1.0	23.0
		1	12	21.8	21.4	21.4	21.4	21.2	1.0	23.0
		1	24	21.9	21.7	21.7	21.5	21.2	1.0	23.0
		12	0	20.9	20.7	20.7	20.3	20.3	2.0	22.0
		12	7	20.8	20.7	20.8	20.3	20.3	2.0	22.0
		12	13	20.8	20.7	20.7	20.3	20.3	2.0	22.0
		25	0	20.9	20.7	20.7	20.3	20.2	2.0	22.0
	64QAM	1	0	20.8	20.6	20.8	20.0	20.0	2.0	22.0
		1	12	20.5	20.6	20.7	20.0	20.0	2.0	22.0
		1	24	20.7	20.6	20.7	20.0	20.0	2.0	22.0
		12	0	19.8	20.6	20.8	20.0	20.0	3.0	21.0
		12	7	19.8	20.6	20.8	20.0	20.0	3.0	21.0
		12	13	19.8	20.6	20.8	20.0	20.0	3.0	21.0
		25	0	19.7	20.5	20.8	20.0	20.0	3.0	21.0
	256QAM	1	0	17.9	17.6	17.7	17.2	17.2	5.0	19.0
		1	12	17.7	17.5	17.4	17.0	17.1	5.0	19.0
		1	24	17.9	17.6	17.7	17.2	17.2	5.0	19.0
		12	0	17.7	17.6	17.5	17.1	17.1	5.0	19.0
		12	7	17.6	17.6	17.5	17.2	17.2	5.0	19.0
		12	13	17.6	17.5	17.5	17.1	17.1	5.0	19.0
		25	0	17.7	17.6	17.5	17.2	17.1	5.0	19.0

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LTE Band 41 Power Class 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)						
				Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	24.9	24.7	24.7	24.3	24.1	0.0	25.5
		1	49	24.7	24.6	24.6	24.2	24.0	0.0	25.5
		1	99	24.8	24.7	24.8	24.3	24.2	0.0	25.5
		50	0	23.9	23.8	23.8	23.4	23.1	1.0	24.5
		50	24	23.8	23.7	23.8	23.4	23.1	1.0	24.5
		50	50	23.8	23.7	23.8	23.4	23.1	1.0	24.5
		100	0	23.8	23.7	23.8	23.4	23.1	1.0	24.5
	16QAM	1	0	24.0	24.3	24.1	23.5	23.4	1.0	24.5
		1	49	24.0	24.2	24.0	23.8	23.2	1.0	24.5
		1	99	24.1	24.2	24.0	23.9	23.2	1.0	24.5
		50	0	22.9	22.8	22.9	22.4	22.2	2.0	23.5
		50	24	22.8	22.8	22.9	22.3	22.1	2.0	23.5
		50	50	22.8	22.8	22.8	22.4	22.1	2.0	23.5
		100	0	22.8	22.8	22.8	22.3	22.1	2.0	23.5
	64QAM	1	0	23.2	23.1	22.9	22.3	22.5	2.0	23.5
		1	49	23.1	23.1	22.9	22.3	22.6	2.0	23.5
		1	99	23.2	23.1	22.9	22.3	22.6	2.0	23.5
		50	0	21.8	21.7	21.8	21.3	21.0	3.0	22.5
		50	24	21.8	21.7	21.7	21.4	21.0	3.0	22.5
		50	50	21.8	21.6	21.7	21.4	21.0	3.0	22.5
		100	0	21.9	21.6	21.8	21.3	21.0	3.0	22.5
	256QAM	1	0	20.1	20.3	20.1	19.6	19.7	5.0	20.5
		1	49	20.0	20.1	19.8	19.5	19.6	5.0	20.5
		1	99	20.1	20.2	19.9	19.6	19.6	5.0	20.5
		50	0	19.9	19.8	19.9	19.3	19.1	5.0	20.5
		50	24	19.9	19.8	19.9	19.3	19.1	5.0	20.5
		50	50	19.9	19.7	19.8	19.3	19.1	5.0	20.5
		100	0	19.9	19.7	19.8	19.3	19.1	5.0	20.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
15 MHz	QPSK	1	0	24.8	24.6	24.9	24.3	24.0	0.0	25.5
		1	37	24.6	24.4	24.9	24.2	23.8	0.0	25.5
		1	74	24.9	24.5	25.0	24.3	24.0	0.0	25.5
		36	0	23.9	23.8	23.9	23.4	23.1	1.0	24.5
		36	20	23.9	23.8	23.8	23.4	23.2	1.0	24.5
		36	39	23.8	23.7	23.8	23.4	23.1	1.0	24.5
		75	0	23.9	23.8	23.9	23.4	23.2	1.0	24.5
	16QAM	1	0	23.9	24.0	24.1	23.7	23.3	1.0	24.5
		1	37	23.2	23.9	24.0	23.0	23.1	1.0	24.5
		1	74	23.8	23.9	24.0	23.6	23.1	1.0	24.5
		36	0	22.9	22.7	22.8	22.4	22.1	2.0	23.5
		36	20	22.9	22.7	22.8	22.4	22.1	2.0	23.5
		36	39	22.8	22.7	22.8	22.4	22.1	2.0	23.5
		75	0	22.9	22.7	22.9	22.3	22.1	2.0	23.5
	64QAM	1	0	22.7	22.9	22.6	22.4	22.5	2.0	23.5
		1	37	22.7	22.9	22.7	22.4	22.6	2.0	23.5
		1	74	22.7	22.9	22.7	22.4	22.4	2.0	23.5
		36	0	21.3	21.4	21.3	21.2	21.2	3.0	22.5
		36	20	21.3	21.4	21.4	21.3	21.2	3.0	22.5
		36	39	21.4	21.3	21.3	21.2	21.2	3.0	22.5
		75	0	21.3	21.3	21.3	21.2	21.2	3.0	22.5
	256QAM	1	0	20.1	20.1	19.8	19.2	19.3	5.0	20.5
		1	37	20.1	19.6	20.1	19.2	18.8	5.0	20.5
		1	74	20.0	20.1	19.8	19.2	19.2	5.0	20.5
		36	0	19.8	19.7	19.8	19.3	19.0	5.0	20.5
		36	20	19.8	19.6	19.7	19.4	19.1	5.0	20.5
		36	39	19.8	19.6	19.8	19.3	19.0	5.0	20.5
		75	0	19.8	19.7	19.7	19.3	19.1	5.0	20.5

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LTE Band 41 Power Class 2 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	24.8	24.6	24.7	24.4	24.0	0.0	25.5
		1	25	24.6	24.5	24.5	24.2	23.9	0.0	25.5
		1	49	24.7	24.7	24.6	24.2	24.1	0.0	25.5
		25	0	23.8	23.7	23.8	23.4	23.1	1.0	24.5
		25	12	23.8	23.7	23.8	23.3	23.1	1.0	24.5
		25	25	23.8	23.7	23.8	23.3	23.1	1.0	24.5
		50	0	23.8	23.7	23.8	23.3	23.1	1.0	24.5
	16QAM	1	0	23.8	23.8	24.0	23.7	23.4	1.0	24.5
		1	25	23.7	23.8	23.9	23.6	23.3	1.0	24.5
		1	49	23.7	23.9	23.9	23.6	23.3	1.0	24.5
		25	0	22.8	22.8	22.8	22.3	22.1	2.0	23.5
		25	12	22.8	22.7	22.8	22.3	22.1	2.0	23.5
		25	25	22.7	22.7	22.8	22.3	22.1	2.0	23.5
		50	0	22.8	22.7	22.8	22.3	22.1	2.0	23.5
	64QAM	1	0	23.1	22.9	23.1	22.9	22.1	2.0	23.5
		1	25	23.1	22.9	23.2	22.9	22.1	2.0	23.5
		1	49	23.1	22.9	23.2	22.9	22.1	2.0	23.5
		25	0	21.8	21.7	21.7	21.2	21.1	3.0	22.5
		25	12	21.8	21.6	21.7	21.3	21.1	3.0	22.5
		25	25	21.8	21.6	21.7	21.3	21.1	3.0	22.5
		50	0	21.7	21.6	21.7	21.2	21.0	3.0	22.5
	256QAM	1	0	20.1	20.1	19.8	19.5	19.2	5.0	20.5
		1	25	19.9	20.0	19.6	19.4	19.1	5.0	20.5
		1	49	20.0	20.0	19.7	19.5	19.2	5.0	20.5
		25	0	19.8	19.7	19.8	19.3	19.1	5.0	20.5
		25	12	19.8	19.6	19.8	19.3	19.1	5.0	20.5
		25	25	19.8	19.6	19.8	19.3	19.1	5.0	20.5
		50	0	19.8	19.7	19.7	19.3	19.0	5.0	20.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
5 MHz	QPSK	1	0	24.6	24.7	24.7	24.3	24.1	0.0	25.5
		1	12	24.8	24.8	24.9	24.4	24.0	0.0	25.5
		1	24	24.6	24.6	24.6	24.3	24.0	0.0	25.5
		12	0	23.7	23.7	23.7	23.3	23.1	1.0	24.5
		12	7	23.7	23.7	23.8	23.3	23.0	1.0	24.5
		12	13	23.8	23.7	23.7	23.4	23.1	1.0	24.5
		25	0	23.7	23.7	23.8	23.3	23.0	1.0	24.5
	16QAM	1	0	23.8	24.3	24.2	23.5	23.5	1.0	24.5
		1	12	23.5	24.0	24.3	23.2	23.6	1.0	24.5
		1	24	23.8	24.2	24.2	23.5	23.4	1.0	24.5
		12	0	22.8	22.7	22.8	22.3	22.1	2.0	23.5
		12	7	22.7	22.7	22.9	22.3	22.0	2.0	23.5
		12	13	22.8	22.7	22.8	22.3	22.1	2.0	23.5
		25	0	22.7	22.7	22.8	22.3	22.0	2.0	23.5
	64QAM	1	0	23.1	23.3	22.8	22.8	22.4	2.0	23.5
		1	12	23.1	23.3	22.8	22.8	22.3	2.0	23.5
		1	24	23.1	23.3	22.8	22.8	22.4	2.0	23.5
		12	0	21.8	21.8	21.8	21.4	21.1	3.0	22.5
		12	7	21.8	21.8	21.7	21.3	21.0	3.0	22.5
		12	13	21.9	21.8	21.7	21.3	21.1	3.0	22.5
		25	0	21.7	21.8	21.7	21.3	21.0	3.0	22.5
	256QAM	1	0	20.2	19.9	20.1	19.9	19.2	5.0	20.5
		1	12	19.9	20.1	20.0	20.0	19.5	5.0	20.5
		1	24	20.2	19.9	20.0	19.9	19.3	5.0	20.5
		12	0	19.9	19.6	19.7	19.2	19.0	5.0	20.5
		12	7	19.8	19.6	19.7	19.2	19.0	5.0	20.5
		12	13	19.9	19.7	19.7	19.2	19.1	5.0	20.5
		25	0	19.7	19.6	19.7	19.2	19.0	5.0	20.5

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2. Reduced power Results

LTE Band 41 Power Class 3 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off							Reduced Average Power (dBm) Proximity sensor back-off						
				Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	20.0	20.1	20.1	19.7	19.4	0.0	21.0	20.0	20.2	20.1	19.6	19.5	0.0	21.0
		1	49	19.9	19.9	20.0	19.6	19.3	0.0	21.0	19.9	19.9	20.1	19.5	19.4	0.0	21.0
		1	99	20.1	20.0	20.0	19.6	19.3	0.0	21.0	20.1	20.0	20.1	19.5	19.4	0.0	21.0
		50	0	20.1	20.2	20.1	19.6	19.4	0.0	21.0	20.1	20.2	20.1	19.6	19.4	0.0	21.0
		50	24	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.1	19.6	19.5	0.0	21.0
		50	50	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.1	19.6	19.5	0.0	21.0
		100	0	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.1	19.6	19.4	0.0	21.0
	16QAM	1	0	20.5	20.1	20.2	19.8	19.4	0.0	21.0	20.0	20.4	20.3	19.9	19.6	0.0	21.0
		1	49	20.3	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.4	19.9	19.2	0.0	21.0
		1	99	20.3	20.2	20.2	19.8	19.5	0.0	21.0	20.0	19.9	20.3	19.8	19.4	0.0	21.0
		50	0	20.2	20.1	20.1	19.6	19.4	0.0	21.0	20.2	20.1	20.2	19.6	19.5	0.0	21.0
		50	24	20.2	20.0	20.1	19.6	19.4	0.0	21.0	20.2	20.0	20.1	19.6	19.5	0.0	21.0
		50	50	20.2	20.0	20.1	19.6	19.4	0.0	21.0	20.2	20.1	20.2	19.6	19.5	0.0	21.0
		100	0	20.2	20.0	20.1	19.6	19.5	0.0	21.0	20.1	20.0	20.1	19.6	19.4	0.0	21.0
	64QAM	1	0	19.9	19.8	20.0	19.5	19.0	0.0	21.0	20.3	19.9	20.1	19.6	19.8	0.0	21.0
		1	49	19.9	20.0	20.4	19.5	19.3	0.0	21.0	19.9	20.1	20.1	19.8	19.7	0.0	21.0
		1	99	20.1	20.0	20.4	19.5	19.0	0.0	21.0	20.3	20.2	20.1	19.7	19.8	0.0	21.0
		50	0	20.2	19.7	20.2	19.7	19.5	0.0	21.0	20.3	20.1	20.1	19.8	19.9	0.0	21.0
		50	24	20.1	20.0	20.5	19.7	19.5	0.0	21.0	20.3	20.2	20.2	19.8	19.7	0.0	21.0
		50	50	20.1	19.7	20.2	19.7	19.5	0.0	21.0	20.3	19.9	20.1	19.8	19.8	0.0	21.0
		100	0	20.1	19.3	20.4	19.6	19.5	0.0	21.0	20.3	20.4	19.8	19.7	19.9	0.0	21.0
	256QAM	1	0	18.1	18.0	17.7	17.5	17.5	2.0	19.0	18.4	18.3	18.2	17.8	17.6	2.0	19.0
		1	49	18.0	17.8	18.2	17.8	17.4	2.0	19.0	18.1	18.0	18.1	17.6	17.5	2.0	19.0
		1	99	18.1	17.9	18.2	17.5	17.6	2.0	19.0	18.4	18.2	18.2	17.8	17.9	2.0	19.0
		50	0	18.2	18.0	18.1	17.7	17.5	2.0	19.0	18.2	18.1	18.2	17.7	17.5	2.0	19.0
		50	24	18.2	18.0	18.1	17.7	17.5	2.0	19.0	18.2	18.1	18.3	17.7	17.5	2.0	19.0
		50	50	18.1	18.0	18.1	17.6	17.5	2.0	19.0	18.2	18.1	18.2	17.7	17.5	2.0	19.0
		100	0	18.1	18.0	18.1	17.6	17.5	2.0	19.0	18.2	18.1	18.2	17.7	17.5	2.0	19.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
15 MHz	QPSK	1	0	20.0	20.1	20.2	19.6	19.5	0.0	21.0	20.1	20.1	20.2	19.6	19.3	0.0	21.0
		1	37	19.8	19.7	20.0	19.7	19.8	0.0	21.0	19.8	19.8	20.1	19.9	19.6	0.0	21.0
		1	74	20.1	19.9	20.2	19.5	19.5	0.0	21.0	20.1	20.0	20.1	19.5	19.3	0.0	21.0
		36	0	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.1	20.1	19.6	19.4	0.0	21.0
		36	20	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.1	19.6	19.4	0.0	21.0
		36	39	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.0	19.6	19.4	0.0	21.0
		75	0	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.1	20.1	19.6	19.4	0.0	21.0
	16QAM	1	0	20.3	20.3	20.2	19.8	19.3	0.0	21.0	20.1	20.0	20.0	19.4	19.4	0.0	21.0
		1	37	19.4	19.5	20.0	19.3	19.5	0.0	21.0	19.9	19.3	19.6	19.8	19.7	0.0	21.0
		1	74	20.2	19.6	19.8	19.6	19.2	0.0	21.0	20.0	19.9	19.9	19.4	19.4	0.0	21.0
		36	0	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.1	20.1	19.6	19.5	0.0	21.0
		36	20	20.1	20.0	20.0	19.6	19.3	0.0	21.0	20.1	20.0	20.1	19.6	19.4	0.0	21.0
		36	39	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.0	19.6	19.4	0.0	21.0
		75	0	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.1	20.1	19.6	19.4	0.0	21.0
	64QAM	1	0	20.2	20.0	20.3	19.3	19.7	0.0	21.0	20.3	20.2	20.4	19.6	19.8	0.0	21.0
		1	37	19.5	20.0	19.9	19.6	19.3	0.0	21.0	19.8	20.1	19.5	19.4	19.5	0.0	21.0
		1	74	19.9	20.0	20.4	19.2	19.7	0.0	21.0	20.1	20.5	20.1	19.4	19.4	0.0	21.0
		36	0	20.1	20.3	20.3	19.3	19.3	0.0	21.0	20.2	20.0	20.2	19.7	19.8	0.0	21.0
		36	20	20.1	19.9	20.4	19.6	19.4	0.0	21.0	20.1	20.1	20.2	19.7	19.6	0.0	21.0
		36	39	20.1	19.9	20.2	19.2	19.7	0.0	21.0	20.1	20.1	20.2	19.4	19.7	0.0	21.0
		75	0	20.1	20.0	19.9	19.2	19.4	0.0	21.0	20.2	20.5	20.2	19.4	19.4	0.0	21.0
	256QAM	1	0	18.5	18.1	18.2	17.7	17.4	2.0	19.0	18.3	18.0	18.5	17.7	17.0	2.0	19.0
		1	37	17.9	17.5	18.3	18.1	17.4	2.0	19.0	18.2	18.0	18.1	17.3	17.5	2.0	19.0
		1	74	18.2	17.9	17.7	17.9	17.2	2.0	19.0	18.8	17.8	17.8	17.6	17.4	2.0	19.0
		36	0	18.1	18.0	18.1	17.5	17.4	2.0	19.0	18.1	18.1	18.2	17.7	17.5	2.0	19.0
		36	20	18.1	18.0	18.0	17.5	17.4	2.0	19.0	18.1	18.1	18.2	17.7	17.5	2.0	19.0
		36	39	18.1	18.0	18.0	17.5	17.4	2.0	19.0	18.1	18.1	18.1	17.6	17.4	2.0	19.0
		75	0	18.1	18.0	18.0	17.6	17.4	2.0	19.0	18.2	18.1	18.2	17.7	17.5	2.0	19.0

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LTE Band 41 Power Class 3 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	20.1	20.1	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.1	19.6	19.4	0.0	21.0
		1	25	20.0	19.9	20.1	19.6	19.3	0.0	21.0	20.0	19.9	20.0	19.5	19.3	0.0	21.0
		1	49	20.0	20.0	20.1	19.6	19.4	0.0	21.0	20.1	19.9	20.0	19.6	19.4	0.0	21.0
		25	0	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.1	19.6	19.4	0.0	21.0
		25	12	20.1	20.0	20.1	19.6	19.5	0.0	21.0	20.1	20.0	20.0	19.6	19.4	0.0	21.0
		25	25	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.1	19.6	19.4	0.0	21.0
		50	0	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.1	19.6	19.4	0.0	21.0
	16QAM	1	0	20.4	20.2	20.1	19.5	19.5	0.0	21.0	20.2	20.2	19.9	19.5	19.6	0.0	21.0
		1	25	20.2	20.1	20.0	19.4	19.4	0.0	21.0	20.0	20.1	19.7	19.4	19.5	0.0	21.0
		1	49	20.3	20.2	20.1	19.5	19.5	0.0	21.0	20.1	20.2	19.8	19.5	19.6	0.0	21.0
		25	0	20.2	20.0	20.2	19.6	19.4	0.0	21.0	20.2	20.0	20.1	19.6	19.4	0.0	21.0
		25	12	20.1	20.0	20.1	19.6	19.5	0.0	21.0	20.1	19.9	20.1	19.6	19.4	0.0	21.0
		25	25	20.2	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.1	19.6	19.4	0.0	21.0
		50	0	20.2	20.0	20.2	19.6	19.4	0.0	21.0	20.2	20.0	20.1	19.6	19.4	0.0	21.0
	64QAM	1	0	19.9	19.9	19.9	19.4	19.3	0.0	21.0	20.0	20.0	20.0	19.5	19.4	0.0	21.0
		1	25	19.9	20.0	19.9	19.4	19.3	0.0	21.0	19.9	19.9	20.0	19.5	19.3	0.0	21.0
		1	49	20.0	19.9	19.9	19.4	19.3	0.0	21.0	20.1	20.0	20.0	19.4	19.4	0.0	21.0
		25	0	20.1	20.0	19.9	19.5	19.3	0.0	21.0	20.2	20.0	20.0	19.5	19.5	0.0	21.0
		25	12	20.1	19.9	19.9	19.5	19.3	0.0	21.0	20.2	20.0	20.0	19.5	19.5	0.0	21.0
		25	25	20.1	20.0	19.9	19.4	19.3	0.0	21.0	20.2	20.0	20.0	19.5	19.5	0.0	21.0
		50	0	20.1	20.0	19.9	19.4	19.3	0.0	21.0	20.2	20.1	20.0	19.5	19.5	0.0	21.0
	256QAM	1	0	18.0	17.9	18.0	17.4	17.3	2.0	19.0	18.2	18.1	18.1	17.6	17.4	2.0	19.0
		1	25	17.9	17.7	17.9	17.3	17.2	2.0	19.0	18.1	17.9	18.1	17.5	17.3	2.0	19.0
		1	49	18.0	17.8	18.0	17.4	17.3	2.0	19.0	18.2	18.0	18.1	17.5	17.4	2.0	19.0
		25	0	18.1	18.0	18.1	17.5	17.4	2.0	19.0	18.2	18.1	18.2	17.6	17.5	2.0	19.0
		25	12	18.1	17.9	18.1	17.6	17.4	2.0	19.0	18.2	18.1	18.1	17.6	17.5	2.0	19.0
		25	25	18.1	17.9	18.0	17.5	17.4	2.0	19.0	18.2	18.0	18.1	17.6	17.5	2.0	19.0
		50	0	18.1	18.0	18.1	17.5	17.4	2.0	19.0	18.2	18.1	18.2	17.6	17.5	2.0	19.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
5 MHz	QPSK	1	0	20.1	20.1	20.1	19.6	19.5	0.0	21.0	20.1	20.0	20.1	19.6	19.4	0.0	21.0
		1	12	19.8	19.8	20.0	19.9	19.7	0.0	21.0	19.8	19.8	20.1	19.9	19.4	0.0	21.0
		1	24	20.1	20.0	20.0	19.6	19.4	0.0	21.0	20.0	19.9	20.0	19.5	19.4	0.0	21.0
		12	0	20.1	20.0	20.0	19.6	19.4	0.0	21.0	20.1	20.0	20.0	19.6	19.4	0.0	21.0
		12	7	20.1	20.0	20.1	19.5	19.4	0.0	21.0	20.1	20.0	20.0	19.5	19.3	0.0	21.0
		12	13	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.1	19.5	19.3	0.0	21.0
		25	0	20.1	20.0	20.1	19.6	19.4	0.0	21.0	20.1	20.0	20.0	19.5	19.4	0.0	21.0
	16QAM	1	0	19.9	20.1	20.2	19.5	19.5	0.0	21.0	20.2	20.0	20.0	19.7	19.4	0.0	21.0
		1	12	19.6	19.7	20.1	19.8	19.6	0.0	21.0	19.8	19.8	20.1	19.8	19.5	0.0	21.0
		1	24	20.0	20.1	20.1	19.6	19.6	0.0	21.0	20.2	20.0	20.0	19.8	19.5	0.0	21.0
		12	0	20.1	20.0	20.1	19.5	19.4	0.0	21.0	20.1	19.9	20.1	19.5	19.3	0.0	21.0
		12	7	20.1	20.0	20.1	19.5	19.3	0.0	21.0	20.1	20.0	20.1	19.5	19.3	0.0	21.0
		12	13	20.1	20.0	20.1	19.5	19.4	0.0	21.0	20.1	19.9	20.1	19.5	19.3	0.0	21.0
		25	0	20.1	20.0	20.1	19.5	19.4	0.0	21.0	20.1	19.9	20.1	19.5	19.3	0.0	21.0
	64QAM	1	0	20.1	20.0	20.2	19.4	19.4	0.0	21.0	20.2	20.1	20.4	19.5	19.5	0.0	21.0
		1	12	19.9	20.0	20.2	19.4	19.4	0.0	21.0	20.1	20.1	20.4	19.5	19.5	0.0	21.0
		1	24	20.1	20.0	20.1	19.4	19.4	0.0	21.0	20.1	20.1	20.4	19.5	19.5	0.0	21.0
		12	0	20.1	20.0	20.2	19.4	19.4	0.0	21.0	20.2	20.1	20.4	19.5	19.5	0.0	21.0
		12	7	20.1	20.0	20.1	19.5	19.4	0.0	21.0	20.1	20.1	20.4	19.5	19.5	0.0	21.0
		12	13	20.2	20.0	20.1	19.4	19.4	0.0	21.0	20.2	20.1	20.3	19.5	19.5	0.0	21.0
		25	0	20.2	20.0	20.2	19.4	19.4	0.0	21.0	20.2	20.1	20.3	19.5	19.5	0.0	21.0
	256QAM	1	0	18.2	18.1	18.1	17.6	17.5	2.0	19.0	18.3	18.2	18.4	17.7	17.5	2.0	19.0
		1	12	17.9	17.9	18.2	17.8	17.7	2.0	19.0	18.2	18.1	18.0	17.5	17.7	2.0	19.0
		1	24	18.2	18.1	18.1	17.6	17.5	2.0	19.0	18.2	18.2	18.3	17.7	17.5	2.0	19.0
		12	0	18.1	18.0	18.0	17.5	17.4	2.0	19.0	18.2	18.1	18.1	17.6	17.5	2.0	19.0
		12	7	18.1	18.0	18.0	17.5	17.3	2.0	19.0	18.1	18.1	18.2	17.6	17.5	2.0	19.0
		12	13	18.1	18.0	18.1	17.5	17.3	2.0	19.0	18.1	18.0	18.1	17.6	17.5	2.0	19.0
		25	0	18.1	17.9	18.0	17.5	17.3	2.0	19.0	18.2	18.0	18.1	17.6	17.4	2.0	19.0

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9.3.1. LTE Rel. 10 Carrier Aggregation

LTE Carrier Aggregation Down Link Combinations;

The DL CA power measurement conditions for various CC's combinations were determined according LTE DL CA SAR Test Exclusion guidance in TCB workshop note (April 2018). Only yellow highlighted cells need power measurement. The following power measurements were performed with a single carrier uplink; CA for this particular project only supports one (1) uplink and up to four (4) downlinks.

