FCC 47 CFR § 2.1093
IEEE Std 1528-2013

SAR EVALUATION REPORT
(Part 1 : Test in Static Transmission Condition)

FOR

GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac, ANT+ and NFC

MODEL NUMBER: SM-A716V

FCC ID: A3LSMA716V

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IAS ACCREDITED

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TL-637

Revision History

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V1	5/29/2020	Initial Issue	--
V2	6/9/2020	Revised typo in table of Sec.9.5. Added test set-up photo of “without DUT holder” in Appendix A.	Sunghoon Kim
V3	6/15/2020	Added contents in Sec.6.3 & 6.4. Added Note.4 in Sec.6.3.	Sunghoon Kim
V4	7/7/2020	Revised of Sec.6.9	JeongYeon Won

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1. Attestation of Test Results

Applicant Name		SAMSUNG ELECTRONICS CO.,LTD.			
FCC ID		A3LSMA716V			
Model Number		SM-A716V			
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	U-NII	DSS
Head		0.25	0.31	0.50	0.37
Body-worn		0.78	0.11	0.32	< 0.10
Hotspot		1.22	0.41	0.50	0.15
Product Specific 10g		3.09	N/A	0.79	N/A
Simultaneous TX	Head	1.07	1.07	1.07	0.63
	Body-worn	1.25	1.05	1.25	0.83
	Hotspot	1.54	1.41	1.54	1.12
	Product Specific 10g	3.72	N/A	3.72	N/A
Date Tested		3/30/2020 to 5/27/2020			
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: 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.

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	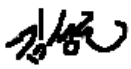
Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory	Sunghoon Kim Test Engineer UL Korea, Ltd. Suwon Laboratory

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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	0.216	0.480	1.040	N/A
	GSM 1900	0.064	0.328	0.955	1.915
	WCDMA Band II	0.092	0.505	0.961	2.764
	WCDMA Band V	0.224	0.264	0.436	N/A
	LTE Band 2	0.105	0.407	1.086	2.761
	LTE Band 4	N/A	N/A	N/A	N/A
	LTE Band 5	0.249	0.354	0.651	N/A
	LTE Band 7	0.151	0.259	0.449	2.043
	LTE Band 12	0.108	0.265	0.344	N/A
	LTE Band 13	0.227	0.367	0.622	N/A
	LTE Band 66	0.047	0.415	**1.223**	**3.091**
	NR band n2	0.135	0.526	0.755	2.049
	NR band n5	**0.254**	0.398	0.642	N/A
	NR band n66	0.170	**0.777**	0.733	2.213
DTS	2.4GHz WLAN	**0.313**	**0.111**	**0.405**	N/A
UNII	5GHz WLAN	**0.498**	**0.316**	**0.501**	**0.791**
DSS	Bluetooth	**0.373**	**0.055**	**0.152**	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, 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 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 3, RF Exposure Policy Updates (5G NR FR1 NSA EN-DC UE SAR Evaluatios)

3. Facilities and Accreditation

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

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

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

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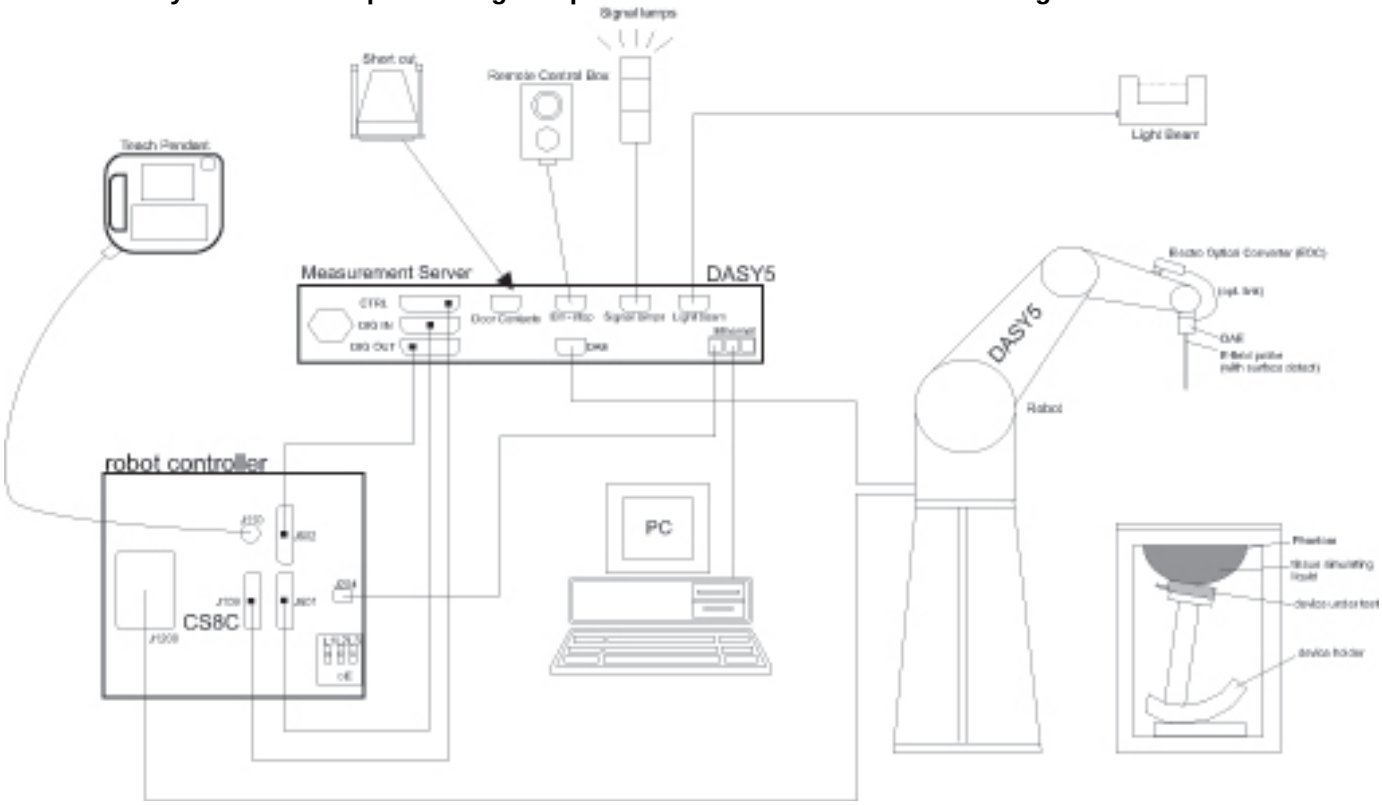
4. SAR Measurement System & Test Equipment

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	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

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

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

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
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	7376	9-27-2020
E-Field Probe (SAR3)	SPEAG	EX3DV4	7314	8-29-2020
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	D2450V2	939	7-25-2021
System Validation Dipole	SPEAG	D2600V2	1097	9-19-2021
System Validation Dipole	SPEAG	D5GHzV2	1184	8-21-2020
Thermometer (SAR3)	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
UXM 5G Wireless Test Platform	Keysight	E7515B	MY57510596	2-5-2021

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) ☒ 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) ☒ Wi-Fi Direct (Wi-Fi 5 GHz : Ch.36 – Ch.48, Ch.149 – Ch.161))		
Test Sample Information	**No.**	**S/N**	**Notes**
	1	R3CN20P1BXA	Main Conducted
	2	R3CN20P1BYV	Main Conducted
	3	R3CN20P1ZMM	Main Conducted
	4	1010276d1b0900ad	Wi-Fi & BT Conducted
	5	R3CN20P1GZB	SAR
	6	R3CN20P1GLN	SAR
	7	R3CN20P2Q4P	SAR
	8	R3CN20P2QWK	SAR
	9	R3CMC029Z5F	SAR
	10	R3CN20P1C0X	SAR
	11	R3CN20P1C1B	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 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 7 FDD Band 12 FDD Band 13 FDD Band 66	QPSK 16QAM 64QAM Rel. 15 Carrier Aggregation (1 Uplink and 3 Downlinks)		100% (FDD)
	Does this device support SV-LTE (1xRTT-LTE)? ☐ Yes ☒ No			
5G NR (Sub 6GHz)	NR Band n2 NR Band n5 NR Band n66	DFT-s-ODFM (QPSK, 16QAM, 64QAM, 256QAM) CP-ODFM (QPSK, 16QAM, 64QAM, 256QAM) Only Support to NSA mode (EN-DC)		100%
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20)		SISO mode : 98.6% (802.11b) MIMO mode : 98.6% (802.11g)
	5 GHz	802.11a 802.11n (HT20) 802.11n (HT40) 802.11ac (VHT20) 802.11ac (VHT40) 802.11ac (VHT80)		SISO mode: 98.7% (802.11a) MIMO mode: 98.7% (802.11a)
	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		76.8% (DH5)

Notes:

1. The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 76.9% and was considered and used for SAR Testing.
2. Duty cycle for Wi-Fi is referenced from the DTS and UNII report.
3. This device additionally supports some EN-DC conditions where additional LTE carriers are added on the downlink only.

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6.3. Time-Averaging feature

The equipment under test (EUT) contains the Qualcomm modems supporting 2G/3G/4G technologies and 5G NR bands. these modem is enabled with Qualcomm Smart Transmit feature to control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is in compliance with the FCC requirement. Refer to Compliance Summary document for detailed description of Qualcomm Smart Transmit feature.

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of *SAR_design_target* or *PD_design_target*, below the predefined time-average power limit, for each characterized technology and band.

Smart Transmit allows the device to transmit at higher power instantaneously as high as P_{max}, when needed, but enforces power limiting to maintain time-averaged transmit power to P_{Limit}. Below table shows P_{Limit} EFS settings and maximum tune up output power P_{max} configured for this EUT for various transmit conditions (DSI Device State Index).

The maximum time-averaged output power (dBm) for any 2G/3G/4G/5G NR WWAN technology band, and DSI = minimum of " P_{Limit} EFS" and "Maximum tune up output power P_{max}" + 1 dB device uncertainty. SAR values in this report were scaled to this maximum time-averaged output power to determine compliance per KDB 447498 D01.

The purpose of this report (Part 1 test) is to demonstrate that the EUT meets FCC SAR limits when transmitting in static transmission scenario at maximum allowable time-averaged power levels.

Exposure Scenario	Head	Body-worn	Phablet 10-g (Not Active sensor)	Hotspot	Phablet 10-g (Active sensor)	Maxium tune-up power (P_{max}) (dBm) *"See note.2"*
Spatial-average	1g	1g	10g	1g	10g	
DSI	1	0	0	2	3	
test distance	0 mm	15 mm	9/7/11 mm & 0 mm	10 mm	0 mm	
WWAN bands	Plimit corresponding to 1.0 W/kg (SAR_design_target)					
GSM 850	33.1	29.7		27.2	26.9	25.5
GSM 1900	35.2	28.1		19.7	20.7	22.2
WCDMA Band II	34.9	27.5		20.5	20.5	23.5
WCDMA Band V	31.0	30.3		28.1	27.3	23.5
LTE Band 2	34.3	28.4		20.5	20.5	23.5
LTE Band 5	30.5	29.0		26.4	26.8	23.5
LTE Band 7	31.7	26.5		21.5	20.5	22.5
LTE Band 12	34.2	30.3		29.1	28.1	23.5
LTE Band 13	31.4	29.4		27.1	26.9	24.0
LTE Band 66(4)	38.3	28.8		21.0	21.0	24.0
NR n2	33.7	27.8		19.5	20.0	24.0
NR n5	30.6	28.6		26.4	26.3	23.5
NR n66	32.2	25.6		18.0	20.0	23.5

Notes:

1. All P_{Limit} EFS and maximum tune up output P_{max} levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes (for e.g., GSM & LTE TDD).
2. Maximum tune up output power P_{max} is used to configure EUT during RF tune up procedures. The maximum allowed output power is equal to maximum tune up output power + 1dB device design uncertainty.
3. Measurement Condition : All conducted power and SAR measurements in this report (Part 1 test) were performed by setting *Reserve_power_margin* (Smart Transmit EFS entry) to 0 dB.
4. If P_{Limit} is higher than P_{max} for some modes / bands, The modes/bands will operate at a power level up to P_{max}.

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6.4. 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.
(Nominal Output Power in Sec.6.4 = Maximum tune-up power (P_{max}) in Sec.6.3,
Maximum Output Power (Tune-up Limit) in Sec.6.4 = Maximum allowed output power in Sec.6.3.)

RF Air interface	Antenna	Mode	Time Slots	Max. RF Output Power (dBm)	
				DSI = All (0, 1, 2, 3)	
				Tune-up Limit	Frame Pwr
GSM850	Main 1 Ant.	Voice	1	**33.5**	**24.5**
		GPRS	1	**33.5**	**24.5**
		GPRS	2	**32.5**	**26.5**
		GPRS	3	**30.5**	**26.2**
		GPRS	4	**28.5**	**25.5**
		EGPRS	1	**27.5**	**18.5**
		EGPRS	2	**26.0**	**20.0**
		EGPRS	3	**25.0**	**20.7**
		EGPRS	4	**23.0**	**20.0**

RF Air interface	Antenna	Mode	Time Slots	Max. RF Output Power (dBm)		Reduced. RF Output Power (dBm)			
				DSI = 0 or 1		DSI = 2		DSI = 3	
				Tune-up Limit	Frame Pwr	Tune-up Limit	Frame Pwr	Tune-up Limit	Frame Pwr
GSM1900	Main 1 Ant.	Voice	1	**30.0**	**21.0**	**27.0**	**18.0**	**28.5**	**19.5**
		GPRS	1	**30.5**	**21.5**	**27.5**	**18.5**	**29.0**	**20.0**
		GPRS	2	**29.0**	**23.0**	**26.0**	**20.0**	**27.5**	**21.5**
		GPRS	3	**27.5**	**23.2**	**25.0**	**20.7**	**26.0**	**21.7**
		GPRS	4	**25.5**	**22.5**	**22.5**	**19.5**	**24.0**	**21.0**
		EGPRS	1	**27.0**	**18.0**	**27.0**	**18.0**	**27.0**	**18.0**
		EGPRS	2	**25.5**	**19.5**	**25.5**	**19.5**	**25.5**	**19.5**
		EGPRS	3	**23.5**	**19.2**	**23.5**	**19.2**	**23.5**	**19.2**
		EGPRS	4	**22.0**	**19.0**	**22.0**	**19.0**	**22.0**	**19.0**

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)
			DSI = All (0, 1, 2, 3)
W-CDMA Band V	Main 1 Ant.	R99	**24.5**
		HSDPA	**23.5**
		HSUPA	**23.5**
		DC-HSDPA	**23.5**

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)
			DSI = 0 or 1	DSI = 2 or 3
W-CDMA Band II	Main 1 Ant.	R99	**24.5**	**21.5**
		HSDPA	**23.5**	**20.5**
		HSUPA	**23.5**	**20.5**
		DC-HSDPA	**23.5**	**20.5**

Note(s):
Detail of DSI(Device State Index) conditions, please refer to Sec.6.5.

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RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)	
			DSI = 0 or 1	DSI = 2	DSI = 3
LTE Band 2	Main 1 Ant.	QPSK	**24.5**	**21.5**	**21.5**
LTE Band 4	Main 1 Ant.	QPSK	**24.5**	**22.0**	**22.0**
LTE Band 7	Main 2 Ant.	QPSK	**23.5**	**22.5**	**21.5**
LTE Band 66	Main 1 Ant.	QPSK	**25.0**	**22.0**	**22.0**

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)
			DSI = All (0, 1, 2, 3)
LTE Band 5	Main 1 Ant.	QPSK	**24.5**
LTE Band 12	Main 1 Ant.	QPSK	**24.5**
LTE Band 13	Main 1 Ant.	QPSK	**25.0**

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)	Reduced. RF Output Power (dBm)
			DSI = 0 or 1	DSI = 2	DSI = 3
NR band n2	Main 1 Ant.	DFT-s-OFDM QPSK	**25.0**	**20.5**	**21.0**
NR band n66	Main 1 Ant.	DFT-s-OFDM QPSK	**24.5**	**19.0**	**21.0**

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)
			DSI = All (0, 1, 2, 3)
NR band n5	Main 1 Ant.	DFT-s-OFDM QPSK	**24.5**

Note(s):

Detail of DSI(Device State Index) conditions, please refer to Sec.6.5.

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RF Air interface	Mode	WLAN mode (Normal & RSDB) (dBm)	
		Max. RF output power	Reduced. RF output power
WiFi 2.4 GHz	802.11b	**18.0**	**13.0**
	802.11g	**16.0**	**11.0**
	802.11n HT20	**16.0**	**11.0**
WiFi 5 GHz	802.11a	**17.0**	**15.0**
	802.11n HT20	**16.0**	**14.0**
	802.11n HT40	**15.0**	**13.0**
	802.11ac VHT20	**16.0**	**14.0**
	802.11ac VHT40	**15.0**	**13.0**
	802.11ac VHT80	**13.0**	**11.0**
Bluetooth		**13.5**	
Bluetooth-EDR		**11.0**	
Bluetooth-LE_1Mbps, 125/500 kbps		**5.0**	
Bluetooth-LE_2Mbps		**5.0**	

Note(s):

1. This device uses an independent fixed level power reduction mechanism for WLAN mode operations during RCV operated Detailed descriptions of the power reduction mechanism are included in the operational description.
2. 5GHz WLAN mode are reduced power when it is operated simultaneously with 5G NR mmW. Detail of 5G NR mmW + 5GHz WLAN operation refer to Operational description.
3. The per stream (antenna) power is the same for SISO and MIMO, but the total MIMO power is 3 dB higher than the individual stream (antenna) power. But this should not impact the simultaneous evaluation because it is already adding the SAR values, per stream (antenna)
4. WLAN mode supports RSDB operation. Detail of RSDB operation scenario is mentioned in Sec.13.

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6.5. Power Back-off Operation

This device supports multiple power back-off modes; 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	Extremity
		DSI = 1	DSI = 0	DSI = 2	DSI = 0 or 3
WWAN (Hotspot)	GSM 1900, WCDMA Band II LTE Band 2/4/7/66 NR Band n2/n66	N/A	N/A	O	N/A
WWAN (Proximity sensor)	GSM 1900, WCDMA Band II LTE Band 2/4/7/66 NR Band n2/n66	N/A	N/A	N/A	O
WLAN (RCV on)	Wi-Fi 2.4GHz Wi-Fi 5GHz	O	N/A	N/A	N/A

Note(s):

Tune-up Limits for WWAN (Hotspot), WWAN (Proximity sensor), and WWAN (RCV) are all reduced powers. Please refer to Section.9 for all power measurements.

RF exposure Conditions	DSI conditions	Supportd Power Back-off mode	Description
Head	DSI = 1	RCV on back-off	Audio receiver is active during voice or VoIP call.
Body-worn	DSI = 0	N/A	Phablet device are carried in body-worn accessories.
Hotspot	DSI = 2	Hotspot mode back-off	User active Hotspot mode through the UI (user Interface)
Specific product 10g (Extremity)	DSI = 0	N/A	Hand use conditions for Phablet device. But Proximity sensor is not triggering. Due to "triggering distance" or "touching other surfaces".
	DSI = 3	Proximity sensor back-off	Hand use conditions for Phablet device. and Proximity sensor is triggering.

Note(s):

This device uses different Device State Index (DSI) to configure different time averaged power levels based on certain exposure scenarios. But Some bands has same time averaged power level for different Device State Index (DSI), When Power back-off mode does not support in the bands.

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6.6. General LTE SAR Test and Reporting Considerations

Item	Description						
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 2	Frequency range: 1850 - 1910 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	18700/ 1860	18675/ 1857.5	18650/ 1855	18625/ 1852.5	18615/ 1851.5	18607/ 1850.7
	Mid	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880
	High	19100/ 1900	19125/ 1902.5	19150/ 1905	19175/ 1907.5	19185/ 1908.5	19193/ 1909.3
	Band 4	Frequency range: 1710 - 1755 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20050/ 1720	20025/ 1717.5	20000/ 1715	19975/ 1712.5	19965/ 1711.5	19957/ 1710.7
	Mid	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5
	High	20300/ 1745	20325/ 1747.5	20350/ 1750	20375/ 1752.5	20385/ 1753.5	20393/ 1754.3
	Band 5	Frequency range: 824 - 849 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			20450/ 829	20425/ 826.5	20415/ 825.5	20407/ 824.7
	Mid			20525/ 836.5	20525/ 836.5	20525/ 836.5	20525/ 836.5
	High			20600/ 844	20625/ 846.5	20635/ 847.5	20643/ 848.3
	Band 7	Frequency range: 2500 - 2570 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20850/ 2510	20825/ 2507.5	20800/ 2505	20775/ 2502.5		
	Mid	21100/ 2535	21100/ 2535	21100/ 2535	21100/ 2535		
	High	21350/ 2560	21375/ 2562.5	21400/ 2565	21425/ 2567.5		
	Band 12	Frequency range: 699 – 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			23060/ 704	23035/ 701.5	23025/ 700.5	23017/ 699.7
	Mid			23095/ 707.5	23095/ 707.5	23095/ 707.5	23095/ 707.5
	High			23130/ 711	23155/ 713.5	23165/ 714.5	23173/ 715.3
	Band 13	Frequency range: 777 - 787 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low				23205/ 779.5		
	Mid			23230/ 782	23230/ 782		
	High				23255/ 784.5		

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General LTE SAR Test and Reporting Considerations (Continued)

<table>
<tr><th>Item</th><th colspan="7">Description</th></tr>
<tr><td rowspan="5">Frequency range, Channel Bandwidth, Numbers and Frequencies</td><td rowspan="2">Band 66</td><td colspan="6">Frequency range: 1710 - 1780 MHz</td></tr>
<tr><td colspan="6">Channel Bandwidth</td></tr>
<tr><td>20 MHz</td><td>15 MHz</td><td>10 MHz</td><td>5 MHz</td><td>3 MHz</td><td>1.4 MHz</td></tr>
<tr><td>Low</td><td>132072/ 1720</td><td>132047/ 1717.5</td><td>132022/ 1715</td><td>131997/ 1712.5</td><td>131987/ 1711.5</td><td>131979/ 1710.7</td></tr>
<tr><td>Mid</td><td>132322/ 1745</td><td>132322/ 1745</td><td>132322/ 1745</td><td>132322/ 1745</td><td>132322/ 1745</td><td>132322/ 1745</td></tr>
<tr><td>High</td><td>132572/ 1770</td><td>132597/ 1772.5</td><td>132622/ 1775</td><td>132647/ 1777.5</td><td>132657/ 1778.5</td><td>132665/ 1779.3</td></tr>
<tr><td>LTE transmitter and antenna implementation</td><td colspan="7">Refer to Appendix A.</td></tr>
<tr><td>Maximum power reduction (MPR)</td><td colspan="7">
Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr>
<tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr>
</table>
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
</td></tr>
<tr><td>Power reduction</td><td colspan="7">Yes</td></tr>
<tr><td>Spectrum plots for RB configurations</td><td colspan="7">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.</td></tr>
</table>

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. 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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6.7. NR (Sub 6GHz) SAR Test and Reporting Considerations

Item	Description				
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band n2	Frequency range: 1850 - 1910 MHz			
		Channel Bandwidth			
		20 MHz	15 MHz	10 MHz	5 MHz
	Low	372000/ 1860	371500/ 1857.5	371000/ 1855	370500/ 1852.5
	Mid	376000/ 1880	376000/ 1880	376000/ 1880	376000/ 1880
	High	380000/ 1900	380500/ 1902.5	381000/ 1905	381500/ 1907.5
	Band n5	Frequency range: 824 - 849 MHz			
		Channel Bandwidth			
		20 MHz	15 MHz	10 MHz	5 MHz
	Low	166800/ 834	166300/ 831.5	165800/ 829	165300/ 826.5
	Mid	167300/ 836.5	167300/ 836.5	167300/ 836.5	167300/ 836.5
	High	167800/ 839	168300/ 841.5	168800/ 844	169300/ 846.5
	Band n66	Frequency range: 1710 - 1780 MHz			
		Channel Bandwidth			
		20 MHz	15 MHz	10 MHz	5 MHz
	Low	344000/ 1720	343500/ 1717.5	343000/ 1715	342500/ 1712.5
	Mid	349000/ 1745	349000/ 1745	349000/ 1745	349000/ 1745
	High	354000/ 1770	354500/ 1772.5	355000/ 1775	355500/ 1777.5
SCS	15 kHz				
Modulations Supported in UL	DFT-s-OFDM: QPSK, 16QAM, 64QAM, 256QAM / CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM				
A-MPR (Additional MPR) disabled for SAR Testing?	Yes				
EN-DC Carrier Aggregation Possible Combinations					
LTE Anchor Bands for NR Band n2	LTE Band 5 / 13				
LTE Anchor Bands for NR Band n5	LTE Band 2 / 66				
LTE Anchor Bands for NR Band n66	LTE Band 5 / 13				

Notes:

1. SAR test for NR bands and LTE anchor Bands were performed separately due to limitations in SAR probe calibration factors. And, Due to test setup limitations, SAR testing for NR was performed using test mode software to establish the connection.
2. NR configurations of SAR test were determined according to Section 5.2 of KDB 941225 D05.

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6.8. LTE Carrier Aggregation

DL Inter-Band (2CC Max)

E-UTRA CA configuration (BCS)	E-UTRA Band	Bandwidth						Max Aggregated BW
		1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
CA_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-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-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-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			
CA_5A-66A(0)	Band 5			Yes	Yes			30 MHz
	Band 66			Yes	Yes	Yes	Yes	
CA_13A-66A(0)	Band 13			Yes	Yes			30 MHz
	Band 66			Yes	Yes	Yes	Yes	

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DL Inter-Band (3CC Max)

E-UTRA CA configuration (BCS)	E-UTRA Band	Bandwidth						Max Aggregated BW
		1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
CA_2A-2A-4A(0)	Band 2	2A-2A BCS 0						60 MHz
	Band 4			Yes	Yes	Yes	Yes	
CA_2A-2A-13A(0)	Band 2	2A-2A BCS 0						50 MHz
	Band 13				Yes			
CA_2A-2A-66A(0)	Band 2	2A-2A BCS 0						60 MHz
	Band 12			Yes	Yes	Yes	Yes	
CA_2A-4A-4A(0)	Band 2			Yes	Yes	Yes	Yes	60 MHz
	Band 4	4A-4A BCS 0						
CA_2A-4A-13A(0)	Band 2			Yes	Yes	Yes	Yes	50 MHz
	Band 4			Yes	Yes	Yes	Yes	
	Band 13				Yes			
CA_2A-5B(0)	Band 2			Yes	Yes	Yes	Yes	40 MHz
	Band 5	5B BCS 0						
CA_2A-5A-66A(0)	Band 2			Yes	Yes	Yes	Yes	50 MHz
	Band 5			Yes	Yes			
	Band 66			Yes	Yes	Yes	Yes	
CA_2A-13A-66A(0)	Band 2			Yes	Yes	Yes	Yes	50 MHz
	Band 13			Yes	Yes			
	Band 66			Yes	Yes	Yes	Yes	
CA_2A-66A-66A(0)	Band 2			Yes	Yes	Yes	Yes	60 MHz
	Band 66	66A-66A BCS 0						
CA_2A-66C(0)	Band 2			Yes	Yes	Yes	Yes	60 MHz
	Band 66	66C BCS 0						
CA_4A-4A-5A(0)	Band 4	4A-4A BCS 0						50 MHz
	Band 5			Yes	Yes			
CA_4A-4A-13A(0)	Band 4	4A-4A BCS 0						50 MHz
	Band 13				Yes			
CA_4A-5B(0)	Band 4			Yes	Yes	Yes	Yes	40 MHz
	Band 5	5B BCS 0						
CA_5A-2A-2A(0)	Band 5			Yes	Yes			50 MHz
	Band 2	2A-2A BCS 0						
CA_5A-2A-4A(0)	Band 5			Yes	Yes			50 MHz
	Band 2			Yes	Yes	Yes	Yes	
	Band 4			Yes	Yes	Yes	Yes	
CA_5A-5A-66A(0)	Band 5	5A-5A BCS 0						40 MHz
	Band 66			Yes	Yes	Yes	Yes	
CA_5B-66A(0)	Band 5	5B BCS 0						40 MHz
	Band 66			Yes	Yes	Yes	Yes	
CA_5A-66A-66A(0)	Band 5			Yes	Yes			50 MHz
	Band 66	66A-66A BCS 0						
CA_5A-66B(0)	Band 5			Yes	Yes			30 MHz
	Band 66	66B BCS 0						
CA_5A-66C(0)	Band 5			Yes	Yes			50 MHz
	Band 66	66C BCS 0						
CA_13A-66A-66A(0)	Band 13			Yes	Yes			50 MHz
	Band 66	66A-66A BCS 0						

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DL Inter-Band (3CC Max) (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_13A-66B(0)	Band 13			Yes	Yes			30 MHz
	Band 66	66B BCS 0						
CA_13A-66C(0)	Band 13			Yes	Yes			50 MHz
	Band 66	66C BCS 0						
CA_66B-2A(0)	Band 66	66B BCS 0						40 MHz
	Band 2			Yes	Yes	Yes	Yes	
CA_66A-66C(0)	Band 66			Yes	Yes	Yes	Yes	60 MHz
	Band 66	66C BCS 0						

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	5th Carrier	
CA_2A-2A (0)	Band 2	5, 10, 15. 20	5, 10, 15. 20				40 MHz
CA_4A-4A (0)(1)	Band 4	5, 10, 15, 20	5, 10, 15, 20				40 MHz
		5, 10	5, 10				20 MHz
CA_5A-5A (0)(1)	Band 5	5, 10	5, 10				20 MHz
		3	5				8 MHz
CA_66A-66A (0)	Band 66	5, 10, 15. 20	5, 10, 15. 20				40 MHz

DL Intra-Band (Contiguous)

E-UTRA CA configuration (BCS)	E-UTRA Band	Allowed Channel BW Per Carrier (MHz)					Max Aggregated BW
		1st Carrier	2nd Carrier	3rd Carrier	4th Carrier	5th Carrier	
CA_5B (0)(1)	Band 5	5, 10	10				20 MHz
		10	5				
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				

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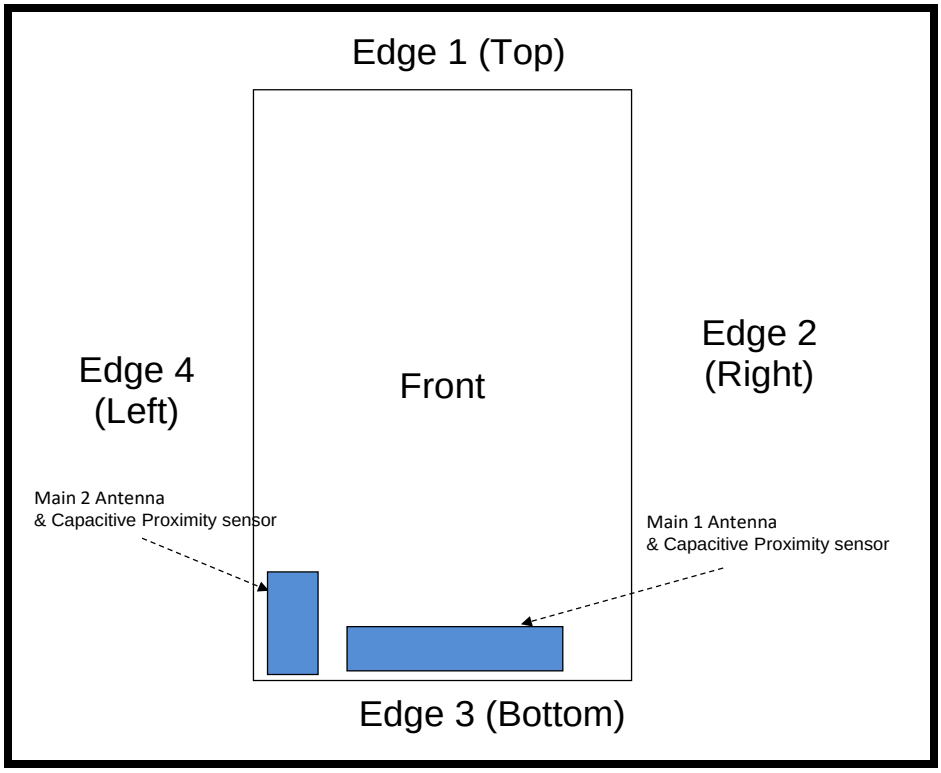
6.9. Proximity Sensor feature

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



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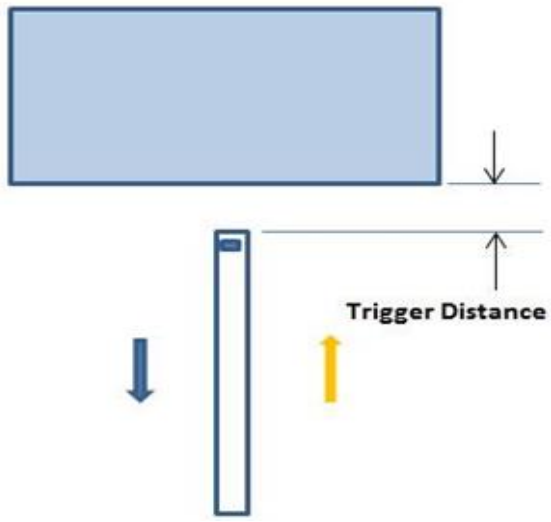
6.9.1. Proximity Sensor Triggering Distance (KDB 616217 §6.2)

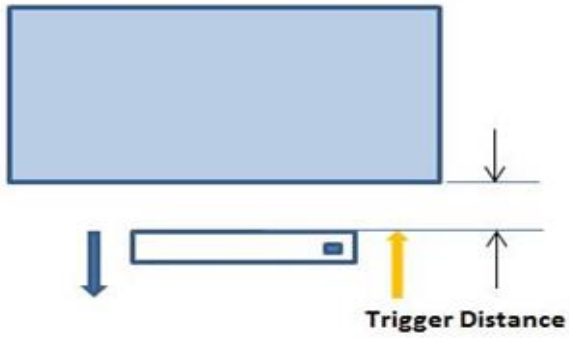
Rear, Front and Edge 3 of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger 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 - Front		Trigger distance - Rear		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.	8 mm	8 mm	10 mm	10 mm	12 mm	12 mm
1900 Head	Main 1 Ant.	8 mm	8 mm	10 mm	10 mm	12 mm	12 mm
2600 Head	Main 2 Ant.	8 mm	8 mm	10 mm	10 mm	12 mm	12 mm

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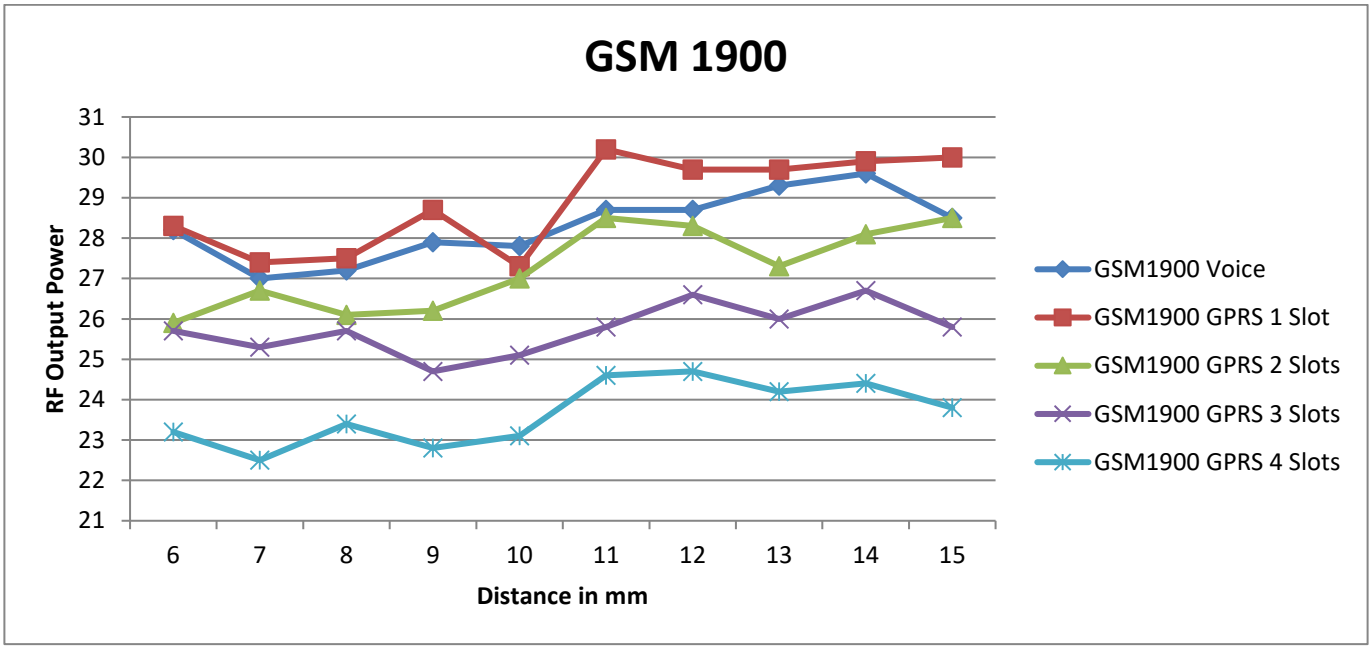
Proximity Sensor Triggering Distance Measurement Results

GSM 1900

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

Distance to DUT vs. Output Power in dBm										
Distance (mm)	6	7	8	9	10	11	12	13	14	15
GSM1900 Voice	28.2	27.0	27.2	27.9	27.8	28.7	28.7	29.3	29.6	28.5
GSM1900 GPRS 1 Slot	28.3	27.4	27.5	28.7	27.3	30.2	29.7	29.7	29.9	30.0
GSM1900 GPRS 2 Slots	25.9	26.7	26.1	26.2	27.0	28.5	28.3	27.3	28.1	28.5
GSM1900 GPRS 3 Slots	25.7	25.3	25.7	24.7	25.1	25.8	26.6	26.0	26.7	25.8
GSM1900 GPRS 4 Slots	23.2	22.5	23.4	22.8	23.1	24.6	24.7	24.2	24.4	23.8



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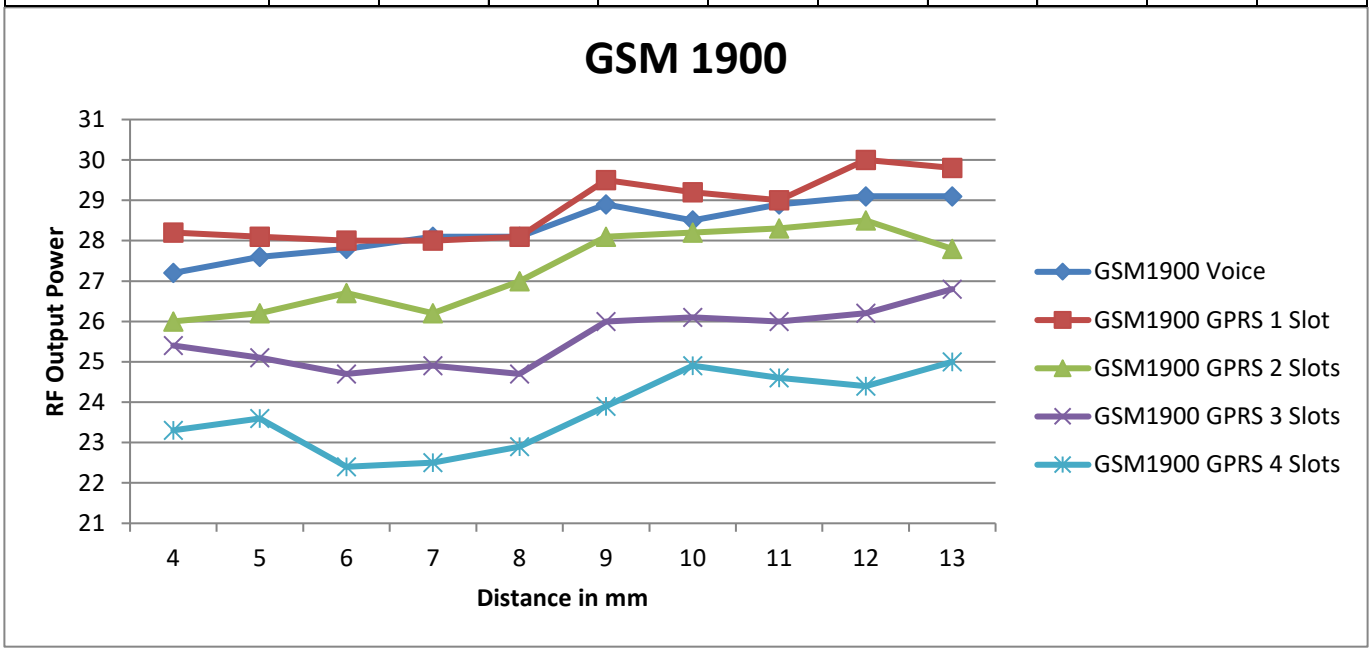
Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	4	5	6	7	8	9	10	11	12	13
GSM1900 Voice	27.2	27.6	27.8	28.1	28.1	28.9	28.5	28.9	29.1	29.1
GSM1900 GPRS 1 Slot	28.2	28.1	28.0	28.0	28.1	29.5	29.2	29.0	30.0	29.8
GSM1900 GPRS 2 Slots	26.0	26.2	26.7	26.2	27.0	28.1	28.2	28.3	28.5	27.8
GSM1900 GPRS 3 Slots	25.4	25.1	24.7	24.9	24.7	26.0	26.1	26.0	26.2	26.8
GSM1900 GPRS 4 Slots	23.3	23.6	22.4	22.5	22.9	23.9	24.9	24.6	24.4	25.0



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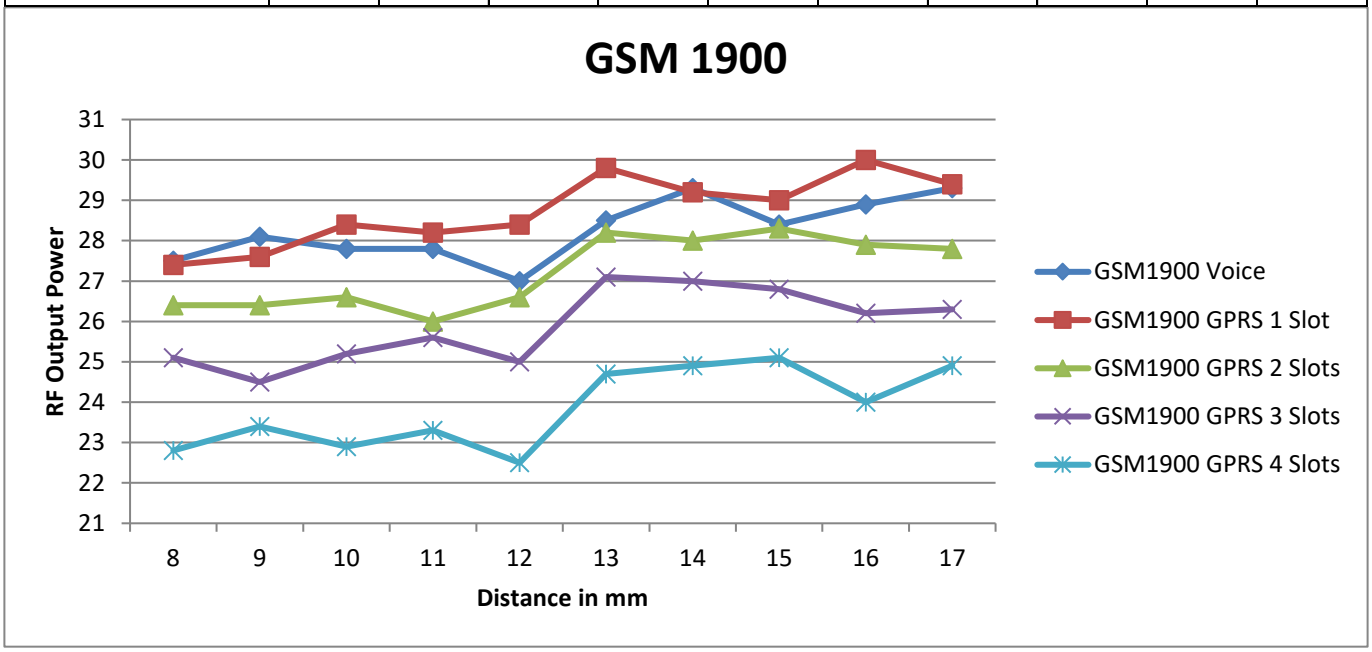
Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	8	9	10	11	12	13	14	15	16	17
GSM1900 Voice	27.5	28.1	27.8	27.8	27.0	28.5	29.3	28.4	28.9	29.3
GSM1900 GPRS 1 Slot	27.4	27.6	28.4	28.2	28.4	29.8	29.2	29.0	30.0	29.4
GSM1900 GPRS 2 Slots	26.4	26.4	26.6	26.0	26.6	28.2	28.0	28.3	27.9	27.8
GSM1900 GPRS 3 Slots	25.1	24.5	25.2	25.6	25.0	27.1	27.0	26.8	26.2	26.3
GSM1900 GPRS 4 Slots	22.8	23.4	22.9	23.3	22.5	24.7	24.9	25.1	24.0	24.9



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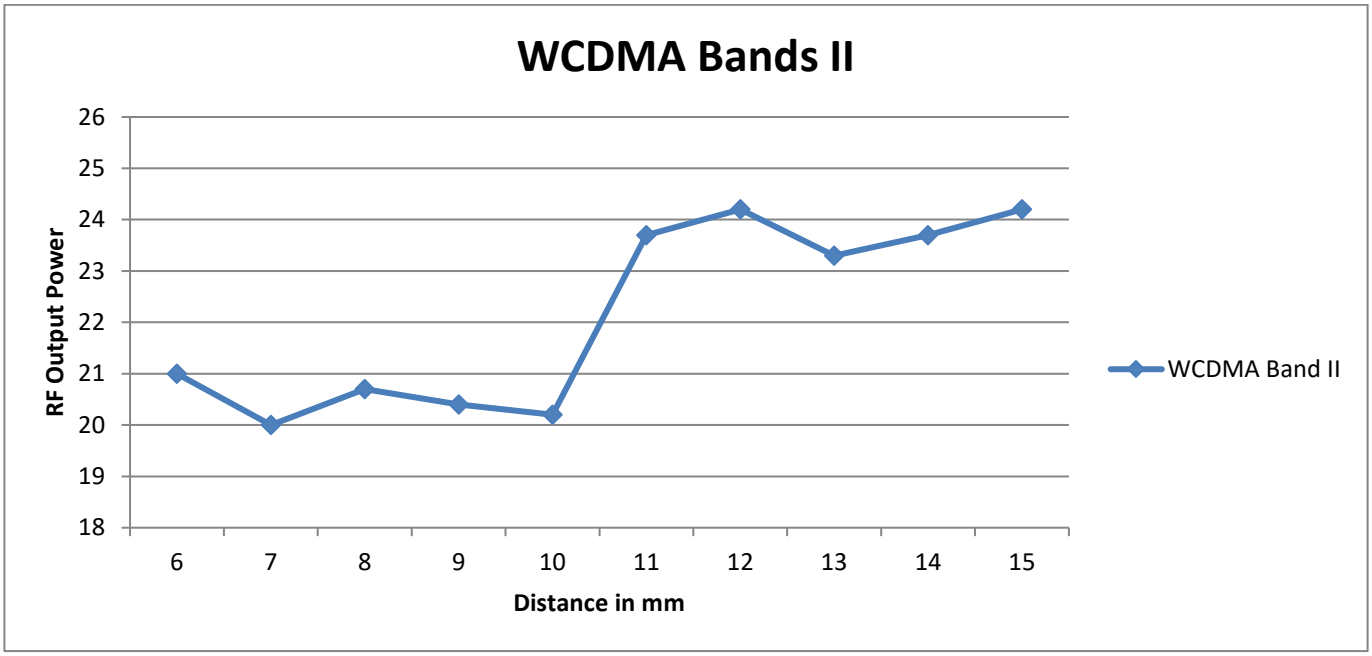
WCDMA Band II

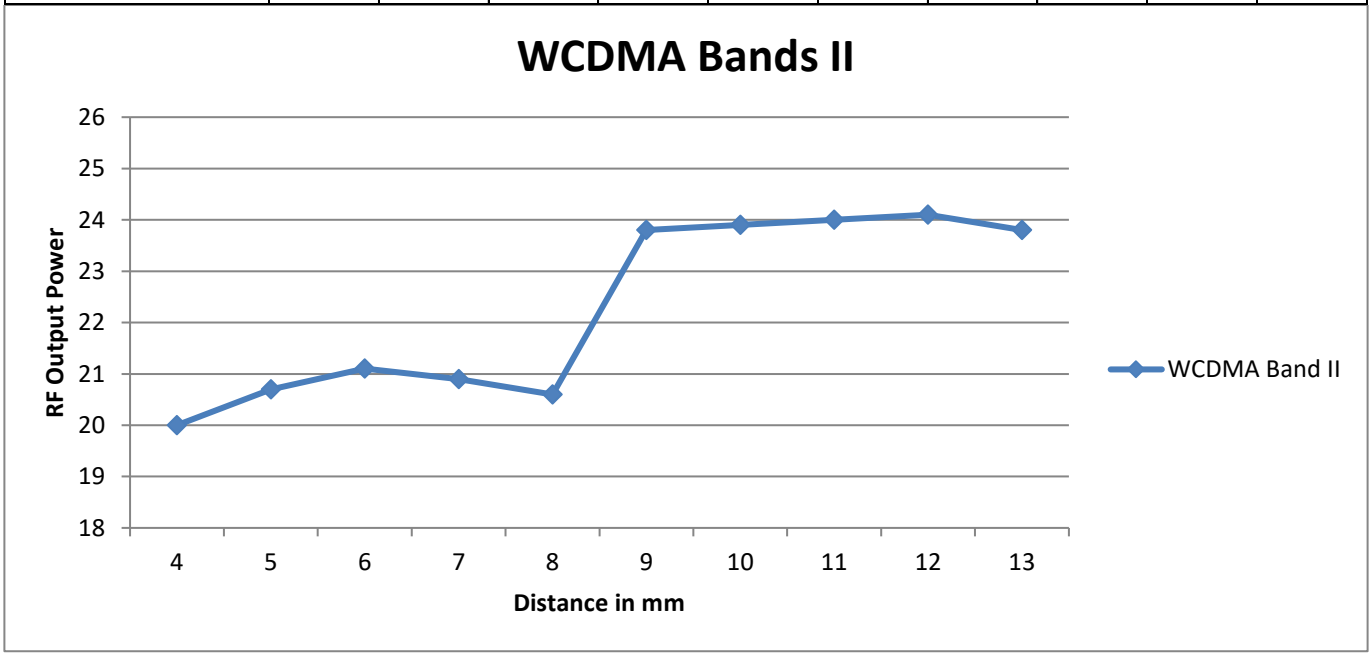
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	6	7	8	9	10	11	12	13	14	15
WCDMA Band II	21.0	20.0	20.7	20.4	20.2	23.7	24.2	23.3	23.7	24.2