LTE Release 10 Carrier Aggregation

Index	2CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
2CC #1	2A-2A			
2CC #2	2C			
2CC #3	2A-4A		3CC #1	O
2CC #4	2A-5A		3CC #1	O
2CC #5	2A-12A			O
2CC #6	2A-13A		3CC #2	O
2CC #7	2A-17A	B17 SCC only		X
2CC #8	2A-66A			O
2CC #9	4A-4A		3CC #3	
2CC #10	4A-5A		3CC #1	O
2CC #11	4A-12A		3CC #3	O
2CC #12	4A-13A		3CC #2	O
2CC #13	4A-17A	B17 SCC only	3CC #4	X
2CC #14	5A-41A			O
2CC #15	5A-66A		3CC #5	O
2CC #16	12A-66A		3CC #6	O
2CC #17	26A-41A			O
2CC #18	41A-41A			
2CC #19	41C		3CC #8	
2CC #20	66A-66A		3CC #5	
2CC #21	66B			
2CC #22	66C			

Index	3CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
3CC #1	2A-4A-5A			O
3CC #2	2A-4A-13A			O
3CC #3	4A-4A-12A			O
3CC #4	4A-4A-17A	B17 SCC only		X
3CC #5	5A-66A-66A			O
3CC #6	12A-66A-66A			O
3CC #7	26A-41C			O
3CC #8	41A-41C			O
3CC #9	41D		4CC #2	
3CC #10				
3CC #11				
3CC #12				

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

Note:

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

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LTE Release 10 Carrier Aggregation with 4x4 MIMO

Index	2CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
2CC #1	[66B]			
2CC #2	[66C]			

Index	3CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
3CC #1	[4A]-[4A]-12A			O
3CC #2	[4A]-[4A]-17A	B17 SCC only		X

[*] is 4X4 MIMO configuration.

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

LTE Band	Bandwidth (MHz)	Channel	Frequency (MHz)	Modulation	RB/Offset	LTE Rel 8 Tx. Power [dBm]	4x4 DL MIMO LTE Rel 8 Tx. Power	Delta
Band 4	20	20175	1732.5	QPSK	1/0	22.6	22.6	-0.05
Band 66	20	132072	1720	QPSK	1/0	22.4	22.4	-0.05

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.

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2. DL CA output power results

E-UTRA CA configutation (BCS)	Bands				UL				DL												LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta
	PCC	SCC1	SCC2	SCC3	PCC				PCC			SCC1			SCC2			SCC3					
	1st	2nd	3rd	4th	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)			
2A-12A	2A	12A			20	18900	1880	1/0	20	900	1960	10	5095	737.5							21.7	21.8	0.04
	12A	2A			10	23095	707.5	1/0	10	5095	737.5	20	900	1960							24.5	24.5	0.08
2A-17A	2A	17A			10	18900	1880	1/0	10	900	1960	10	5790	740							21.8	21.9	0.10
2A-66A	2A	66A			20	18900	1880	1/0	20	900	1960	20	66786	2145							21.7	21.8	0.04
	66A	2A			20	132072	1720	1/0	20	66536	2120	20	900	1960							22.4	22.4	-0.05
5A-41A	5A	41A			10	20525	836.5	1/49	10	2525	881.5	20	40620	2593							24.4	24.4	0.05
	41A	5A			20	40185	2549.5	1/0	20	40185	2549.5	10	2525	881.5							22.7	22.7	0.02
26A-41A	26A	41A			15	26865	831.5	1/0	15	8865	876.5	20	40620	2593							24.3	24.4	0.05
	41A	26A			20	40185	2549.5	1/0	20	40185	2549.5	15	8865	876.5							22.7	22.8	0.10
2A-4A-5A	2A	4A	5A		20	18900	1880	1/0	20	900	1960	20	2175	2132.5	10	2525	881.5				21.7	21.8	0.06
	4A	2A	5A		20	20175	1732.5	1/0	20	2175	2132.5	20	900	1960	10	2525	881.5				22.6	22.6	-0.02
	5A	2A	4A		10	20525	836.5	1/49	10	2525	881.5	20	900	1960	20	2175	2132.5				24.4	24.4	0.01
2A-4A-13A	2A	4A	13A		20	18900	1880	1/0	20	900	1960	20	2175	2132.5	10	5230	751				21.7	21.8	0.05
	4A	2A	13A		20	20175	1732.5	1/0	20	2175	2132.5	20	900	1960	10	5230	751				22.6	22.6	-0.01
	13A	2A	4A		10	23230	782	1/49	10	5230	751	20	900	1960	20	2175	2132.5				24.0	24.0	-0.03
4A-4A-12A	4A	4A	12A		20	20050	1720	1/0	20	2050	2120	20	2300	2145	10	5095	737.5				22.4	22.5	0.07
	12A	4A	4A		10	23095	707.5	1/0	10	5095	737.5	20	2050	2120	20	2300	2145				24.5	24.5	0.05
4A-4A-17A	4A	4A	17A		20	20050	1720	1/0	20	2050	2120	20	2300	2145	10	5790	740				22.4	22.5	0.04
5A-66A-66A	5A	66A	66A		10	20525	836.5	1/49	10	2525	881.5	20	66536	2120	20	67036	2170				24.4	24.5	0.15
	66A	66A	5A		20	132072	1720	1/0	20	66536	2120	20	67036	2170	10	2525	881.5				22.4	22.5	0.10
12A-66A-66A	12A	66A	66A		10	23095	707.5	1/0	10	5095	737.5	20	66536	2120	20	67036	2170				24.5	24.7	0.20
	66A	66A	12A		20	132072	1720	1/0	20	66536	2120	20	67036	2170	10	5095	737.5				22.4	22.5	0.06
26A-41C	26A	41C	41C		15	26865	831.5	1/0	15	8865	876.5	20	40620	2593	20	40818	2612.8				24.3	24.2	-0.12
	41C	41C	26A		20	40185	2549.5	1/0	20	40185	2549.5	20	40383	2569.3	15	8865	876.5				22.7	22.6	-0.08
2A-2A	2A	2A			20	18900	1880	1/0	20	900	1960	20	1100	1980							21.7	21.7	-0.05
41A-41C	41A	41C	41C		20	40185	2549.5	1/0	20	40185	2549.5	20	2680	41490	20	41292	2660.2				22.7	22.8	0.08
	41C	41C	41A		20	40185	2549.5	1/0	20	40185	2549.5	20	2569.3	40383	20	40620	2593				22.7	22.7	0.02
41A-41A	41A	41A			20	40185	2549.5	1/0	20	40185	2549.5	20	2680	41490							22.7	22.8	0.08
41C-41C	41C	41C	41C	41C	20	40185	2549.5	1/0	20	40185	2549.5	20	2569.3	40383	20	40620	2593	20	40818	2612.8	22.7	22.7	0.04
41A-41D	41A	41D	41D	41D	20	40185	2549.5	1/0	20	40185	2549.5	20	2680	41490	20	41292	2660.2	20	41094	2640.4	22.7	22.7	0.06
	41D	41D	41D	41A	20	40185	2549.5	1/0	20	40185	2549.5	20	2569.3	40383	20	40581	2589.1	20	41490	2680	22.7	22.6	-0.06
66B	66B	66B			15	132047	1717.5	1/0	15	66511	2117.5	5	66604	2126.8							22.4	22.4	-0.04
66C	66C	66C			20	132072	1720	1/0	20	66536	2120	20	66734	2139.8							22.4	22.4	-0.05
41E	41E	41E	41E	41E	20	40185	2549.5	1/0	20	40185	2549.5	20	40383	2569.3	20	40581	2589.1	20	40779	2608.9	22.7	22.7	0.06

Note:

1. Per KDB 941225 D05A LTE Rel. 10 KDB Inquiry Sheet: SAR is excluded for Carrier Aggregation when measured power does not exceed LTE Release 8 by more than a 1/4 dB.
2. When the same frequency band is used for both contiguous and non-contiguous in DL CA Intra band, power was measured using the configuration with the largest aggregated bandwidth and maximum output power among the contiguous and non-contiguous in DL CA Intra band configurations

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

E-UTRA CA configutation (BCS)	Bands			UL					DL									LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta
	PCC	SCC1	SCC2	PCC					PCC			SCC1			SCC2					
	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)			
[4A]-[4A]-12A	[4A]	[4A]	12A	QPSK	20	20050	1720	1/0	20	2050	2120	20	2300	2145	10	5095	737.5	22.4	22.4	-0.07
	12A	[4A]	[4A]	QPSK	10	23095	707.5	1/0	10	5095	737.5	20	2050	2120	20	2300	2145	24.5	24.4	-0.02
[4A]-[4A]-17A	[4A]	[4A]	17A	QPSK	20	20050	1720	1/0	20	2050	2120	20	2300	2145	10	5790	740	22.4	22.4	-0.03
[66B]	[66B]	[66B]		QPSK	15	132047	1717.5	1/0	15	66511	2117.5	5	66604	2126.8				22.4	22.5	0.06
[66C]	[66C]	[66C]		QPSK	20	132072	1720	1/0	20	66536	2120	20	66734	2139.8				22.5	22.5	0.09

Note:

1. Per KDB 941225 D05A LTE Rel. 10 KDB Inquiry Sheet: SAR is excluded for Carrier Aggregation when measured power does not exceed LTE Release 8 by more than a 1/4 dB.
2. When the same frequency band is used for both contiguous and non-contiguous in DL CA Intra band, power was measured using the configuration with the largest aggregated bandwidth and maximum output power among the contiguous and non-contiguous in DL CA Intra band configurations

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9.4. Wi-Fi 2.4 GHz (DTS Band)

When the RCV is active in a held-to-ear user scenario, the output power level is reduced. The maximum allowed output powers in all conditions are included in the maximum power document.
Refer to Operational Description for WLAN explanation.

Measured Results

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Normal WLAN mode					
					Max.Average Power			Reduced Average Power		
					Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi SISO Ant.1	802.11b	1 Mbps	1	2412.0	20.2	21.0	Yes	16.5	17.0	Yes
			6	2437.0	20.8			16.9		
			11	2462.0	20.6			16.6		
			12	2467.0	9.5	10.0	No			
			13	2472.0	4.4	5.0				
	802.11g	6 Mbps	1	2412.0	Not Required	17.0	No	Not Required	17.0	No
			6	2437.0		18.0				
			11	2462.0		17.0				
			12	2467.0		10.0				
			13	2472.0		5.0				
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	16.0	No	Not Required	16.0	No
			6	2437.0		18.0			17.0	
			11	2462.0		16.0			16.0	
			12	2467.0		10.0				
			13	2472.0		5.0				
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	15.0	No	Not Required	15.0	No
			6	2437.0		16.0			16.0	
			11	2462.0						
			12	2467.0		10.0				
			13	2472.0		5.0				
WiFi SISO Ant.2	802.11b	1 Mbps	1	2412.0	19.7	21.0	Yes	15.7	17.0	Yes
			6	2437.0	20.6			16.6		
			11	2462.0	20.4			16.0		
			12	2467.0	9.4	10.0	No			
			13	2472.0	4.7	5.0				
	802.11g	6 Mbps	1	2412.0	Not Required	17.0	No	Not Required	17.0	No
			6	2437.0		18.0				
			11	2462.0		17.0				
			12	2467.0		10.0				
			13	2472.0		5.0				
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	16.0	No	Not Required	16.0	No
			6	2437.0		18.0			17.0	
			11	2462.0		16.0			16.0	
			12	2467.0		10.0				
			13	2472.0		5.0				
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	15.0	No	Not Required	15.0	No
			6	2437.0		16.0			16.0	
			11	2462.0						
			12	2467.0		10.0				
			13	2472.0		5.0				

Note(s):

1. SAR is not required for 802.11g/n modes when the adjusted SAR for 802.11b is < 1.2 W/kg.
2. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11n/g/ax mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.
3. 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.

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Measured Results of RSDB operation

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	RSDB WLAN mode		
					Max. Averge Power		
					Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi SISO Ant.1	802.11b	1 Mbps	1	2412.0	16.5	17.0	Yes
			6	2437.0	16.9		
			11	2462.0	16.6		
			12	2467.0	9.5	10.0	No
			13	2472.0	4.4	5.0	
	802.11g	6 Mbps	1	2412.0	Not Required	17.0	No
			6	2437.0			
			11	2462.0			
			12	2467.0		10.0	
			13	2472.0		5.0	
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	16.0	No
			6	2437.0		17.0	
			11	2462.0		16.0	
			12	2467.0		10.0	
			13	2472.0		5.0	
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	15.0	No
			6	2437.0		16.0	
			11	2462.0			
			12	2467.0		10.0	
			13	2472.0		5.0	
WiFi SISO Ant.2	802.11b	1 Mbps	1	2412.0	15.7	17.0	Yes
			6	2437.0	16.6		
			11	2462.0	16.0		
			12	2467.0	9.4	10.0	No
			13	2472.0	4.7	5.0	
	802.11g	6 Mbps	1	2412.0	Not Required	17.0	No
			6	2437.0			
			11	2462.0			
			12	2467.0		10.0	
			13	2472.0		5.0	
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	16.0	No
			6	2437.0		17.0	
			11	2462.0		16.0	
			12	2467.0		10.0	
			13	2472.0		5.0	
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	15.0	No
			6	2437.0		16.0	
			11	2462.0			
			12	2467.0		10.0	
			13	2472.0		5.0	
WiFi MIMO Ant.1	802.11g	6 Mbps	1	2412.0	14.1	15.0	Yes
			6	2437.0	15.3	16.0	
			11	2462.0	15.4		
			12	2467.0	8.5	10.0	No
			13	2472.0	3.7	5.0	
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	15.0	No
			6	2437.0		16.0	
			11	2462.0		15.0	
			12	2467.0		10.0	
			13	2472.0		5.0	
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	12.0	No
			6	2437.0		13.0	
			11	2462.0			
			12	2467.0		10.0	
			13	2472.0		5.0	
WiFi MIMO Ant.2	802.11g	6 Mbps	1	2412.0	14.0	15.0	Yes
			6	2437.0	15.4	16.0	
			11	2462.0	15.9		
			12	2467.0	9.7	10.0	No
			13	2472.0	5.0	5.0	
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	15.0	No
			6	2437.0		16.0	
			11	2462.0		15.0	
			12	2467.0		10.0	
			13	2472.0		5.0	
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	12.0	No
			6	2437.0		13.0	
			11	2462.0			
			12	2467.0		10.0	
			13	2472.0		5.0	

Note(s):

1. SAR is not required for 802.11g/n modes when the adjusted SAR for 802.11b is < 1.2 W/kg.
2. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11n/g/ax mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.
3. 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.
4. MIMO DTS SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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

When the RCV is active in a held-to-ear user scenario, the output power level is reduced. The maximum allowed output powers in all conditions are included in the maximum power document.
Refer to Operational Description for WLAN explanation.

Measured Results of WiFi SISO Ant.1

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max. Average Power			Reduced Average Power		
						Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Reduced Tune-up Limit (dBm)	SAR Test (Yes/No)
SISO Ant.1	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260	15.3	16.5	Yes	Not Required	14.0	No
				56	5280	15.3					
				60	5300	15.2					
				64	5320	15.1					
		802.11n (HT20)	6.5 Mbps	52	5260	Not Required	16.5	No	Not Required	14.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11n (HT40)	13.5 Mbps	54	5270	Not Required	16.0	No	Not Required	14.0	No
				62	5310						
		802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	16.5	No	Not Required	14.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	16.0	No	Not Required	14.0	No
				62	5310						
		802.11ac (VHT80)	29.3 Mbps	58	5290	Not Required	15.0	No	13.2	14.0	Yes
		802.11ax (HE20)	7.3 Mbps	52	5260	Not Required	16.0	No	Not Required	14.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11ax (HE40)	14.6 Mbps	54	5270	Not Required	14.0	No	Not Required	14.0	No
				62	5310						
		802.11ax (HE80)	30.6 Mbps	58	5290	Not Required	13.0	No	Not Required	13.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	15.9	17.0	Yes	Not Required	14.0	No
				120	5600	15.8					
				124	5620	15.8					
				144	5720	15.8					
		802.11n (HT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	14.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11n (HT40)	13.5 Mbps	102	5510	Not Required	16.0	No	Not Required	14.0	No
				118	5590						
				126	5630						
				142	5710						
		802.11ac (VHT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	14.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11ac (VHT40)	13.5 Mbps	102	5510	Not Required	16.0	No	Not Required	14.0	No
				118	5590						
				126	5630						
				142	5710						
		802.11ac (VHT80)	29.3 Mbps	106	5530	Not Required	15.0	No	13.2	14.0	Yes
				122	5610				13.2		
				138	5690				13.2		
		802.11ax (HE20)	7.3 Mbps	100	5500	Not Required	16.0	No	Not Required	14.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11ax (HE40)	14.6 Mbps	102	5510	Not Required	14.0	No	Not Required	14.0	No
				118	5590						
				126	5630						
				142	5710						
		802.11ax (HE80)	30.6 Mbps	106	5530	Not Required	13.0	No	Not Required	13.0	No
				122	5610						
				138	5690						
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745	17.1	18.0	Yes	Not Required	14.0	No
				157	5785	17.3					
				165	5825	17.2					
		802.11n (HT20)	6.5 Mbps	149	5745	Not Required	18.0	No	Not Required	14.0	No
				157	5785						
				165	5825						
		802.11n (HT40)	13.5 Mbps	151	5755	Not Required	16.0	No	Not Required	14.0	No
				159	5795						
		802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	18.0	No	Not Required	14.0	No
				157	5785						
				165	5825						
		802.11ac (VHT40)	13.5 Mbps	151	5755	Not Required	16.0	No	Not Required	14.0	No
				159	5795						
		802.11ac (VHT80)	29.3 Mbps	155	5775	Not Required	15.0	No	13.7	14.0	Yes
		802.11ax (HE20)	7.3 Mbps	149	5745	Not Required	16.0	No	Not Required	14.0	No
				157	5785						
				165	5825						
		802.11ax (HE40)	14.6 Mbps	151	5755	Not Required	14.0	No	Not Required	14.0	No
				159	5795						
		802.11ax (HE80)	30.6 Mbps	155	5775	Not Required	13.0	No	Not Required	13.0	No

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Measured Results of WiFi SISO Ant.2

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max. Average Power			Reduced Average Power		
						Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Reduced Tune-up Limit (dBm)	SAR Test (Yes/No)
SISO Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260	15.1	16.5	Yes	Not Required	14.0	No
				56	5280	15.1					
				60	5300	15.1					
				64	5320	15.1					
		802.11n (HT20)	6.5 Mbps	52	5260	Not Required	16.5	No	Not Required	14.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11n (HT40)	13.5 Mbps	54	5270	Not Required	16.0	No	Not Required	14.0	No
				62	5310						
		802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	16.5	No	Not Required	14.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	16.0	No	Not Required	14.0	No
				62	5310						
		802.11ac (VHT80)	29.3 Mbps	58	5290	Not Required	15.0	No	13.5	14.0	Yes
		802.11ax (HE20)	7.3 Mbps	52	5260	Not Required	16.0	No	Not Required	14.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11ax (HE40)	14.6 Mbps	54	5270	Not Required	14.0	No	Not Required	14.0	No
				62	5310						
		802.11ax (HE80)	30.6 Mbps	58	5290	Not Required	13.0	No	Not Required	13.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	16.1	17.0	Yes	Not Required	14.0	No
				120	5600	16.0					
				124	5620	15.9					
				144	5720	15.4					
		802.11n (HT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	14.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11n (HT40)	13.5 Mbps	102	5510	Not Required	16.0	No	Not Required	14.0	No
				118	5590						
				126	5630						
				142	5710						
		802.11ac (VHT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	14.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11ac (VHT40)	13.5 Mbps	102	5510	Not Required	16.0	No	Not Required	14.0	No
				118	5590						
				126	5630						
				142	5710						
		802.11ac (VHT80)	29.3 Mbps	106	5530	Not Required	15.0	No	13.3	14.0	Yes
				122	5610				13.1		
				138	5690				12.8		
		802.11ax (HE20)	7.3 Mbps	100	5500	Not Required	16.0	No	Not Required	14.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11ax (HE40)	14.6 Mbps	102	5510	Not Required	14.0	No	Not Required	14.0	No
				118	5590						
				126	5630						
				142	5710						
		802.11ax (HE80)	30.6 Mbps	106	5530	Not Required	13.0	No	Not Required	13.0	No
				122	5610						
				138	5690						
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745	17.2	18.0	Yes	Not Required	14.0	No
				157	5785	17.0					
				165	5825	16.7					
		802.11n (HT20)	6.5 Mbps	149	5745	Not Required	18.0	No	Not Required	14.0	No
				157	5785						
				165	5825						
		802.11n (HT40)	13.5 Mbps	151	5755	Not Required	16.0	No	Not Required	14.0	No
				159	5795						
		802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	18.0	No	Not Required	14.0	No
				157	5785						
				165	5825						
		802.11ac (VHT40)	13.5 Mbps	151	5755	Not Required	16.0	No	Not Required	14.0	No
				159	5795						
		802.11ac (VHT80)	29.3 Mbps	155	5775	Not Required	15.0	No	13.1	14.0	Yes
		802.11ax (HE20)	7.3 Mbps	149	5745	Not Required	16.0	No	Not Required	14.0	No
				157	5785						
				165	5825						
		802.11ax (HE40)	14.6 Mbps	151	5755	Not Required	14.0	No	Not Required	14.0	No
				159	5795						
		802.11ax (HE80)	30.6 Mbps	155	5775	Not Required	13.0	No	Not Required	13.0	No