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
WCDMA Band II	20.0	20.7	21.1	20.9	20.6	23.8	23.9	24.0	24.1	23.8



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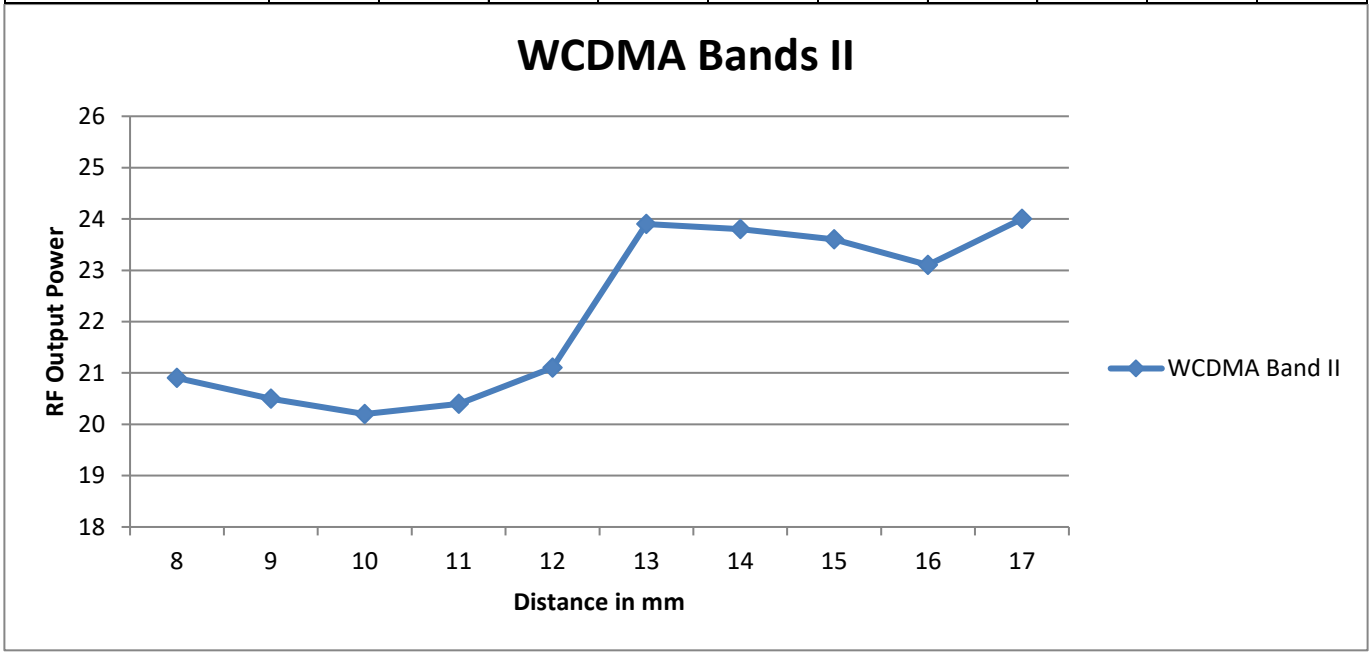
Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	8	9	10	11	12	13	14	15	16	17
WCDMA Band II	20.9	20.5	20.2	20.4	21.1	23.9	23.8	23.6	23.1	24.0



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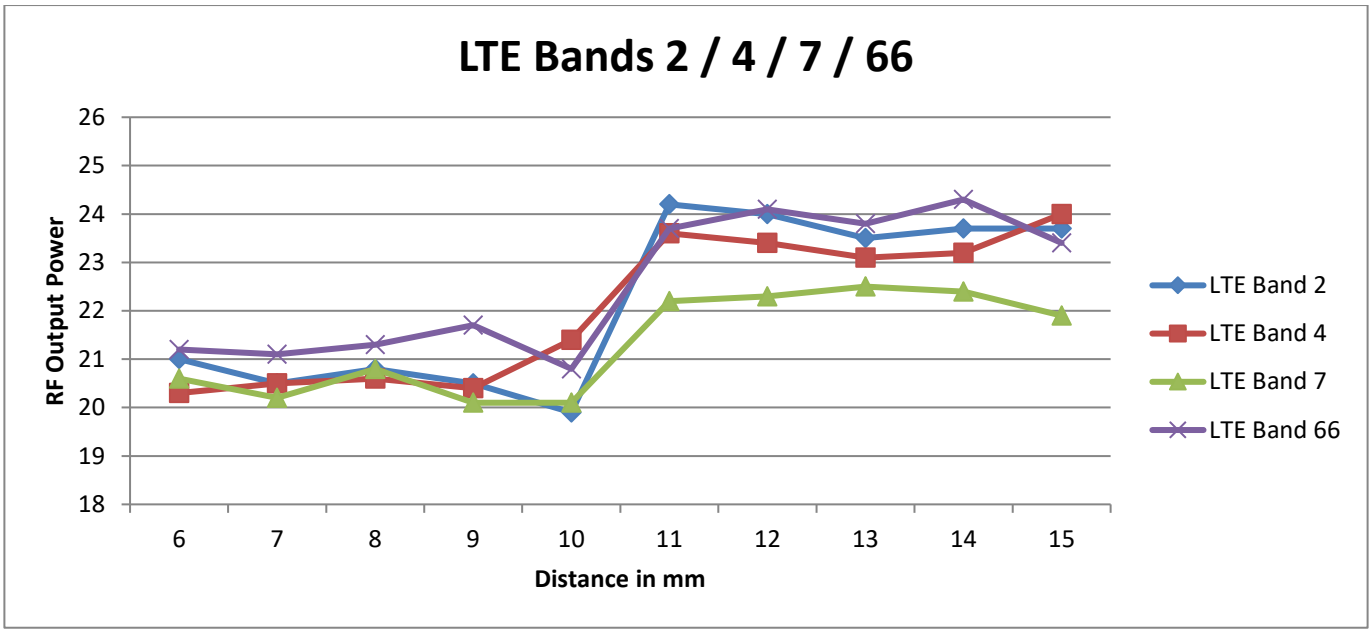
LTE Bands 2 / 4 / 7 / 66

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

Distance to DUT vs. Output Power in dBm										
Distance (mm)	6	7	8	9	10	11	12	13	14	15
LTE Band 2	21.0	20.5	20.8	20.5	19.9	24.2	24.0	23.5	23.7	23.7
LTE Band 4	20.3	20.5	20.6	20.4	21.4	23.6	23.4	23.1	23.2	24.0
LTE Band 7	20.6	20.2	20.8	20.1	20.1	22.2	22.3	22.5	22.4	21.9
LTE Band 66	21.2	21.1	21.3	21.7	20.8	23.7	24.1	23.8	24.3	23.4



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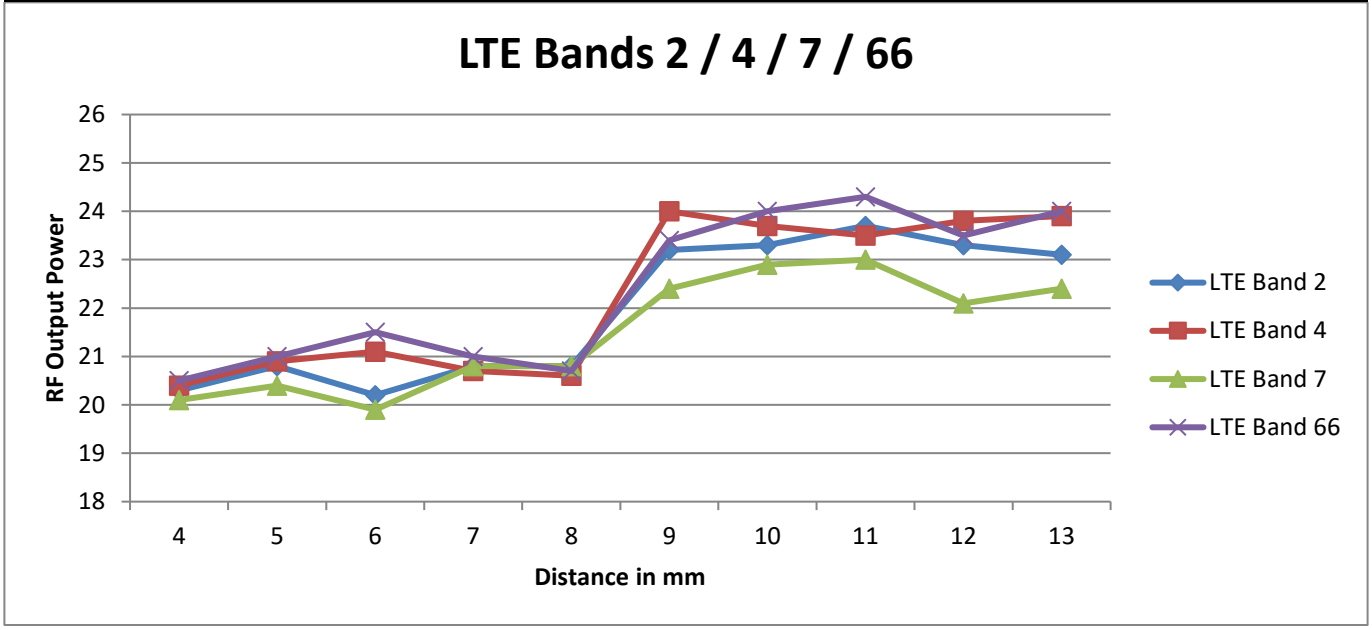
Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	4	5	6	7	8	9	10	11	12	13
LTE Band 2	20.3	20.8	20.2	20.8	20.8	23.2	23.3	23.7	23.3	23.1
LTE Band 4	20.4	20.9	21.1	20.7	20.6	24.0	23.7	23.5	23.8	23.9
LTE Band 7	20.1	20.4	19.9	20.8	20.8	22.4	22.9	23.0	22.1	22.4
LTE Band 66	20.5	21.0	21.5	21.0	20.7	23.4	24.0	24.3	23.5	24.0



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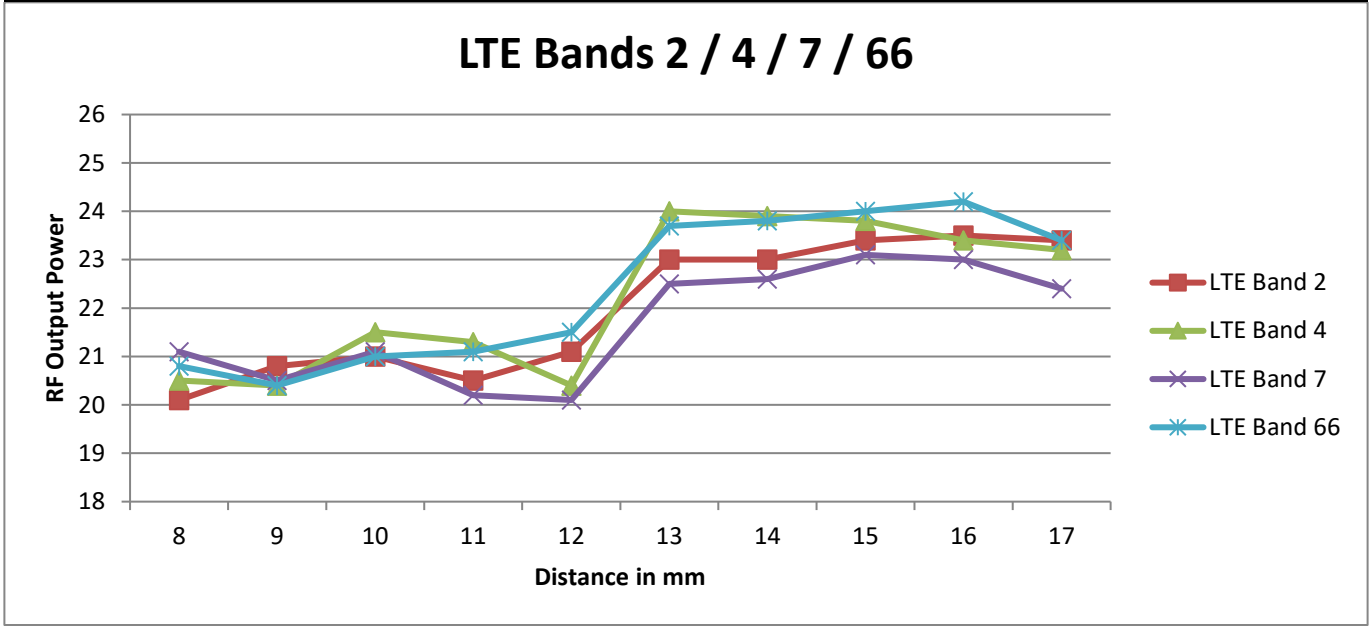
Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	8	9	10	11	12	13	14	15	16	17
LTE Band 2	20.1	20.8	21.0	20.5	21.1	23.0	23.0	23.4	23.5	23.4
LTE Band 4	20.5	20.4	21.5	21.3	20.4	24.0	23.9	23.8	23.4	23.2
LTE Band 7	21.1	20.5	21.1	20.2	20.1	22.5	22.6	23.1	23.0	22.4
LTE Band 66	20.8	20.4	21.0	21.1	21.5	23.7	23.8	24.0	24.2	23.4



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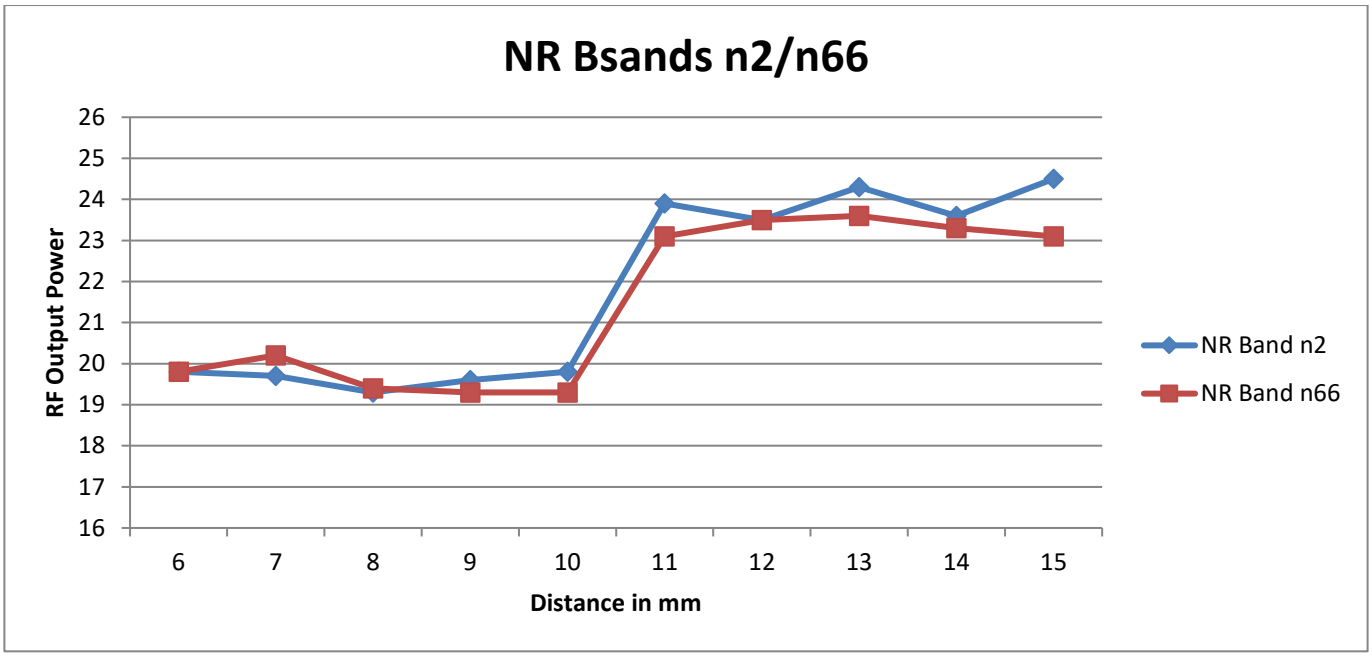
NR Band n2 / n66

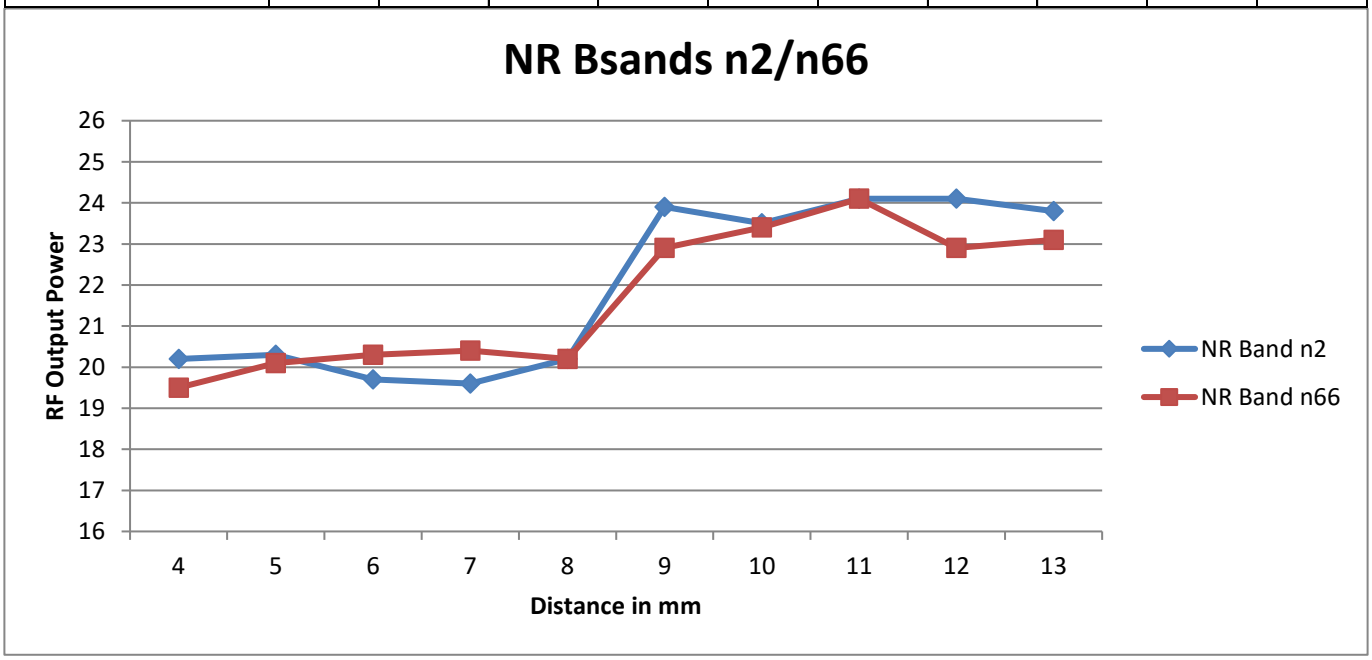
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	6	7	8	9	10	11	12	13	14	15
NR Band n2	19.8	19.7	19.3	19.6	19.8	23.9	23.5	24.3	23.6	24.5
NR Band n66	19.8	20.2	19.4	19.3	19.3	23.1	23.5	23.6	23.3	23.1



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
NR Band n2	20.2	20.3	19.7	19.6	20.2	23.9	23.5	24.1	24.1	23.8
NR Band n66	19.5	20.1	20.3	20.4	20.2	22.9	23.4	24.1	22.9	23.1



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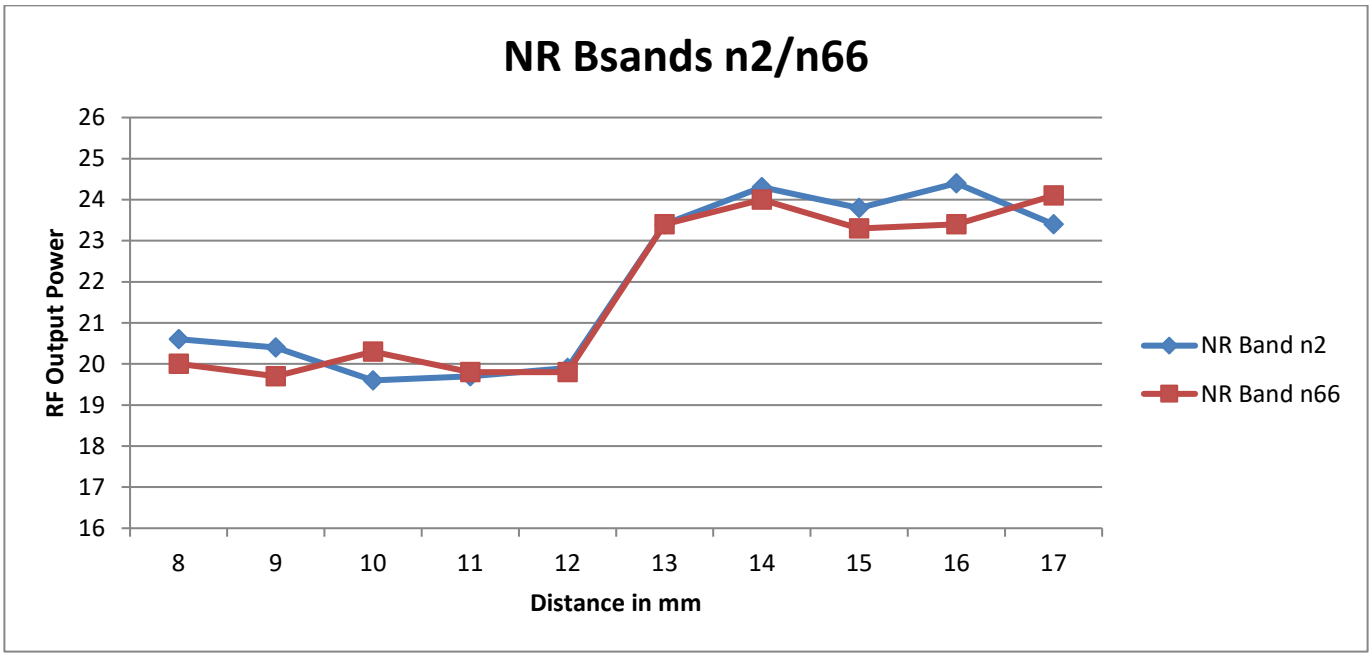
Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	8	9	10	11	12	13	14	15	16	17
NR Band n2	20.6	20.4	19.6	19.7	19.9	23.4	24.3	23.8	24.4	23.4
NR Band n66	20.0	19.7	20.3	19.8	19.8	23.4	24.0	23.3	23.4	24.1



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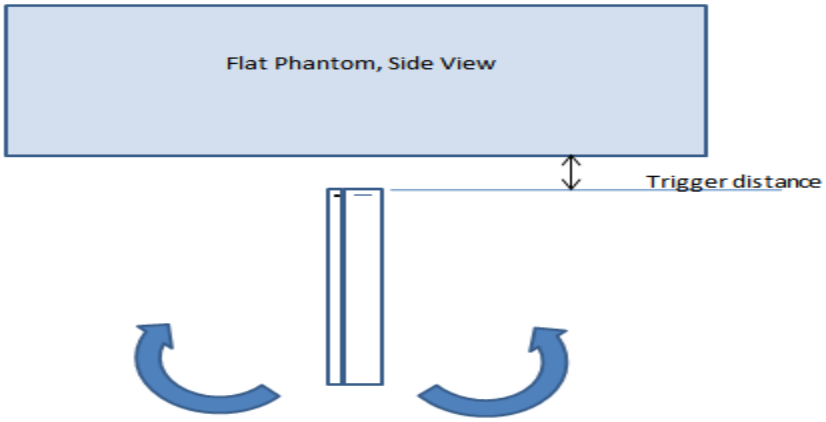
6.9.2. Proximity Sensor Coverage (KDB 616217 §6.3)

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

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

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Edge 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

6.9.4. 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	10 mm	N/A	N/A	9 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	No	1
				Edge 3 (Bottom)	< 25 mm	Yes	
				Edge 4 (Left)	< 25 mm	Yes	
	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)			
WLAN & BT	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 ±(%)
3-30-2020	Head 835	e'	42.0400	Relative Permittivity (ε_r):	42.04	41.50	1.30	5
		e"	19.8000	Conductivity (σ):	0.92	0.90	2.14	5
	Head 820	e'	42.0400	Relative Permittivity (ε_r):	42.04	41.60	1.05	5
		e"	20.0400	Conductivity (σ):	0.91	0.90	1.70	5
	Head 850	e'	42.0200	Relative Permittivity (ε_r):	42.02	41.50	1.25	5
		e"	19.6000	Conductivity (σ):	0.93	0.92	1.24	5
3-30-2020	Head 1900	e'	40.0700	Relative Permittivity (ε_r):	40.07	40.00	0.18	5
		e"	13.7700	Conductivity (σ):	1.45	1.40	3.91	5
	Head 1850	e'	40.1300	Relative Permittivity (ε_r):	40.13	40.00	0.33	5
		e"	13.8000	Conductivity (σ):	1.42	1.40	1.40	5
	Head 1910	e'	40.0400	Relative Permittivity (ε_r):	40.04	40.00	0.10	5
		e"	13.7700	Conductivity (σ):	1.46	1.40	4.46	5

SAR 3 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
3-30-2020	Head 1750	e'	39.3100	Relative Permittivity (ε_r):	39.31	40.08	-1.93	5
		e"	13.6100	Conductivity (σ):	1.32	1.37	-3.26	5
	Head 1710	e'	39.4300	Relative Permittivity (ε_r):	39.43	40.15	-1.78	5
		e"	13.6400	Conductivity (σ):	1.30	1.35	-3.68	5
	Head 1755	e'	39.3000	Relative Permittivity (ε_r):	39.30	40.08	-1.94	5
		e"	13.6100	Conductivity (σ):	1.33	1.37	-3.18	5
4-1-2020	Head 750	e'	40.9800	Relative Permittivity (ε_r):	40.98	41.96	-2.34	5
		e"	21.7100	Conductivity (σ):	0.91	0.89	1.38	5
	Head 700	e'	41.1400	Relative Permittivity (ε_r):	41.14	42.22	-2.55	5
		e"	22.8300	Conductivity (σ):	0.89	0.89	-0.07	5
	Head 790	e'	40.8900	Relative Permittivity (ε_r):	40.89	41.76	-2.07	5
		e"	20.9300	Conductivity (σ):	0.92	0.90	2.59	5
4-2-2020	Head 1900	e'	39.3800	Relative Permittivity (ε_r):	39.38	40.00	-1.55	5
		e"	12.9300	Conductivity (σ):	1.37	1.40	-2.43	5
	Head 1850	e'	39.4500	Relative Permittivity (ε_r):	39.45	40.00	-1.37	5
		e"	12.9700	Conductivity (σ):	1.33	1.40	-4.70	5
	Head 1910	e'	39.3600	Relative Permittivity (ε_r):	39.36	40.00	-1.60	5
		e"	12.9100	Conductivity (σ):	1.37	1.40	-2.07	5
4-13-2020	Head 835	e'	41.9200	Relative Permittivity (ε_r):	41.92	41.50	1.01	5
		e"	19.7400	Conductivity (σ):	0.92	0.90	1.83	5
	Head 820	e'	41.9100	Relative Permittivity (ε_r):	41.91	41.60	0.74	5
		e"	19.9600	Conductivity (σ):	0.91	0.90	1.29	5
	Head 850	e'	41.8700	Relative Permittivity (ε_r):	41.87	41.50	0.89	5
		e"	19.5400	Conductivity (σ):	0.92	0.92	0.93	5
4-19-2020	Head 1750	e'	39.2400	Relative Permittivity (ε_r):	39.24	40.08	-2.11	5
		e"	13.9300	Conductivity (σ):	1.36	1.37	-0.99	5
	Head 1710	e'	39.2700	Relative Permittivity (ε_r):	39.27	40.15	-2.18	5
		e"	14.0800	Conductivity (σ):	1.34	1.35	-0.57	5
	Head 1755	e'	39.2500	Relative Permittivity (ε_r):	39.25	40.08	-2.06	5
		e"	13.9200	Conductivity (σ):	1.36	1.37	-0.98	5

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SAR 3 Room (Continued)

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
4-19-2020	Head 1900	e'	39.0900	Relative Permittivity (ε_r):	39.09	40.00	-2.27	5
		e"	13.7900	Conductivity (σ):	1.46	1.40	4.06	5
	Head 1850	e'	39.1400	Relative Permittivity (ε_r):	39.14	40.00	-2.15	5
		e"	13.8400	Conductivity (σ):	1.42	1.40	1.69	5
	Head 1910	e'	39.0600	Relative Permittivity (ε_r):	39.06	40.00	-2.35	5
		e"	13.7800	Conductivity (σ):	1.46	1.40	4.53	5
4-22-2020	Head 1750	e'	41.3800	Relative Permittivity (ε_r):	41.38	40.08	3.23	5
		e"	13.9500	Conductivity (σ):	1.36	1.37	-0.84	5
	Head 1710	e'	41.4200	Relative Permittivity (ε_r):	41.42	40.15	3.17	5
		e"	14.0500	Conductivity (σ):	1.34	1.35	-0.78	5
	Head 1755	e'	41.3800	Relative Permittivity (ε_r):	41.38	40.08	3.25	5
		e"	13.9300	Conductivity (σ):	1.36	1.37	-0.91	5
4-22-2020	Head 1900	e'	41.1500	Relative Permittivity (ε_r):	41.15	40.00	2.88	5
		e"	13.7500	Conductivity (σ):	1.45	1.40	3.76	5
	Head 1850	e'	41.2300	Relative Permittivity (ε_r):	41.23	40.00	3.07	5
		e"	13.8200	Conductivity (σ):	1.42	1.40	1.54	5
	Head 1910	e'	41.1300	Relative Permittivity (ε_r):	41.13	40.00	2.83	5
		e"	13.7500	Conductivity (σ):	1.46	1.40	4.31	5
4-23-2020	Head 2600	e'	38.9300	Relative Permittivity (ε_r):	38.93	39.01	-0.21	5
		e"	13.9400	Conductivity (σ):	2.02	1.96	2.71	5
	Head 2500	e'	39.1300	Relative Permittivity (ε_r):	39.13	39.14	-0.02	5
		e"	13.9500	Conductivity (σ):	1.94	1.85	4.59	5
	Head 2700	e'	38.8000	Relative Permittivity (ε_r):	38.80	38.88	-0.22	5
		e"	13.9400	Conductivity (σ):	2.09	2.07	1.09	5
4-26-2020	Head 1750	e'	39.0700	Relative Permittivity (ε_r):	39.07	40.08	-2.53	5
		e"	13.8500	Conductivity (σ):	1.35	1.37	-1.56	5
	Head 1710	e'	39.1300	Relative Permittivity (ε_r):	39.13	40.15	-2.53	5
		e"	13.9500	Conductivity (σ):	1.33	1.35	-1.49	5
	Head 1755	e'	39.0700	Relative Permittivity (ε_r):	39.07	40.08	-2.51	5
		e"	13.8200	Conductivity (σ):	1.35	1.37	-1.69	5
4-29-2020	Head 2600	e'	37.5500	Relative Permittivity (ε_r):	37.55	39.01	-3.74	5
		e"	13.8200	Conductivity (σ):	2.00	1.96	1.82	5
	Head 2500	e'	37.7400	Relative Permittivity (ε_r):	37.74	39.14	-3.57	5
		e"	13.7600	Conductivity (σ):	1.91	1.85	3.17	5
	Head 2700	e'	37.3900	Relative Permittivity (ε_r):	37.39	38.88	-3.84	5
		e"	13.8900	Conductivity (σ):	2.09	2.07	0.73	5
5-5-2020	Head 2600	e'	37.4600	Relative Permittivity (ε_r):	37.46	39.01	-3.98	5
		e"	13.4300	Conductivity (σ):	1.94	1.96	-1.05	5
	Head 2500	e'	37.6900	Relative Permittivity (ε_r):	37.69	39.14	-3.70	5
		e"	13.3300	Conductivity (σ):	1.85	1.85	-0.06	5
	Head 2700	e'	37.2400	Relative Permittivity (ε_r):	37.24	38.88	-4.23	5
		e"	13.4700	Conductivity (σ):	2.02	2.07	-2.32	5
5-7-2020	Head 1900	e'	39.1000	Relative Permittivity (ε_r):	39.10	40.00	-2.25	5
		e"	13.2600	Conductivity (σ):	1.40	1.40	0.06	5
	Head 1850	e'	39.1500	Relative Permittivity (ε_r):	39.15	40.00	-2.13	5
		e"	13.3000	Conductivity (σ):	1.37	1.40	-2.28	5
	Head 1910	e'	39.0900	Relative Permittivity (ε_r):	39.09	40.00	-2.27	5
		e"	13.2600	Conductivity (σ):	1.41	1.40	0.59	5

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SAR 3 Room (Continued)

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
5-12-2020	Head 1900	e'	39.2100	Relative Permittivity (ϵ_r):	39.21	40.00	-1.98	5
		e''	13.2500	Conductivity (σ):	1.40	1.40	-0.01	5
	Head 1850	e'	39.2400	Relative Permittivity (ϵ_r):	39.24	40.00	-1.90	5
		e''	13.2900	Conductivity (σ):	1.37	1.40	-2.35	5
	Head 1910	e'	39.1900	Relative Permittivity (ϵ_r):	39.19	40.00	-2.03	5
		e''	13.2500	Conductivity (σ):	1.41	1.40	0.51	5
5-15-2020	Head 835	e'	40.7100	Relative Permittivity (ϵ_r):	40.71	41.50	-1.90	5
		e''	19.8500	Conductivity (σ):	0.92	0.90	2.40	5
	Head 820	e'	40.7200	Relative Permittivity (ϵ_r):	40.72	41.60	-2.12	5
		e''	20.0800	Conductivity (σ):	0.92	0.90	1.90	5
	Head 850	e'	40.6700	Relative Permittivity (ϵ_r):	40.67	41.50	-2.00	5
		e''	19.6400	Conductivity (σ):	0.93	0.92	1.45	5
5-17-2020	Head 835	e'	40.5900	Relative Permittivity (ϵ_r):	40.59	41.50	-2.19	5
		e''	19.7300	Conductivity (σ):	0.92	0.90	1.78	5
	Head 820	e'	40.6200	Relative Permittivity (ϵ_r):	40.62	41.60	-2.36	5
		e''	19.9800	Conductivity (σ):	0.91	0.90	1.39	5
	Head 850	e'	40.5700	Relative Permittivity (ϵ_r):	40.57	41.50	-2.24	5
		e''	19.5000	Conductivity (σ):	0.92	0.92	0.72	5
5-17-2020	Head 1750	e'	38.8000	Relative Permittivity (ϵ_r):	38.80	40.08	-3.20	5
		e''	13.7100	Conductivity (σ):	1.33	1.37	-2.55	5
	Head 1710	e'	38.8300	Relative Permittivity (ϵ_r):	38.83	40.15	-3.28	5
		e''	13.8200	Conductivity (σ):	1.31	1.35	-2.41	5
	Head 1755	e'	38.8000	Relative Permittivity (ϵ_r):	38.80	40.08	-3.19	5
		e''	13.6900	Conductivity (σ):	1.34	1.37	-2.62	5
5-17-2020	Head 1900	e'	38.6500	Relative Permittivity (ϵ_r):	38.65	40.00	-3.38	5
		e''	13.4500	Conductivity (σ):	1.42	1.40	1.50	5
	Head 1850	e'	38.7200	Relative Permittivity (ϵ_r):	38.72	40.00	-3.20	5
		e''	13.5400	Conductivity (σ):	1.39	1.40	-0.51	5
	Head 1910	e'	38.6300	Relative Permittivity (ϵ_r):	38.63	40.00	-3.42	5
		e''	13.4400	Conductivity (σ):	1.43	1.40	1.95	5

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SAR 4 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
4-8-2020	Head 2450	e'	40.5100	Relative Permittivity (ϵ_r):	40.51	39.20	3.34	5
		e''	13.7700	Conductivity (σ):	1.88	1.80	4.21	5
	Head 2400	e'	40.6400	Relative Permittivity (ϵ_r):	40.64	39.30	3.42	5
		e''	13.7600	Conductivity (σ):	1.84	1.75	4.83	5
	Head 2480	e'	40.4300	Relative Permittivity (ϵ_r):	40.43	39.16	3.24	5
		e''	13.7600	Conductivity (σ):	1.90	1.83	3.55	5
4-21-2020	Head 2450	e'	38.0100	Relative Permittivity (ϵ_r):	38.01	39.20	-3.04	5
		e''	13.4000	Conductivity (σ):	1.83	1.80	1.41	5
	Head 2400	e'	38.0600	Relative Permittivity (ϵ_r):	38.06	39.30	-3.15	5
		e''	13.3900	Conductivity (σ):	1.79	1.75	2.01	5
	Head 2480	e'	37.9700	Relative Permittivity (ϵ_r):	37.97	39.16	-3.04	5
		e''	13.4000	Conductivity (σ):	1.85	1.83	0.84	5
4-26-2020	Head 835	e'	40.6400	Relative Permittivity (ϵ_r):	40.64	41.50	-2.07	5
		e''	19.8300	Conductivity (σ):	0.92	0.90	2.30	5
	Head 820	e'	40.6500	Relative Permittivity (ϵ_r):	40.65	41.60	-2.29	5
		e''	20.0900	Conductivity (σ):	0.92	0.90	1.95	5
	Head 850	e'	40.6100	Relative Permittivity (ϵ_r):	40.61	41.50	-2.14	5
		e''	19.5600	Conductivity (σ):	0.92	0.92	1.03	5
5-5-2020	Head 1900	e'	40.8300	Relative Permittivity (ϵ_r):	40.83	40.00	2.08	5
		e''	13.7500	Conductivity (σ):	1.45	1.40	3.76	5
	Head 1850	e'	40.9300	Relative Permittivity (ϵ_r):	40.93	40.00	2.33	5
		e''	13.8000	Conductivity (σ):	1.42	1.40	1.40	5
	Head 1910	e'	40.7900	Relative Permittivity (ϵ_r):	40.79	40.00	1.98	5
		e''	13.7500	Conductivity (σ):	1.46	1.40	4.31	5
5-7-2020	Head 1750	e'	39.6300	Relative Permittivity (ϵ_r):	39.63	40.08	-1.13	5
		e''	13.8900	Conductivity (σ):	1.35	1.37	-1.27	5
	Head 1710	e'	39.6900	Relative Permittivity (ϵ_r):	39.69	40.15	-1.14	5
		e''	13.9700	Conductivity (σ):	1.33	1.35	-1.35	5
	Head 1755	e'	39.6200	Relative Permittivity (ϵ_r):	39.62	40.08	-1.14	5
		e''	13.8800	Conductivity (σ):	1.35	1.37	-1.26	5
5-10-2020	Head 1750	e'	39.6300	Relative Permittivity (ϵ_r):	39.63	40.08	-1.13	5
		e''	13.8700	Conductivity (σ):	1.35	1.37	-1.41	5
	Head 1710	e'	39.7000	Relative Permittivity (ϵ_r):	39.70	40.15	-1.11	5
		e''	13.9000	Conductivity (σ):	1.32	1.35	-1.84	5
	Head 1755	e'	39.6100	Relative Permittivity (ϵ_r):	39.61	40.08	-1.17	5
		e''	13.8700	Conductivity (σ):	1.35	1.37	-1.33	5

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SAR 5 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
4-7-2020	Head 5250	e'	35.2800	Relative Permittivity (ϵ_r):	35.28	35.93	-1.82	5
		e''	15.4800	Conductivity (σ):	4.52	4.70	-3.90	5
	Head 5260	e'	35.2600	Relative Permittivity (ϵ_r):	35.26	35.92	-1.84	5
		e''	15.4700	Conductivity (σ):	4.52	4.71	-3.99	5
	Head 5600	e'	34.7700	Relative Permittivity (ϵ_r):	34.77	35.53	-2.15	5
		e''	15.6100	Conductivity (σ):	4.86	5.06	-3.95	5
	Head 5750	e'	34.6500	Relative Permittivity (ϵ_r):	34.65	35.36	-2.02	5
		e''	15.6700	Conductivity (σ):	5.01	5.21	-3.91	5
	Head 5825	e'	34.4700	Relative Permittivity (ϵ_r):	34.47	35.30	-2.35	5
		e''	15.7000	Conductivity (σ):	5.09	5.27	-3.51	5
4-10-2020	Head 5250	e'	35.7500	Relative Permittivity (ϵ_r):	35.75	35.93	-0.51	5
		e''	15.6200	Conductivity (σ):	4.56	4.70	-3.03	5
	Head 5260	e'	35.7300	Relative Permittivity (ϵ_r):	35.73	35.92	-0.53	5
		e''	15.6200	Conductivity (σ):	4.57	4.71	-3.05	5
	Head 5600	e'	35.2600	Relative Permittivity (ϵ_r):	35.26	35.53	-0.77	5
		e''	15.7600	Conductivity (σ):	4.91	5.06	-3.02	5
	Head 5750	e'	35.0400	Relative Permittivity (ϵ_r):	35.04	35.36	-0.91	5
		e''	15.8300	Conductivity (σ):	5.06	5.21	-2.93	5
	Head 5825	e'	34.9300	Relative Permittivity (ϵ_r):	34.93	35.30	-1.05	5
		e''	15.8600	Conductivity (σ):	5.14	5.27	-2.53	5
4-21-2020	Head 5250	e'	34.8700	Relative Permittivity (ϵ_r):	34.87	35.93	-2.96	5
		e''	16.4900	Conductivity (σ):	4.81	4.70	2.37	5
	Head 5260	e'	34.8400	Relative Permittivity (ϵ_r):	34.84	35.92	-3.01	5
		e''	16.4900	Conductivity (σ):	4.82	4.71	2.34	5
	Head 5600	e'	34.3300	Relative Permittivity (ϵ_r):	34.33	35.53	-3.39	5
		e''	16.5900	Conductivity (σ):	5.17	5.06	2.08	5
	Head 5750	e'	34.1400	Relative Permittivity (ϵ_r):	34.14	35.36	-3.46	5
		e''	16.6000	Conductivity (σ):	5.31	5.21	1.80	5
	Head 5825	e'	34.0100	Relative Permittivity (ϵ_r):	34.01	35.30	-3.65	5
		e''	16.6100	Conductivity (σ):	5.38	5.27	2.08	5
5-10-2020	Head 5250	e'	35.3900	Relative Permittivity (ϵ_r):	35.39	35.93	-1.51	5
		e''	16.2800	Conductivity (σ):	4.75	4.70	1.07	5
	Head 5260	e'	35.3900	Relative Permittivity (ϵ_r):	35.39	35.92	-1.48	5
		e''	16.3200	Conductivity (σ):	4.77	4.71	1.29	5
	Head 5600	e'	34.8100	Relative Permittivity (ϵ_r):	34.81	35.53	-2.04	5
		e''	16.4100	Conductivity (σ):	5.11	5.06	0.98	5
	Head 5750	e'	34.7200	Relative Permittivity (ϵ_r):	34.72	35.36	-1.82	5
		e''	16.4200	Conductivity (σ):	5.25	5.21	0.69	5
	Head 5825	e'	34.4900	Relative Permittivity (ϵ_r):	34.49	35.30	-2.29	5
		e''	16.4600	Conductivity (σ):	5.33	5.27	1.16	5
5-24-2020	Head 5250	e'	35.2400	Relative Permittivity (ϵ_r):	35.24	35.93	-1.93	5
		e''	16.1800	Conductivity (σ):	4.72	4.70	0.45	5
	Head 5260	e'	35.2300	Relative Permittivity (ϵ_r):	35.23	35.92	-1.93	5
		e''	16.2000	Conductivity (σ):	4.74	4.71	0.54	5
	Head 5600	e'	34.6200	Relative Permittivity (ϵ_r):	34.62	35.53	-2.57	5
		e''	16.3100	Conductivity (σ):	5.08	5.06	0.36	5
	Head 5750	e'	34.4800	Relative Permittivity (ϵ_r):	34.48	35.36	-2.50	5
		e''	16.3500	Conductivity (σ):	5.23	5.21	0.26	5
	Head 5825	e'	34.2200	Relative Permittivity (ϵ_r):	34.22	35.30	-3.06	5
		e''	16.3900	Conductivity (σ):	5.31	5.27	0.73	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.

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
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	1184	8-21-2018	5250	1g	81.10
				10g	23.40
			5600	1g	85.00
				10g	24.40
			5750	1g	82.60
				10g	23.70

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			
3-30-2020	D835V2	4d174	Head	1g	0.93	9.32	9.59	-2.82	1, 2
				10g	0.61	6.14	6.24	-1.60	
3-30-2020	D1900V2	5d190	Head	1g	3.82	38.20	39.10	-2.30	
				10g	1.98	19.80	20.40	-2.94	

SAR 3 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
3-30-2020	D1750V2	1125	Head	1g	3.37	33.70	36.50	-7.67	
				10g	1.80	18.00	19.20	-6.25	
4-1-2020	D750V3	1122	Head	1g	0.81	8.12	8.54	-4.92	3, 4
				10g	0.54	5.36	5.59	-4.11	
4-2-2020	D1900V2	5d190	Head	1g	3.72	37.20	39.10	-4.86	5, 6
				10g	1.93	19.30	20.40	-5.39	
4-13-2020	D835V2	4d174	Head	1g	0.95	9.51	9.59	-0.83	
				10g	0.63	6.27	6.24	0.48	
4-19-2020	D1750V2	1125	Head	1g	3.58	35.80	36.50	-1.92	
				10g	1.89	18.90	19.20	-1.56	
4-19-2020	D1900V2	5d190	Head	1g	3.96	39.60	39.10	1.28	
				10g	2.06	20.60	20.40	0.98	
4-22-2020	D1750V2	1125	Head	1g	3.33	33.30	36.50	-8.77	7, 8
				10g	1.78	17.80	19.20	-7.29	
4-22-2020	D1900V2	5d190	Head	1g	3.89	38.90	39.10	-0.51	
				10g	2.02	20.20	20.40	-0.98	
4-23-2020	D2600V2	1097	Head	1g	5.65	56.50	57.30	-1.40	
				10g	2.54	25.40	25.70	-1.17	
4-26-2020	D1750V2	1125	Head	1g	3.40	34.00	36.50	-6.85	
				10g	1.81	18.10	19.20	-5.73	
4-29-2020	D2600V2	1097	Head	1g	5.23	52.30	57.30	-8.73	9, 10
				10g	2.37	23.70	25.70	-7.78	
5-5-2020	D2600V2	1097	Head	1g	5.58	55.80	57.30	-2.62	
				10g	2.53	25.30	25.70	-1.56	
5-7-2020	D1900V2	5d190	Head	1g	3.88	38.80	39.10	-0.77	
				10g	2.01	20.10	20.40	-1.47	
5-12-2020	D1900V2	5d190	Head	1g	3.83	38.30	39.10	-2.05	
				10g	1.99	19.90	20.40	-2.45	
5-15-2020	D835V2	4d174	Head	1g	0.93	9.32	9.59	-2.82	
				10g	0.61	6.07	6.24	-2.72	
5-17-2020	D835V2	4d174	Head	1g	0.94	9.42	9.59	-1.77	
				10g	0.61	6.13	6.24	-1.76	
5-17-2020	D1750V2	1125	Head	1g	3.46	34.60	36.50	-5.21	
				10g	1.84	18.40	19.20	-4.17	
5-17-2020	D1900V2	5d190	Head	1g	3.80	38.00	39.10	-2.81	
				10g	1.97	19.70	20.40	-3.43	

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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			
4-8-2020	D2450V2	939	Head	1g	5.35	53.50	53.20	0.56	
				10g	2.49	24.90	25.10	-0.80	
4-21-2020	D2450V2	939	Head	1g	5.43	54.30	53.20	2.07	11, 12
				10g	2.51	25.10	25.10	0.00	
4-26-2020	D835V2	4d174	Head	1g	0.88	8.79	9.59	-8.34	13, 14
				10g	0.57	5.73	6.24	-8.17	
5-5-2020	D1900V2	5d190	Head	1g	3.92	39.20	39.10	0.26	
				10g	2.02	20.20	20.40	-0.98	
5-7-2020	D1750V2	1125	Head	1g	3.59	35.90	36.50	-1.64	
				10g	1.91	19.10	19.20	-0.52	
5-10-2020	D1750V2	1125	Head	1g	3.56	35.60	36.50	-2.47	
				10g	1.89	18.90	19.20	-1.56	