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Measured Results of WiFi MIMO

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	MIMO Ant.1			MIMO Ant.2		
					Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
5.3 (UNII 2A)	802.11a	6 Mbps	52	5260	15.2	16.5	Yes	15.1	16.5	Yes
			56	5280	15.2			15.0		
			60	5300	15.1			15.0		
			64	5320	14.9			15.0		
	802.11n (HT20)	6.5 Mbps	52	5260	Not Required	16.5	No	Not Required	16.5	No
			56	5280						
			60	5300						
			64	5320						
	802.11n (HT40)	13.5 Mbps	54	5270	Not Required	16.0	No	Not Required	16.0	No
			62	5310						
	802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	16.5	No	Not Required	16.5	No
			56	5280						
			60	5300						
			64	5320						
	802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	16.0	No	Not Required	16.0	No
			62	5310						
	802.11ac (VHT80)	29.3 Mbps	58	5290	Not Required	15.0	No	Not Required	15.0	No
	802.11ax (HE20)	7.3 Mbps	52	5260	Not Required	13.0	No	Not Required	16.0	No
			56	5280						
			60	5300						
			64	5320						
	802.11ax (HE40)	14.6 Mbps	54	5270	Not Required	11.0	No	Not Required	14.0	No
			62	5310						
	802.11ax (HE80)	30.6 Mbps	58	5290	Not Required	10.0	No	Not Required	13.0	No
5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	15.8	17.0	Yes	16.1	17.0	Yes
			120	5600	15.8			15.8		
			124	5620	15.7			15.7		
			144	5720	15.7			15.3		
	802.11n (HT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	17.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11n (HT40)	13.5 Mbps	102	5510	Not Required	16.0	No	Not Required	16.0	No
			118	5590						
			126	5630						
			142	5710						
	802.11ac (VHT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	17.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11ac (VHT40)	13.5 Mbps	102	5510	Not Required	16.0	No	Not Required	16.0	No
			118	5590						
			126	5630						
			142	5710						
	802.11ac (VHT80)	29.3 Mbps	106	5530	Not Required	15.0	No	Not Required	15.0	No
			122	5610						
			138	5690						
	802.11ax (HE20)	7.3 Mbps	100	5500	Not Required	13.0	No	Not Required	16.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11ax (HE40)	14.6 Mbps	102	5510	Not Required	11.0	No	Not Required	14.0	No
			118	5590						
			126	5630						
			142	5710						
	802.11ax (HE80)	30.6 Mbps	106	5530	Not Required	10.0	No	Not Required	13.0	No
			122	5610						
			138	5690						
5.8 (U-NII 3)	802.11a	6 Mbps	149	5745	17.0	18.0	Yes	17.2	18.0	Yes
			157	5785	17.1			16.8		
			165	5825	17.1			16.6		
	802.11n (HT20)	6.5 Mbps	149	5745	Not Required	18.0	No	Not Required	18.0	No
			157	5785						
			165	5825						
	802.11n (HT40)	13.5 Mbps	151	5755	Not Required	16.0	No	Not Required	16.0	No
			159	5795						
	802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	18.0	No	Not Required	18.0	No
			157	5785						
			165	5825						
	802.11ac (VHT40)	13.5 Mbps	151	5755	Not Required	16.0	No	Not Required	16.0	No
			159	5795						
	802.11ac (VHT80)	29.3 Mbps	155	5775	Not Required	15.0	No	Not Required	15.0	No
	802.11ax (HE20)	7.3 Mbps	149	5745	Not Required	13.0	No	Not Required	16.0	No
			157	5785						
			165	5825						
	802.11ax (HE40)	14.6 Mbps	151	5755	Not Required	11.0	No	Not Required	14.0	No
			159	5795						
	802.11ax (HE80)	30.6 Mbps	155	5775	Not Required	10.0	No	Not Required	13.0	No

Note(s):

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

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Measured Results of WiFi RSDB SISO

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	SISO Ant.1			SISO Ant.2		
					Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
5.3 (UNII 2A)	802.11a	6 Mbps	52	5260	Not Required	14.0	Yes	Not Required	14.0	Yes
			56	5280						
			60	5300						
			64	5320						
	802.11n (HT20)	6.5 Mbps	52	5260	Not Required	14.0	No	Not Required	14.0	No
			56	5280						
			60	5300						
			64	5320						
	802.11n (HT40)	13.5 Mbps	54	5270	Not Required	14.0	No	Not Required	14.0	No
			62	5310						
	802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	14.0	No	Not Required	14.0	No
			56	5280						
			60	5300						
			64	5320						
	802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	14.0	No	Not Required	14.0	No
			62	5310						
	802.11ac (VHT80)	29.3 Mbps	58	5290	13.2	14.0	No	13.5	14.0	No
	802.11ax (HE20)	7.3 Mbps	52	5260	Not Required	14.0	No	Not Required	14.0	No
			56	5280						
			60	5300						
			64	5320						
	802.11ax (HE40)	14.6 Mbps	54	5270	Not Required	14.0	No	Not Required	14.0	No
			62	5310						
	802.11ax (HE80)	30.6 Mbps	58	5290	Not Required	13.0	No	Not Required	13.0	No
5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	Not Required	14.0	Yes	Not Required	14.0	Yes
			120	5600						
			124	5620						
			144	5720						
	802.11n (HT20)	6.5 Mbps	100	5500	Not Required	14.0	No	Not Required	14.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11n (HT40)	13.5 Mbps	102	5510	Not Required	14.0	No	Not Required	14.0	No
			118	5590						
			126	5630						
			142	5710						
	802.11ac (VHT20)	6.5 Mbps	100	5500	Not Required	14.0	No	Not Required	14.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11ac (VHT40)	13.5 Mbps	102	5510	Not Required	14.0	No	Not Required	14.0	No
			118	5590						
			126	5630						
			142	5710						
	802.11ac (VHT80)	29.3 Mbps	106	5530	13.2	14.0	No	13.3	14.0	No
			122	5610	13.2			13.1		
			138	5690	13.2			12.8		
	802.11ax (HE20)	7.3 Mbps	100	5500	Not Required	14.0	No	Not Required	14.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11ax (HE40)	14.6 Mbps	102	5510	Not Required	14.0	No	Not Required	14.0	No
			118	5590						
			126	5630						
			142	5710						
	802.11ax (HE80)	30.6 Mbps	106	5530	Not Required	13.0	No	Not Required	13.0	No
			122	5610						
			138	5690						
5.8 (U-NII 3)	802.11a	6 Mbps	149	5745	Not Required	14.0	Yes	Not Required	14.0	Yes
			157	5785						
			165	5825						
	802.11n (HT20)	6.5 Mbps	149	5745	Not Required	14.0	No	Not Required	14.0	No
			157	5785						
			165	5825						
	802.11n (HT40)	13.5 Mbps	151	5755	Not Required	14.0	No	Not Required	14.0	No
			159	5795						
	802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	14.0	No	Not Required	14.0	No
			157	5785						
			165	5825						
	802.11ac (VHT40)	13.5 Mbps	151	5755	Not Required	14.0	No	Not Required	14.0	No
			159	5795						
	802.11ac (VHT80)	29.3 Mbps	155	5775	13.7	14.0	No	13.1	14.0	No
	802.11ax (HE20)	7.3 Mbps	149	5745	Not Required	14.0	No	Not Required	14.0	No
			157	5785						
			165	5825						
	802.11ax (HE40)	14.6 Mbps	151	5755	Not Required	14.0	No	Not Required	14.0	No
			159	5795						
	802.11ax (HE80)	30.6 Mbps	155	5775	Not Required	13.0	No	Not Required	13.0	No

Note(s):

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

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Measured Results of WiFi RSDB MIMO

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	MIMO Ant.1			MIMO Ant.2		
					Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
5.3 (UNII 2A)	802.11a	6 Mbps	52	5260	Not Required	14.0	Yes	Not Required	14.0	Yes
			56	5280						
			60	5300						
			64	5320						
	802.11n (HT20)	6.5 Mbps	52	5260	Not Required	14.0	No	Not Required	14.0	No
			56	5280						
			60	5300						
			64	5320						
	802.11n (HT40)	13.5 Mbps	54	5270	Not Required	14.0	No	Not Required	14.0	No
			62	5310						
	802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	14.0	No	Not Required	14.0	No
			56	5280						
			60	5300						
			64	5320						
	802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	14.0	No	Not Required	14.0	No
			62	5310						
	802.11ac (VHT80)	29.3 Mbps	58	5290	13.2	14.0	No	13.5	14.0	No
	802.11ax (HE20)	7.3 Mbps	52	5260	Not Required	13.0	No	Not Required	13.0	No
			56	5280						
			60	5300						
			64	5320						
	802.11ax (HE40)	14.6 Mbps	54	5270	Not Required	11.0	No	Not Required	11.0	No
			62	5310						
	802.11ax (HE80)	30.6 Mbps	58	5290	Not Required	10.0	No	Not Required	10.0	No
5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	Not Required	14.0	Yes	Not Required	14.0	Yes
			120	5600						
			124	5620						
			144	5720						
	802.11n (HT20)	6.5 Mbps	100	5500	Not Required	14.0	No	Not Required	14.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11n (HT40)	13.5 Mbps	102	5510	Not Required	14.0	No	Not Required	14.0	No
			118	5590						
			126	5630						
			142	5710						
	802.11ac (VHT20)	6.5 Mbps	100	5500	Not Required	14.0	No	Not Required	14.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11ac (VHT40)	13.5 Mbps	102	5510	Not Required	14.0	No	Not Required	14.0	No
			118	5590						
			126	5630						
			142	5710						
	802.11ac (VHT80)	29.3 Mbps	106	5530	13.1	14.0	No	13.3	14.0	No
			122	5610	13.1			13.0		
			138	5690	13.1			12.7		
	802.11ax (HE20)	7.3 Mbps	100	5500	Not Required	13.0	No	Not Required	13.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11ax (HE40)	14.6 Mbps	102	5510	Not Required	11.0	No	Not Required	11.0	No
			118	5590						
			126	5630						
			142	5710						
	802.11ax (HE80)	30.6 Mbps	106	5530	Not Required	10.0	No	Not Required	10.0	No
			122	5610						
			138	5690						
5.8 (U-NII 3)	802.11a	6 Mbps	149	5745	Not Required	14.0	Yes	Not Required	14.0	Yes
			157	5785						
			165	5825						
	802.11n (HT20)	6.5 Mbps	149	5745	Not Required	14.0	No	Not Required	14.0	No
			157	5785						
			165	5825						
	802.11n (HT40)	13.5 Mbps	151	5755	Not Required	14.0	No	Not Required	14.0	No
			159	5795						
	802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	14.0	No	Not Required	14.0	No
			157	5785						
			165	5825						
	802.11ac (VHT40)	13.5 Mbps	151	5755	Not Required	14.0	No	Not Required	14.0	No
			159	5795						
	802.11ac (VHT80)	29.3 Mbps	155	5775	13.5	14.0	No	13.0	14.0	No
	802.11ax (HE20)	7.3 Mbps	149	5745	Not Required	13.0	No	Not Required	13.0	No
			157	5785						
			165	5825						
	802.11ax (HE40)	14.6 Mbps	151	5755	Not Required	11.0	No	Not Required	11.0	No
			159	5795						
	802.11ax (HE80)	30.6 Mbps	155	5775	Not Required	10.0	No	Not Required	10.0	No

Note(s):

5. 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.
6. When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac/ax modes, the channel in the lower order/sequence 802.11 mode (i.e. a, g, n ac then ax) is selected.
7. 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.
8. MIMO U-NII SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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9.6. Bluetooth

Measured Results

Band (GHz)	Mode	Ch #	Freq. (MHz)	Maximum Average Power (dBm)	
				Meas Pwr	Tune-up Limit
2.4	GFSK	0	2402	14.6	17.5
		39	2441	16.4	
		78	2480	17.0	
	EDR, 8-DPSK	0	2402	8.9	11.0
		39	2441	10.4	
		78	2480	10.0	
	LE, GFSK, 1M (37 pkt)	0	2402	5.5	8.0
		19	2440	7.0	
		39	2480	7.3	
	LE, GFSK, 2M (37 pkt)	0	2402	6.2	9.0
		19	2440	7.6	
		39	2480	7.7	

Note(s):

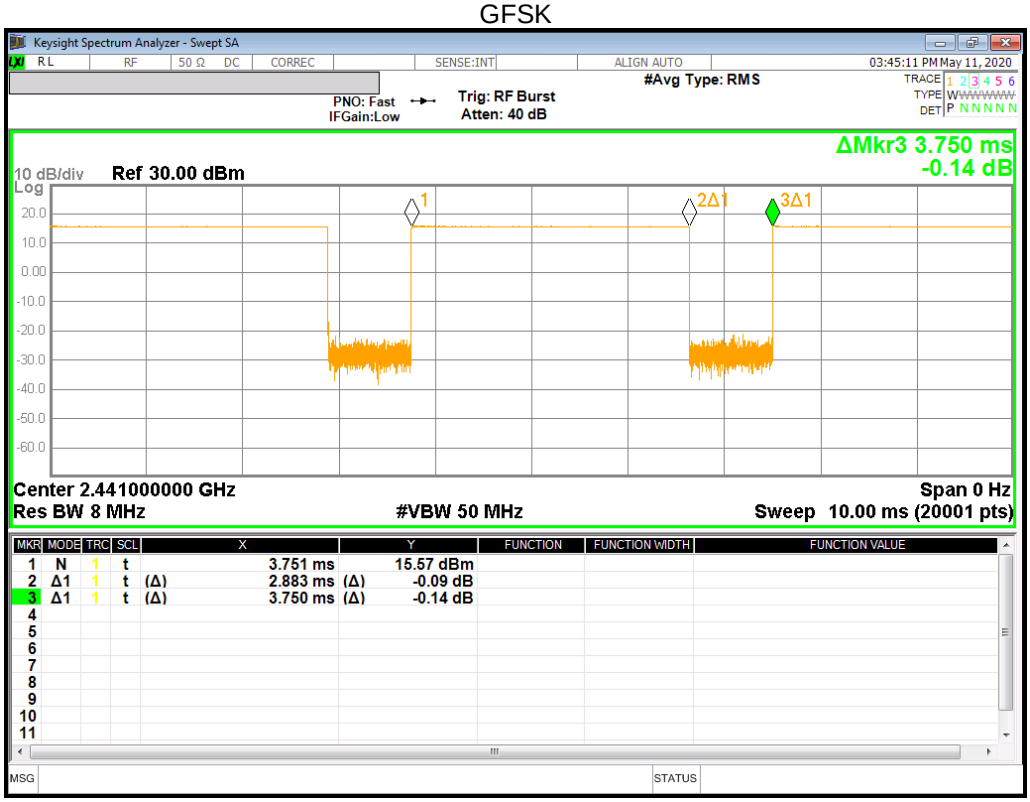
SAR test is evaluated at GFSK mode in Bluetooth

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
GFSK	DH5	2.883	3.750	76.9%	1.30

Duty Cycle plots

GFSK



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10. Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

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

KDB 447498 D01 General RF Exposure Guidance:

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

KDB 648474 D04 Handset SAR:

With headset attached, when the reported SAR for body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

KDB 648474 D04 Handset SAR (Phablet Only):

For smart phones, with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm.
When hotspot mode does not apply, 10-g extremity SAR is required for all surfaces and edges with an antenna located at ≤ 25mm From that surface or edge in direct contact with a flat phantom, to address interactive hand use exposure conditions. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, Including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

Additional 1-g SAR testing at 5 mm is not required when hotspot mode 10-g extremity SAR is not required for the surfaces and edges; since all 1-g reported SAR < 1.2 W/kg.

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 ≤ ¼ 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.

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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*.

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10.1. GSM 850

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	GPRS 3 Slots	N/A	0	Left Touch	190	836.6	30.5	29.5	0.231	0.288	1
					Left Tilt	190	836.6	30.5	29.5	0.097	0.121	
					Right Touch	190	836.6	30.5	29.5	0.163	0.203	
					Right Tilt	190	836.6	30.5	29.5	0.086	0.107	
	Body-worn	GPRS 3 Slots	N/A	15	Rear	190	836.6	30.5	29.5	0.415	0.517	2
					Front	190	836.6	30.5	29.5	0.346	0.431	
	Hotspot	GPRS 3 Slots	N/A	10	Rear	128	824.4	30.5	29.2	0.674	0.916	
						190	836.6	30.5	29.5	0.755	0.941	
						251	848.8	30.5	29.6	0.796	0.968	3
					Front	190	836.6	30.5	29.5	0.510	0.636	
					Edge 2	190	836.6	30.5	29.5	0.059	0.073	
					Edge 3	190	836.6	30.5	29.5	0.461	0.575	
					Edge 4	190	836.6	30.5	29.5	0.254	0.317	

10.2. GSM 1900

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	GPRS 1 Slot	Off	0	Left Touch	661	1880.0	30.5	28.9	0.047	0.069	
					Left Tilt	661	1880.0	30.5	28.9	0.035	0.051	
					Right Touch	661	1880.0	30.5	28.9	0.049	0.072	4
					Right Tilt	661	1880.0	30.5	28.9	0.034	0.049	
	Body-worn	GPRS 1 Slot	Off	15	Rear	661	1880.0	30.5	28.9	0.369	0.540	5
					Front	661	1880.0	30.5	28.9	0.301	0.440	
	Hotspot	GPRS 2 Slots	On	10	Rear	661	1880.0	24.5	23.8	0.380	0.442	
					Front	661	1880.0	24.5	23.8	0.275	0.320	
					Edge 2	661	1880.0	24.5	23.8	0.041	0.048	
					Edge 3	512	1850.2	24.5	23.7	0.802	0.971	
						661	1880.0	24.5	23.8	0.795	0.925	
						810	1909.8	24.5	23.4	0.856	1.097	6
					Edge 4	661	1880.0	24.5	23.8	0.034	0.039	
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Product Specific 10-g	GPRS 1 Slot	Off	11	Edge 3	661	1880.0	30.5	28.9	0.561	0.820	
		GPRS 2 Slots	On	0	Edge 3	661	1880.0	24.5	23.8	1.500	1.750	7

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10.3. W-CDMA Band II

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	Rel 99 RMC	Off	0	Left Touch	9400	1880.0	23.0	22.0	0.049	0.062	
					Left Tilt	9400	1880.0	23.0	22.0	0.053	0.067	
					Right Touch	9400	1880.0	23.0	22.0	0.080	0.101	8
					Rightt Tilt	9400	1880.0	23.0	22.0	0.070	0.089	
	Body-worn	Rel 99 RMC	Off	15	Rear	9400	1880.0	23.0	22.0	0.486	0.615	9
					Front	9400	1880.0	23.0	22.0	0.402	0.508	
	Hotspot	Rel 99 RMC	On	10	Rear	9400	1880.0	19.5	17.8	0.363	0.543	
					Front	9400	1880.0	19.5	17.8	0.326	0.488	
					Edge 2	9400	1880.0	19.5	17.8	0.056	0.084	
					Edge 3	9262	1852.4	19.5	17.6	0.790	1.211	
						9400	1880.0	19.5	17.8	0.744	1.113	
						9538	1907.6	19.5	17.5	0.845	1.330	10
					Edge 4	9400	1880.0	19.5	17.8	0.034	0.051	
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Product Specific 10-g	Rel 99 RMC	Off	8	Rear	9400	1880.0	23.0	22.0	0.695	0.879	
				11	Edge 3	9400	1880.0	23.0	22.0	0.837	1.058	
			On	0	Rear	9400	1880.0	19.5	17.7	0.901	1.369	
				0	Edge 3	9262	1852.4	19.5	17.6	1.620	2.491	
						9400	1880.0	19.5	17.7	1.490	2.265	
						9538	1907.6	19.5	17.5	1.700	2.670	11

10.4. W-CDMA Band IV

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	Rel 99 RMC	Off	0	Left Touch	1413	1732.6	23.5	22.1	0.076	0.104	
					Left Tilt	1413	1732.6	23.5	22.1	0.072	0.098	
					Right Touch	1413	1732.6	23.5	22.1	0.101	0.139	12
					Rightt Tilt	1413	1732.6	23.5	22.1	0.062	0.085	
	Body-worn	Rel 99 RMC	Off	15	Rear	1312	1712.4	23.5	22.0	0.695	0.985	
						1413	1732.6	23.5	22.1	0.743	1.020	13
						1513	1752.6	23.5	21.9	0.668	0.976	
					Front	1413	1732.6	23.5	22.1	0.522	0.717	
	Hotspot	Rel 99 RMC	On	10	Rear	1413	1732.6	19.5	18.2	0.546	0.739	
					Front	1413	1732.6	19.5	18.2	0.416	0.563	
					Edge 2	1413	1732.6	19.5	18.2	0.116	0.157	
					Edge 3	1312	1712.4	19.5	18.0	0.841	1.189	
						1413	1732.6	19.5	18.2	0.971	1.314	
						1513	1752.6	19.5	18.0	0.935	1.321	14
					Edge 4	1413	1732.6	19.5	18.2	0.072	0.097	
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Product Specific 10-g	Rel 99 RMC	Off	8	Rear	1413	1732.6	23.5	22.1	0.904	1.241	
				7	Front	1413	1732.6	23.5	22.1	0.833	1.144	
				11	Edge 3	1413	1732.6	23.5	22.1	1.040	1.428	
			On	0	Rear	1413	1732.6	19.5	18.1	1.270	1.747	
				0	Front	1413	1732.6	19.5	18.1	1.200	1.650	
				0	Edge 3	1312	1712.4	19.5	18.0	1.670	2.354	15
						1413	1732.6	19.5	18.1	1.620	2.228	
						1513	1752.6	19.5	18.0	1.530	2.170	

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10.5. W-CDMA Band V

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	Rel 99 RMC	N/A	0	Left Touch	4183	836.6	25.0	24.2	0.198	0.239	16
					Left Tilt	4183	836.6	25.0	24.2	0.089	0.107	
					Right Touch	4183	836.6	25.0	24.2	0.154	0.186	
					Rightt Tilt	4183	836.6	25.0	24.2	0.087	0.105	
	Body-worn	Rel 99 RMC	N/A	15	Rear	4183	836.6	25.0	24.2	0.331	0.399	17
					Front	4183	836.6	25.0	24.2	0.310	0.373	
	Hotspot	Rel 99 RMC	N/A	10	Rear	4183	836.6	25.0	24.2	0.625	0.753	18
					Front	4183	836.6	25.0	24.2	0.420	0.506	
					Edge 2	4183	836.6	25.0	24.2	0.069	0.084	
					Edge 3	4183	836.6	25.0	24.2	0.358	0.431	
					Edge 4	4183	836.6	25.0	24.2	0.252	0.304	