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			
4-7-2020	D5GHzV2 (5250)	1184	Head	1g	7.98	79.80	81.10	-1.60	
				10g	2.28	22.80	23.40	-2.56	
4-7-2020	D5GHzV2 (5600)	1184	Head	1g	8.94	89.40	85.00	5.18	
				10g	2.55	25.50	24.40	4.51	
4-7-2020	D5GHzV2 (5750)	1184	Head	1g	8.14	81.40	82.60	-1.45	
				10g	2.31	23.10	23.70	-2.53	
4-10-2020	D5GHzV2 (5250)	1184	Head	1g	7.83	78.30	81.10	-3.45	
				10g	2.25	22.50	23.40	-3.85	
4-10-2020	D5GHzV2 (5600)	1184	Head	1g	7.83	78.30	85.00	-7.88	15, 16
				10g	2.25	22.50	24.40	-7.79	
4-10-2020	D5GHzV2 (5750)	1184	Head	1g	7.70	77.00	82.60	-6.78	
				10g	2.19	21.90	23.70	-7.59	
4-21-2020	D5GHzV2 (5250)	1184	Head	1g	8.01	80.10	81.10	-1.23	
				10g	2.30	23.00	23.40	-1.71	
4-21-2020	D5GHzV2 (5600)	1184	Head	1g	8.72	87.20	85.00	2.59	
				10g	2.49	24.90	24.40	2.05	
5-10-2020	D5GHzV2 (5250)	1184	Head	1g	8.07	80.70	81.10	-0.49	
				10g	2.34	23.40	23.40	0.00	
5-10-2020	D5GHzV2 (5600)	1184	Head	1g	8.72	87.20	85.00	2.59	
				10g	2.52	25.20	24.40	3.28	
5-10-2020	D5GHzV2 (5750)	1184	Head	1g	8.12	81.20	82.60	-1.69	
				10g	2.33	23.30	23.70	-1.69	
5-24-2020	D5GHzV2 (5250)	1184	Head	1g	8.08	80.80	81.10	-0.37	
				10g	2.34	23.40	23.40	0.00	
5-24-2020	D5GHzV2 (5600)	1184	Head	1g	8.93	89.30	85.00	5.06	
				10g	2.57	25.70	24.40	5.33	
5-24-2020	D5GHzV2 (5750)	1184	Head	1g	8.51	85.10	82.60	3.03	
				10g	2.44	24.40	23.70	2.95	

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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)			
					DSI = All (0, 1, 2 , 3)			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	128	824.2	31.7	22.6	33.5	24.5
			190	836.6	32.1	23.1		
			251	848.8	31.8	22.7		
GPRS (GMSK)	CS1	1	128	824.2	31.7	22.6	33.5	24.5
			190	836.6	32.0	23.0		
			251	848.8	31.7	22.6		
		2	128	824.2	30.8	24.8	32.5	**26.5**
			190	836.6	31.0	25.0		
			251	848.8	30.8	24.7		
		3	128	824.2	28.9	24.6	30.5	26.2
			190	836.6	29.5	25.3		
			251	848.8	29.2	25.0		
		4	128	824.2	27.3	24.3	28.5	25.5
			190	836.6	27.3	24.3		
			251	848.8	27.1	24.1		
EGPRS (8PSK)	MCS5	1	128	824.2	26.4	17.3	27.5	18.5
			190	836.6	26.9	17.9		
			251	848.8	26.5	17.5		
		2	128	824.2	24.8	18.8	26.0	20.0
			190	836.6	24.9	18.9		
			251	848.8	24.7	18.6		
		3	128	824.2	22.8	18.6	25.0	20.7
			190	836.6	23.1	18.8		
			251	848.8	22.8	18.5		
		4	128	824.2	21.8	18.8	23.0	20.0
			190	836.6	22.1	19.1		
			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 2 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			
					DSI = 0, 1				DSI = 2				DSI = 3			
					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	28.4	19.4	30.0	21.0	25.5	16.4	27.0	18.0	26.9	17.9	28.5	19.5
			661	1880.0	28.9	19.9			25.5	16.5			26.8	17.7		
			810	1909.8	28.7	19.7			25.9	16.8			27.1	18.0		
GPRS (GMSK)	CS1	1	512	1850.2	28.4	19.4	30.5	21.5	25.8	16.8	27.5	18.5	27.0	18.0	29.0	20.0
			661	1880.0	28.9	19.9			25.6	16.5			26.7	17.7		
			810	1909.8	28.7	19.7			25.9	16.9			27.0	18.0		
		2	512	1850.2	27.5	21.5	29.0	23.0	24.9	18.9	26.0	20.0	27.2	21.2	27.5	21.5
			661	1880.0	27.7	21.7			25.6	19.6			26.9	20.9		
			810	1909.8	27.5	21.5			25.2	19.2			27.2	21.2		
		3	512	1850.2	25.7	21.4	27.5	**23.2**	23.9	19.6	25.0	**20.7**	24.6	20.3	26.0	**21.7**
			661	1880.0	26.6	22.3			24.5	20.2			25.1	20.8		
			810	1909.8	26.0	21.7			24.2	19.9			24.7	20.4		
		4	512	1850.2	24.0	21.0	25.5	22.5	21.4	18.4	22.5	19.5	23.6	20.6	24.0	21.0
			661	1880.0	24.1	21.1			21.9	18.8			23.9	20.9		
			810	1909.8	24.0	21.0			21.7	18.7			23.8	20.8		
EGPRS (8PSK)	MCS5	1	512	1850.2	25.1	16.1	27.0	18.0	25.6	16.5	27.0	18.0	25.8	16.7	27.0	18.0
			661	1880.0	25.5	16.5			26.0	17.0			26.2	17.1		
			810	1909.8	25.4	16.4			25.8	16.8			26.0	17.0		
		2	512	1850.2	23.8	17.8	25.5	19.5	24.3	18.2	25.5	19.5	24.5	18.5	25.5	19.5
			661	1880.0	24.2	18.2			24.8	18.8			25.0	19.0		
			810	1909.8	24.1	18.1			24.6	18.6			24.8	18.8		
		3	512	1850.2	21.5	17.3	23.5	19.2	21.9	17.7	23.5	19.2	22.1	17.9	23.5	19.2
			661	1880.0	21.9	17.7			22.2	18.0			22.4	18.2		
			810	1909.8	21.8	17.6			22.2	17.9			22.4	18.1		
		4	512	1850.2	20.5	17.5	22.0	19.0	21.1	18.1	22.0	19.0	21.3	18.3	22.0	19.0
			661	1880.0	20.5	17.5			21.4	18.3			21.6	18.5		
			810	1909.8	20.4	17.4			21.4	18.4			21.6	18.5		

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, 3 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.		

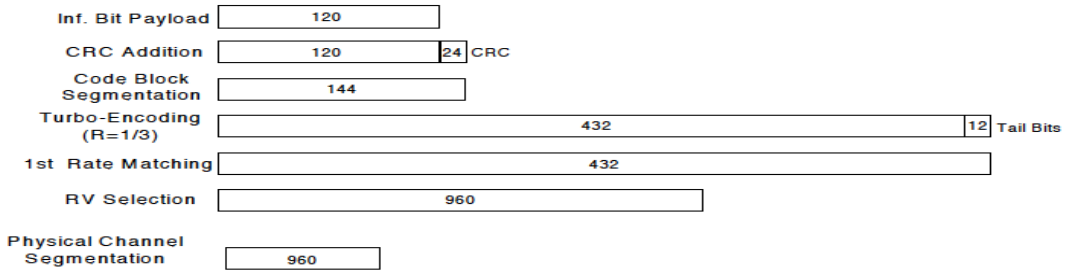

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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 support 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		
				DSI = 0, 1			DSI = 2			DSI = 3		
				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	23.0	N/A	24.5	20.5	N/A	21.5	20.5	N/A	21.5
		9400	1880.0	22.8			20.4			20.4		
		9538	1907.6	22.8			20.5			20.5		
HSDPA	Subtest 1	9262	1852.4	22.0	0	23.5	19.5	0	20.5	19.5	0	20.5
		9400	1880.0	21.9			19.5			19.5		
		9538	1907.6	21.8			19.5			19.5		
	Subtest 2	9262	1852.4	22.0	0	23.5	19.5	0	20.5	19.5	0	20.5
		9400	1880.0	21.8			19.4			19.4		
		9538	1907.6	21.8			19.5			19.5		
	Subtest 3	9262	1852.4	21.5	0.5	23.0	18.9	0.5	20.0	19.0	0.5	20.0
		9400	1880.0	21.3			18.9			18.9		
		9538	1907.6	21.3			18.9			19.0		
	Subtest 4	9262	1852.4	21.5	0.5	23.0	19.0	0.5	20.0	18.9	0.5	20.0
		9400	1880.0	21.3			18.9			18.9		
		9538	1907.6	21.3			19.0			19.0		
HSUPA	Subtest 1	9262	1852.4	22.0	0	23.5	19.5	0	20.5	19.5	0	20.5
		9400	1880.0	21.8			19.4			19.4		
		9538	1907.6	21.8			19.4			19.4		
	Subtest 2	9262	1852.4	20.0	2	21.5	17.4	2	18.5	17.4	2	18.5
		9400	1880.0	19.8			17.4			17.4		
		9538	1907.6	19.8			17.4			17.4		
	Subtest 3	9262	1852.4	20.9	1	22.5	17.5	1	19.5	17.5	1	19.5
		9400	1880.0	20.8			17.4			17.4		
		9538	1907.6	20.8			17.4			17.4		
	Subtest 4	9262	1852.4	20.0	2	21.5	17.4	2	18.5	17.5	2	18.5
		9400	1880.0	19.8			17.4			17.5		
		9538	1907.6	19.8			17.4			17.4		
	Subtest 5	9262	1852.4	21.5	0	23.5	19.0	0	20.5	19.0	0	20.5
		9400	1880.0	21.4			19.0			19.0		
		9538	1907.6	21.4			19.0			19.0		
DC-HSDPA	Subtest 1	9262	1852.4	22.0	0	23.5	19.5	0	20.5	19.4	0	20.5
		9400	1880.0	21.9			19.4			19.4		
		9538	1907.6	21.9			19.5			19.5		
	Subtest 2	9262	1852.4	22.0	0	23.5	19.4	0	20.5	19.4	0	20.5
		9400	1880.0	21.8			19.4			19.4		
		9538	1907.6	21.8			19.4			19.5		
	Subtest 3	9262	1852.4	21.5	0.5	23.0	19.0	0.5	20.0	19.0	0.5	20.0
		9400	1880.0	21.2			18.9			18.9		
		9538	1907.6	21.3			19.0			18.9		
	Subtest 4	9262	1852.4	21.2	0.5	23.0	19.0	0.5	20.0	19.0	0.5	20.0
		9400	1880.0	21.3			18.9			18.9		
		9538	1907.6	21.4			19.0			19.0		

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W-CDMA Band V Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)		
				DSI = All (0, 1, 2, 3)		
				Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	4132	826.4	23.0	N/A	24.5
		4183	836.6	23.0		
		4233	846.6	22.8		
HSDPA	Subtest 1	4132	826.4	21.9	0	23.5
		4183	836.6	21.9		
		4233	846.6	21.7		
	Subtest 2	4132	826.4	21.9	0	23.5
		4183	836.6	21.9		
		4233	846.6	21.7		
	Subtest 3	4132	826.4	21.4	0.5	23.0
		4183	836.6	21.4		
		4233	846.6	21.2		
	Subtest 4	4132	826.4	21.4	0.5	23.0
		4183	836.6	21.4		
		4233	846.6	21.2		
HSUPA	Subtest 1	4132	826.4	21.9	0	23.5
		4183	836.6	21.9		
		4233	846.6	21.7		
	Subtest 2	4132	826.4	19.9	2	21.5
		4183	836.6	19.9		
		4233	846.6	19.7		
	Subtest 3	4132	826.4	20.9	1	22.5
		4183	836.6	20.9		
		4233	846.6	20.7		
	Subtest 4	4132	826.4	20.0	2	21.5
		4183	836.6	19.9		
		4233	846.6	19.7		
	Subtest 5	4132	826.4	21.5	0	23.5
		4183	836.6	21.4		
		4233	846.6	21.3		
DC-HSDPA	Subtest 1	4132	826.4	21.9	0	23.5
		4183	836.6	21.9		
		4233	846.6	21.7		
	Subtest 2	4132	826.4	21.9	0	23.5
		4183	836.6	21.9		
		4233	846.6	21.8		
	Subtest 3	4132	826.4	21.4	0.5	23.0
		4183	836.6	21.4		
		4233	846.6	21.2		
	Subtest 4	4132	826.4	21.4	0.5	23.0
		4183	836.6	21.4		
		4233	846.6	21.3		

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

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LTE Band 2 Measured Results

LTE Band 2 Measured Results (DSI 0 or 1)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				DSI = 0 or 1				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	23.6	22.9	22.6	0.0	24.5
		1	49	23.0	23.8	22.9	0.0	24.5
		1	99	22.4	22.9	22.9	0.0	24.5
		50	0	22.3	22.7	21.8	1.0	23.5
		50	24	22.1	22.8	22.0	1.0	23.5
		50	50	21.9	22.7	22.0	1.0	23.5
		100	0	22.1	22.8	21.9	1.0	23.5
	16QAM	1	0	22.9	22.5	22.1	1.0	23.5
		1	49	22.5	23.4	22.4	1.0	23.5
		1	99	21.9	22.6	22.4	1.0	23.5
		50	0	21.4	21.7	20.9	2.0	22.5
		50	24	21.2	21.8	21.1	2.0	22.5
		50	50	20.9	21.8	21.1	2.0	22.5
		100	0	21.2	21.8	21.0	2.0	22.5
	64QAM	1	0	21.2	20.9	20.0	2.0	22.5
		1	49	20.7	22.4	20.4	2.0	22.5
		1	99	20.2	20.8	20.4	2.0	22.5
		50	0	19.7	20.4	19.5	3.0	21.5
		50	24	19.5	20.8	19.2	3.0	21.5
		50	50	19.3	20.3	19.3	3.0	21.5
		100	0	19.4	20.3	19.1	3.0	21.5
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	23.8	23.7	22.6	0.0	24.5
		1	37	23.2	23.8	22.9	0.0	24.5
		1	74	22.7	23.7	23.2	0.0	24.5
		36	0	22.7	22.7	21.9	1.0	23.5
		36	20	22.4	22.8	22.1	1.0	23.5
		36	39	22.1	22.8	22.3	1.0	23.5
		75	0	22.4	22.8	22.0	1.0	23.5
	16QAM	1	0	23.2	23.1	21.6	1.0	23.5
		1	37	22.7	23.2	22.0	1.0	23.5
		1	74	22.2	23.1	22.3	1.0	23.5
		36	0	21.9	21.7	21.0	2.0	22.5
		36	20	21.6	21.8	21.2	2.0	22.5
		36	39	21.3	21.8	21.4	2.0	22.5
		75	0	21.5	21.8	21.2	2.0	22.5
	64QAM	1	0	21.7	21.2	20.4	2.0	22.5
		1	37	20.9	21.9	20.9	2.0	22.5
		1	74	20.5	21.0	21.2	2.0	22.5
		36	0	20.1	20.7	19.1	3.0	21.5
		36	20	19.8	20.9	19.4	3.0	21.5
		36	39	19.5	20.7	19.5	3.0	21.5
		75	0	19.7	20.7	19.4	3.0	21.5

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LTE Band 2 Measured Results (DSI 0 or 1) (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	23.5	23.3	22.3	0.0	24.5
		1	25	23.7	23.6	23.3	0.0	24.5
		1	49	22.5	23.3	23.0	0.0	24.5
		25	0	22.8	22.6	22.1	1.0	23.5
		25	12	22.7	22.7	22.4	1.0	23.5
		25	25	22.3	22.5	22.5	1.0	23.5
		50	0	22.5	22.6	22.3	1.0	23.5
	16QAM	1	0	22.6	22.7	21.4	1.0	23.5
		1	25	22.6	23.0	22.5	1.0	23.5
		1	49	21.5	22.7	22.2	1.0	23.5
		25	0	21.8	21.6	21.2	2.0	22.5
		25	12	21.8	21.8	21.6	2.0	22.5
		25	25	21.4	21.6	21.6	2.0	22.5
		50	0	21.6	21.6	21.4	2.0	22.5
	64QAM	1	0	21.3	21.0	20.0	2.0	22.5
		1	25	21.4	21.9	20.9	2.0	22.5
		1	49	20.2	20.8	20.6	2.0	22.5
		25	0	20.1	20.6	19.4	3.0	21.5
		25	12	20.0	20.8	19.8	3.0	21.5
		25	25	19.6	20.7	19.9	3.0	21.5
		50	0	19.8	20.6	19.5	3.0	21.5
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	23.8	23.6	23.2	0.0	24.5
		1	12	23.8	23.6	23.5	0.0	24.5
		1	24	23.5	23.6	23.5	0.0	24.5
		12	0	22.9	22.6	22.4	1.0	23.5
		12	7	22.9	22.7	22.6	1.0	23.5
		12	13	22.8	22.6	22.7	1.0	23.5
		25	0	22.8	22.6	22.6	1.0	23.5
	16QAM	1	0	23.0	22.7	22.7	1.0	23.5
		1	12	23.0	22.8	23.1	1.0	23.5
		1	24	22.7	22.7	23.0	1.0	23.5
		12	0	21.9	21.7	21.6	2.0	22.5
		12	7	21.9	21.8	21.8	2.0	22.5
		12	13	21.9	21.7	21.8	2.0	22.5
		25	0	21.8	21.7	21.7	2.0	22.5
	64QAM	1	0	21.6	21.9	20.8	2.0	22.5
		1	12	21.4	22.0	21.2	2.0	22.5
		1	24	20.9	21.9	21.2	2.0	22.5
		12	0	20.6	20.6	19.8	3.0	21.5
		12	7	20.6	20.7	20.1	3.0	21.5
		12	13	20.4	20.6	20.2	3.0	21.5
		25	0	20.4	20.7	20.0	3.0	21.5

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LTE Band 2 Measured Results (DSI 0 or 1) (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	23.9	23.6	23.4	0.0	24.5
		1	8	23.8	23.6	23.5	0.0	24.5
		1	14	23.7	23.5	23.5	0.0	24.5
		8	0	22.9	22.6	22.6	1.0	23.5
		8	4	22.9	22.7	22.7	1.0	23.5
		8	7	22.9	22.7	22.7	1.0	23.5
		15	0	22.9	22.7	22.6	1.0	23.5
	16QAM	1	0	22.9	22.6	22.7	1.0	23.5
		1	8	22.8	22.5	23.0	1.0	23.5
		1	14	22.8	22.5	23.0	1.0	23.5
		8	0	22.0	21.7	21.7	2.0	22.5
		8	4	22.0	21.8	21.8	2.0	22.5
		8	7	22.0	21.8	21.8	2.0	22.5
		15	0	21.9	21.7	21.7	2.0	22.5
	64QAM	1	0	22.1	22.0	21.0	2.0	22.5
		1	8	21.8	21.9	21.2	2.0	22.5
		1	14	21.6	21.9	21.2	2.0	22.5
		8	0	20.7	20.7	20.1	3.0	21.5
		8	4	20.7	20.8	20.2	3.0	21.5
		8	7	20.7	20.8	20.3	3.0	21.5
		15	0	20.7	20.7	20.1	3.0	21.5

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	23.7	23.6	23.5	0.0	24.5
		1	3	23.7	23.7	23.5	0.0	24.5
		1	5	23.6	23.5	23.4	0.0	24.5
		3	0	23.6	23.5	23.2	0.0	24.5
		3	1	23.6	23.6	23.3	0.0	24.5
		3	3	23.6	23.6	23.3	0.0	24.5
		6	0	22.7	22.7	22.4	1.0	23.5
	16QAM	1	0	22.8	22.6	22.5	1.0	23.5
		1	3	22.9	22.7	22.5	1.0	23.5
		1	5	22.8	22.7	22.5	1.0	23.5
		3	0	22.7	22.9	22.5	1.0	23.5
		3	1	22.7	22.9	22.5	1.0	23.5
		3	3	22.7	22.9	22.5	1.0	23.5
		6	0	21.8	21.8	21.7	2.0	22.5
	64QAM	1	0	22.0	22.1	21.2	2.0	22.5
		1	3	22.0	22.2	21.3	2.0	22.5
		1	5	21.9	22.0	21.2	2.0	22.5
		3	0	21.7	22.0	21.2	2.0	22.5
		3	1	21.7	22.0	21.2	2.0	22.5
		3	3	21.7	22.0	21.3	2.0	22.5
		6	0	20.8	20.6	20.4	3.0	21.5

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LTE Band 2 Measured Results (DSI 2 and 3)

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
				DSI = 2					DSI = 3				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100			18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz			1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	20.5	20.5	20.5	0.0	21.5	20.4	20.3	20.3	0.0	21.5
		1	49	20.7	20.8	20.8	0.0	21.5	20.6	20.7	20.6	0.0	21.5
		1	99	20.6	20.6	20.6	0.0	21.5	20.5	20.4	20.4	0.0	21.5
		50	0	20.8	20.8	20.7	0.0	21.5	20.7	20.6	20.5	0.0	21.5
		50	24	20.9	20.9	20.8	0.0	21.5	20.7	20.7	20.7	0.0	21.5
		50	50	20.8	20.8	20.8	0.0	21.5	20.7	20.6	20.6	0.0	21.5
		100	0	20.8	20.8	20.8	0.0	21.5	20.6	20.7	20.6	0.0	21.5
	16QAM	1	0	21.0	21.1	20.9	0.0	21.5	20.9	20.8	20.8	0.0	21.5
		1	49	21.2	21.3	21.2	0.0	21.5	21.1	21.1	21.1	0.0	21.5
		1	99	21.0	21.2	21.2	0.0	21.5	21.0	20.9	21.0	0.0	21.5
		50	0	20.6	20.8	19.8	0.0	21.5	20.7	20.6	19.9	0.0	21.5
		50	24	20.5	20.9	19.9	0.0	21.5	20.5	20.7	20.0	0.0	21.5
		50	50	20.3	20.9	20.1	0.0	21.5	20.2	20.7	20.2	0.0	21.5
		100	0	20.5	20.9	20.0	0.0	21.5	20.4	20.7	20.0	0.0	21.5
	64QAM	1	0	20.6	19.3	19.3	0.0	21.5	20.2	19.3	19.6	0.0	21.5
		1	49	20.2	21.0	19.5	0.0	21.5	19.8	20.9	19.6	0.0	21.5
		1	99	19.6	19.8	20.0	0.0	21.5	19.2	19.7	20.1	0.0	21.5
		50	0	18.9	19.3	18.0	1.0	20.5	18.8	19.2	18.1	1.0	20.5
		50	24	18.7	19.8	18.2	1.0	20.5	18.7	19.7	18.1	1.0	20.5
		50	50	18.4	19.5	18.4	1.0	20.5	18.4	19.4	18.2	1.0	20.5
		100	0	18.6	19.4	18.2	1.0	20.5	18.6	19.2	18.1	1.0	20.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18675	18900	19125			18675	18900	19125		
				1857.5 MHz	1880 MHz	1902.5 MHz			1857.5 MHz	1880 MHz	1902.5 MHz		
15 MHz	QPSK	1	0	20.7	20.6	20.6	0.0	21.5	20.6	20.5	20.4	0.0	21.5
		1	37	20.7	20.7	20.8	0.0	21.5	20.6	20.6	20.6	0.0	21.5
		1	74	20.6	20.7	20.7	0.0	21.5	20.5	20.6	20.5	0.0	21.5
		36	0	20.8	20.7	20.8	0.0	21.5	20.7	20.6	20.5	0.0	21.5
		36	20	20.9	20.8	20.8	0.0	21.5	20.7	20.6	20.6	0.0	21.5
		36	39	20.8	20.8	20.8	0.0	21.5	20.7	20.7	20.7	0.0	21.5
		75	0	20.8	20.8	20.7	0.0	21.5	20.7	20.6	20.6	0.0	21.5
	16QAM	1	0	20.7	21.1	21.1	0.0	21.5	21.0	21.0	20.4	0.0	21.5
		1	37	20.8	21.2	21.2	0.0	21.5	21.1	21.1	20.6	0.0	21.5
		1	74	20.7	21.1	21.2	0.0	21.5	21.0	21.1	20.5	0.0	21.5
		36	0	20.9	20.8	19.8	0.0	21.5	20.7	20.6	19.8	0.0	21.5
		36	20	20.9	20.8	20.0	0.0	21.5	20.8	20.6	20.1	0.0	21.5
		36	39	20.6	20.9	20.4	0.0	21.5	20.6	20.7	20.5	0.0	21.5
		75	0	20.8	20.8	20.2	0.0	21.5	20.7	20.6	20.2	0.0	21.5
	64QAM	1	0	20.9	20.0	19.4	0.0	21.5	20.8	20.0	19.3	0.0	21.5
		1	37	20.2	20.9	19.7	0.0	21.5	20.1	20.8	19.6	0.0	21.5
		1	74	19.8	20.4	20.6	0.0	21.5	19.7	20.3	20.5	0.0	21.5
		36	0	19.3	19.6	18.9	1.0	20.5	19.2	19.5	18.1	1.0	20.5
		36	20	19.1	19.9	18.2	1.0	20.5	19.0	19.8	18.1	1.0	20.5
		36	39	18.8	19.8	18.6	1.0	20.5	18.7	19.7	18.5	1.0	20.5
		75	0	19.0	19.6	18.3	1.0	20.5	18.9	19.6	18.3	1.0	20.5

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LTE Band 2 Measured Results (DSI 2 and 3) (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18650	18900	19150			18650	18900	19150		
				1855 MHz	1880 MHz	1905 MHz			1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	20.4	20.3	20.2	0.0	21.5	20.1	20.2	20.1	0.0	21.5
		1	25	20.6	20.6	20.5	0.0	21.5	20.5	20.4	20.5	0.0	21.5
		1	49	20.3	20.3	20.2	0.0	21.5	20.1	20.2	20.2	0.0	21.5
		25	0	20.7	20.6	20.5	0.0	21.5	20.5	20.4	20.4	0.0	21.5
		25	12	20.8	20.7	20.7	0.0	21.5	20.6	20.5	20.5	0.0	21.5
		25	25	20.6	20.6	20.5	0.0	21.5	20.5	20.4	20.5	0.0	21.5
		50	0	20.6	20.6	20.6	0.0	21.5	20.5	20.4	20.4	0.0	21.5
	16QAM	1	0	20.4	20.7	20.3	0.0	21.5	20.3	20.1	20.5	0.0	21.5
		1	25	20.6	21.1	20.6	0.0	21.5	20.5	20.4	20.9	0.0	21.5
		1	49	20.3	20.8	20.3	0.0	21.5	20.3	20.1	20.6	0.0	21.5
		25	0	20.7	20.6	20.2	0.0	21.5	20.7	20.4	20.0	0.0	21.5
		25	12	20.8	20.7	20.6	0.0	21.5	20.7	20.5	20.5	0.0	21.5
		25	25	20.7	20.6	20.6	0.0	21.5	20.6	20.4	20.5	0.0	21.5
		50	0	20.6	20.6	20.4	0.0	21.5	20.6	20.4	20.4	0.0	21.5
	64QAM	1	0	20.3	20.0	19.0	0.0	21.5	20.1	19.8	19.0	0.0	21.5
		1	25	20.5	21.0	19.7	0.0	21.5	20.3	20.7	19.7	0.0	21.5
		1	49	19.4	20.3	19.8	0.0	21.5	19.2	20.1	19.8	0.0	21.5
		25	0	19.3	19.5	18.1	1.0	20.5	19.3	19.4	18.1	1.0	20.5
		25	12	19.4	19.9	18.6	1.0	20.5	19.3	19.8	18.5	1.0	20.5
		25	25	19.0	19.7	18.8	1.0	20.5	18.9	19.7	18.7	1.0	20.5
		50	0	19.1	19.5	18.5	1.0	20.5	19.1	19.5	18.3	1.0	20.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18625	18900	19175			18625	18900	19175		
				1852.5 MHz	1880 MHz	1907.5 MHz			1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	20.7	20.6	20.6	0.0	21.5	20.5	20.4	20.5	0.0	21.5
		1	12	20.7	20.6	20.7	0.0	21.5	20.5	20.5	20.6	0.0	21.5
		1	24	20.6	20.6	20.6	0.0	21.5	20.4	20.4	20.5	0.0	21.5
		12	0	20.8	20.6	20.6	0.0	21.5	20.6	20.5	20.5	0.0	21.5
		12	7	20.8	20.7	20.6	0.0	21.5	20.6	20.5	20.5	0.0	21.5
		12	13	20.8	20.7	20.6	0.0	21.5	20.6	20.5	20.5	0.0	21.5
		25	0	20.8	20.7	20.6	0.0	21.5	20.6	20.5	20.5	0.0	21.5
	16QAM	1	0	21.3	20.7	20.8	0.0	21.5	21.1	20.6	20.6	0.0	21.5
		1	12	21.3	20.8	20.9	0.0	21.5	21.2	20.6	20.7	0.0	21.5
		1	24	21.2	20.7	20.7	0.0	21.5	21.0	20.6	20.6	0.0	21.5
		12	0	20.9	20.7	20.6	0.0	21.5	20.8	20.6	20.6	0.0	21.5
		12	7	20.9	20.7	20.7	0.0	21.5	20.8	20.5	20.6	0.0	21.5
		12	13	20.9	20.7	20.7	0.0	21.5	20.7	20.5	20.5	0.0	21.5
		25	0	20.8	20.6	20.6	0.0	21.5	20.7	20.5	20.5	0.0	21.5
	64QAM	1	0	21.0	20.8	19.2	0.0	21.5	20.9	20.7	19.1	0.0	21.5
		1	12	21.0	20.9	19.9	0.0	21.5	20.9	20.8	19.8	0.0	21.5
		1	24	20.6	20.9	20.0	0.0	21.5	20.5	20.7	20.0	0.0	21.5
		12	0	19.7	19.8	19.2	1.0	20.5	19.6	19.7	18.6	1.0	20.5
		12	7	19.7	19.9	19.0	1.0	20.5	19.6	19.9	18.9	1.0	20.5
		12	13	19.6	19.9	19.2	1.0	20.5	19.5	19.9	19.1	1.0	20.5
		25	0	19.6	19.8	19.4	1.0	20.5	19.5	19.8	18.8	1.0	20.5

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LTE Band 2 Measured Results (DSI 2 and 3) (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18615	18900	19185			18615	18900	19185		
				1851.5 MHz	1880 MHz	1908.5 MHz			1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	20.7	20.5	20.6	0.0	21.5	20.6	20.4	20.5	0.0	21.5
		1	8	20.7	20.5	20.5	0.0	21.5	20.5	20.4	20.4	0.0	21.5
		1	14	20.6	20.5	20.5	0.0	21.5	20.4	20.3	20.4	0.0	21.5
		8	0	20.7	20.6	20.7	0.0	21.5	20.6	20.5	20.5	0.0	21.5
		8	4	20.7	20.6	20.7	0.0	21.5	20.6	20.5	20.5	0.0	21.5
		8	7	20.8	20.6	20.7	0.0	21.5	20.6	20.5	20.5	0.0	21.5
		15	0	20.7	20.7	20.7	0.0	21.5	20.6	20.5	20.5	0.0	21.5
	16QAM	1	0	21.1	20.7	20.6	0.0	21.5	21.0	20.6	20.5	0.0	21.5
		1	8	21.1	20.6	20.6	0.0	21.5	21.0	20.5	20.4	0.0	21.5
		1	14	21.0	20.6	20.5	0.0	21.5	20.9	20.5	20.3	0.0	21.5
		8	0	20.9	20.7	20.8	0.0	21.5	20.7	20.5	20.7	0.0	21.5
		8	4	20.8	20.7	20.8	0.0	21.5	20.7	20.5	20.7	0.0	21.5
		8	7	20.9	20.7	20.8	0.0	21.5	20.7	20.6	20.6	0.0	21.5
		15	0	20.8	20.6	20.7	0.0	21.5	20.7	20.5	20.5	0.0	21.5
	64QAM	1	0	20.9	20.9	20.1	0.0	21.5	20.7	20.7	20.1	0.0	21.5
		1	8	20.9	20.9	20.4	0.0	21.5	20.7	20.7	20.4	0.0	21.5
		1	14	20.7	20.8	20.4	0.0	21.5	20.7	20.6	20.4	0.0	21.5
		8	0	19.9	19.7	19.1	1.0	20.5	19.9	19.7	19.0	1.0	20.5
		8	4	19.9	19.8	19.3	1.0	20.5	19.9	19.8	19.2	1.0	20.5
		8	7	19.9	19.8	19.4	1.0	20.5	19.9	19.9	19.3	1.0	20.5
		15	0	19.9	19.9	19.2	1.0	20.5	19.9	19.9	19.1	1.0	20.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18607	18900	19193			18607	18900	19193		
				1850.7 MHz	1880 MHz	1909.3 MHz			1850.7 MHz	1880 MHz	1909.3 MHz		
1.4 MHz	QPSK	1	0	20.6	20.5	20.5	0.0	21.5	20.5	20.3	20.3	0.0	21.5
		1	3	20.6	20.6	20.6	0.0	21.5	20.5	20.4	20.4	0.0	21.5
		1	5	20.5	20.5	20.5	0.0	21.5	20.5	20.3	20.2	0.0	21.5
		3	0	20.5	20.4	20.5	0.0	21.5	20.4	20.4	20.3	0.0	21.5
		3	1	20.6	20.5	20.5	0.0	21.5	20.5	20.4	20.3	0.0	21.5
		3	3	20.6	20.5	20.5	0.0	21.5	20.4	20.4	20.3	0.0	21.5
		6	0	20.6	20.6	20.5	0.0	21.5	20.5	20.4	20.4	0.0	21.5
	16QAM	1	0	20.7	20.6	21.0	0.0	21.5	20.6	20.8	20.4	0.0	21.5
		1	3	20.7	20.8	21.0	0.0	21.5	20.7	20.9	20.5	0.0	21.5
		1	5	20.7	20.6	20.9	0.0	21.5	20.6	20.8	20.4	0.0	21.5
		3	0	20.8	20.5	20.7	0.0	21.5	20.6	20.5	20.6	0.0	21.5
		3	1	20.9	20.6	20.8	0.0	21.5	20.6	20.6	20.6	0.0	21.5
		3	3	20.9	20.6	20.7	0.0	21.5	20.6	20.6	20.6	0.0	21.5
		6	0	20.8	20.7	20.5	0.0	21.5	20.7	20.3	20.6	0.0	21.5
	64QAM	1	0	20.9	21.0	20.2	0.0	21.5	20.7	20.8	20.2	0.0	21.5
		1	3	21.0	21.1	20.3	0.0	21.5	20.8	20.9	20.3	0.0	21.5
		1	5	20.9	20.9	20.2	0.0	21.5	20.7	20.8	20.2	0.0	21.5
		3	0	20.7	20.9	20.2	0.0	21.5	20.5	20.7	20.2	0.0	21.5
		3	1	20.7	21.0	20.2	0.0	21.5	20.5	20.8	20.3	0.0	21.5
		3	3	20.7	21.0	20.2	0.0	21.5	20.5	20.8	20.3	0.0	21.5
		6	0	19.8	19.8	19.4	1.0	20.5	19.9	19.9	19.4	1.0	20.5

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LTE Band 5 Measured Results

LTE Band 5 Measured Results (DSI = All (0, 1, 2, 3,))

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				DSI = All (0, 1, 2, 3)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				20450	20525	20600		
				829 MHz	836.5 MHz	844 MHz		
10 MHz	QPSK	1	0		23.4		0.0	24.5
		1	25		23.6		0.0	24.5
		1	49		23.3		0.0	24.5
		25	0		22.7		1.0	23.5
		25	12		22.7		1.0	23.5
		25	25		22.6		1.0	23.5
		50	0		22.6		1.0	23.5
	16QAM	1	0		22.5		1.0	23.5
		1	25		22.7		1.0	23.5
		1	49		22.4		1.0	23.5
		25	0		21.8		2.0	22.5
		25	12		21.9		2.0	22.5
		25	25		21.8		2.0	22.5
		50	0		21.7		2.0	22.5
	64QAM	1	0		21.3		2.0	22.5
		1	25		21.7		2.0	22.5
		1	49		20.7		2.0	22.5
		25	0		20.5		3.0	21.5
		25	12		20.7		3.0	21.5
		25	25		20.4		3.0	21.5
		50	0		20.4		3.0	21.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				20425	20525	20625		
				826.5 MHz	836.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	23.4	23.6	23.5	0.0	24.5
		1	12	23.6	23.6	23.5	0.0	24.5
		1	24	23.2	23.6	23.0	0.0	24.5
		12	0	22.6	22.7	22.5	1.0	23.5
		12	7	22.7	22.7	22.5	1.0	23.5
		12	13	22.6	22.7	22.5	1.0	23.5
		25	0	22.6	22.7	22.5	1.0	23.5
	16QAM	1	0	22.9	22.8	22.7	1.0	23.5
		1	12	23.2	22.8	22.7	1.0	23.5
		1	24	22.8	22.7	22.1	1.0	23.5
		12	0	21.8	21.7	21.6	2.0	22.5
		12	7	21.9	21.8	21.6	2.0	22.5
		12	13	21.8	21.7	21.6	2.0	22.5
		25	0	21.7	21.6	21.6	2.0	22.5
	64QAM	1	0	20.7	21.8	21.8	2.0	22.5
		1	12	20.9	21.9	21.6	2.0	22.5
		1	24	20.7	21.7	20.6	2.0	22.5
		12	0	19.9	20.5	20.6	3.0	21.5
		12	7	20.0	20.6	20.5	3.0	21.5
		12	13	19.9	20.6	20.1	3.0	21.5
		25	0	19.8	20.5	20.3	3.0	21.5

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LTE Band 5 Measured Results (DSI = All (0, 1, 2, 3,)) (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				20415	20525	20635		
				825.5 MHz	836.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	23.5	23.6	23.5	0.0	24.5
		1	8	23.5	23.5	23.2	0.0	24.5
		1	14	23.4	23.6	22.9	0.0	24.5
		8	0	22.6	22.7	22.5	1.0	23.5
		8	4	22.6	22.7	22.5	1.0	23.5
		8	7	22.6	22.7	22.4	1.0	23.5
		15	0	22.6	22.7	22.5	1.0	23.5
	16QAM	1	0	22.5	22.6	22.9	1.0	23.5
		1	8	22.6	22.5	22.7	1.0	23.5
		1	14	22.5	22.5	22.3	1.0	23.5
		8	0	21.6	21.8	21.5	2.0	22.5
		8	4	21.7	21.8	21.6	2.0	22.5
		8	7	21.7	21.8	21.6	2.0	22.5
		15	0	21.6	21.7	21.6	2.0	22.5
	64QAM	1	0	21.0	21.7	21.5	2.0	22.5
		1	8	21.1	21.7	21.1	2.0	22.5
		1	14	21.0	21.7	20.7	2.0	22.5
		8	0	19.9	20.6	20.2	3.0	21.5
		8	4	19.9	20.7	20.1	3.0	21.5
		8	7	19.9	20.7	19.9	3.0	21.5
		15	0	19.8	20.7	20.0	3.0	21.5

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				20407	20525	20643		
				824.7 MHz	836.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	23.3	23.6	23.1	0.0	24.5
		1	3	23.3	23.6	23.1	0.0	24.5
		1	5	23.3	23.5	23.0	0.0	24.5
		3	0	23.2	23.5	23.0	0.0	24.5
		3	1	23.3	23.6	23.0	0.0	24.5
		3	3	23.3	23.6	23.0	0.0	24.5
		6	0	22.3	22.6	22.1	1.0	23.5
	16QAM	1	0	22.3	22.7	22.5	1.0	23.5
		1	3	22.4	22.8	22.5	1.0	23.5
		1	5	22.4	22.8	22.3	1.0	23.5
		3	0	22.4	22.6	22.3	1.0	23.5
		3	1	22.5	22.7	22.3	1.0	23.5
		3	3	22.6	22.7	22.3	1.0	23.5
		6	0	21.5	21.8	21.1	2.0	22.5
	64QAM	1	0	21.0	21.7	21.2	2.0	22.5
		1	3	21.1	22.0	20.8	2.0	22.5
		1	5	21.0	21.7	20.9	2.0	22.5
		3	0	20.9	21.7	20.7	2.0	22.5
		3	1	20.9	21.7	20.6	2.0	22.5
		3	3	20.9	21.8	20.6	2.0	22.5
		6	0	19.5	20.8	19.7	3.0	21.5

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LTE Band 7 Measured Results

LTE Band 7 Measured Results (DSI 0 or 1)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				DSI = 0 or 1				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				20850	21100	21350		
				2510 MHz	2535 MHz	2560 MHz		
20 MHz	QPSK	1	0	22.1	22.2	22.2	0.0	23.5
		1	49	22.5	22.4	22.3	0.0	23.5
		1	99	22.1	22.2	21.9	0.0	23.5
		50	0	21.4	21.4	21.4	1.0	22.5
		50	24	21.5	21.4	21.4	1.0	22.5
		50	50	21.3	21.4	21.2	1.0	22.5
		100	0	21.4	21.4	21.3	1.0	22.5
	16QAM	1	0	21.5	21.7	21.7	1.0	22.5
		1	49	21.8	21.9	21.7	1.0	22.5
		1	99	21.6	21.7	21.3	1.0	22.5
		50	0	20.4	20.5	20.4	2.0	21.5
		50	24	20.5	20.5	20.4	2.0	21.5
		50	50	20.4	20.4	20.2	2.0	21.5
		100	0	20.4	20.4	20.3	2.0	21.5
	64QAM	1	0	20.8	20.4	20.5	2.0	21.5
		1	49	21.1	20.7	20.6	2.0	21.5
		1	99	20.7	20.4	20.1	2.0	21.5
		50	0	19.4	19.5	19.4	3.0	20.5
		50	24	19.6	19.5	19.5	3.0	20.5
		50	50	19.4	19.4	19.2	3.0	20.5
		100	0	19.4	19.4	19.3	3.0	20.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				20825	21100	21375		
				2507.5 MHz	2535 MHz	2562.5 MHz		
15 MHz	QPSK	1	0	22.3	22.3	22.2	0.0	23.5
		1	37	22.4	22.4	22.3	0.0	23.5
		1	74	22.3	22.3	22.1	0.0	23.5
		36	0	21.5	21.5	21.3	1.0	22.5
		36	20	21.4	21.5	21.4	1.0	22.5
		36	39	21.4	21.4	21.2	1.0	22.5
		75	0	21.4	21.4	21.3	1.0	22.5
	16QAM	1	0	21.4	21.7	21.8	1.0	22.5
		1	37	21.5	21.9	21.8	1.0	22.5
		1	74	21.3	21.7	21.6	1.0	22.5
		36	0	20.5	20.5	20.3	2.0	21.5
		36	20	20.4	20.5	20.3	2.0	21.5
		36	39	20.4	20.4	20.2	2.0	21.5
		75	0	20.4	20.4	20.3	2.0	21.5
	64QAM	1	0	20.5	20.9	20.5	2.0	21.5
		1	37	20.6	21.0	20.6	2.0	21.5
		1	74	20.4	20.9	20.3	2.0	21.5
		36	0	19.6	19.5	19.4	3.0	20.5
		36	20	19.6	19.4	19.4	3.0	20.5
		36	39	19.5	19.4	19.3	3.0	20.5
		75	0	19.5	19.5	19.3	3.0	20.5

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LTE Band 7 Measured Results (DSI 0 or 1) (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				20800	21100	21400		
				2505 MHz	2535 MHz	2565 MHz		
10 MHz	QPSK	1	0	22.0	22.0	21.9	0.0	23.5
		1	25	22.2	22.3	22.1	0.0	23.5
		1	49	21.9	22.0	21.8	0.0	23.5
		25	0	21.3	21.2	21.1	1.0	22.5
		25	12	21.3	21.3	21.1	1.0	22.5
		25	25	21.1	21.2	21.0	1.0	22.5
		50	0	21.2	21.2	21.1	1.0	22.5
	16QAM	1	0	21.1	21.0	21.3	1.0	22.5
		1	25	21.3	21.2	21.5	1.0	22.5
		1	49	21.0	21.0	21.2	1.0	22.5
		25	0	20.4	20.3	20.1	2.0	21.5
		25	12	20.3	20.3	20.2	2.0	21.5
		25	25	20.2	20.2	20.1	2.0	21.5
		50	0	20.2	20.2	20.1	2.0	21.5
	64QAM	1	0	20.4	20.4	19.9	2.0	21.5
		1	25	20.5	20.6	20.2	2.0	21.5
		1	49	20.1	20.3	19.8	2.0	21.5
		25	0	19.4	19.3	19.2	3.0	20.5
		25	12	19.4	19.3	19.3	3.0	20.5
		25	25	19.3	19.3	19.2	3.0	20.5
		50	0	19.2	19.2	19.1	3.0	20.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				20775	21100	21425		
				2502.5 MHz	2535 MHz	2567.5 MHz		
5 MHz	QPSK	1	0	22.4	22.2	22.1	0.0	23.5
		1	12	22.4	22.2	22.1	0.0	23.5
		1	24	22.3	22.1	22.0	0.0	23.5
		12	0	21.3	21.3	21.1	1.0	22.5
		12	7	21.4	21.3	21.1	1.0	22.5
		12	13	21.3	21.3	21.1	1.0	22.5
		25	0	21.4	21.3	21.1	1.0	22.5
	16QAM	1	0	21.5	21.9	21.3	1.0	22.5
		1	12	21.5	21.9	21.3	1.0	22.5
		1	24	21.5	21.8	21.2	1.0	22.5
		12	0	20.4	20.4	20.1	2.0	21.5
		12	7	20.5	20.4	20.2	2.0	21.5
		12	13	20.4	20.4	20.2	2.0	21.5
		25	0	20.4	20.3	20.1	2.0	21.5
	64QAM	1	0	20.2	20.7	20.4	2.0	21.5
		1	12	20.3	20.7	20.5	2.0	21.5
		1	24	20.2	20.6	20.3	2.0	21.5
		12	0	19.4	19.2	19.2	3.0	20.5
		12	7	19.4	19.2	19.2	3.0	20.5
		12	13	19.4	19.2	19.2	3.0	20.5
		25	0	19.3	19.2	19.1	3.0	20.5

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LTE Band 7 Measured Results (DSI 2 and 3)

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
				DSI = 2					DSI = 3				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20850	21100	21350			20850	21100	21350		
				2510 MHz	2535 MHz	2560 MHz			2510 MHz	2535 MHz	2560 MHz		
20 MHz	QPSK	1	0	21.3	21.3	21.3	0.0	22.5	20.8	20.8	20.8	0.0	21.5
		1	49	21.5	21.5	21.3	0.0	22.5	21.3	21.2	20.9	0.0	21.5
		1	99	21.3	21.2	20.8	0.0	22.5	20.8	20.8	20.4	0.0	21.5
		50	0	21.6	21.5	21.4	0.0	22.5	21.1	21.1	21.0	0.0	21.5
		50	24	21.6	21.5	21.4	0.0	22.5	21.2	21.1	20.9	0.0	21.5
		50	50	21.5	21.5	21.2	0.0	22.5	21.1	21.0	20.7	0.0	21.5
		100	0	21.6	21.5	21.3	0.0	22.5	21.1	21.0	20.9	0.0	21.5
	16QAM	1	0	21.7	21.8	21.7	0.0	22.5	21.2	21.4	21.2	0.0	21.5
		1	49	21.8	21.8	21.7	0.0	22.5	21.2	21.2	21.2	0.0	21.5
		1	99	21.7	21.8	21.2	0.0	22.5	21.3	21.3	20.7	0.0	21.5
		50	0	20.6	20.7	20.4	0.0	22.5	20.6	20.7	20.4	0.0	21.5
		50	24	20.7	20.7	20.4	0.0	22.5	20.7	20.6	20.5	0.0	21.5
		50	50	20.6	20.6	20.2	0.0	22.5	20.6	20.6	20.2	0.0	21.5
		100	0	20.6	20.6	20.3	0.0	22.5	20.6	20.6	20.4	0.0	21.5
	64QAM	1	0	21.0	20.8	20.8	0.0	22.5	21.0	20.7	20.7	0.0	21.5
		1	49	21.3	20.9	20.7	0.0	22.5	21.3	20.9	20.7	0.0	21.5
		1	99	21.1	20.5	20.1	0.0	22.5	21.1	20.6	20.2	0.0	21.5
		50	0	19.7	19.7	19.5	1.0	21.5	19.7	19.7	19.5	1.0	20.5
		50	24	19.8	19.7	19.5	1.0	21.5	19.8	19.7	19.5	1.0	20.5
		50	50	19.7	19.6	19.3	1.0	21.5	19.7	19.6	19.3	1.0	20.5
		100	0	19.7	19.6	19.4	1.0	21.5	19.7	19.6	19.4	1.0	20.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20825	21100	21375			20825	21100	21375		
				2507.5 MHz	2535 MHz	2562.5 MHz			2507.5 MHz	2535 MHz	2562.5 MHz		
15 MHz	QPSK	1	0	21.5	21.5	21.4	0.0	22.5	21.0	21.0	20.9	0.0	21.5
		1	37	21.6	21.6	21.3	0.0	22.5	21.1	21.1	20.8	0.0	21.5
		1	74	21.5	21.5	21.2	0.0	22.5	21.0	21.0	20.6	0.0	21.5
		36	0	21.7	21.7	21.4	0.0	22.5	21.2	21.2	20.9	0.0	21.5
		36	20	21.7	21.7	21.5	0.0	22.5	21.2	21.2	20.9	0.0	21.5
		36	39	21.7	21.6	21.3	0.0	22.5	21.2	21.1	20.8	0.0	21.5
		75	0	21.7	21.6	21.4	0.0	22.5	21.2	21.1	20.9	0.0	21.5
	16QAM	1	0	21.5	21.9	21.9	0.0	22.5	21.0	21.4	21.4	0.0	21.5
		1	37	21.7	21.9	21.9	0.0	22.5	21.1	21.5	21.4	0.0	21.5
		1	74	21.6	21.9	21.7	0.0	22.5	21.0	21.4	21.2	0.0	21.5
		36	0	20.7	20.8	20.4	0.0	22.5	20.6	20.7	20.4	0.0	21.5
		36	20	20.7	20.8	20.4	0.0	22.5	20.7	20.7	20.4	0.0	21.5
		36	39	20.7	20.7	20.3	0.0	22.5	20.7	20.6	20.3	0.0	21.5
		75	0	20.7	20.6	20.4	0.0	22.5	20.7	20.6	20.4	0.0	21.5
	64QAM	1	0	20.9	20.6	20.9	0.0	22.5	20.7	21.1	20.6	0.0	21.5
		1	37	21.0	20.8	20.9	0.0	22.5	20.8	21.3	20.6	0.0	21.5
		1	74	20.9	20.5	20.7	0.0	22.5	20.7	21.2	20.4	0.0	21.5
		36	0	19.7	19.8	19.4	1.0	21.5	19.8	19.7	19.5	1.0	20.5
		36	20	19.8	19.8	19.4	1.0	21.5	19.8	19.7	19.5	1.0	20.5
		36	39	19.8	19.7	19.3	1.0	21.5	19.8	19.6	19.3	1.0	20.5
		75	0	19.7	19.7	19.4	1.0	21.5	19.7	19.7	19.4	1.0	20.5