10.6. LTE Band 12 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	QPSK	N/A	0	Left Touch	23095	707.5	1	0	25.0	24.5	0.138	0.156	19
								25	0	24.0	23.4	0.109	0.124	
					Left Tilt	23095	707.5	1	0	25.0	24.5	0.070	0.079	
								25	0	24.0	23.4	0.057	0.065	
					Right Touch	23095	707.5	1	0	25.0	24.5	0.132	0.149	
								25	0	24.0	23.4	0.106	0.121	
					Right Tilt	23095	707.5	1	0	25.0	24.5	0.071	0.081	
								25	0	24.0	23.4	0.058	0.066	
	Body-worn	QPSK	N/A	15	Rear	23095	707.5	1	0	25.0	24.5	0.184	0.208	20
								25	0	24.0	23.4	0.148	0.168	
					Front	23095	707.5	1	0	25.0	24.5	0.170	0.192	
								25	0	24.0	23.4	0.132	0.150	
	Hotspot	QPSK	N/A	10	Rear	23095	707.5	1	0	25.0	24.5	0.328	0.371	21
								25	0	24.0	23.4	0.301	0.343	
					Front	23095	707.5	1	0	25.0	24.5	0.204	0.231	
								25	0	24.0	23.4	0.163	0.186	
					Edge 2	23095	707.5	1	0	25.0	24.5	0.120	0.136	
								25	0	24.0	23.4	0.084	0.096	
					Edge 3	23095	707.5	1	0	25.0	24.5	0.149	0.169	
								25	0	24.0	23.4	0.118	0.134	
					Edge 4	23095	707.5	1	0	25.0	24.5	0.204	0.231	
								25	0	24.0	23.4	0.156	0.178	

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10.7. LTE Band 13 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	QPSK	N/A	0	Left Touch	23230	782.0	1	49	25.0	24.0	0.173	0.217	22
								25	25	24.0	23.0	0.135	0.169	
					Left Tilt	23230	782.0	1	49	25.0	24.0	0.071	0.089	
								25	25	24.0	23.0	0.062	0.078	
					Right Touch	23230	782.0	1	49	25.0	24.0	0.114	0.143	
								25	25	24.0	23.0	0.091	0.114	
					Right Tilt	23230	782.0	1	49	25.0	24.0	0.086	0.108	
								25	25	24.0	23.0	0.068	0.085	
	Body-worn	QPSK	N/A	15	Rear	23230	782.0	1	49	25.0	24.0	0.297	0.372	23
								25	25	24.0	23.0	0.215	0.270	
					Front	23230	782.0	1	49	25.0	24.0	0.225	0.282	
								25	25	24.0	23.0	0.177	0.222	
	Hotspot	QPSK	N/A	10	Rear	23230	782.0	1	49	25.0	24.0	0.490	0.614	24
								25	25	24.0	23.0	0.394	0.494	
					Front	23230	782.0	1	49	25.0	24.0	0.349	0.437	
								25	25	24.0	23.0	0.260	0.326	
					Edge 2	23230	782.0	1	49	25.0	24.0	0.060	0.075	
								25	25	24.0	23.0	0.044	0.055	
					Edge 3	23230	782.0	1	49	25.0	24.0	0.296	0.371	
								25	25	24.0	23.0	0.229	0.287	
					Edge 4	23230	782.0	1	49	25.0	24.0	0.214	0.268	
								25	25	24.0	23.0	0.174	0.218	

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10.8. LTE Band 25 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	QPSK	Off	0	Left Touch	26590	1905.0	1	0	23.0	22.3	0.061	0.072	
								50	0	22.0	21.2	0.052	0.062	
					Left Tilt	26590	1905.0	1	0	23.0	22.3	0.062	0.072	
								50	0	22.0	21.2	0.048	0.058	
					Right Touch	26590	1905.0	1	0	23.0	22.3	0.079	0.093	25
								50	0	22.0	21.2	0.063	0.076	
					Right Tilt	26590	1905.0	1	0	23.0	22.3	0.044	0.052	
								50	0	22.0	21.2	0.034	0.040	
	Body-worn	QPSK	Off	15	Rear	26590	1905.0	1	0	23.0	22.3	0.519	0.611	26
								50	0	22.0	21.2	0.409	0.490	
					Front	26590	1905.0	1	0	23.0	22.3	0.380	0.447	
								50	0	22.0	21.2	0.293	0.351	
	Hotspot	QPSK	On	10	Rear	26590	1905.0	1	0	19.0	18.3	0.363	0.427	
								50	0	19.0	18.3	0.358	0.424	
					Front	26590	1905.0	1	0	19.0	18.3	0.300	0.353	
								50	0	19.0	18.3	0.295	0.349	
					Edge 2	26590	1905.0	1	0	19.0	18.3	0.060	0.070	
								50	0	19.0	18.3	0.058	0.069	
					Edge 3	26140	1860.0	1	0	19.0	18.2	0.855	1.017	
								50	0	19.0	18.2	0.852	1.014	
						26365	1882.5	1	0	19.0	18.2	0.830	0.995	
								50	0	19.0	18.2	0.876	1.065	27
						26590	1905.0	1	0	19.0	18.3	0.889	1.045	
								50	0	19.0	18.3	0.879	1.041	
								100	0	19.0	18.3	0.880	1.027	
					Edge 4	26590	1905.0	1	0	19.0	18.3	0.034	0.040	
								50	0	19.0	18.3	0.035	0.041	

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Product Specific 10-g	QPSK	Off	11	Edge 3	26590	1905.0	1	0	23.0	22.3	0.861	1.013	
								50	0	22.0	21.2	0.678	0.812	
			On	0	Edge 3	26590	1905.0	1	0	19.0	18.3	1.660	1.970	28
								50	0	19.0	18.3	1.580	1.871	

Additional Test (LTE Band 2, Proximity Sensor back-off)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Product Specific 10-g	QPSK	On	0	Edge 3	18900	1880.0	1	0	19.5	18.8	1.650	1.950	
								50	0	19.5	18.7	1.650	1.979	29

Note(s):

LTE Band 2 could be covered by LTE Band 25 in Head/Body-worn/Hotspot exposure because LTE Band 2 and LTE Band 25 have the same target power. For Proximity Sensor back-off mode, LTE Band 2 has higher target power than LTE Band 25, therefore required SAR test in Product Specific 10-g SAR with 0mm for LTE Band 2 was performed.

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10.9. LTE Band 26 (15MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	QPSK	N/A	0	Left Touch	26865	831.5	1	0	25.0	24.3	0.184	0.215	30
								36	0	24.0	23.3	0.142	0.169	
					Left Tilt	26865	831.5	1	0	25.0	24.3	0.090	0.105	
								36	0	24.0	23.3	0.075	0.089	
					Right Touch	26865	831.5	1	0	25.0	24.3	0.128	0.149	
								36	0	24.0	23.3	0.107	0.127	
					Right Tilt	26865	831.5	1	0	25.0	24.3	0.101	0.118	
								36	0	24.0	23.3	0.081	0.097	
	Body-worn	QPSK	N/A	15	Rear	26865	831.5	1	0	25.0	24.3	0.348	0.406	31
								36	0	24.0	23.3	0.302	0.358	
					Front	26865	831.5	1	0	25.0	24.3	0.270	0.315	
								36	0	24.0	23.3	0.208	0.247	
	Hotspot	QPSK	N/A	10	Rear	26865	831.5	1	0	25.0	24.3	0.652	0.761	32
								36	0	24.0	23.3	0.529	0.628	
					Front	26865	831.5	1	0	25.0	24.3	0.447	0.522	
								36	0	24.0	23.3	0.334	0.396	
					Edge 2	26865	831.5	1	0	25.0	24.3	0.085	0.100	
								36	0	24.0	23.3	0.067	0.080	
					Edge 3	26865	831.5	1	0	25.0	24.3	0.331	0.386	
								36	0	24.0	23.3	0.263	0.312	
					Edge 4	26865	831.5	1	0	25.0	24.3	0.213	0.249	
								36	0	24.0	23.3	0.160	0.190	

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10.10. LTE Band 41 (20MHz Bandwidth)

LTE Band 41 Power Class 3

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.2	Head	QPSK	Off	0	Left Touch	40185	2549.5	1	0	24.0	22.7	0.046	0.063	
								50	0	23.0	21.9	0.035	0.045	
					Left Tilt	40185	2549.5	1	0	24.0	22.7	0.049	0.067	
								50	0	23.0	21.9	0.040	0.052	
					Right Touch	40185	2549.5	1	0	24.0	22.7	0.054	0.074	33
								50	0	23.0	21.9	0.040	0.051	
					Right Tilt	40185	2549.5	1	0	24.0	22.7	0.029	0.040	
								50	0	23.0	21.9	0.023	0.029	
	Body-worn	QPSK	Off	15	Rear	40185	2549.5	1	0	24.0	22.7	0.417	0.567	34
								50	0	23.0	21.9	0.328	0.423	
					Front	40185	2549.5	1	0	24.0	22.7	0.249	0.338	
								50	0	23.0	21.9	0.196	0.253	
	Hotspot	QPSK	On	10	Rear	40185	2549.5	1	0	21.0	20.1	0.380	0.464	
								50	0	21.0	20.2	0.381	0.454	
					Front	40185	2549.5	1	0	21.0	20.1	0.267	0.326	
								50	0	21.0	20.2	0.266	0.317	
					Edge 2	40185	2549.5	1	0	21.0	20.1	0.095	0.116	
								50	0	21.0	20.2	0.098	0.117	
					Edge 3	39750	2506.0	1	0	21.0	20.0	0.673	0.838	
								50	0	21.0	20.1	0.686	0.854	35
								100	0	21.0	20.1	0.699	0.853	
						40185	2549.5	1	0	21.0	20.1	0.694	0.847	
								50	0	21.0	20.2	0.699	0.833	
						40620	2593.0	1	0	21.0	20.1	0.648	0.803	
								50	0	21.0	20.1	0.654	0.804	
						41055	2636.5	1	0	21.0	19.7	0.598	0.812	
								50	0	21.0	19.6	0.581	0.800	
						41490	2680.0	1	0	21.0	19.4	0.562	0.805	
								50	0	21.0	19.4	0.551	0.792	

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.2	Product Specific 10-g	QPSK	Off	11	Edge 3	40185	2549.5	1	0	24.0	22.7	0.651	0.885	
								50	0	23.0	21.9	0.518	0.669	
			On	0	Edge 3	39750	2506.0	1	0	21.0	20.0	1.440	1.798	36
								50	0	21.0	20.1	1.470	1.794	
								100	0	21.0	20.1	1.100	1.348	
						40185	2549.5	1	0	21.0	20.2	1.410	1.706	
								50	0	21.0	20.2	1.450	1.759	
						40620	2593.0	1	0	21.0	20.1	1.060	1.297	
								50	0	21.0	20.1	1.120	1.364	
						41055	2636.5	1	0	21.0	19.6	0.811	1.120	
								50	0	21.0	19.6	0.810	1.113	
						41490	2680.0	1	0	21.0	19.5	0.805	1.150	
								50	0	21.0	19.4	0.801	1.150	

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LTE Band 41 Power Class 2

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
Main Ant.2	Head	QPSK	Off	0	Right Touch	40185	2549.5	1	0	25.5	24.7	0.049	0.058			
	Body-worn	QPSK	Off	15	Rear	40185	2549.5	1	0	25.5	24.7	0.365	0.434			
	Product Specific 10-g	QPSK	Off	11	Edge 3	40185	2549.5	1	0	25.5	24.7			0.592	0.705	

Note(s):

This device does not support Hotspot back-off as Power class 2. So, the device operates Power class 3 in hotspot exposure.

From May 2017 TCB Workshop, SAR tested were performed using Power Class 3. SAR test for Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each LTE configuration and exposure condition combination. According to the highest time average power for UL-DL configurations, configuration # 1 with duty cycle 43.3% is used for Power Class 2 SAR test.

Additional SAR testing for Power Class 2 is not required when;

- The *reported* SAR vs. output power can be linearly scaled with < 10% discrepancy between power classes and all *reported* SAR are < 1.4 W/kg

Reported SAR vs. Output Power linearly scaled

Antenna	RF Exposure Conditions	Power Class 2				Power Class 3				PC 2 linearly Scaled Reported SAR (W/kg)	Linearly scaled (%)
		Duty Cycle (%)	Tune-up Power (dBm)	Frame Avg. Power (mW)	Reported SAR (W/kg)	Duty Cycle (%)	Tune-up Power (dBm)	Frame Avg. Power (mW)	Reported SAR (W/kg)		
Main 2 Ant.	Head	43.3	25.5	153.6	0.058	63.3	24.0	159.0	0.074	0.060	-19.3
	Body-worn	43.3	25.5	153.6	0.434	63.3	24.0	159.0	0.567	0.449	-20.8
	Product Specific 10-g	43.3	25.5	153.6	0.705	63.3	24.0	159.0	0.885	0.730	-17.6

Conclusion:

Simultaneous SAR test for Power Class 2 is not required base on the *reported* SAR < 1.4 W/kg and *reported* SAR vs. output power linearly scaled < 10%.

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10.11. LTE Band 66 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Head	QPSK	Off	0	Left Touch	132072	1720.0	1	0	23.0	22.4	0.082	0.093	
								50	0	22.0	21.4	0.069	0.079	
					Left Tilt	132072	1720.0	1	0	23.0	22.4	0.090	0.102	
								50	0	22.0	21.4	0.071	0.081	
					Right Touch	132072	1720.0	1	0	23.0	22.4	0.103	0.117	37
								50	0	22.0	21.4	0.086	0.098	
					Right Tilt	132072	1720.0	1	0	23.0	22.4	0.082	0.093	
								50	0	22.0	21.4	0.069	0.079	
	Body-worn	QPSK	Off	15	Rear	132072	1720.0	1	0	23.0	22.4	0.628	0.715	
								50	0	22.0	21.4	0.501	0.570	
								100	0	22.0	21.4	0.490	0.562	
						132322	1745.0	1	0	23.0	22.4	0.635	0.730	38
								50	0	22.0	21.4	0.489	0.564	
						132572	1770.0	1	0	23.0	22.1	0.547	0.679	
								50	0	22.0	21.0	0.427	0.535	
					Front	132072	1720.0	1	0	23.0	22.4	0.481	0.548	
								50	0	22.0	21.4	0.385	0.438	
	Hotspot	QPSK	On	10	Rear	132072	1720.0	1	0	19.5	18.4	0.494	0.630	
								50	0	19.5	18.5	0.496	0.629	
					Front	132072	1720.0	1	0	19.5	18.4	0.379	0.483	
								50	0	19.5	18.5	0.377	0.478	
					Edge 2	132072	1720.0	1	0	19.5	18.4	0.118	0.151	
								50	0	19.5	18.5	0.124	0.157	
					Edge 3	132072	1720.0	1	0	19.5	18.4	0.814	1.038	
								50	0	19.5	18.5	0.822	1.042	
								100	0	19.5	18.4	0.842	1.075	
						132322	1745.0	1	0	19.5	18.4	0.880	1.128	
								50	0	19.5	18.4	0.889	1.146	
						132572	1770.0	1	0	19.5	18.1	0.878	1.203	
								50	0	19.5	18.1	0.868	1.209	39
					Edge 4	132072	1720.0	1	0	19.5	18.4	0.071	0.090	
								50	0	19.5	18.5	0.073	0.092	

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main Ant.1	Product Specific 10-g	QPSK	Off	8	Rear	132072	1720.0	1	0	23.0	22.4	0.461	0.525	
				11	Edge 3	132072	1720.0	1	0	23.0	22.4	0.916	1.043	
								50	0	22.0	21.4	0.742	0.844	
			On	0	Rear	132072	1720.0	1	0	19.5	18.6	1.200	1.493	
				0	Edge 3	132072	1720.0	1	0	19.5	18.6	1.390	1.730	
								50	0	19.5	18.5	1.560	1.957	40

Additional Test (LTE Band 4, Proximity Sensor back-off)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Product Specific 10-g	QPSK	On	0	Rear	20175	1732.5	1	0	20.0	19.1	1.160	1.413	
				0	Edge 3	20175	1732.5	1	0	20.0	19.1	1.530	1.864	
								50	0	20.0	19.1	1.520	1.866	41

Note(s):

LTE Band 4 could be covered by LTE Band 66 in Head/Body-worn/Hotspot exposure because LTE Band 4 and LTE Band 66 have the same target power. For Proximity Sensor back-off mode, LTE Band 4 has higher target power than LTE Band 66, therefore required SAR test in Product Specific 10-g SAR with 0mm for LTE Band 4 was performed.

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10.12. Wi-Fi (DTS Band)

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
SISO (WiFi Ant.1)	2.4GHz	802.11b 1 Mbps	Head	On	0	Left Touch	6	2437.0	0.479	99.5%	17.0	16.9				
						Left Tilt	6	2437.0	0.528	99.5%	17.0	16.9	0.400	0.409	2	
						Right Touch	6	2437.0	0.457	99.5%	17.0	16.9				
						Rightt Tilt	6	2437.0	0.670	99.5%	17.0	16.9	0.470	0.480		42
			Body-worn	Off	15	Rear	6	2437.0	0.190	99.5%	21.0	20.8	0.143	0.150	1	43
						Front	6	2437.0	0.106	99.5%	21.0	20.8				
			Hotspot	Off	10	Rear	6	2437.0	0.339	99.5%	21.0	20.8	0.273	0.286	2	
						Front	6	2437.0	0.182	99.5%	21.0	20.8				
						Edge 1	6	2437.0	0.431	99.5%	21.0	20.8	0.391	0.410		44
						Edge 4	6	2437.0	0.072	99.5%	21.0	20.8				
SISO (WiFi Ant.2)	2.4GHz	802.11b 1 Mbps	Head	On	0	Left Touch	6	2437.0	0.008	99.47%	17.0	16.6				
						Left Tilt	6	2437.0	0.013	99.47%	17.0	16.6	0.009	0.009	1	
						Right Touch	6	2437.0	0.010	99.47%	17.0	16.6				
						Rightt Tilt	6	2437.0	0.008	99.47%	17.0	16.6				
			Body-worn	Off	15	Rear	6	2437.0	0.108	99.5%	21.0	20.6	0.078	0.085	1	
						Front	6	2437.0	0.010	99.5%	21.0	20.6				
			Hotspot	Off	10	Rear	6	2437.0	0.300	99.5%	21.0	20.6	0.225	0.247	1	
						Front	6	2437.0	0.017	99.5%	21.0	20.6				
						Edge 1	6	2437.0	0.035	99.5%	21.0	20.6				
						Edge 4	6	2437.0	0.085	99.5%	21.0	20.6				

Note(s):

1. 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.
2. 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.
3. 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).
4. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
5. 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.

10.13. Wi-Fi (DTS Band) of RSDB operation

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
SISO (WiFi Ant.1)	2.4GHz	802.11b 1 Mbps	Body-worn	Off	15	Rear	6	2437.0	0.070	99.5%	17.0	16.9	0.053	0.055	1,3	
			Hotspot	Off	10	Rear	6	2437.0	0.145	99.5%	17.0	16.9	0.106	0.108	2	
						Edge 1	6	2437.0	0.195	99.5%	17.0	16.9	0.164	0.168	1,3	
SISO (WiFi Ant.2)	2.4GHz	802.11b 1 Mbps	Body-worn	Off	15	Rear	6	2437.0	0.042	99.5%	17.0	16.6	0.028	0.030	1,3	
			Hotspot	Off	10	Rear	6	2437.0	0.120	99.5%	17.0	16.6	0.083	0.092	2	
						Edge 1	6	2437.0	0.013	99.5%	17.0	16.6	0.012	0.014	1,3	
MIMO (WiFi Ant.1)	2.4GHz	802.11g 6Mbps	Body-worn	Off	15	Rear	11	2462.0	0.100	96.5%	16.0	15.4	0.081	0.097	1	
						Front	11	2462.0	0.040	96.5%	16.0	15.4				
			Hotspot	Off	10	Rear	11	2462.0	0.186	96.5%	16.0	15.4	0.137	0.165	2	
						Front	11	2462.0	0.072	96.5%	16.0	15.4				
						Edge 1	11	2462.0	0.225	96.5%	16.0	15.4	0.193	0.232	1	45
						Edge 4	11	2462.0	0.051	96.5%	16.0	15.4				
MIMO (WiFi Ant.2)	2.4GHz	802.11g 6Mbps	Body-worn	Off	15	Rear	11	2462.0	0.100	96.5%	16.0	15.9				
						Front	11	2462.0	0.040	96.5%	16.0	15.9				
			Hotspot	Off	10	Rear	11	2462.0	0.186	96.5%	16.0	15.9				
						Front	11	2462.0	0.072	96.5%	16.0	15.9				
						Edge 1	11	2462.0	0.225	96.5%	16.0	15.9				
						Edge 4	11	2462.0	0.051	96.5%	16.0	15.9				

Note(s):

1. 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.
2. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
3. When reported SAR for SISO operation is lower than highest reported SAR for MIMO operation at the same position, other test positions in this exposure condition were not evaluated for SISO operation.