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LTE Band 7 Measured Results (DSI 2 and 3) (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20800	21100	21400			20800	21100	21400		
				2505 MHz	2535 MHz	2565 MHz			2505 MHz	2535 MHz	2565 MHz		
10 MHz	QPSK	1	0	21.2	21.2	21.0	0.0	22.5	20.8	20.7	20.3	0.0	21.5
		1	25	21.4	21.5	21.1	0.0	22.5	21.0	21.0	20.5	0.0	21.5
		1	49	21.1	21.3	20.9	0.0	22.5	20.7	20.7	20.2	0.0	21.5
		25	0	21.5	21.5	21.2	0.0	22.5	21.0	21.0	20.6	0.0	21.5
		25	12	21.5	21.5	21.2	0.0	22.5	21.0	21.0	20.7	0.0	21.5
		25	25	21.5	21.4	21.0	0.0	22.5	20.9	20.9	20.5	0.0	21.5
		50	0	21.5	21.4	21.1	0.0	22.5	20.9	20.9	20.6	0.0	21.5
	16QAM	1	0	21.3	21.3	21.4	0.0	22.5	20.8	21.1	20.5	0.0	21.5
		1	25	21.5	21.5	21.6	0.0	22.5	20.9	21.4	20.6	0.0	21.5
		1	49	21.3	21.2	21.3	0.0	22.5	20.6	21.1	20.3	0.0	21.5
		25	0	20.6	20.5	20.2	0.0	22.5	20.5	20.6	20.3	0.0	21.5
		25	12	20.6	20.5	20.3	0.0	22.5	20.5	20.5	20.3	0.0	21.5
		25	25	20.6	20.4	20.1	0.0	22.5	20.5	20.4	20.1	0.0	21.5
		50	0	20.5	20.4	20.2	0.0	22.5	20.4	20.4	20.1	0.0	21.5
	64QAM	1	0	20.7	20.4	20.2	0.0	22.5	20.4	20.5	20.3	0.0	21.5
		1	25	20.9	20.7	20.3	0.0	22.5	20.6	20.7	20.5	0.0	21.5
		1	49	20.6	20.4	20.1	0.0	22.5	20.4	20.4	20.1	0.0	21.5
		25	0	19.6	19.7	19.2	1.0	21.5	19.6	19.6	19.2	1.0	20.5
		25	12	19.6	19.7	19.3	1.0	21.5	19.7	19.6	19.3	1.0	20.5
		25	25	19.6	19.6	19.2	1.0	21.5	19.6	19.5	19.1	1.0	20.5
		50	0	19.5	19.5	19.1	1.0	21.5	19.5	19.4	19.1	1.0	20.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20775	21100	21425			20775	21100	21425		
				2502.5 MHz	2535 MHz	2567.5 MHz			2502.5 MHz	2535 MHz	2567.5 MHz		
5 MHz	QPSK	1	0	21.6	21.4	21.1	0.0	22.5	21.0	21.1	20.5	0.0	21.5
		1	12	21.6	21.4	21.2	0.0	22.5	21.0	21.1	20.6	0.0	21.5
		1	24	21.5	21.3	21.1	0.0	22.5	20.9	21.0	20.5	0.0	21.5
		12	0	21.5	21.5	21.1	0.0	22.5	21.0	21.0	20.6	0.0	21.5
		12	7	21.6	21.6	21.2	0.0	22.5	21.0	21.0	20.6	0.0	21.5
		12	13	21.5	21.5	21.1	0.0	22.5	21.0	21.0	20.6	0.0	21.5
		25	0	21.5	21.5	21.1	0.0	22.5	21.0	21.0	20.6	0.0	21.5
	16QAM	1	0	21.7	21.4	21.3	0.0	22.5	21.2	21.2	21.2	0.0	21.5
		1	12	21.7	21.5	21.4	0.0	22.5	21.2	21.2	21.3	0.0	21.5
		1	24	21.7	21.9	21.3	0.0	22.5	21.1	21.1	21.1	0.0	21.5
		12	0	20.6	20.7	20.2	0.0	22.5	20.6	20.6	20.3	0.0	21.5
		12	7	20.6	20.7	20.2	0.0	22.5	20.6	20.6	20.3	0.0	21.5
		12	13	20.6	20.6	20.2	0.0	22.5	20.6	20.6	20.3	0.0	21.5
		25	0	20.6	20.6	20.1	0.0	22.5	20.5	20.5	20.2	0.0	21.5
	64QAM	1	0	20.8	20.5	20.6	0.0	22.5	20.8	20.4	20.5	0.0	21.5
		1	12	20.9	20.5	20.6	0.0	22.5	20.9	20.5	20.5	0.0	21.5
		1	24	20.8	20.4	20.5	0.0	22.5	20.8	20.3	20.4	0.0	21.5
		12	0	19.6	19.6	19.1	1.0	21.5	19.6	19.6	19.1	1.0	20.5
		12	7	19.7	19.6	19.2	1.0	21.5	19.7	19.6	19.1	1.0	20.5
		12	13	19.7	19.6	19.1	1.0	21.5	19.7	19.6	19.1	1.0	20.5
		25	0	19.6	19.5	19.2	1.0	21.5	19.6	19.5	19.1	1.0	20.5

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LTE Band 12 Measured Results

LTE Band 12 Measured Results (DSI = All (0, 1, 2, 3,))

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				DSI = All (0, 1, 2, 3)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				23060	23095	23130		
				704 MHz	707.5 MHz	711 MHz		
10 MHz	QPSK	1	0	[redacted]	23.6	[redacted]	0.0	24.5
		1	25		23.8		0.0	24.5
		1	49		23.4		0.0	24.5
		25	0		22.8		1.0	23.5
		25	12		22.8		1.0	23.5
		25	25		22.7		1.0	23.5
		50	0		22.8		1.0	23.5
	16QAM	1	0		23.0		1.0	23.5
		1	25		23.2		1.0	23.5
		1	49		22.9		1.0	23.5
		25	0		21.9		2.0	22.5
		25	12		21.9		2.0	22.5
		25	25		21.7		2.0	22.5
		50	0		21.8		2.0	22.5
	64QAM	1	0		21.8		2.0	22.5
		1	25		22.1		2.0	22.5
		1	49		20.9		2.0	22.5
		25	0		20.9		3.0	21.5
		25	12		20.9		3.0	21.5
		25	25		20.5		3.0	21.5
		50	0		20.7		3.0	21.5
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	24.0	23.9	23.7	0.0	24.5
		1	12	24.0	23.8	23.6	0.0	24.5
		1	24	23.9	23.7	22.8	0.0	24.5
		12	0	23.1	22.9	22.7	1.0	23.5
		12	7	23.1	22.9	22.6	1.0	23.5
		12	13	23.0	22.8	22.6	1.0	23.5
		25	0	23.0	22.8	22.6	1.0	23.5
	16QAM	1	0	22.9	23.1	22.9	1.0	23.5
		1	12	23.1	23.0	22.7	1.0	23.5
		1	24	23.4	22.9	22.0	1.0	23.5
		12	0	22.3	22.0	21.7	2.0	22.5
		12	7	22.3	21.9	21.7	2.0	22.5
		12	13	22.2	21.9	21.6	2.0	22.5
		25	0	22.1	21.8	21.7	2.0	22.5
	64QAM	1	0	21.8	21.9	21.7	2.0	22.5
		1	12	22.3	21.8	21.6	2.0	22.5
		1	24	22.2	21.4	20.8	2.0	22.5
		12	0	21.0	21.0	20.4	3.0	21.5
		12	7	21.2	20.9	20.3	3.0	21.5
		12	13	21.0	20.9	19.9	3.0	21.5
		25	0	21.0	20.8	20.1	3.0	21.5

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LTE Band 12 Measured Results (DSI = All (0, 1, 2, 3,)) (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	24.1	23.8	23.5	0.0	24.5
		1	8	24.0	23.7	23.4	0.0	24.5
		1	14	23.9	23.7	22.8	0.0	24.5
		8	0	23.1	22.9	22.6	1.0	23.5
		8	4	23.0	22.9	22.6	1.0	23.5
		8	7	23.0	22.8	22.6	1.0	23.5
		15	0	23.0	22.8	22.6	1.0	23.5
	16QAM	1	0	23.0	23.0	22.6	1.0	23.5
		1	8	23.4	22.8	22.4	1.0	23.5
		1	14	23.4	22.8	21.8	1.0	23.5
		8	0	22.2	21.9	21.7	2.0	22.5
		8	4	22.1	22.0	21.7	2.0	22.5
		8	7	22.1	21.9	21.7	2.0	22.5
		15	0	22.1	21.8	21.7	2.0	22.5
	64QAM	1	0	21.9	22.3	21.5	2.0	22.5
		1	8	22.1	22.1	21.1	2.0	22.5
		1	14	22.1	22.1	20.6	2.0	22.5
		8	0	20.8	21.0	20.2	3.0	21.5
		8	4	21.0	21.0	20.1	3.0	21.5
		8	7	21.0	20.9	19.9	3.0	21.5
		15	0	21.0	20.8	19.9	3.0	21.5

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	24.0	23.8	23.3	0.0	24.5
		1	3	24.1	23.8	23.3	0.0	24.5
		1	5	24.0	23.7	22.9	0.0	24.5
		3	0	23.9	23.8	23.3	0.0	24.5
		3	1	24.0	23.8	23.2	0.0	24.5
		3	3	23.9	23.7	23.1	0.0	24.5
		6	0	23.0	22.8	22.3	1.0	23.5
	16QAM	1	0	23.2	23.2	22.5	1.0	23.5
		1	3	23.2	23.3	22.4	1.0	23.5
		1	5	23.1	23.2	22.1	1.0	23.5
		3	0	23.0	23.0	22.6	1.0	23.5
		3	1	23.1	23.0	22.5	1.0	23.5
		3	3	23.0	23.0	22.4	1.0	23.5
		6	0	22.2	21.7	21.5	2.0	22.5
	64QAM	1	0	22.1	22.0	21.2	2.0	22.5
		1	3	22.1	22.1	21.0	2.0	22.5
		1	5	22.0	22.0	20.5	2.0	22.5
		3	0	22.0	21.7	20.9	2.0	22.5
		3	1	22.0	21.8	20.8	2.0	22.5
		3	3	22.1	21.7	20.7	2.0	22.5
		6	0	21.2	20.8	20.1	3.0	21.5

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LTE Band 13 Measured Results

LTE Band 13 Measured Results (DSI = All (0, 1, 2, 3,))

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				DSI = All (0, 1, 2, 3)				
				Measured Pwr (dBm)				
					23230			
					782 MHz			
10 MHz	QPSK	1	0		23.2		0.0	25.0
		1	25		23.6		0.0	25.0
		1	49		23.4		0.0	25.0
		25	0		22.6		1.0	24.0
		25	12		22.8		1.0	24.0
		25	25		22.8		1.0	24.0
		50	0		22.7		1.0	24.0
	16QAM	1	0		22.4		1.0	24.0
		1	25		22.7		1.0	24.0
		1	49		22.5		1.0	24.0
		25	0		21.7		2.0	23.0
		25	12		21.7		2.0	23.0
		25	25		21.8		2.0	23.0
		50	0		21.7		2.0	23.0
	64QAM	1	0		21.8		2.0	23.0
		1	25		22.1		2.0	23.0
		1	49		21.9		2.0	23.0
		25	0		20.7		3.0	22.0
		25	12		20.8		3.0	22.0
		25	25		20.8		3.0	22.0
		50	0		20.7		3.0	22.0

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		23.6		0.0	25.0
		1	12		23.7		0.0	25.0
		1	24		23.8		0.0	25.0
		12	0		22.7		1.0	24.0
		12	7		22.8		1.0	24.0
		12	13		22.8		1.0	24.0
		25	0		22.7		1.0	24.0
	16QAM	1	0		22.7		1.0	24.0
		1	12		22.9		1.0	24.0
		1	24		22.9		1.0	24.0
		12	0		21.8		2.0	23.0
		12	7		21.8		2.0	23.0
		12	13		21.9		2.0	23.0
		25	0		21.7		2.0	23.0
	64QAM	1	0		21.6		2.0	23.0
		1	12		21.7		2.0	23.0
		1	24		21.7		2.0	23.0
		12	0		20.7		3.0	22.0
		12	7		20.8		3.0	22.0
		12	13		20.8		3.0	22.0
		25	0		20.7		3.0	22.0

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LTE Band 66 Measured Results

LTE Band 66 Measured Results (DSI 0 or 1)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				DSI = 0 or 1				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	22.8	23.5	23.5	0.0	25
		1	49	23.7	23.2	23.8	0.0	25
		1	99	23.5	23.5	23.4	0.0	25
		50	0	22.2	22.7	22.8	1.0	24
		50	24	22.8	22.5	22.8	1.0	24
		50	50	22.6	22.4	22.5	1.0	24
		100	0	22.7	22.5	22.7	1.0	24
	16QAM	1	0	22.4	23.3	22.9	1.0	24
		1	49	23.3	22.8	23.2	1.0	24
		1	99	23.2	23.0	22.8	1.0	24
		50	0	21.3	21.9	21.8	2.0	23
		50	24	21.8	21.6	21.8	2.0	23
		50	50	21.7	21.6	21.6	2.0	23
		100	0	21.8	21.7	21.7	2.0	23
	64QAM	1	0	21.9	21.9	22.2	2.0	23
		1	49	21.3	21.2	22.0	2.0	23
		1	99	21.5	21.4	21.5	2.0	23
		50	0	20.3	20.3	20.8	3.0	22
		50	24	20.1	20.1	20.5	3.0	22
		50	50	20.0	20.0	19.9	3.0	22
		100	0	20.1	20.1	20.5	3.0	22
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	23.3	23.8	23.7	0.0	25
		1	37	23.4	23.2	23.4	0.0	25
		1	74	23.6	23.5	23.6	0.0	25
		36	0	22.3	22.8	22.8	1.0	24
		36	20	22.6	22.5	22.7	1.0	24
		36	39	22.7	22.4	22.6	1.0	24
		75	0	22.6	22.6	22.8	1.0	24
	16QAM	1	0	22.7	23.2	22.8	1.0	24
		1	37	22.8	22.7	22.4	1.0	24
		1	74	22.9	22.9	22.7	1.0	24
		36	0	21.5	21.8	21.8	2.0	23
		36	20	21.7	21.6	21.8	2.0	23
		36	39	21.7	21.6	21.7	2.0	23
		75	0	21.7	21.7	21.9	2.0	23
	64QAM	1	0	20.7	21.9	22.1	2.0	23
		1	37	20.8	21.3	21.2	2.0	23
		1	74	21.8	21.6	21.6	2.0	23
		36	0	19.6	20.1	20.5	3.0	22
		36	20	19.9	19.9	20.1	3.0	22
		36	39	20.4	19.9	20.1	3.0	22
		75	0	20.0	20.1	20.3	3.0	22

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LTE Band 66 Measured Results (DSI 0 or 1) (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	23.0	23.2	23.0	0.0	25
		1	25	23.3	23.3	23.4	0.0	25
		1	49	23.1	22.8	23.4	0.0	25
		25	0	22.3	22.4	22.3	1.0	24
		25	12	22.5	22.5	22.6	1.0	24
		25	25	22.4	22.3	22.6	1.0	24
		50	0	22.4	22.4	22.5	1.0	24
	16QAM	1	0	22.0	22.2	22.4	1.0	24
		1	25	22.4	22.3	22.9	1.0	24
		1	49	22.2	21.8	22.8	1.0	24
		25	0	21.4	21.6	21.5	2.0	23
		25	12	21.6	21.6	21.7	2.0	23
		25	25	21.5	21.5	21.7	2.0	23
		50	0	21.4	21.5	21.6	2.0	23
	64QAM	1	0	20.6	20.9	20.5	2.0	23
		1	25	20.7	21.1	20.9	2.0	23
		1	49	20.6	20.5	21.1	2.0	23
		25	0	19.8	19.8	19.7	3.0	22
		25	12	19.7	19.9	20.0	3.0	22
		25	25	19.7	19.8	20.1	3.0	22
		50	0	20.0	19.8	19.9	3.0	22

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	23.4	23.4	23.4	0.0	25
		1	12	23.4	23.4	23.6	0.0	25
		1	24	23.1	23.2	23.6	0.0	25
		12	0	22.5	22.5	22.6	1.0	24
		12	7	22.5	22.5	22.6	1.0	24
		12	13	22.4	22.5	22.6	1.0	24
		25	0	22.5	22.5	22.7	1.0	24
	16QAM	1	0	22.9	22.5	22.5	1.0	24
		1	12	22.9	22.5	22.8	1.0	24
		1	24	22.7	22.5	22.8	1.0	24
		12	0	21.6	21.7	21.7	2.0	23
		12	7	21.7	21.7	21.7	2.0	23
		12	13	21.6	21.7	21.7	2.0	23
		25	0	21.6	21.6	21.7	2.0	23
	64QAM	1	0	21.0	20.7	20.9	2.0	23
		1	12	20.8	20.7	21.5	2.0	23
		1	24	20.6	20.6	21.8	2.0	23
		12	0	19.7	19.9	19.9	3.0	22
		12	7	19.7	19.9	20.2	3.0	22
		12	13	19.6	19.9	20.4	3.0	22
		25	0	19.6	19.8	20.2	3.0	22

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LTE Band 66 Measured Results (DSI 0 or 1) (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	23.4	23.4	23.5	0.0	25
		1	8	23.4	23.3	23.5	0.0	25
		1	14	23.4	23.3	23.5	0.0	25
		8	0	22.4	22.6	22.6	1.0	24
		8	4	22.5	22.6	22.7	1.0	24
		8	7	22.5	22.6	22.7	1.0	24
		15	0	22.5	22.6	22.7	1.0	24
	16QAM	1	0	22.9	22.6	22.5	1.0	24
		1	8	22.8	22.5	22.5	1.0	24
		1	14	22.8	22.5	22.5	1.0	24
		8	0	21.5	21.7	21.7	2.0	23
		8	4	21.6	21.8	21.8	2.0	23
		8	7	21.5	21.8	21.8	2.0	23
		15	0	21.5	21.6	21.7	2.0	23
	64QAM	1	0	21.0	21.0	21.3	2.0	23
		1	8	20.8	21.0	21.6	2.0	23
		1	14	20.7	20.9	21.9	2.0	23
		8	0	19.9	19.8	20.3	3.0	22
		8	4	19.9	19.9	20.5	3.0	22
		8	7	19.8	19.9	20.6	3.0	22
		15	0	19.8	19.9	20.4	3.0	22

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	23.2	23.6	23.5	0.0	25
		1	3	23.3	23.7	23.6	0.0	25
		1	5	23.2	23.6	23.5	0.0	25
		3	0	23.3	23.5	23.6	0.0	25
		3	1	23.3	23.5	23.6	0.0	25
		3	3	23.3	23.5	23.6	0.0	25
		6	0	22.4	22.7	22.6	1.0	24
	16QAM	1	0	22.3	22.7	23.0	1.0	24
		1	3	22.4	22.8	23.0	1.0	24
		1	5	22.4	22.8	23.0	1.0	24
		3	0	22.6	22.6	22.8	1.0	24
		3	1	22.6	22.7	22.8	1.0	24
		3	3	22.6	22.7	22.8	1.0	24
		6	0	21.6	21.8	21.5	2.0	23
	64QAM	1	0	21.4	20.9	21.5	2.0	23
		1	3	21.4	21.0	21.7	2.0	23
		1	5	21.2	20.9	21.8	2.0	23
		3	0	21.2	20.9	21.3	2.0	23
		3	1	21.2	21.0	21.4	2.0	23
		3	3	21.2	20.9	21.5	2.0	23
		6	0	19.9	20.1	20.6	3.0	22

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LTE Band 66 Measured Results (DSI 2 and 3)

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off (state 2)					Reduced Average Power (dBm) Proximity sensor back-off				
				DSI = 2					DSI = 3				
				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	20.5	20.8	20.9	0.0	22	20.3	20.6	20.6	0.0	22
		1	49	20.8	21.2	21.2	0.0	22	20.6	20.9	20.9	0.0	22
		1	99	20.7	20.9	20.9	0.0	22	20.4	20.7	20.6	0.0	22
		50	0	20.8	21.2	21.2	0.0	22	20.6	20.9	20.9	0.0	22
		50	24	21.0	21.2	21.3	0.0	22	20.7	20.9	21.0	0.0	22
		50	50	20.9	21.2	21.1	0.0	22	20.6	20.8	20.8	0.0	22
		100	0	20.9	21.1	21.2	0.0	22	20.7	20.8	20.9	0.0	22
	16QAM	1	0	21.1	21.4	21.3	0.0	22	20.9	21.1	21.0	0.0	22
		1	49	21.4	21.5	21.6	0.0	22	21.2	21.4	21.4	0.0	22
		1	99	21.3	21.5	21.4	0.0	22	21.1	21.2	21.1	0.0	22
		50	0	20.9	21.2	21.2	0.0	22	20.6	20.9	20.8	0.0	22
		50	24	21.0	21.3	21.2	0.0	22	20.8	21.0	21.0	0.0	22
		50	50	21.0	21.2	21.2	0.0	22	20.7	20.9	20.8	0.0	22
		100	0	21.0	21.2	21.2	0.0	22	20.8	20.8	20.9	0.0	22
	64QAM	1	0	19.9	20.7	21.6	0.0	22	20.5	20.9	21.2	0.0	22
		1	49	21.1	21.0	21.6	0.0	22	20.9	21.3	21.3	0.0	22
		1	99	20.9	21.3	21.4	0.0	22	20.8	21.1	21.4	0.0	22
		50	0	19.5	19.6	20.2	1.0	21	20.2	20.7	20.9	1.0	21
		50	24	20.7	19.8	20.2	1.0	21	20.9	20.9	20.9	1.0	21
		50	50	21.0	20.1	20.0	1.0	21	20.7	21.0	20.8	1.0	21
		100	0	20.5	19.8	20.1	1.0	21	20.8	20.8	20.9	1.0	21
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	20.7	21.0	21.1	0.0	22	20.5	20.8	20.9	0.0	22
		1	37	20.8	21.2	21.2	0.0	22	20.6	20.9	20.9	0.0	22
		1	74	20.7	21.0	21.0	0.0	22	20.6	20.8	20.8	0.0	22
		36	0	20.8	21.2	21.2	0.0	22	20.7	21.0	20.9	0.0	22
		36	20	20.9	21.2	21.2	0.0	22	20.7	21.0	21.0	0.0	22
		36	39	20.8	21.2	21.2	0.0	22	20.7	21.0	20.9	0.0	22
		75	0	20.8	21.1	21.2	0.0	22	20.7	20.9	20.9	0.0	22
	16QAM	1	0	21.1	21.6	21.2	0.0	22	20.6	21.2	21.4	0.0	22
		1	37	21.2	21.6	21.2	0.0	22	20.7	21.4	21.3	0.0	22
		1	74	21.2	21.5	21.0	0.0	22	20.7	21.2	21.2	0.0	22
		36	0	20.9	21.2	21.2	0.0	22	20.7	21.0	20.9	0.0	22
		36	20	21.0	21.2	21.2	0.0	22	20.8	21.0	21.0	0.0	22
		36	39	20.9	21.2	21.3	0.0	22	20.7	21.0	20.9	0.0	22
		75	0	20.9	21.2	21.2	0.0	22	20.7	21.0	20.9	0.0	22
	64QAM	1	0	20.6	20.8	21.3	0.0	22	21.0	21.1	21.0	0.0	22
		1	37	21.4	21.0	21.1	0.0	22	21.2	21.3	21.1	0.0	22
		1	74	21.4	21.3	21.3	0.0	22	21.2	21.1	20.9	0.0	22
		36	0	19.9	19.7	20.2	1.0	21	20.0	20.6	20.8	1.0	21
		36	20	20.1	19.9	20.2	1.0	21	20.6	20.7	21.0	1.0	21
		36	39	20.9	20.1	20.3	1.0	21	20.7	20.9	21.0	1.0	21
		75	0	20.3	19.9	20.2	1.0	21	20.7	20.7	21.0	1.0	21