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10.14. Wi-Fi (U-NII Bands)

U-NII 2A Results

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled		
SISO (WiFi Ant.1)	5.3 GHz U-NII 2A	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	58	5290.0	0.010	96.6%	14.0	13.2						
						Left Tilt	58	5290.0	0.011	96.6%	14.0	13.2						
						Right Touch	58	5290.0	0.118	96.6%	14.0	13.2	0.044	0.054			1	46
						Right Tilt	58	5290.0	0.028	96.6%	14.0	13.2						
		802.11a 6 Mbps	Body-worn	Off	15	Rear	56	5280.0	0.085	95.8%	16.5	15.3	0.029	0.041			1	
						Front	56	5280.0	0.007	95.8%	16.5	15.3						
			Product Specific 10-g	Off	0	Rear	56	5280.0	0.578	95.8%	16.5	15.3			0.078	0.107	1	
						Front	56	5280.0	0.342	95.8%	16.5	15.3						
						Edge 1	56	5280.0	0.204	95.8%	16.5	15.3						
						Edge 4	56	5280.0	0.273	95.8%	16.5	15.3						
SISO (WiFi Ant.2)	5.3 GHz U-NII 2A	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	58	5290.0	0.056	96.6%	14.0	13.5						
						Left Tilt	58	5290.0	0.066	96.6%	14.0	13.5	0.017	0.020			1	
						Right Touch	58	5290.0	0.044	96.6%	14.0	13.5						
						Right Tilt	58	5290.0	0.053	96.6%	14.0	13.5						
		802.11a 6 Mbps	Body-worn	Off	15	Rear	60	5300.0	0.695	95.8%	16.5	15.1	0.348	0.497				
						Front	60	5300.0	0.013	95.8%	16.5	15.1	<0.001	<0.001			2	
			Product Specific 10-g	Off	0	Rear	60	5300.0	7.258	95.8%	16.5	15.1			0.683	0.975	1	47
						Front	60	5300.0	0.148	95.8%	16.5	15.1						
						Edge 1	60	5300.0	0.436	95.8%	16.5	15.1						
						Edge 4	60	5300.0	1.367	95.8%	16.5	15.1						
MIMO (WiFi Ant.1)	5.3 GHz U-NII 2A	802.11a 6 Mbps	Body-worn	Off	15	Rear	56	5280.0	0.732	96.6%	16.5	15.2						
						Front	56	5280.0	0.015	96.6%	16.5	15.2						
MIMO (WiFi Ant.2)	5.3 GHz U-NII 2A	802.11a 6 Mbps	Body-worn	Off	15	Rear	56	5280.0	0.732	96.6%	16.5	15.0	0.377	0.548				48
						Front	56	5280.0	0.015	96.6%	16.5	15.0	<0.001	<0.001			2	

U-NII 2C Results

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled		
SISO (WiFi Ant.1)	5.5 GHz U-NII 2C	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	122	5610.0	0.038	96.6%	14.0	13.2						
						Left Tilt	122	5610.0	0.029	96.6%	14.0	13.2						
						Right Touch	122	5610.0	0.142	96.6%	14.0	13.2	0.059	0.074			1	49
						Right Tilt	122	5610.0	0.042	96.6%	14.0	13.2						
		802.11a 6 Mbps	Body-worn	Off	15	Rear	100	5500.0	0.227	95.8%	17.0	15.9	0.111	0.150			1	
						Front	100	5500.0	0.007	95.8%	17.0	15.9						
			Product Specific 10-g	Off	0	Rear	100	5500.0	1.490	95.8%	17.0	15.9			0.190	0.257	1	
						Front	100	5500.0	0.192	95.8%	17.0	15.9						
						Edge 1	100	5500.0	0.381	95.8%	17.0	15.9						
						Edge 4	100	5500.0	1.292	95.8%	17.0	15.9						
SISO (WiFi Ant.2)	5.5 GHz U-NII 2C	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	106	5530.0	0.023	96.6%	14.0	13.3						
						Left Tilt	106	5530.0	0.032	96.6%	14.0	13.3						
						Right Touch	106	5530.0	0.042	96.6%	14.0	13.3	0.006	0.007			1	
						Right Tilt	106	5530.0	0.026	96.6%	14.0	13.3						
		802.11a 6 Mbps	Body-worn	Off	15	Rear	100	5500.0	0.467	95.8%	17.0	16.1	0.238	0.306			1	
						Front	100	5500.0	0.009	95.8%	17.0	16.1						
			Product Specific 10-g	Off	0	Rear	100	5500.0	5.815	95.8%	17.0	16.1			0.634	0.816	1	50
						Front	100	5500.0	0.141	95.8%	17.0	16.1						
						Edge 1	100	5500.0	0.321	95.8%	17.0	16.1						
						Edge 4	100	5500.0	1.011	95.8%	17.0	16.1						
MIMO (WiFi Ant.1)	5.5 GHz U-NII 2C	802.11a 6 Mbps	Body-worn	Off	15	Rear	100	5500.0	0.760	96.6%	17.0	15.8						
						Front	100	5500.0	0.013	96.6%	17.0	15.8						
MIMO (WiFi Ant.2)	5.5 GHz U-NII 2C	802.11a 6 Mbps	Body-worn	Off	15	Rear	100	5500.0	0.760	96.6%	17.0	16.1	0.367	0.465				51
						Front	100	5500.0	0.013	96.6%	17.0	16.1	<0.001	<0.001			2	

Note(s):

1. 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.
2. 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.
3. 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).
4. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

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U-NII 3 Results

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
SISO (WiFI Ant.1)	5.8 GHz U-NII 3	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	155	5775.0	0.041	96.6%	14.0	13.7				
						Left Tilt	155	5775.0	0.046	96.6%	14.0	13.7				
						Right Touch	155	5775.0	0.153	96.6%	14.0	13.7	0.057	0.064	1	
						Right Tilt	155	5775.0	0.074	96.6%	14.0	13.7				
		802.11a 6 Mbps	Body-worn	Off	15	Rear	157	5785.0	1.037	95.8%	18.0	17.3	0.476	0.589		
						Front	157	5785.0	0.059	95.8%	18.0	17.3	0.028	0.035	2	
			Hotsopt	Off	10	Rear	149	5745.0	1.276	95.8%	18.0	17.1	0.577	0.739		
						Front	149	5745.0	0.096	95.8%	18.0	17.1				
						Edge 1	149	5745.0	0.305	95.8%	18.0	17.1				
						Edge 4	149	5745.0	0.596	95.8%	18.0	17.1	0.305	0.391	2	
SISO (WiFI Ant.2)	5.8 GHz U-NII 3	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	155	5775.0	0.066	96.6%	14.0	13.1				
						Left Tilt	155	5775.0	0.140	96.6%	14.0	13.1				
						Right Touch	155	5775.0	0.143	96.6%	14.0	13.1				
						Right Tilt	155	5775.0	0.147	96.6%	14.0	13.1	0.057	0.072	1	52
		802.11a 6 Mbps	Body-worn	Off	15	Rear	149	5745.0	0.408	95.8%	18.0	17.2	0.241	0.306	1	
						Front	149	5745.0	0.037	95.8%	18.0	17.2				
			Hotspot	Off	10	Rear	149	5745.0	0.677	95.8%	18.0	17.2	0.344	0.436		
						Front	149	5745.0	0.037	95.8%	18.0	17.2				
						Edge 1	149	5745.0	0.154	95.8%	18.0	17.2	0.062	0.079	2	
						Edge 4	149	5745.0	0.107	95.8%	18.0	17.2				
MIMO (WiFI Ant.1)	5.8 GHz U-NII 3	802.11a 6 Mbps	Body-worn	Off	15	Rear	149	5745.0	1.188	96.6%	18.0	17.0	0.587	0.760		53
						Front	149	5745.0	0.060	96.6%	18.0	17.0	0.023	0.029	2	
			Hotspot	Off	10	Rear	149	5745.0	1.791	96.6%	18.0	17.0	0.895	1.159		54
						Front	149	5745.0	0.093	96.6%	18.0	17.0	0.030	0.038	4	
						Edge 1	149	5745.0	0.427	96.6%	18.0	17.0				
						Edge 4	149	5745.0	0.541	96.6%	18.0	17.0	0.226	0.293	2	
MIMO (WiFI Ant.2)	5.8 GHz U-NII 3	802.11a 6 Mbps	Body-worn	Off	15	Rear	149	5745.0	1.188	96.6%	18.0	17.2				
						Front	149	5745.0	0.060	96.6%	18.0	17.2				
			Hotspot	Off	10	Rear	149	5745.0	1.791	96.6%	18.0	17.2				
						Front	149	5745.0	0.093	96.6%	18.0	17.2				
						Edge 1	149	5745.0	0.427	96.6%	18.0	17.2				
						Edge 4	149	5745.0	0.541	96.6%	18.0	17.2				

Note(s):

1. 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.
2. 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.
3. 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).
4. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

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10.15. Wi-Fi (U-NII Band) of RSDB operation

U-NII 2A Results

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
SISO (WiFi Ant.1)	5.3 GHz U-NII 2A	802.11ac VHT 80 29.3 Mbps	Body-worn	Off	15	Rear	58	5290.0	0.042	96.6%	14.0	13.2	0.017	0.021	1,3	
SISO (WiFi Ant.2)	5.3 GHz U-NII 2A	802.11ac VHT 80 29.3 Mbps	Body-worn	Off	15	Rear	58	5290.0	0.498	96.6%	14.0	13.5	0.256	0.301	1,3	55
						Front	58	5290.0	0.005	96.6%	14.0	13.5				
MIMO (WiFi Ant.1)	5.3 GHz U-NII 2A	802.11ac VHT 80 29.3 Mbps	Body-worn	Off	15	Rear	58	5290.0	0.486	95.5%	14.0	13.2				
						Front	58	5290.0	0.007	95.5%	14.0	13.2				
MIMO (WiFi Ant.2)	5.3 GHz U-NII 2A	802.11ac VHT 80 29.3 Mbps	Body-worn	Off	15	Rear	58	5290.0	0.486	95.5%	14.0	13.5	0.235	0.279	1	
						Front	58	5290.0	0.007	95.5%	14.0	13.5				

U-NII 2C Results

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
SISO (WiFi Ant.1)	5.5 GHz U-NII 2C	802.11ac VHT 80 29.3 Mbps	Body-worn	Off	15	Rear	122	5610.0	0.174	96.6%	14.0	13.2	0.088	0.111	1,3	
SISO (WiFi Ant.2)	5.5 GHz U-NII 2C	802.11ac VHT 80 29.3 Mbps	Body-worn	Off	15	Rear	106	5530.0	0.171	96.6%	14.0	13.3	0.075	0.091	1,3	
MIMO (WiFi Ant.1)	5.5 GHz U-NII 2C	802.11ac VHT 80 29.3 Mbps	Body-worn	Off	15	Rear	106	5530.0	0.360	95.5%	14.0	13.1	0.157	0.202	1	56
						Front	106	5530.0	0.075	95.5%	14.0	13.1				
MIMO (WiFi Ant.2)	5.5 GHz U-NII 2C	802.11ac VHT 80 29.3 Mbps	Body-worn	Off	15	Rear	106	5530.0	0.360	95.5%	14.0	13.3				
						Front	106	5530.0	0.075	95.5%	14.0	13.3				

U-NII 3 Results

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
SISO (WiFi Ant.1)	5.8 GHz U-NII 3	802.11ac VHT 80 29.3 Mbps	Body-worn	Off	15	Rear	155	5775.0	0.503	96.6%	14.0	13.7	0.214	0.240	1,3	
			Hotspot	Off	10	Rear	155	5775.0	0.610	96.6%	14.0	13.7	0.305	0.342	1,3	
SISO (WiFi Ant.2)	5.8 GHz U-NII 3	802.11ac VHT 80 29.3 Mbps	Body-worn	Off	15	Rear	155	5775.0	0.127	96.6%	14.0	13.1	0.056	0.071	1,3	
			Hotspot	Off	10	Rear	155	5775.0	0.222	96.6%	14.0	13.1	0.106	0.134	1,3	
MIMO (WiFi Ant.1)	5.8 GHz U-NII 3	802.11ac VHT 80 29.3 Mbps	Body-worn	Off	15	Rear	155	5775.0	0.498	95.5%	14.0	13.5	0.262	0.306	1	57
						Front	155	5775.0	0.030	95.5%	14.0	13.5				
			Hotspot	Off	10	Rear	155	5775.0	0.732	95.5%	14.0	13.5	0.385	0.449		58
						Front	155	5775.0	0.033	95.5%	14.0	13.5				
						Edge 1	155	5775.0	0.145	95.5%	14.0	13.5				
						Edge 4	155	5775.0	0.231	95.5%	14.0	13.5	0.112	0.131	2	
MIMO (WiFi Ant.2)	5.8 GHz U-NII 3	802.11ac VHT 80 29.3 Mbps	Body-worn	Off	15	Rear	155	5775.0	0.498	95.5%	14.0	13.0				
						Front	155	5775.0	0.030	95.5%	14.0	13.0				
			Hotspot	Off	10	Rear	155	5775.0	0.732	95.5%	14.0	13.0				
						Front	155	5775.0	0.033	95.5%	14.0	13.0				
						Edge 1	155	5775.0	0.145	95.5%	14.0	13.0				
						Edge 4	155	5775.0	0.231	95.5%	14.0	13.0				

Note(s):

1. 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.
2. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
3. When reported SAR for SISO operation is lower than highest reported SAR for MIMO operation at the same position, other test positions in this exposure condition were not evaluated for SISO operation.

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10.16. Bluetooth

Antenna	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	
BT	2.4 GHz	GFSK	Head	N/A	0	Left Touch	78	2480.0	76.9%	17.5	17.0	0.231	0.333	
						Left Tilt	78	2480.0	76.9%	17.5	17.0	0.299	0.432	
						Right Touch	78	2480.0	76.9%	17.5	17.0	0.350	0.505	
						Right Tilt	78	2480.0	76.9%	17.5	17.0	0.396	0.572	59
		GFSK	Body-worn	N/A	15	Rear	78	2480.0	76.9%	17.5	17.0	0.055	0.079	60
						Front	78	2480.0	76.9%	17.5	17.0	0.028	0.041	
		GFSK	Hotspot	N/A	10	Rear	78	2480.0	76.9%	17.5	17.0	0.081	0.117	
						Front	78	2480.0	76.9%	17.5	17.0	0.050	0.072	
						Edge 1	78	2480.0	76.9%	17.5	17.0	0.148	0.214	61
						Edge 4	78	2480.0	76.9%	17.5	17.0	0.024	0.034	

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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
700	LTE Band 12	Hotspot	Rear	No	0.328	N/A	N/A
	LTE Band 13	Hotspot	Rear	No	0.490	N/A	N/A
835	GSM 850	Hotspot	Rear	No	0.796	N/A	N/A
	WCDMA Band V	Hotspot	Rear	No	0.625	N/A	N/A
	LTE Band 26	Hotspot	Rear	No	0.652	N/A	N/A
1750	WCDMA Band IV	Hotspot	Edge 3	Yes	0.971	0.969	1.00
	LTE Band 66	Hotspot	Edge 3	Yes	0.889	N/A	N/A
1900	GSM 1900	Hotspot	Edge 3	No	0.856	N/A	N/A
	WCDMA Band II	Hotspot	Edge 3	Yes	0.845	N/A	N/A
	LTE Band 25	Hotspot	Edge 3	Yes	0.889	0.884	1.01
2400	Wi-Fi 802.11b/g/n	Hotspot	Edge 1	No	0.391	N/A	N/A
	Bluetooth	Head	Right Tilt	No	0.396	N/A	N/A
2600	LTE Band 41	Hotspot	Edge 3	No	0.699	N/A	N/A
5250	Wi-Fi 802.11a/ac	Body	Rear	No	0.377	N/A	N/A
5500	Wi-Fi 802.11a/ac	Body	Rear	No	0.367	N/A	N/A
5800	Wi-Fi 802.11a/ac	Body	Rear	Yes	0.895	0.929	1.04

Peak spatial-average (10g 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
1750	WCDMA Band IV	Product Specific 10g	Edge 3	No	1.550	N/A	N/A
	LTE Band 66	Product Specific 10g	Edge 3	No	1.560	N/A	N/A
1900	GSM 1900	Product Specific 10g	Edge 3	No	1.600	N/A	N/A
	WCDMA Band II	Product Specific 10g	Edge 3	No	1.580	N/A	N/A
	LTE Band 25	Product Specific 10g	Edge 3	No	1.600	N/A	N/A
2600	LTE Band 41	Product Specific 10g	Edge 3	No	1.430	N/A	N/A
5250	Wi-Fi 802.11a/ac	Product Specific 10g	Rear	No	0.458	N/A	N/A
5500	Wi-Fi 802.11a/ac	Product Specific 10g	Edge 4	No	0.667	N/A	N/A

Note(s):

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

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12. Simultaneous Transmission SAR Analysis

Simultaneous Transmission Condition

RF Exposure Condition	Item	Capable Transmit Configurations				
Head & Body-worn & Phablet-10g	1	GSM(Voice/GPRS)	+	DTS_Ant.1	+	DTS_Ant.2
	2	GSM(Voice/GPRS)	+	UNII_Ant.1	+	UNII_Ant.2
	3	GSM(Voice/GPRS)	+	BT		
	4	GSM(Voice/GPRS)	+	UNII_Ant.1	+	BT
	5	GSM(Voice/GPRS)	+	UNII_Ant.2	+	BT
	6	GSM(Voice/GPRS)	+	UNII MIMO	+	BT
	7	GSM(Voice/GPRS)	+	***RSDB scenario***		
	8	WCDMA or LTE	+	DTS_Ant.1	+	DTS_Ant.2
	9	WCDMA or LTE	+	UNII_Ant.1	+	UNII_Ant.2
	10	WCDMA or LTE	+	BT		
	11	WCDMA or LTE	+	UNII_Ant.1	+	BT
	12	WCDMA or LTE	+	UNII_Ant.2	+	BT
	13	WCDMA or LTE	+	UNII MIMO	+	BT
	14	WCDMA or LTE	+	***RSDB scenario***		
Hotspot	15	GSM(GPRS)	+	DTS_Ant.1	+	DTS_Ant.2
	16	GSM(GPRS)	+	UNII_Ant.1	+	UNII_Ant.2
	17	GSM(GPRS)	+	BT		
	18	GSM(GPRS)	+	UNII_Ant.1	+	BT
	19	GSM(GPRS)	+	UNII_Ant.2	+	BT
	20	GSM(GPRS)	+	UNII MIMO	+	BT
	21	GSM(GPRS)	+	***RSDB scenario***		
	22	WCDMA or LTE	+	DTS_Ant.1	+	DTS_Ant.2
	23	WCDMA or LTE	+	UNII_Ant.1	+	UNII_Ant.2
	24	WCDMA or LTE	+	BT		
	25	WCDMA or LTE	+	UNII_Ant.1	+	BT
	26	WCDMA or LTE	+	UNII_Ant.2	+	BT
	27	WCDMA or LTE	+	UNII MIMO	+	BT
	28	WCDMA or LTE	+	***RSDB scenario***		

Notes:

1. DTS supports Wi-Fi Direct, Hotspot and VoIP.
2. U-NII supports Wi-Fi Direct, Hotspot and VoIP.
3. GPRS, W-CDMA, LTE supports Hotspot and VoIP.
4. U-NII Radio can transmit simultaneously with Bluetooth Radio.
5. DTS Radio cannot transmit simultaneously with Bluetooth Radio.
6. DTS Radio can only transmit simultaneously with U-NII Radio in RSDB scenarios.
7. DTS and U-NII Radio can operating both SISO and MIMO modes.
8. BT tethering is consider about each RF exposure conditions

RSDB scenarios

Mode	Scenario	# of TX	5GHz		2.4GHz	
			Ant1	Ant2	Ant1	Ant2
2.4GHz + 5GHz RSDB Only	1	2	On	-	On	-
	2	2	On	-	-	On
	3	2	-	On	On	-
	4	2	-	On	-	On
2.4GHz + 5GHz RSDB & MIMO	5	3	On	On	On	-
	6	3	On	On	-	On
	7	3	On	-	On	On
	8	3	-	On	On	On
2.4GHz + 5GHz RSDB MIMO	9	4	On	On	On	On

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Simultaneous transmission SAR test exclusion considerations

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

Sum of SAR

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

SAR to Peak Location Ratio (SPLSR)

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

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

Where:

SAR_1 is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

SAR_2 is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

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:

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

When an individual antenna transmits at on two bands simultaneously, the sum of the highest *reported* SAR for the frequency bands should be used to determine SAR_1.or SAR_2. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

The antennas in all antenna pairs that do not qualify for simultaneous transmission SAR test exclusion must be tested for SAR compliance, according to the enlarged zoom scan and volume scan post-processing procedures in KDB Publication 865664 D01

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

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Simultaneous transmission SAR measurement

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

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

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

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

Combined Multi Band Averaged SAR allows - in addition to the data extraction - an evaluation of the 1 g, 10 g and/or arbitrary averaged mass SAR.
Power Scaling Factor is used to allow the volume scans to be scaled by a value other than "1", this is important when the results need to be scaled to different maximum power levels. The Power Scaling Factor is applied to each individual point of the scan. When power scaling is used in multi-band combinations the scaling factor is applied to each individual point of the first scan, the second factor is then applied to each individual point of the second scan and so on. The scans are then combined.

SPLSR Hotspot Combination

Per November 2019 TCB Workshop Notes, SPLSR Hotspot Combination procedure can be applied to evaluate to simultaneous transmission SAR analysis.
Hybrid SPLSR and enlarged zoom scan (Volume scan) can be applied when Simultaneous transmission SAR is over 1.6 or 4.0 W/kg (1-g or 10-g respectively), it does not meet SPLSR criteria, and antenna pair is co-located. Antenna co-location means that SAR distributions overlap because the antennas are not significantly spatially separated.

Test procedure

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

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

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

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT1	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A,D: 1+4+5 B,C: 1+6	1+7	1+4+7	1+5+7	A,D: 1+4+5+7 B,C: 1+6+7
A: Head	All Position	0.288	0.480	0.009	0.074	0.072		0.572	0.768	0.297	0.778	0.362	0.359	0.434	0.860	0.934	0.931	1.005
B: Body-worn	Rear	0.517	0.150	0.085	0.589	0.497	0.760	0.079	0.667	0.602	0.752	1.106	1.014	1.277	0.596	1.185	1.093	1.356
	Front	0.431	0.150	0.085	0.035	0.001	0.029	0.041	0.581	0.516	0.666	0.466	0.432	0.460	0.472	0.507	0.473	0.501
C: Hotspot	Rear	0.968	0.286	0.247	0.739	0.436	1.159	0.117	1.254	1.215	1.501	1.707	1.405	2.127	1.085	1.824	1.521	2.244
	Front	0.636	0.410	0.247	0.739	0.436	0.038	0.072	1.046	0.883	1.293	1.375	1.072	0.674	0.708	1.447	1.144	0.746
	Edge 1		0.410	0.247	0.739	0.079	1.159	0.214										
	Edge 2	0.073																
	Edge 3	0.575																
	Edge 4	0.317	0.410	0.247	0.391	0.436	0.293	0.034	0.727	0.564	0.974	0.707	0.753	0.610	0.351	0.741	0.787	0.644

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)					∑ SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
		WWAN	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
		1	2	3	4	5						
Hotspot (1-g SAR)	Rear	0.968	0.739			0.117	1+2+5	1.824				1
		0.968	0.739				1+2	1.707	161.5	0.01	No	
		0.968				0.117	1+5	1.085	165.6	0.01	No	
			0.739			0.117	2+5	0.856	6.2	0.13	Yes	
Hotspot (1-g SAR)	Rear	0.968			1.159	0.117	1+4+5	2.244				2
		0.968			1.159		1+4	2.127	162.4	0.02	No	
		0.968				0.117	1+5	1.085	165.6	0.01	No	
					1.159	0.117	4+5	1.276	8.0	0.18	Yes	

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

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT1	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A,D: 1+4+5 B,C: 1+6	1+7	1+4+7	1+5+7	A,D: 1+4+5+7 B,C: 1+6+7
A: Head	All Position	0.072	0.480	0.009	0.074	0.072		0.572	0.552	0.081	0.561	0.146	0.143	0.217	0.643	0.718	0.715	0.789
B: Body-worn	Rear	0.540	0.150	0.085	0.589	0.497	0.760	0.079	0.689	0.625	0.775	1.128	1.036	1.300	0.618	1.207	1.115	1.378
	Front	0.440	0.150	0.085	0.035	0.001	0.029	0.041	0.590	0.525	0.675	0.475	0.441	0.469	0.481	0.516	0.482	0.510
C: Hotspot	Rear	0.442	0.286	0.247	0.739	0.436	1.159	0.117	0.728	0.689	0.975	1.181	0.879	1.601	0.559	1.298	0.995	1.718
	Front	0.320	0.410	0.247	0.739	0.436	0.038	0.072	0.730	0.567	0.977	1.059	0.756	0.358	0.392	1.131	0.828	0.430
	Edge 1		0.410	0.247	0.739	0.079	1.159	0.214										
	Edge 2	0.048																
	Edge 3	1.097																
	Edge 4	0.039	0.410	0.247	0.391	0.436	0.293	0.034	0.449	0.286	0.696	0.430	0.475	0.332	0.073	0.464	0.509	0.366
D: Phablet	Rear	1.214			0.257	0.975						1.470	2.188	2.445				
	Front				0.257	0.975												
	Edge 1				0.257	0.975												
	Edge 2																	
	Edge 3	1.750																
	Edge 4				0.257	0.975												

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)					∑ SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
		WWAN	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
		1	2	3	4	5						
Hotspot (1-g SAR)	Rear	0.442			1.159	0.117	1+4+5	1.718				3
		0.442			1.159		1+4	1.601	156.7	0.01	No	
		0.442				0.117	1+5	0.559	160.6	0.00	No	
					1.159	0.117	4+5	1.276	8.0	0.18	Yes	

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT1	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A,D: 1+4+5 B,C: 1+6	1+7	1+4+7	1+5+7	A,D: 1+4+5+7 B,C: 1+6+7
A: Head	All Position	0.101	0.480	0.009	0.074	0.072		0.572	0.581	0.110	0.591	0.175	0.173	0.247	0.673	0.747	0.744	0.818
B: Body-worn	Rear	0.615	0.150	0.085	0.589	0.497	0.760	0.079	0.764	0.700	0.850	1.203	1.111	1.375	0.693	1.282	1.190	1.453
	Front	0.508	0.150	0.085	0.035	0.001	0.029	0.041	0.658	0.593	0.743	0.543	0.509	0.537	0.549	0.584	0.550	0.578
C: Hotspot	Rear	0.543	0.286	0.247	0.739	0.436	1.159	0.117	0.829	0.790	1.076	1.282	0.980	1.702	0.660	1.399	1.096	1.819
	Front	0.488	0.410	0.247	0.739	0.436	0.038	0.072	0.898	0.735	1.145	1.227	0.924	0.526	0.560	1.299	0.996	0.598
	Edge 1		0.410	0.247	0.739	0.079	1.159	0.214										
	Edge 2	0.084																
	Edge 3	1.330																
	Edge 4	0.051	0.410	0.247	0.391	0.436	0.293	0.034	0.461	0.298	0.708	0.441	0.487	0.344	0.085	0.475	0.521	0.378
D: Phablet	Rear	1.369			0.257	0.975						1.626	2.344	2.601				
	Front				0.257	0.975												
	Edge 1				0.257	0.975												
	Edge 2																	
	Edge 3	2.670																
	Edge 4				0.257	0.975												

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)					∑ SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
		WWAN	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
		1	2	3	4	5						
Hotspot (1-g SAR)	Rear	0.543			1.159	0.117	1+4+5	1.819				4
		0.543			1.159		1+4	1.702	158.5	0.01	No	
		0.543				0.117	1+5	0.660	162.3	0.00	No	
					1.159	0.117	4+5	1.276	8.0	0.18	Yes	

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

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT1	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A,D: 1+4+5 B,C: 1+6	1+7	1+4+7	1+5+7	A,D: 1+4+5+7 B,C: 1+6+7
A: Head	All Position	0.139	0.480	0.009	0.074	0.072		0.572	0.619	0.148	0.628	0.213	0.210	0.284	0.710	0.784	0.782	0.856
B: Body-worn	Rear	1.020	0.150	0.085	0.589	0.497	0.760	0.079	1.170	1.105	1.255	1.609	1.517	1.780	1.099	1.688	1.595	1.859
	Front	0.717	0.150	0.085	0.035	0.001	0.029	0.041	0.867	0.802	0.952	0.751	0.718	0.746	0.758	0.792	0.759	0.787
C: Hotspot	Rear	0.739	0.286	0.247	0.739	0.436	1.159	0.117	1.025	0.986	1.272	1.478	1.175	1.898	0.855	1.594	1.292	2.014
	Front	0.563	0.410	0.247	0.739	0.436	0.038	0.072	0.973	0.810	1.220	1.302	0.999	0.601	0.635	1.374	1.071	0.673
	Edge 1		0.410	0.247	0.739	0.079	1.159	0.214										
	Edge 2	0.157																
	Edge 3	1.321																
	Edge 4	0.097	0.410	0.247	0.391	0.436	0.293	0.034	0.507	0.344	0.754	0.488	0.533	0.390	0.131	0.522	0.567	0.424
D: Phablet	Rear	1.747			0.257	0.975						2.003	2.721	2.978				
	Front	1.650			0.257	0.975						1.907	2.625	2.882				
	Edge 1				0.257	0.975												
	Edge 2																	
	Edge 3	2.354																
	Edge 4				0.257	0.975												

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)					∑ SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
		WWAN	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
		1	2	3	4	5						
Body-worn (1-g SAR)	Rear	1.020	0.589			0.079	1+2+5	1.688				5
		1.020	0.589				1+2	1.609	157.4	0.01	No	
		1.020				0.079	1+5	1.099	155.4	0.01	No	
			0.589			0.079	2+5	0.668	38.3	0.01	No	
Body-worn (1-g SAR)	Rear	1.020		0.497		0.079	1+3+5	1.596				6
		1.020		0.497			1+3	1.517	147.7	0.01	No	
		1.020				0.079	1+5	1.099	155.4	0.01	No	
				0.497		0.079	3+5	0.576	42.9	0.01	No	
Body-worn (1-g SAR)	Rear	1.020			0.760	0.079	1+4+5	1.859				7
		1.020			0.760		1+4	1.780	156.7	0.02	No	
		1.020				0.079	1+5	1.099	155.4	0.01	No	
					0.760	0.079	4+5	0.839	39.0	0.02	No	
Hotspot (1-g SAR)	Rear	0.739			1.159	0.117	1+4+5	2.014				8
		0.739			1.159		1+4	1.898	157.8	0.02	No	
		0.739				0.117	1+5	0.855	161.7	0.00	No	
					1.159	0.117	4+5	1.276	8.0	0.18	Yes	

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT1	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A,D: 1+4+5 B,C: 1+6	1+7	1+4+7	1+5+7	A,D: 1+4+5+7 B,C: 1+6+7
A: Head	All Position	0.239	0.480	0.009	0.074	0.072		0.572	0.719	0.248	0.728	0.313	0.310	0.384	0.810	0.884	0.882	0.956
B: Body-worn	Rear	0.399	0.150	0.085	0.589	0.497	0.760	0.079	0.549	0.484	0.634	0.988	0.895	1.159	0.477	1.066	0.974	1.237
	Front	0.373	0.150	0.085	0.035	0.001	0.029	0.041	0.523	0.458	0.608	0.408	0.374	0.402	0.414	0.449	0.415	0.443
C: Hotspot	Rear	0.753	0.286	0.247	0.739	0.436	1.159	0.117	1.039	1.000	1.286	1.492	1.189	1.912	0.870	1.609	1.306	2.029
	Front	0.506	0.410	0.247	0.739	0.436	0.038	0.072	0.916	0.753	1.163	1.245	0.942	0.544	0.578	1.317	1.014	0.616
	Edge 1		0.410	0.247	0.739	0.079	1.159	0.214										
	Edge 2	0.084																
	Edge 3	0.431																
	Edge 4	0.304	0.410	0.247	0.391	0.436	0.293	0.034	0.714	0.551	0.961	0.694	0.740	0.597	0.338	0.728	0.774	0.631

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)					∑ SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
		WWAN	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
		1	2	3	4	5						
Hotspot (1-g SAR)	Rear	0.753	0.739			0.117	1+2+5	1.609				9
		0.753	0.739				1+2	1.492	162.6	0.01	No	
		0.753				0.117	1+5	0.870	166.7	0.00	No	
			0.739			0.117	2+5	0.856	6.2	0.13	Yes	
Hotspot (1-g SAR)	Rear	0.753			1.159	0.117	1+4+5	2.029				10
		0.753			1.159		1+4	1.912	163.5	0.02	No	
		0.753				0.117	1+5	0.870	166.7	0.00	No	
					1.159	0.117	4+5	1.276	8.0	0.18	Yes	

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

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT1	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A,D: 1+4+5 B,C: 1+6	1+7	1+4+7	1+5+7	A,D: 1+4+5+7 B,C: 1+6+7
A: Head	All Position	0.156	0.480	0.009	0.074	0.072		0.572	0.636	0.165	0.646	0.230	0.228	0.302	0.728	0.802	0.799	0.873
B: Body-worn	Rear	0.208	0.150	0.085	0.589	0.497	0.760	0.079	0.358	0.293	0.443	0.797	0.705	0.968	0.287	0.876	0.783	1.047
	Front	0.192	0.150	0.085	0.035	0.001	0.029	0.041	0.342	0.277	0.427	0.227	0.193	0.221	0.233	0.268	0.234	0.262
C: Hotspot	Rear	0.371	0.286	0.247	0.739	0.436	1.159	0.117	0.657	0.618	0.904	1.110	0.808	1.530	0.488	1.227	0.924	1.647
	Front	0.231	0.410	0.247	0.739	0.436	0.038	0.072	0.641	0.478	0.888	0.970	0.667	0.269	0.303	1.042	0.739	0.341
	Edge 1		0.410	0.247	0.739	0.079	1.159	0.214										
	Edge 2	0.136																
	Edge 3	0.169																
	Edge 4	0.231	0.410	0.247	0.391	0.436	0.293	0.034	0.641	0.478	0.888	0.621	0.667	0.524	0.265	0.655	0.701	0.558

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)					∑ SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
		WWAN	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
		1	2	3	4	5						
Hotspot (1-g SAR)	Rear	0.371			1.159	0.117	1+4+5	1.647				11
		0.371			1.159		1+4	1.530	161.5	0.01	No	
		0.371				0.117	1+5	0.488	164.8	0.00	No	
					1.159	0.117	4+5	1.276	8.0	0.18	Yes	

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT1	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A,D: 1+4+5 B,C: 1+6	1+7	1+4+7	1+5+7	A,D: 1+4+5+7 B,C: 1+6+7
A: Head	All Position	0.217	0.480	0.009	0.074	0.072		0.572	0.697	0.226	0.706	0.291	0.288	0.362	0.788	0.862	0.860	0.934
B: Body-worn	Rear	0.372	0.150	0.085	0.589	0.497	0.760	0.079	0.522	0.457	0.607	0.961	0.869	1.132	0.451	1.040	0.947	1.211
	Front	0.282	0.150	0.085	0.035	0.001	0.029	0.041	0.432	0.367	0.517	0.317	0.283	0.311	0.323	0.357	0.324	0.352
C: Hotspot	Rear	0.614	0.286	0.247	0.739	0.436	1.159	0.117	0.900	0.861	1.147	1.353	1.050	1.773	0.730	1.469	1.167	1.889
	Front	0.437	0.410	0.247	0.739	0.436	0.038	0.072	0.847	0.684	1.094	1.176	0.873	0.475	0.509	1.248	0.945	0.547
	Edge 1		0.410	0.247	0.739	0.079	1.159	0.214										
	Edge 2	0.075																
	Edge 3	0.371																
	Edge 4	0.268	0.410	0.247	0.391	0.436	0.293	0.034	0.678	0.515	0.925	0.659	0.704	0.561	0.302	0.693	0.738	0.595

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)					∑ SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
		WWAN	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
		1	2	3	4	5						
Hotspot (1-g SAR)	Rear	0.614			1.159	0.117	1+4+5	1.889				12
		0.614			1.159		1+4	1.773	164.9	0.01	No	
		0.614				0.117	1+5	0.730	168.3	0.00	No	
					1.159	0.117	4+5	1.276	8.0	0.18	Yes	

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

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT1	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A,D: 1+4+5 B,C: 1+6	1+7	1+4+7	1+5+7	A,D: 1+4+5+7 B,C: 1+6+7
A: Head	All Position	0.093	0.480	0.009	0.074	0.072		0.572	0.573	0.102	0.582	0.167	0.164	0.238	0.664	0.738	0.736	0.810
B: Body-worn	Rear	0.611	0.150	0.085	0.589	0.497	0.760	0.079	0.760	0.696	0.846	1.199	1.107	1.371	0.689	1.278	1.186	1.449
	Front	0.447	0.150	0.085	0.035	0.001	0.029	0.041	0.597	0.532	0.682	0.482	0.448	0.476	0.488	0.523	0.489	0.517
C: Hotspot	Rear	0.427	0.286	0.247	0.739	0.436	1.159	0.117	0.713	0.674	0.960	1.166	0.863	1.586	0.543	1.282	0.980	1.702
	Front	0.353	0.410	0.247	0.739	0.436	0.038	0.072	0.763	0.600	1.010	1.092	0.789	0.391	0.425	1.164	0.861	0.463
	Edge 1		0.410	0.247	0.739	0.079	1.159	0.214										
	Edge 2	0.070																
	Edge 3	1.065																
	Edge 4	0.041	0.410	0.247	0.391	0.436	0.293	0.034	0.451	0.288	0.698	0.432	0.477	0.334	0.075	0.466	0.511	0.368
D: Phablet	Rear	1.341			0.257	0.975						1.598	2.316	2.572				
	Front				0.257	0.975												
	Edge 1				0.257	0.975												
	Edge 2																	
	Edge 3	1.970																
	Edge 4				0.257	0.975												

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)					∑ SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
		WWAN	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
		1	2	3	4	5						
Hotspot (1-g SAR)	Rear	0.427			1.159	0.117	1+4+5	1.702				13
		0.427			1.159		1+4	1.586	157.6	0.01	No	
		0.427				0.117	1+5	0.543	161.4	0.00	No	
					1.159	0.117	4+5	1.276	8.0	0.18	Yes	

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT1	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A,D: 1+4+5 B,C: 1+6	1+7	1+4+7	1+5+7	A,D: 1+4+5+7 B,C: 1+6+7
A: Head	All Position	0.215	0.480	0.009	0.074	0.072		0.572	0.695	0.224	0.704	0.289	0.286	0.360	0.786	0.861	0.858	0.932
B: Body-worn	Rear	0.406	0.150	0.085	0.589	0.497	0.760	0.079	0.556	0.491	0.641	0.995	0.903	1.166	0.485	1.074	0.981	1.245
	Front	0.315	0.150	0.085	0.035	0.001	0.029	0.041	0.465	0.400	0.550	0.350	0.316	0.344	0.356	0.391	0.357	0.385
C: Hotspot	Rear	0.761	0.286	0.247	0.739	0.436	1.159	0.117	1.047	1.008	1.294	1.500	1.198	1.920	0.878	1.617	1.314	2.037
	Front	0.522	0.410	0.247	0.739	0.436	0.038	0.072	0.932	0.769	1.179	1.261	0.958	0.560	0.594	1.333	1.030	0.632
	Edge 1		0.410	0.247	0.739	0.079	1.159	0.214										
	Edge 2	0.100																
	Edge 3	0.386																
	Edge 4	0.249	0.410	0.247	0.391	0.436	0.293	0.034	0.659	0.496	0.906	0.639	0.685	0.542	0.283	0.673	0.719	0.576

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)					∑ SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
		WWAN	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
		1	2	3	4	5						
Hotspot (1-g SAR)	Rear	0.761	0.739			0.117	1+2+5	1.617				14
		0.761	0.739				1+2	1.500	162.8	0.01	No	
		0.761				0.117	1+5	0.878	166.9	0.00	No	
			0.739			0.117	2+5	0.856	6.2	0.13	Yes	
Hotspot (1-g SAR)	Rear	0.761			1.159	0.117	1+4+5	2.037				15
		0.761			1.159		1+4	1.920	163.6	0.02	No	
		0.761				0.117	1+5	0.878	166.9	0.00	No	
					1.159	0.117	4+5	1.276	8.0	0.18	Yes	

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

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT1	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A,D: 1+4+5 B,C: 1+6	1+7	1+4+7	1+5+7	A,D: 1+4+5+7 B,C: 1+6+7
A: Head	All Position	0.074	0.480	0.009	0.074	0.072		0.572	0.554	0.083	0.563	0.148	0.145	0.219	0.645	0.719	0.717	0.791
B: Body-worn	Rear	0.567	0.150	0.085	0.589	0.497	0.760	0.079	0.717	0.652	0.802	1.156	1.063	1.327	0.645	1.234	1.142	1.405
	Front	0.338	0.150	0.085	0.035	0.001	0.029	0.041	0.488	0.423	0.573	0.373	0.339	0.367	0.379	0.414	0.380	0.408
C: Hotspot	Rear	0.464	0.286	0.247	0.739	0.436	1.159	0.117	0.750	0.711	0.997	1.203	0.900	1.623	0.580	1.319	1.017	1.739
	Front	0.326	0.410	0.247	0.739	0.436	0.038	0.072	0.736	0.573	0.983	1.065	0.762	0.364	0.398	1.137	0.834	0.436
	Edge 1		0.410	0.247	0.739	0.079	1.159	0.214										
	Edge 2	0.122																
	Edge 3	0.854																
	Edge 4		0.410	0.247	0.391	0.436	0.293	0.034										
D: Phablet	Rear				0.257	0.975												
	Front				0.257	0.975												
	Edge 1				0.257	0.975												
	Edge 2																	
	Edge 3	1.798																
	Edge 4				0.257	0.975												

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)					∑ SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
		WWAN	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
		1	2	3	4	5						
Hotspot (1-g SAR)	Rear	0.464			1.159	0.117	1+4+5	1.739				16
		0.464			1.159		1+4	1.623	157.4	0.01	No	
		0.464				0.117	1+5	0.580	161.8	0.00	No	
					1.159	0.117	4+5	1.276	8.0	0.18	Yes	

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT1	WWAN + BT + UNII Ant.1	WWAN + BT + UNII Ant.2	WWAN + BT + UNII MIMO
		1	2	3	4	5	6	7	1+2	1+3	1+2+3	1+4	1+5	A,D: 1+4+5 B,C: 1+6	1+7	1+4+7	1+5+7	A,D: 1+4+5+7 B,C: 1+6+7
A: Head	All Position	0.117	0.480	0.009	0.074	0.072		0.572	0.597	0.126	0.607	0.191	0.189	0.263	0.689	0.763	0.760	0.834
B: Body-worn	Rear	0.730	0.150	0.085	0.589	0.497	0.760	0.079	0.879	0.815	0.965	1.318	1.226	1.490	0.808	1.397	1.305	1.568
	Front	0.548	0.150	0.085	0.035	0.001	0.029	0.041	0.698	0.633	0.783	0.582	0.549	0.577	0.589	0.623	0.590	0.618
C: Hotspot	Rear	0.630	0.286	0.247	0.739	0.436	1.159	0.117	0.916	0.877	1.163	1.369	1.067	1.789	0.747	1.486	1.183	1.906
	Front	0.483	0.410	0.247	0.739	0.436	0.038	0.072	0.893	0.730	1.140	1.222	0.919	0.521	0.556	1.295	0.992	0.594
	Edge 1		0.410	0.247	0.739	0.079	1.159	0.214										
	Edge 2	0.157																
	Edge 3	1.209																
	Edge 4	0.092	0.410	0.247	0.391	0.436	0.293	0.034	0.502	0.339	0.749	0.482	0.528	0.385	0.126	0.516	0.562	0.419
D: Phablet	Rear	1.505			0.257	0.975						1.762	2.480	2.736				
	Front	1.443			0.257	0.975						1.700	2.418	2.675				
	Edge 1				0.257	0.975												
	Edge 2																	
	Edge 3	1.957																
	Edge 4				0.257	0.975												

RF Exposure	Test Position	Standalone SAR (W/kg)					∑ SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
		WWAN	UNII Ant.1	UNII Ant.2	UNII MIMO	BT						
		1	2	3	4	5						
Hotspot (1-g SAR)	Rear	0.630			1.159	0.117	1+4+5	1.906				17
		0.630			1.159		1+4	1.789	156.8	0.02	No	
		0.630				0.117	1+5	0.747	160.5	0.00	No	
					1.159	0.117	4+5	1.276	8.0	0.18	Yes	

Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. For UNII, MIMO SAR test were additionally evaluated at Body-worn and Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

12.12. Sum of the SAR for WWAN & Wi-Fi (RSDB)

RF Exposure	Test Position	Standalone SAR (W/kg)							∑ SAR (W/kg)								
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	WWAN + DTS Ant.1+UNII Ant.1	WWAN + DTS Ant.1+UNII Ant.2	WWAN + DTS Ant.1+UNII MIMO	WWAN + DTS Ant.2+UNII Ant.1	WWAN + DTS Ant.2+UNII Ant.2	WWAN + DTS Ant.2+UNII MIMO	WWAN + DTS MIMO+UNII Ant.1	WWAN + DTS MIMO+UNII Ant.2	WWAN + DTS MIMO+UNII MIMO
		1	2	3	4	5	6	7	1+2+5	1+2+6	A: 1+2+5+6 B,C: 1+2+7	1+3+5	1+3+6	A: 1+3+5+6 B,C: 1+2+7	A: 1+2+3+5 B,C: 1+4+5	A: 1+2+3+6 B,C: 1+4+6	A: 1+2+3+5+6 B,C: 1+4+7
A: Head (1-g SAR)	All Position	0.288	0.480	0.009		0.074	0.072		0.842	0.840	0.914	0.371	0.369	0.443	0.851	0.849	0.923
B: Body-worn (1-g SAR)	All Position	1.020	0.055	0.030	0.097	0.240	0.301	0.306	1.315	1.376	1.381	1.290	1.351	1.356	1.357	1.418	1.423
C: Hotspot (1-g SAR)	Rear	0.968	0.108	0.092	0.165	0.342	0.134	0.449	1.418	1.210	1.525	1.402	1.194	1.509	1.475	1.267	1.582
	Front	0.636	0.168	0.092	0.232	0.342	0.134	0.449	1.146	0.938	1.253	1.070	0.862	1.177	1.210	1.002	1.317
	Edge 1		0.168	0.014	0.232	0.342	0.134	0.449									
	Edge 2	0.157															
	Edge 3	1.330															
	Edge 4	0.317	0.168	0.092	0.232	0.342	0.134	0.131	0.827	0.619	0.616	0.751	0.543	0.540	0.891	0.683	0.680

Note(s):

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

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12.13. Volume Scan Results

SPLSR Hotspot Combination procedure has been applied to evaluate the simultaneous transmission SAR analysis.

Volume Scan Results

RF Exposure	Configuration	Test Position	Band	Original Measured SAR (W/kg)		Volume Scan Result	Plot No.	Multi-Band Combined factor	Multi-Band Combined Result	Plot No.
Hotspot	UNII Ant.1 + BT	Rear 10mm	UNII Ant.1	0.577		0.502		1.281	0.720	4
			BT	0.081		0.058		1.443		
	UNII MIMO + BT	Rear 10mm	UNII MIMO	0.895	0.577	0.502	1	1.281	1.150	5-6
					0.344	0.347	2	1.269		
			BT	0.081		0.058	3	1.443		

Note(s):

1. Multi-band Combined factor is the compensation value of power and duty.
2. For UNII MIMO mode, Volume scan proceeded to UNII SISO Ant.1 and UNII SISO Ant.2 respectively. Thereafter, Multi-Band Combined procedures was performed.
   Volume scan results for UNII MIMO was performed as combined result of UNII Ant.1 and UNII Ant.2.
3. For Volume Scan plot number in this section, please refer to the Appendix G.

RF Exposure	Test Position	Band	Standalone SAR (W/kg)	Σ SAR (W/kg)	Calculated distance (mm)	SPLSR (≤ 0.04)
Hotspot	Rear	GSM 850	0.968	1.688	161.0	0.01
		UNII Ant.1+BT	0.720			
Hotspot	Rear	GSM 850	0.968	2.118	161.0	0.02
		UNII Ant.1+UNII Ant.2+BT	1.150			
Hotspot	Rear	GSM 1900	0.442	1.592	158.0	0.01
		UNII Ant.1+UNII Ant.2+BT	1.150			
Hotspot	Rear	WCDMA Band II	0.543	1.693	160.8	0.01
		UNII Ant.1+UNII Ant.2+BT	1.150			
Hotspot	Rear	WCDMA Band IV	1.020	2.170	158.8	0.02
		UNII Ant.1+UNII Ant.2+BT	1.150			
Hotspot	Rear	WCDMA Band V	0.753	1.473	161.7	0.01
		UNII Ant.1+BT	0.720			
Hotspot	Rear	WCDMA Band V	0.753	1.903	161.7	0.02
		UNII Ant.1+UNII Ant.2+BT	1.150			
Hotspot	Rear	LTE Band 12	0.371	1.521	163.3	0.01
		UNII Ant.1+UNII Ant.2+BT	1.150			
Hotspot	Rear	LTE Band 13	0.614	1.764	165.4	0.01
		UNII Ant.1+UNII Ant.2+BT	1.150			
Hotspot	Rear	LTE Band 25	0.427	1.577	161.7	0.01
		UNII Ant.1+UNII Ant.2+BT	1.150			
Hotspot	Rear	LTE Band 26	0.761	1.481	165.3	0.01
		UNII Ant.1+BT	0.720			
Hotspot	Rear	LTE Band 26	0.761	1.911	165.3	0.02
		UNII Ant.1+UNII Ant.2+BT	1.150			
Hotspot	Rear	LTE Band 41	0.464	1.614	158.6	0.01
		UNII Ant.1+UNII Ant.2+BT	1.150			
Hotspot	Rear	LTE Band 66	0.630	1.780	157.7	0.02
		UNII Ant.1+UNII Ant.2+BT	1.150			

Note(s):

SPLSR procedure was applied for the spatially separated main antenna and Multi-band Combined results.

Conclusion:

Simultaneous Transmission SAR analysis results is satisfied the FCC Limit requirement according to follow procedures with "Sum of SAR" or "SPLSR" or "SPLSR Hotspot combination".

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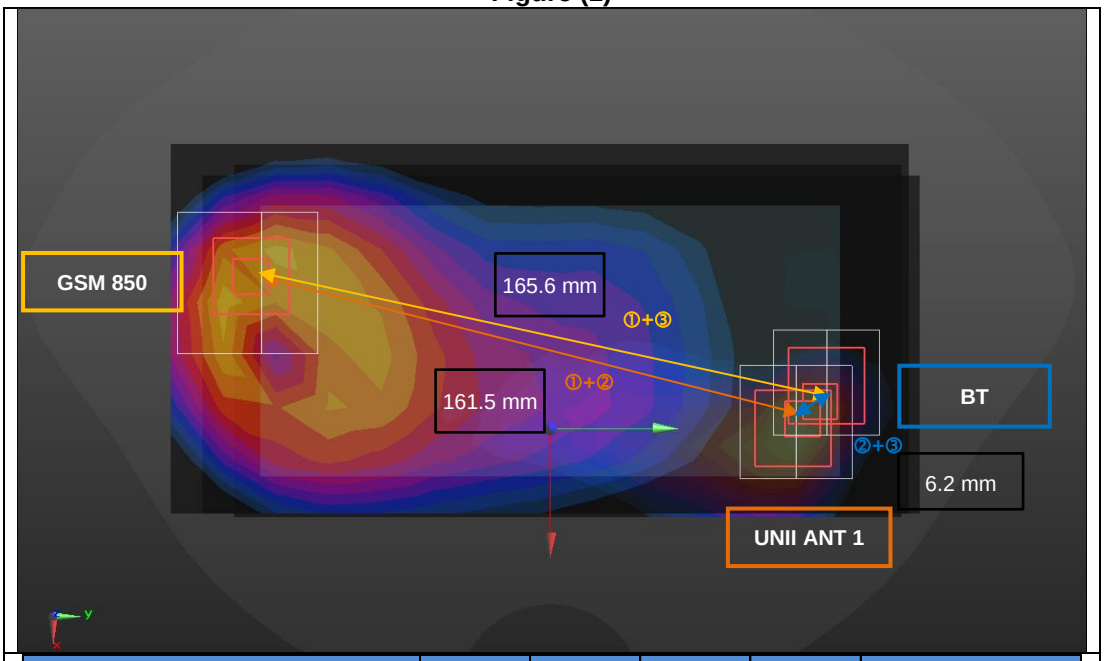
Figure (1)

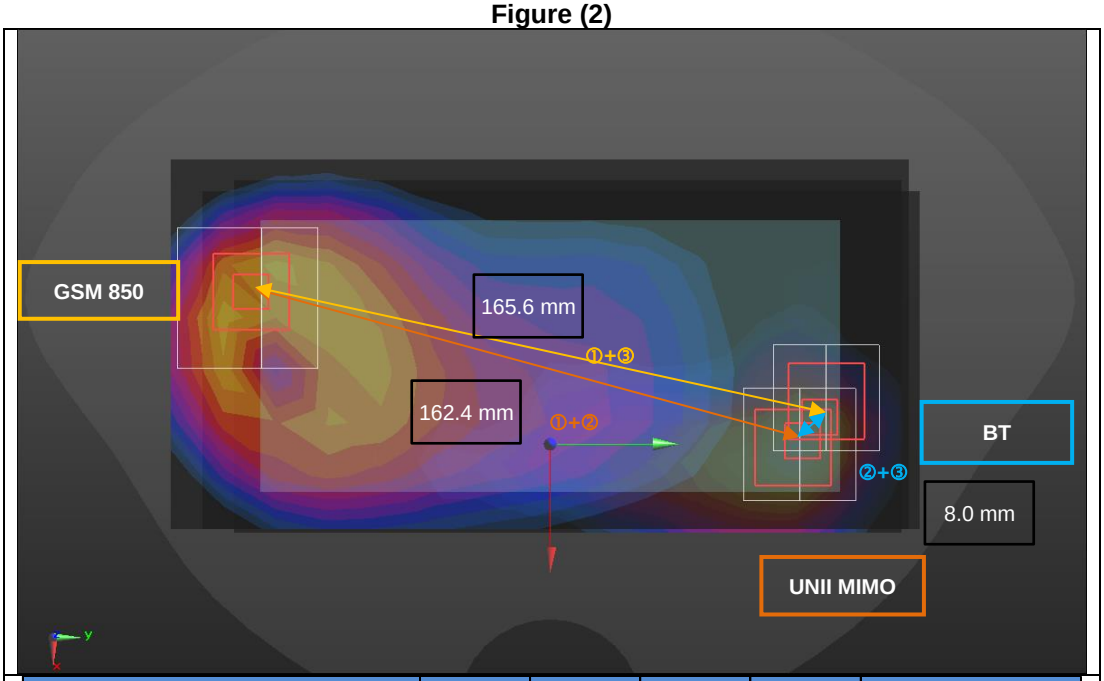


Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
GSM 850	①	0.968	-0.0173	-0.0852	-0.0003	①+②	161.5
UNII Ant.1	②	0.739	0.0214	0.0716	-0.0001	①+③	165.6
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	6.2

The Peak Location Separation Distance is computed by using the formula below :

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

Figure (2)



Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
GSM 850	①	0.968	-0.0173	-0.0852	-0.0003	①+②	162.4
UNII MIMO	②	1.159	0.0242	0.0718	-0.0013	①+③	165.6
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	8.0

The Peak Location Separation Distance is computed by using the formula below :

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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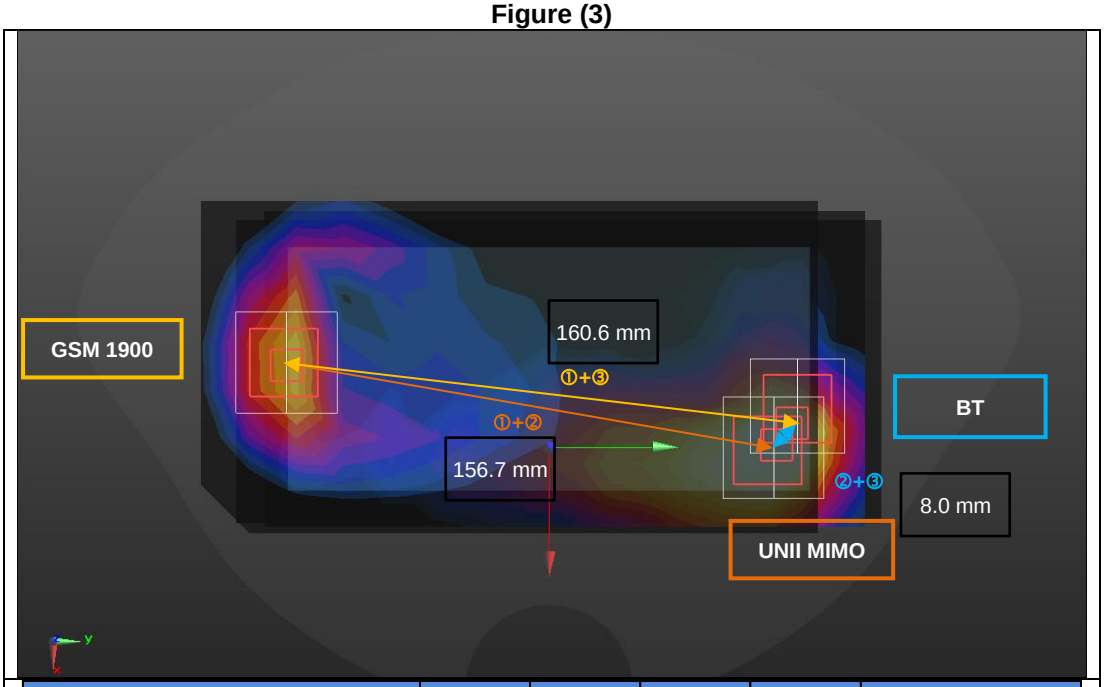
Figure (3)

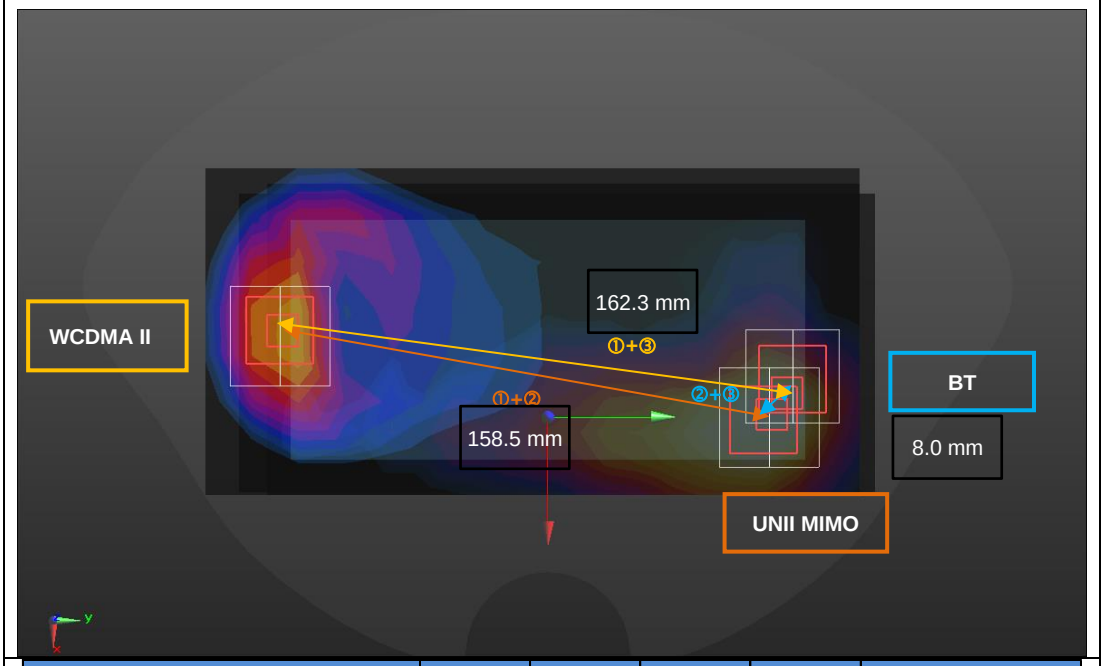


Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
GSM 1900	①	0.442	-0.0004	-0.0830	-0.0011	①+②	156.7
UNII MIMO	②	1.159	0.0242	0.0718	-0.0013	①+③	160.6
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	8.0

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

Figure (4)



Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
WCDMA Band II	①	0.543	-0.0026	-0.0844	-0.0021	①+②	158.5
UNII MIMO	②	1.159	0.0242	0.0718	-0.0013	①+③	162.3
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	8.0

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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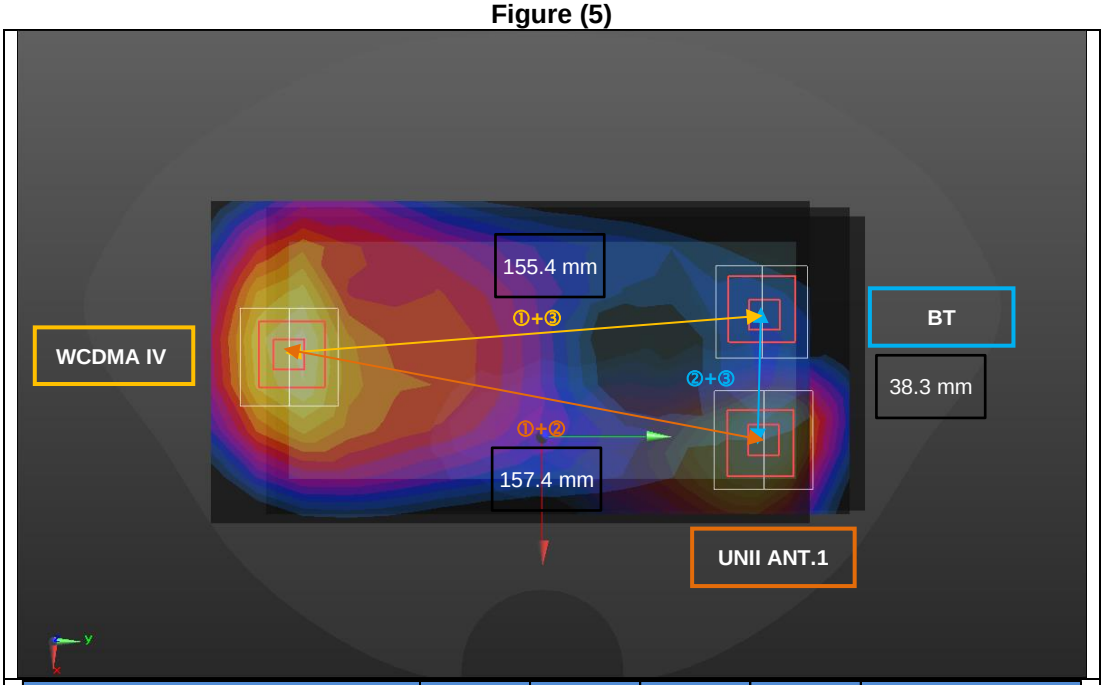
Figure (5)

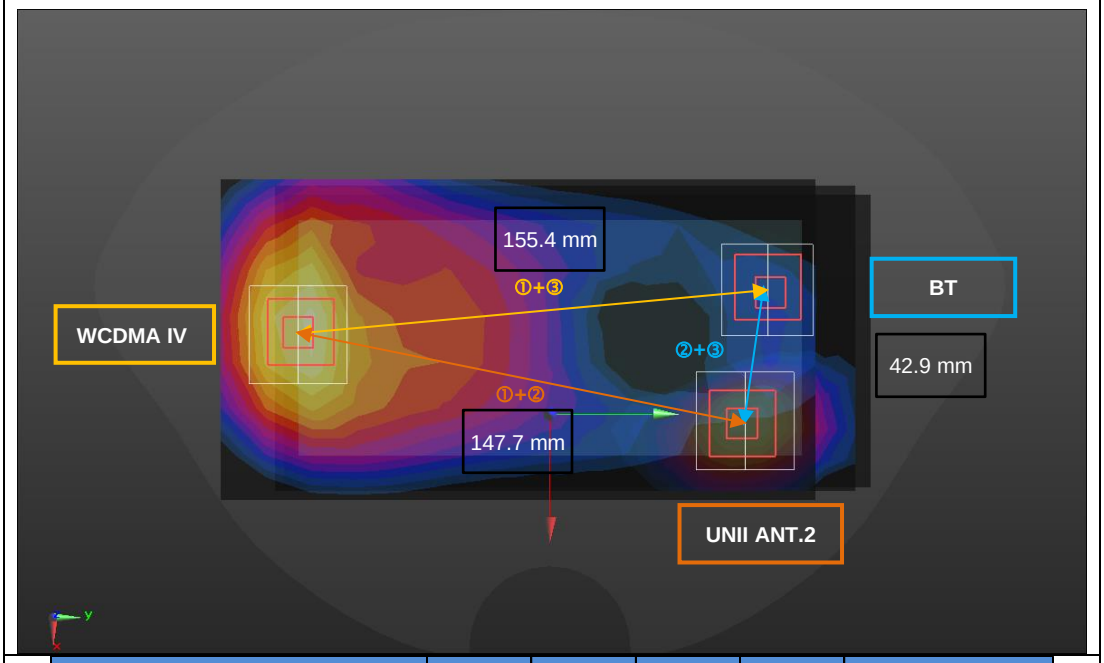


Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
WCDMA Band Ⅳ	①	1.020	-0.0010	-0.0825	-0.0011	①+②	157.4
UNII Ant.1	②	0.589	0.0244	0.0728	0.0000	①+③	155.4
BT	③	0.079	-0.0138	0.0724	-0.0031	②+③	38.3

The Peak Location Separation Distance is computed by using the formula below :

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

Figure (6)



Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
WCDMA Band Ⅳ	①	1.020	-0.0010	-0.0825	-0.0011	①+②	147.7
UNII Ant.2	②	0.497	0.0278	0.0624	-0.0001	①+③	155.4
BT	③	0.079	-0.0138	0.0724	-0.0031	②+③	42.9

The Peak Location Separation Distance is computed by using the formula below :

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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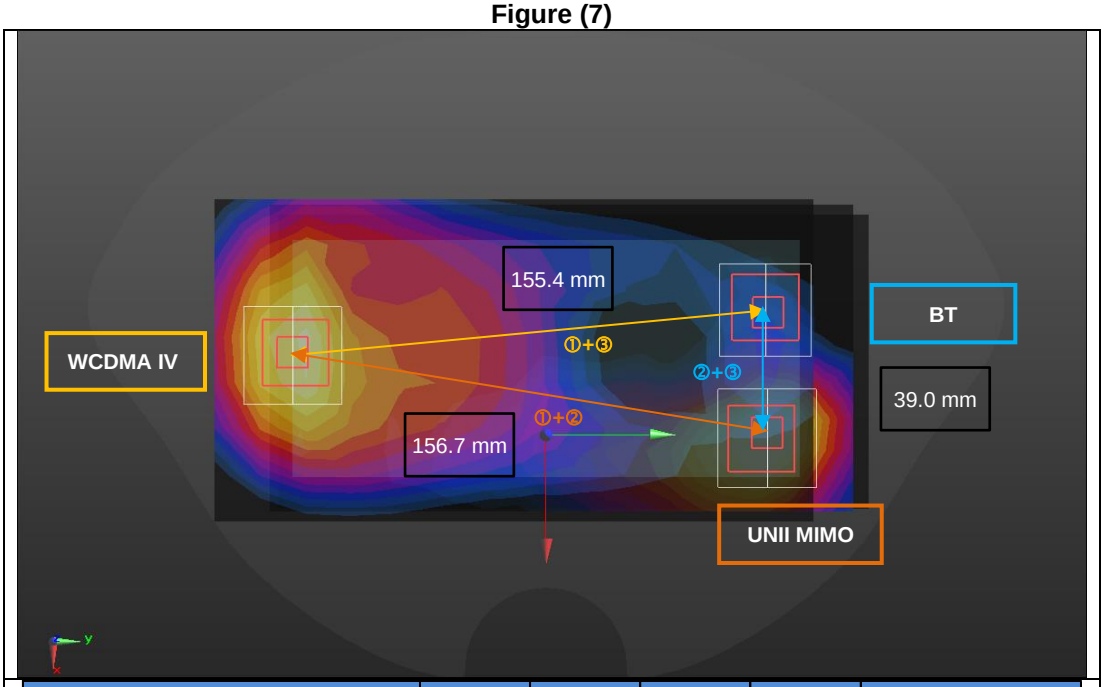
Figure (7)

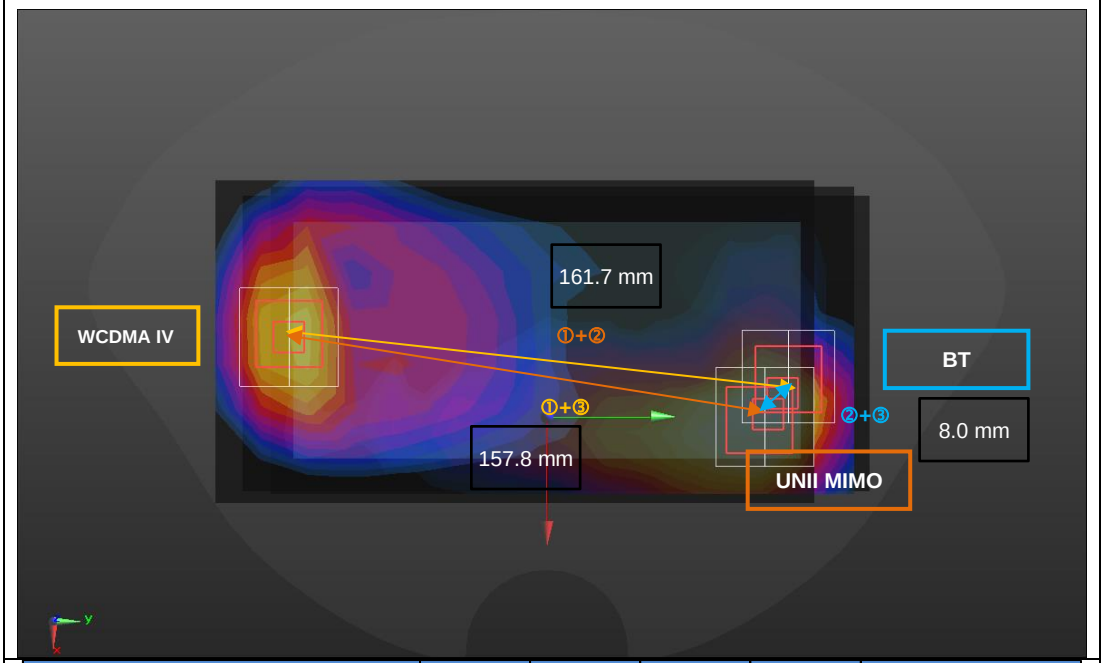


Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
WCDMA Band IV	①	1.020	-0.0010	-0.0825	-0.0011	①+②	156.7
UNII MIMO	②	0.760	0.0252	0.0720	-0.0013	①+③	155.4
BT	③	0.079	-0.0138	0.0724	-0.0031	②+③	39.0

The Peak Location Separation Distance is computed by using the formula below :

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

Figure (8)



Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
WCDMA Band IV	①	0.739	-0.0010	-0.0840	-0.0011	①+②	157.8
UNII MIMO	②	1.159	0.0242	0.0718	-0.0013	①+③	161.7
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	8.0

The Peak Location Separation Distance is computed by using the formula below :

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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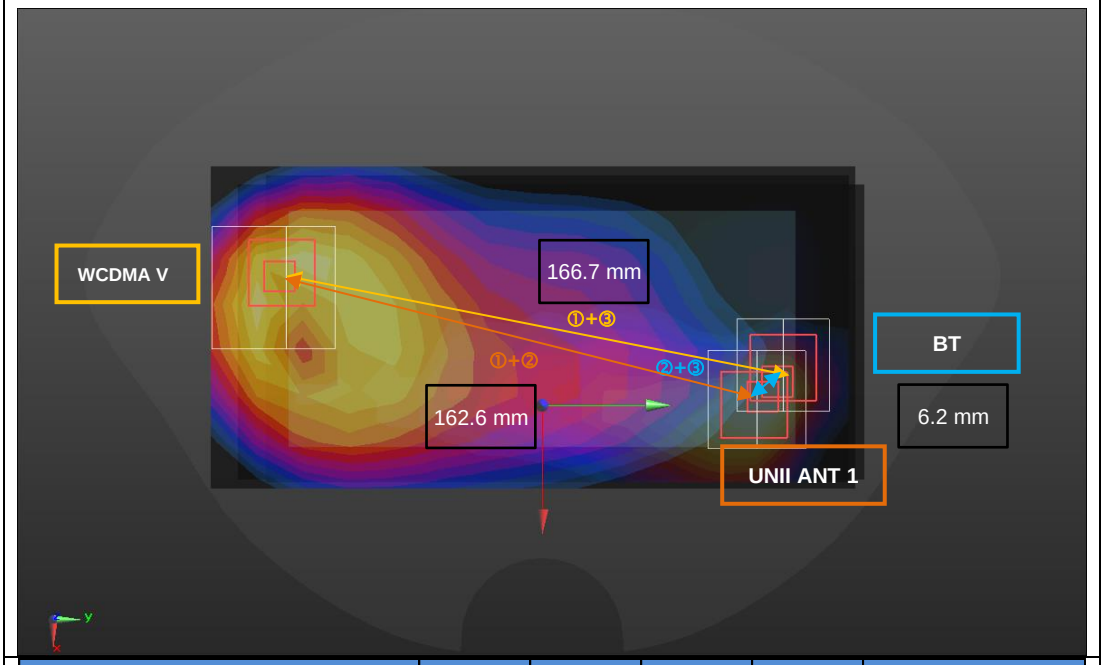
Figure (9)

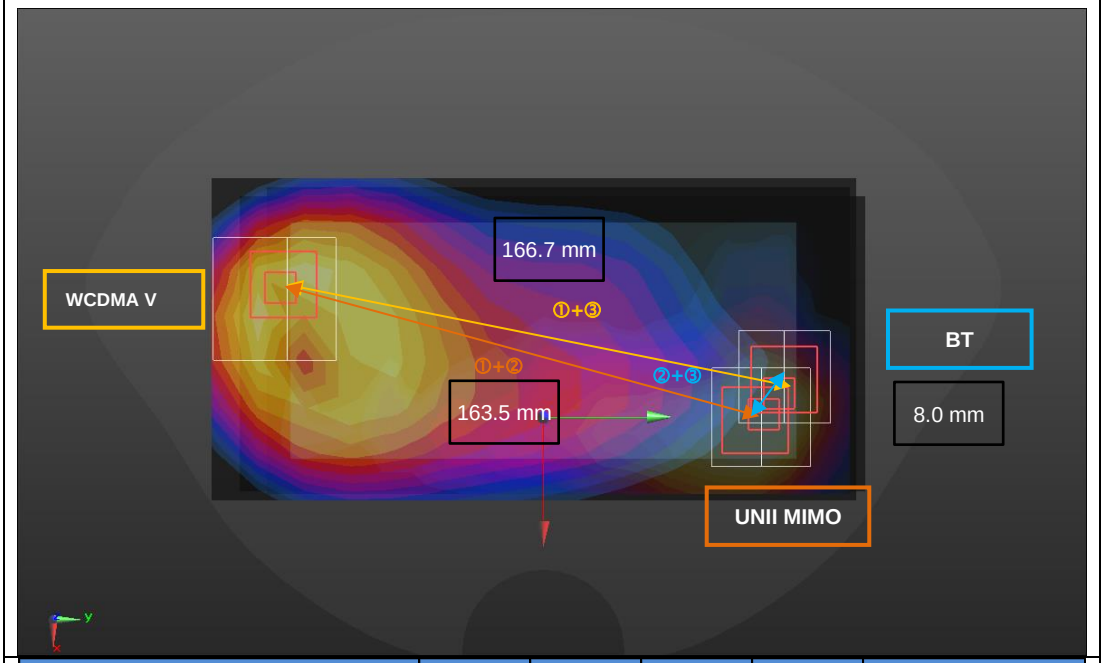


Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
WCDMA Band V	①	0.753	-0.0159	-0.0867	-0.0003	①+②	162.6
UNII Ant.1	②	0.739	0.0214	0.0716	-0.0001	①+③	166.7
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	6.2

The Peak Location Separation Distance is computed by using the formula below :

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

Figure (10)



Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
WCDMA Band V	①	0.753	-0.0159	-0.0867	-0.0003	①+②	163.5
UNII MIMO	②	1.159	0.0242	0.0718	-0.0013	①+③	166.7
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	8.0

The Peak Location Separation Distance is computed by using the formula below :

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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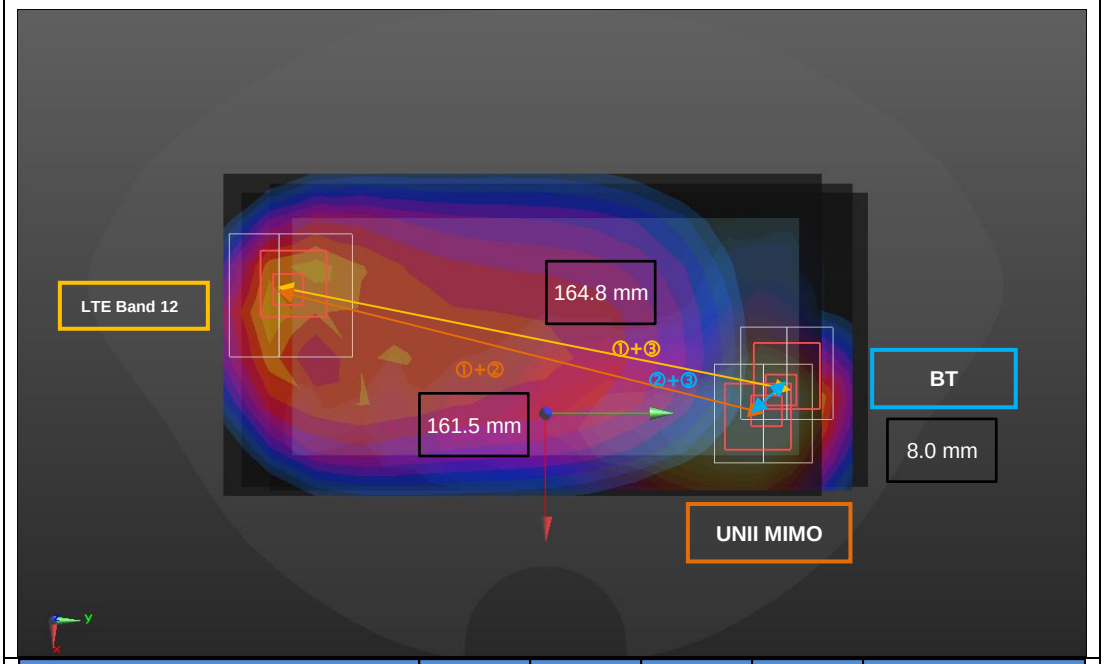
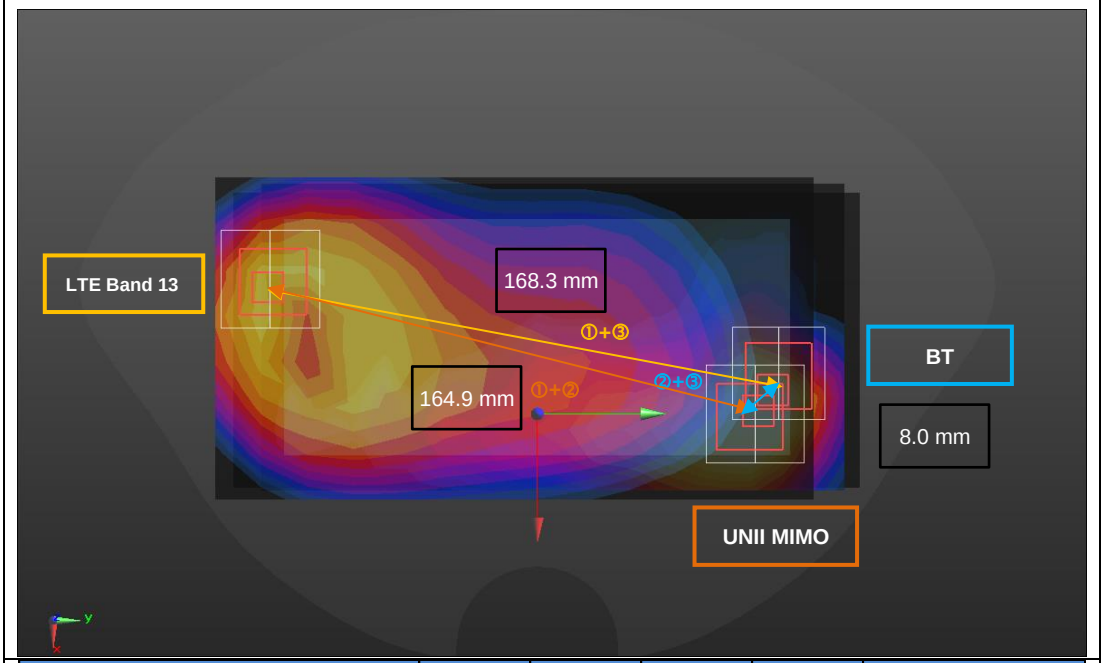
Figure (11)



Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
LTE Band 12	①	0.371	-0.0127	-0.0854	-0.0002	①+②	161.5
UNII MIMO	②	1.159	0.0242	0.0718	-0.0013	①+③	164.8
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	8.0

The Peak Location Separation Distance is computed by using the formula below :
SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

Figure (12)



Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
LTE Band 13	①	0.614	-0.0142	-0.0886	-0.0002	①+②	164.9
UNII MIMO	②	1.159	0.0242	0.0718	-0.0013	①+③	168.3
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	8.0

The Peak Location Separation Distance is computed by using the formula below :
SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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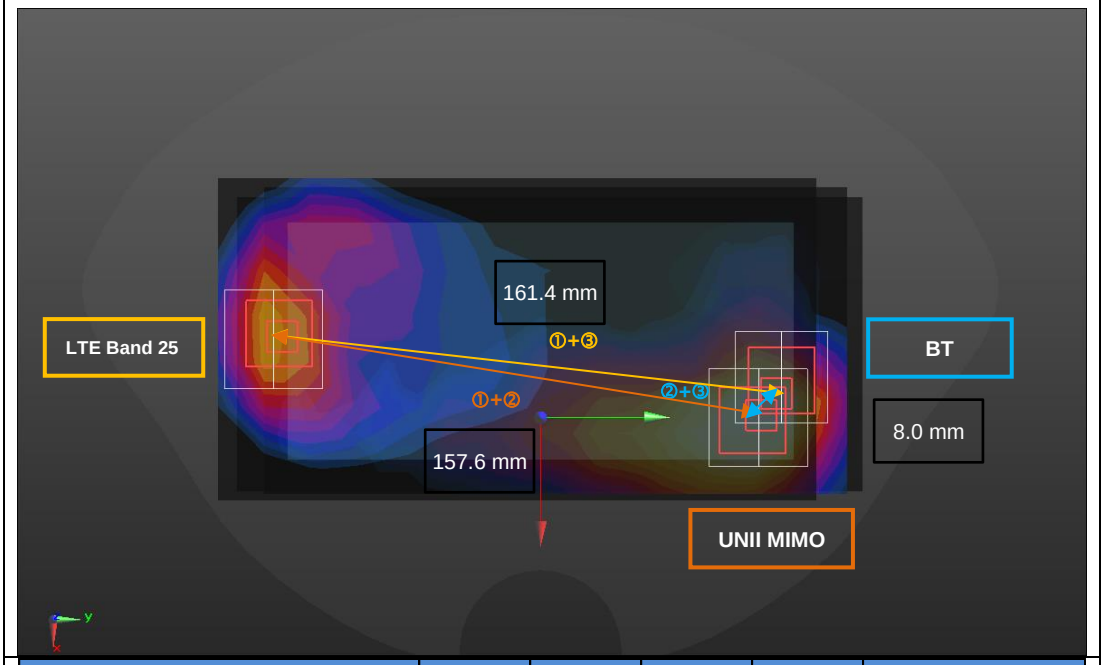
Figure (13)

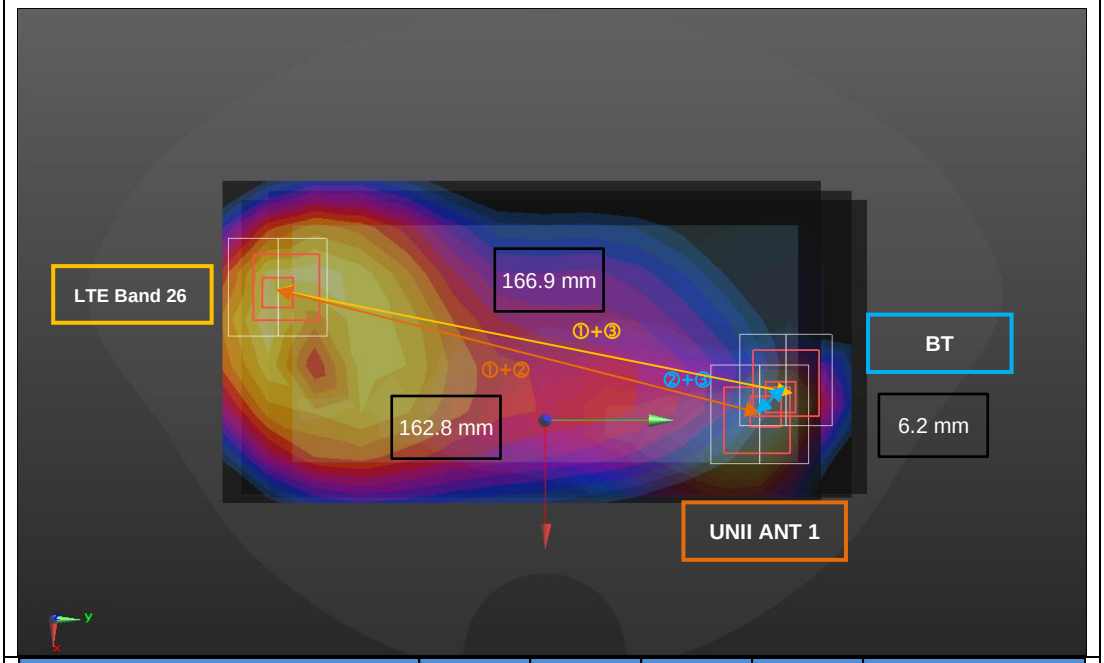


Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
LTE Band 25	①	0.427	-0.0005	-0.0838	-0.0021	①+②	157.6
UNII MIMO	②	1.159	0.0242	0.0718	-0.0013	①+③	161.4
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	8.0

The Peak Location Separation Distance is computed by using the formula below :

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

Figure (14)



Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
LTE Band 26	①	0.761	-0.0153	-0.0870	-0.0003	①+②	162.8
UNII Ant.1	②	0.739	0.0214	0.0716	-0.0001	①+③	166.9
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	6.2

The Peak Location Separation Distance is computed by using the formula below :

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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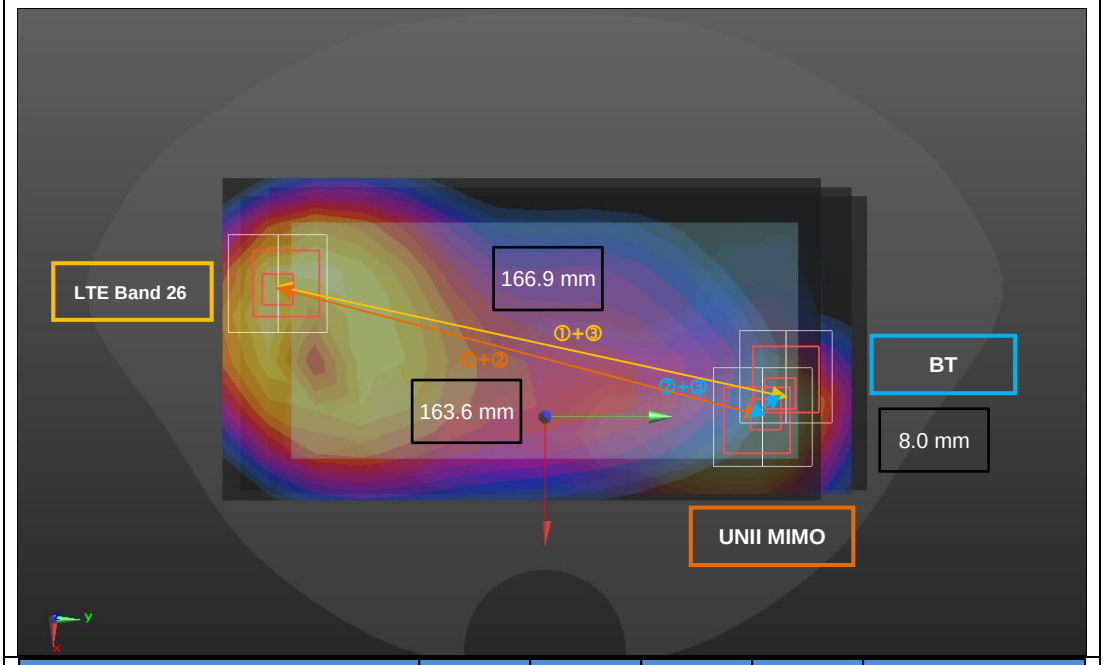
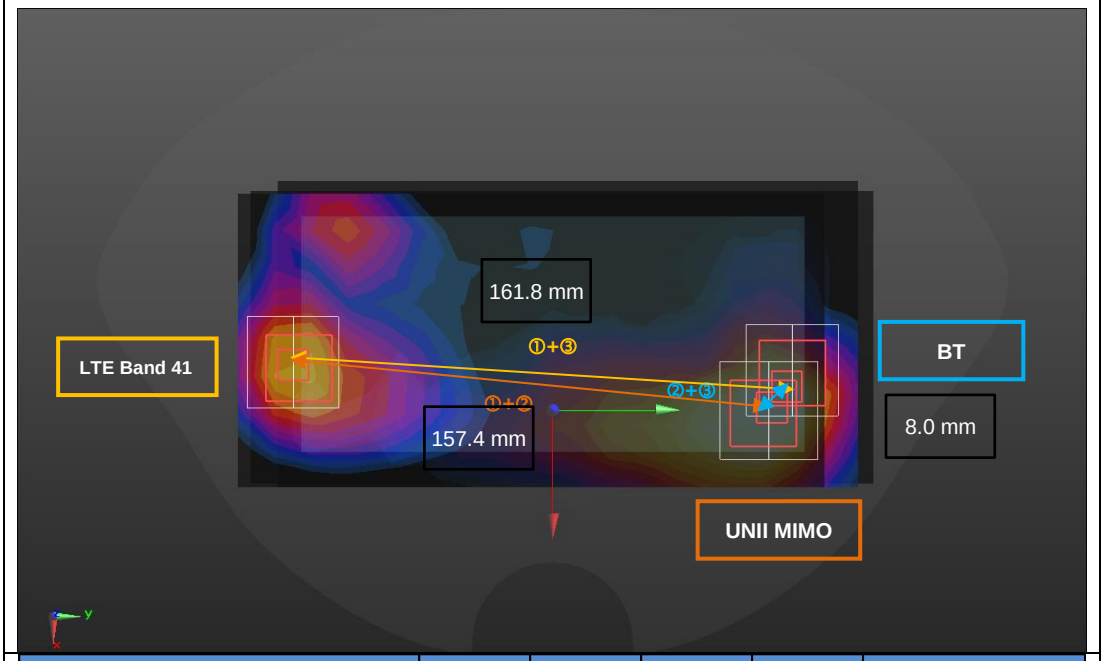
Figure (15)



Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
LTE Band 26	①	0.761	-0.0153	-0.0870	-0.0003	①+②	163.6
UNII MIMO	②	1.159	0.0242	0.0718	-0.0013	①+③	166.9
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	8.0

The Peak Location Separation Distance is computed by using the formula below :
SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

Figure (16)



Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
LTE Band 41	①	0.464	0.0102	-0.0850	-0.0007	①+②	157.4
UNII MIMO	②	1.159	0.0242	0.0718	-0.0013	①+③	161.8
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	8.0

The Peak Location Separation Distance is computed by using the formula below :
SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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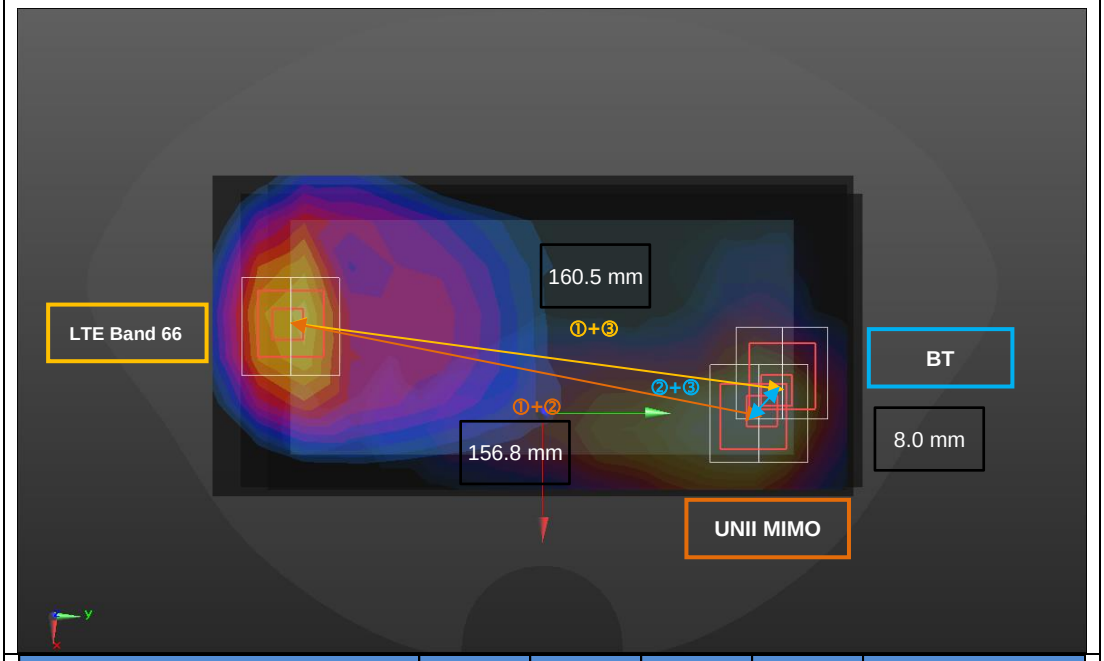
Figure (17)



Mode		SAR	X	Y	Z	d: Calculated distance (mm)	
		W/kg	m	m	m		
LTE Band 66	①	0.630	-0.0035	-0.0825	-0.0021	①+②	156.8
UNII MIMO	②	1.159	0.0242	0.0718	-0.0013	①+③	160.5
BT	③	0.117	0.0178	0.0766	-0.0007	②+③	8.0

The Peak Location Separation Distance is computed by using the formula below :

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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Appendixes

Refer to separated files for the following appendixes.

4789497455-S1 FCC Report SAR_App A_Photos & Ant. Locations

4789497455-S1 FCC Report SAR_App B_Highest SAR Test Plots

4789497455-S1 FCC Report SAR_App C_System Check Plots

4789497455-S1 FCC Report SAR_App D_SAR Tissue Ingredients

4789497455-S1 FCC Report SAR_App E_Probe Cal. Certificates

4789497455-S1 FCC Report SAR_App F_Dipole Cal. Certificates

4789497455-S1 FCC Report SAR_App G_Volume Scan Results

END OF REPORT

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