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LTE Band 66 Measured Results (DSI 2 and 3) (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	20.1	20.7	20.8	0.0	22	20.3	20.6	20.5	0.0	22
		1	25	20.5	21.0	21.0	0.0	22	20.5	20.8	20.8	0.0	22
		1	49	20.3	20.8	20.8	0.0	22	20.2	20.6	20.5	0.0	22
		25	0	20.5	21.0	21.0	0.0	22	20.5	20.8	20.8	0.0	22
		25	12	20.7	21.0	21.1	0.0	22	20.6	20.8	20.8	0.0	22
		25	25	20.6	21.0	21.0	0.0	22	20.5	20.8	20.8	0.0	22
		50	0	20.6	20.9	21.0	0.0	22	20.5	20.7	20.7	0.0	22
	16QAM	1	0	20.3	20.7	21.2	0.0	22	20.2	21.0	20.6	0.0	22
		1	25	20.6	21.0	21.4	0.0	22	20.5	21.2	20.8	0.0	22
		1	49	20.4	20.7	21.2	0.0	22	20.3	21.0	20.6	0.0	22
		25	0	20.7	21.0	21.0	0.0	22	20.5	20.9	20.9	0.0	22
		25	12	20.7	21.1	21.2	0.0	22	20.6	20.9	21.0	0.0	22
		25	25	20.7	21.0	21.0	0.0	22	20.5	20.8	20.9	0.0	22
		50	0	20.6	20.9	21.1	0.0	22	20.5	20.8	20.8	0.0	22
	64QAM	1	0	19.7	20.2	20.3	0.0	22	20.2	20.7	20.8	0.0	22
		1	25	20.6	21.0	21.2	0.0	22	20.6	21.0	21.2	0.0	22
		1	49	20.6	20.8	20.9	0.0	22	20.3	20.8	20.9	0.0	22
		25	0	19.3	19.9	19.8	1.0	21	19.7	20.4	20.5	1.0	21
		25	12	19.5	19.8	20.2	1.0	21	20.1	20.7	20.8	1.0	21
		25	25	19.9	19.9	20.2	1.0	21	20.4	20.7	20.8	1.0	21
		50	0	19.7	19.6	20.0	1.0	21	20.0	20.5	20.7	1.0	21

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	20.4	21.0	21.1	0.0	22	20.5	20.9	20.7	0.0	22
		1	12	20.5	21.0	21.1	0.0	22	20.5	20.9	20.8	0.0	22
		1	24	20.5	21.0	21.0	0.0	22	20.4	20.9	20.7	0.0	22
		12	0	20.6	21.0	21.0	0.0	22	20.5	20.8	20.8	0.0	22
		12	7	20.6	21.1	21.0	0.0	22	20.6	20.8	20.8	0.0	22
		12	13	20.6	21.0	21.0	0.0	22	20.5	20.8	20.9	0.0	22
		25	0	20.6	21.0	21.0	0.0	22	20.5	20.8	20.8	0.0	22
	16QAM	1	0	21.1	21.2	21.2	0.0	22	20.7	21.0	21.4	0.0	22
		1	12	21.2	21.2	21.2	0.0	22	20.8	21.1	21.3	0.0	22
		1	24	21.1	21.2	21.2	0.0	22	20.7	21.0	21.4	0.0	22
		12	0	20.7	21.1	21.2	0.0	22	20.6	20.9	21.0	0.0	22
		12	7	20.8	21.1	21.2	0.0	22	20.6	20.9	21.0	0.0	22
		12	13	20.8	21.1	21.1	0.0	22	20.6	20.9	21.0	0.0	22
		25	0	20.7	21.0	21.1	0.0	22	20.5	20.8	20.9	0.0	22
	64QAM	1	0	20.6	20.6	20.8	0.0	22	20.7	21.0	20.7	0.0	22
		1	12	20.6	20.9	21.0	0.0	22	20.8	21.1	20.7	0.0	22
		1	24	20.6	21.1	21.0	0.0	22	20.7	21.1	20.7	0.0	22
		12	0	19.5	19.7	20.1	1.0	21	19.8	20.5	20.8	1.0	21
		12	7	19.6	19.8	20.3	1.0	21	19.8	20.7	20.8	1.0	21
		12	13	19.6	19.9	20.4	1.0	21	19.8	20.7	20.8	1.0	21
		25	0	19.4	19.8	20.2	1.0	21	19.8	20.6	20.8	1.0	21

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LTE Band 66 Measured Results (DSI 2 and 3) (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	20.5	20.9	21.0	0.0	22	20.4	20.7	20.8	0.0	22
		1	8	20.5	21.0	20.9	0.0	22	20.4	20.8	20.8	0.0	22
		1	14	20.5	20.9	20.9	0.0	22	20.3	20.7	20.8	0.0	22
		8	0	20.6	21.0	21.0	0.0	22	20.5	20.8	20.8	0.0	22
		8	4	20.6	21.0	21.1	0.0	22	20.5	20.8	20.9	0.0	22
		8	7	20.6	21.0	21.1	0.0	22	20.5	20.9	20.9	0.0	22
		15	0	20.6	21.0	21.1	0.0	22	20.5	20.8	20.9	0.0	22
	16QAM	1	0	20.6	21.4	21.2	0.0	22	20.5	20.9	21.2	0.0	22
		1	8	20.6	21.4	21.1	0.0	22	20.5	20.8	21.2	0.0	22
		1	14	20.5	21.4	21.1	0.0	22	20.5	20.8	21.2	0.0	22
		8	0	20.7	21.1	21.1	0.0	22	20.5	21.0	21.0	0.0	22
		8	4	20.7	21.1	21.2	0.0	22	20.6	21.0	21.0	0.0	22
		8	7	20.7	21.2	21.2	0.0	22	20.6	21.0	21.0	0.0	22
		15	0	20.6	21.0	21.1	0.0	22	20.4	20.8	20.9	0.0	22
	64QAM	1	0	20.8	20.7	21.3	0.0	22	20.7	21.1	20.9	0.0	22
		1	8	20.6	20.8	21.3	0.0	22	20.7	21.1	20.9	0.0	22
		1	14	20.6	21.0	21.3	0.0	22	20.6	21.1	20.9	0.0	22
		8	0	19.6	19.7	20.2	1.0	21	20.0	20.7	20.9	1.0	21
		8	4	19.6	19.9	20.3	1.0	21	20.1	20.8	20.9	1.0	21
		8	7	19.6	19.9	20.4	1.0	21	20.0	20.9	20.9	1.0	21
		15	0	19.5	19.9	20.4	1.0	21	20.1	20.7	20.9	1.0	21

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	20.4	20.8	21.0	0.0	22	20.3	20.8	20.8	0.0	22
		1	3	20.5	20.9	21.1	0.0	22	20.4	20.8	20.8	0.0	22
		1	5	20.4	20.8	21.0	0.0	22	20.3	20.8	20.7	0.0	22
		3	0	20.4	20.8	20.9	0.0	22	20.3	20.6	20.8	0.0	22
		3	1	20.5	20.8	21.0	0.0	22	20.4	20.8	20.8	0.0	22
		3	3	20.5	20.9	20.9	0.0	22	20.4	20.7	20.8	0.0	22
		6	0	20.5	20.9	21.0	0.0	22	20.4	20.8	20.8	0.0	22
	16QAM	1	0	20.9	20.9	21.1	0.0	22	20.4	20.9	21.2	0.0	22
		1	3	20.9	21.0	21.2	0.0	22	20.5	21.0	21.2	0.0	22
		1	5	20.9	21.0	21.1	0.0	22	20.5	20.9	21.2	0.0	22
		3	0	20.7	21.1	21.1	0.0	22	20.6	20.8	21.0	0.0	22
		3	1	20.7	21.1	21.1	0.0	22	20.6	20.9	21.0	0.0	22
		3	3	20.7	21.2	21.1	0.0	22	20.7	20.9	21.0	0.0	22
		6	0	20.4	21.1	21.2	0.0	22	20.6	21.0	20.7	0.0	22
	64QAM	1	0	20.9	20.8	21.2	0.0	22	20.6	21.2	20.9	0.0	22
		1	3	21.0	20.9	21.3	0.0	22	20.7	21.2	20.9	0.0	22
		1	5	20.9	20.8	21.2	0.0	22	20.7	21.1	20.8	0.0	22
		3	0	20.8	20.8	21.0	0.0	22	20.4	21.1	20.9	0.0	22
		3	1	20.9	20.9	21.0	0.0	22	20.4	21.2	20.9	0.0	22
		3	3	20.8	20.9	21.0	0.0	22	20.4	21.1	20.9	0.0	22
		6	0	19.8	20.1	20.4	1.0	21	20.4	20.7	20.9	1.0	21

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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 (3) downlinks.

LTE Release 10 Carrier Aggregation

Index	2CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
2CC #1	2A-2A		3CC #1	x
2CC #2	2C			
2CC #3	2A-4A		3CC #1	o
2CC #4	2A-5A		3CC #7	o
2CC #5	2A-13A		3CC #8	o
2CC #6	2A-66A		3CC #9	o
2CC #7	4A-4A		3CC #13	o
2CC #8	4A-5A		3CC #14	o
2CC #9	4A-13A		3CC #15	o
2CC #10	5A-5A		3CC #23	x
2CC #11	5B		3CC #21	x
2CC #12	5A-66A		3CC #19	o
2CC #13	13A-66A		3CC #21	o
2CC #14	66A-66A		3CC #9	o
2CC #15	66B		3CC #22	x
2CC #16	66C		3CC #25	x

Index	3CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
3CC #1	2A-2A-4A			o
3CC #2	2A-2A-13A			o
3CC #3	2A-2A-66A			o
3CC #4	2A-4A-4A			o
3CC #5	2A-4A-13A			o
3CC #6	2A-5B			o
3CC #7	2A-5A-66A			o
3CC #8	2A-13A-66A			o
3CC #9	2A-66A-66A			o
3CC #10	2A-66C			o
3CC #11	4A-4A-5A			o
3CC #12	4A-4A-13A			o
3CC #13	4A-5B			o
3CC #14	2A-2A-5A			o
3CC #15	2A-4A-5A			o
3CC #16	5A-5A-66A			o
3CC #17	5B-66A			o
3CC #18	5A-66A-66A			o
3CC #19	5A-66B			o
3CC #20	5A-66C			o
3CC #21	13A-66A-66A			o
3CC #22	13A-66B			o
3CC #23	13A-66C			o
3CC #24	66B-2A			o
3CC #25	66A-66C			o

Note(s):

1. 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	2A-[2A]		3CC #2	x
2CC #2	[2A]-[2A]		3CC #6	x
2CC #3	[2C]			o
2CC #4	2A-[4A]		3CC #1	o
2CC #5	[2A]-4A		3CC #3	o
2CC #6	[2A]-[4A]		3CC #4	o
2CC #7	[2A]-5A		3CC #8	o
2CC #8	[2A]-13A		3CC #10	o
2CC #9	2A-[66A]		3CC #13	o
2CC #10	[2A]-66A		3CC #18	o
2CC #11	[2A]-[66A]		3CC #17	o
2CC #12	4A-[4A]		3CC #19	x
2CC #13	[4A]-[4A]		3CC #21	x
2CC #14	[4A]-5A		3CC #23	o
2CC #15	[4A]-13A		3CC #23	o
2CC #16	5A-[66A]		3CC #32	o
2CC #17	13A-[66A]		3CC #33	o
2CC #18	66A-[66A]		3CC #39	o
2CC #19	[66A]-[66A]		3CC #38	o
2CC #20	[66B]		3CC #51	x
2CC #21	[66C]		3CC #52	x

Index	3CC	Restriction	Completely Covered by Measurement Supersrt	Reverse	Index	3CC	Restriction	Completely Covered by Measurement Supersrt	Reverse
3CC #1	2A-2A-[4A]			o	3CC #34	2A-[66B]			o
3CC #2	2A-[2A]-4A			o	3CC #35	[2A]-66B			o
3CC #3	2A-[2A]-[4A]			o	3CC #36	2A-[66C]			o
3CC #4	[2A]-[2A]-4A			o	3CC #37	[2A]-66C			o
3CC #5	2A-[2A]-5A			o	3CC #38	4A-[4A]-5A			o
3CC #6	[2A]-[2A]-5A			o	3CC #39	[4A]-[4A]-5A			o
3CC #7	[2A]-2A-13A			o	3CC #40	4A-[4A]-13A			o
3CC #8	[2A]-[2A]-13A			o	3CC #41	[4A]-[4A]-13A			o
3CC #9	2A-2A-[66A]			o	3CC #42	[4A]-5B			o
3CC #10	2A-[2A]-66A			o	3CC #43	5A-5A-[66A]			o
3CC #11	2A-[2A]-[66A]			o	3CC #44	5B-[66A]			o
3CC #12	[2A]-[2A]-66A			o	3CC #45	5A-[66A]-66A			o
3CC #13	2A-[4A]-4A			o	3CC #46	5A-[66A]-[66A]			o
3CC #14	[2A]-4A-4A			o	3CC #47	5A-[66B]			o
3CC #15	2A-[4A]-[4A]			o	3CC #48	5A-[66C]			o
3CC #16	[2A]-[4A]-4A			o	3CC #49	13A-[66A]-66A			o
3CC #17	2A-[4A]-5A			o	3CC #50	13A-[66A]-[66A]			o
3CC #18	[2A]-4A-5A			o	3CC #51	13A-[66B]			o
3CC #19	[2A]-[4A]-5A			o	3CC #52	13A-[66C]			o
3CC #20	2A-[4A]-13A			o	3CC #53	66A-[66C]			o
3CC #21	[2A]-4A-13A			o	3CC #54	[66A]-66C			o
3CC #22	[2A]-[4A]-13A			o					
3CC #23	[2A]-5B			o					
3CC #24	2A-5A-[66A]			o					
3CC #25	[2A]-5A-66A			o					
3CC #26	[2A]-5A-[66A]			o					
3CC #27	2A-13A-[66A]			o					
3CC #28	[2A]-13A-66A			o					
3CC #29	[2A]-13A-[66A]			o					
3CC #30	2A-[66A]-66A			o					
3CC #31	[2A]-66A-66A			o					
3CC #32	2A-[66A]-[66A]			o					
3CC #33	[2A]-[66A]-66A			o					

[*] is 4X4 MIMO configuration.

Note(s):

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

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1. 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	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)			
2A-2A-4A	2A	2A	4A	QPSK	20	18900	1880	1/49	20	900	1960	20	1100	1980	20	2175	2132.5	23.8	23.7	-0.09
	4A	2A	2A	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	20	900	1960	20	1100	1980	23.7	23.9	0.22
2A-2A-5A	2A	2A	5A	QPSK	20	18900	1880	1/49	20	900	1960	20	1100	1980	10	2525	881.5	23.8	23.6	-0.17
	5A	2A	2A	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	900	1960	20	1100	1980	23.6	23.6	-0.04
2A-2A-13A	2A	2A	13A	QPSK	20	18900	1880	1/49	20	900	1960	20	1100	1980	10	5230	751	23.8	23.7	-0.11
	13A	2A	2A	QPSK	10	23230	782	1/25	10	5230	751	20	900	1960	20	1100	1980	23.6	23.6	0.01
2A-2A-66A	2A	2A	66A	QPSK	20	18900	1880	1/49	20	900	1960	20	1100	1980	20	66786	2145	23.8	23.7	-0.12
	66A	2A	2A	QPSK	20	132572	1770	1/49	20	67036	2170	20	900	1960	20	1100	1980	23.8	23.9	0.15
2A-4A-4A	2A	4A	4A	QPSK	20	18900	1880	1/49	20	900	1960	20	2050	2120	20	2300	2145	23.8	23.8	-0.01
	4A	4A	2A	QPSK	20	20050	1720	1/49	20	2050	2120	20	2300	2145	20	900	1960	23.5	23.5	-0.05
2A-4A-5A	2A	4A	5A	QPSK	20	18900	1880	1/49	20	900	1960	20	2175	2132.5	10	2525	881.5	23.8	23.7	-0.06
	4A	5A	2A	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	10	2525	881.5	20	900	1960	23.7	23.7	-0.01
	5A	2A	4A	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	900	1960	20	2175	2132.5	23.6	23.5	-0.06
2A-4A-13A	2A	4A	13A	QPSK	20	18900	1880	1/49	20	900	1960	20	2175	2132.5	10	5230	751	23.8	23.7	-0.10
	4A	13A	2A	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	10	5230	751	20	900	1960	23.7	23.7	-0.01
	13A	2A	4A	QPSK	10	23230	782	1/25	10	5230	751	20	900	1960	20	2175	2132.5	23.6	23.7	0.03
2A-5B	2A	5B	5B	QPSK	20	18900	1880	1/49	20	900	1960	10	2450	874	10	2549	883.9	23.8	23.6	-0.13
	5B	5B	2A	QPSK	10	20450	829	1/25	10	2450	874	10	2549	883.9	20	900	1960	23.7	23.7	-0.02
2A-5A-66A	2A	5A	66A	QPSK	20	18900	1880	1/49	20	900	1960	10	2525	881.5	20	66786	2145	23.8	23.8	-0.02
	5A	66A	2A	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	66786	2145	20	900	1960	23.6	23.5	-0.13
	66A	2A	5A	QPSK	20	132572	1770	1/49	20	67036	2170	20	900	1960	10	2525	881.5	23.8	23.6	-0.12
2A-13A-66A	2A	13A	66A	QPSK	20	18900	1880	1/49	20	900	1960	10	5230	751	20	66786	2145	23.8	23.7	-0.10
	13A	66A	2A	QPSK	10	23230	782	1/25	10	5230	751	20	66786	2145	20	900	1960	23.6	23.6	0.02
	66A	2A	13A	QPSK	20	132572	1770	1/49	20	67036	2170	20	900	1960	10	5230	751	23.8	23.8	0.02
2A-66A-66A	2A	66A	66A	QPSK	20	18900	1880	1/49	20	900	1960	20	66786	2145	20	67036	2170	23.8	23.6	-0.18
	66A	66A	2A	QPSK	20	132572	1770	1/49	20	67036	2170	20	66536	2120	20	900	1960	23.8	23.6	-0.19
2A-66B	2A	66B	66B	QPSK	20	18900	1880	1/49	20	900	1960	15	66786	2145	5	67129	2179.3	23.8	23.7	-0.10
	66B	66B	2A	QPSK	15	132322	1745	1/0	15	66786	2145	5	67129	2179.3	20	900	1960	23.8	23.6	-0.19
2A-66C	2A	66C	66C	QPSK	20	18900	1880	1/49	20	900	1960	20	66786	2145	20	66984	2164.8	23.8	23.7	-0.10
	66C	66C	2A	QPSK	20	132572	1770	1/49	20	67036	2170	20	66838	2150.2	20	900	1960	23.8	23.7	-0.11
4A-4A-5A	4A	4A	5A	QPSK	20	20050	1720	1/49	20	2050	2120	20	2300	2145	10	2525	881.5	23.5	23.5	0.00
	5A	4A	4A	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	2050	2120	20	2300	2145	23.6	23.5	-0.07
4A-4A-13A	4A	4A	13A	QPSK	20	20050	1720	1/49	20	2050	2120	20	2300	2145	10	5230	751	23.5	23.5	-0.05
	13A	4A	4A	QPSK	10	23230	782	1/25	10	5230	751	20	2050	2120	20	2300	2145	23.6	23.6	0.02
4A-5B	4A	5B	5B	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	10	2450	874	10	2549	883.9	23.7	23.7	-0.04
	5B	5B	4A	QPSK	10	20450	829	1/25	10	2450	874	10	2549	883.9	20	2175	2132.5	23.7	23.7	0.04
5A-5A-66A	5A	5A	66A	QPSK	10	20450	829	1/25	10	2450	874	10	2600	889	20	66786	2145	23.7	23.7	0.05
	66A	5A	5A	QPSK	20	132572	1770	1/49	20	67036	2170	10	2450	874	10	2600	889	23.8	23.6	-0.20
5B-66A	5B	5B	66A	QPSK	10	20450	829	1/25	10	2450	874	10	2549	883.9	20	66786	2145	23.7	23.6	-0.09
	66A	5B	5B	QPSK	20	132572	1770	1/49	20	67036	2170	10	2450	874	10	2549	883.9	23.8	23.7	-0.05
5A-66A-66A	5A	66A	66A	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	66786	2145	20	67036	2170	23.6	23.5	-0.05
	66A	66A	5A	QPSK	20	132572	1770	1/49	20	67036	2170	20	66536	2120	10	2525	881.5	23.8	23.6	-0.19
5A-66B	5A	66B	66B	QPSK	10	20525	836.5	1/49	10	2525	881.5	15	66786	2145	5	67129	2179.3	23.6	23.5	-0.09
	66B	66B	5A	QPSK	15	132322	1745	1/0	15	66786	2145	5	67129	2179.3	10	2525	881.5	23.8	23.7	-0.06
5A-66C	5A	66C	66C	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	66786	2145	20	66984	2164.8	23.6	23.5	-0.06
	66C	66C	5A	QPSK	20	132572	1770	1/49	20	67036	2170	20	66838	2150.2	10	2525	881.5	23.8	23.6	-0.15
13A-66A-66A	13A	66A	66A	QPSK	10	23230	782	1/25	10	5230	751	20	66786	2145	20	67036	2170	23.6	23.7	0.03
	66A	66A	13A	QPSK	20	132572	1770	1/49	20	67036	2170	20	66536	2120	10	5230	751	23.8	23.7	-0.10
13A-66B	13A	66B	66B	QPSK	10	23230	782	1/25	10	5230	751	15	66786	2145	5	67129	2179.3	23.6	23.6	-0.01
	66B	66B	13A	QPSK	15	132322	1745	1/0	15	66786	2145	5	67129	2179.3	10	5230	751	23.8	23.6	-0.14
13A-66C	13A	66C	66C	QPSK	10	23230	782	1/25	10	5230	751	20	66786	2145	20	66984	2164.8	23.6	23.7	0.06
	66C	66C	13A	QPSK	20	132572	1770	1/49	20	67036	2170	20	66838	2150.2	10	5230	751	23.8	23.7	-0.06
66A-66C	66A	66C	66C	QPSK	20	132572	1770	1/49	20	67036	2170	20	66536	2120	20	66734	2139.8	23.8	23.7	-0.07
	66C	66C	66A	QPSK	20	132572	1770	1/49	20	67036	2170	20	66838	2150.2	20	66536	2120	23.8	23.7	-0.07
2C	2C	2C		QPSK	20	18900	1880	1/49	20	900	1960	20	1098	1979.8				23.8	23.7	-0.10

Note(s):

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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2. 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)			
2A-2A-[4A]	2A	2A	[4A]	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	20	2175	2132.5	23.8	23.7	-0.10
	[4A]	2A	2A	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	20	900	1960.0	20	1100	1980.0	23.7	23.6	-0.12
2A-[2A]-4A	2A	[2A]	4A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	20	2175	2132.5	23.8	23.7	-0.08
	[2A]	2A	4A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	20	2175	2132.5	23.8	23.7	-0.06
	4A	2A	[2A]	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	20	900	1960.0	20	1100	1980.0	23.7	23.6	-0.12
2A-[2A]-[4A]	2A	[2A]	[4A]	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	20	2175	2132.5	23.8	23.7	-0.10
	[2A]	2A	[4A]	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	20	2175	2132.5	23.8	23.7	-0.06
	[4A]	2A	[2A]	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	20	900	1960.0	20	1100	1980.0	23.7	23.6	-0.11
[2A]-[2A]-4A	[2A]	[2A]	4A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	20	2175	2132.5	23.8	23.7	-0.06
	4A	[2A]	[2A]	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	20	900	1960.0	20	1100	1980.0	23.7	23.6	-0.10
2A-[2A]-5A	2A	[2A]	5A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	10	2525	881.5	23.8	23.7	-0.10
	[2A]	2A	5A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	10	2525	881.5	23.8	23.7	-0.10
	5A	2A	[2A]	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	900	1960.0	20	1100	1980.0	23.6	23.7	0.06
[2A]-[2A]-5A	[2A]	[2A]	5A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	10	2525	881.5	23.8	23.6	-0.16
	5A	[2A]	[2A]	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	900	1960.0	20	1100	1980.0	23.6	23.5	-0.10
[2A]-2A-13A	[2A]	2A	13A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	10	5230	751.0	23.8	23.7	-0.10
	2A	[2A]	13A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	10	5230	751.0	23.8	23.7	-0.08
	13A	[2A]	2A	QPSK	10	23230	782	1/25	10	5230	751.0	20	900	1960.0	20	1100	1980.0	23.6	23.7	0.09
[2A]-[2A]-13A	[2A]	[2A]	13A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	10	5230	751.0	23.8	23.6	-0.14
	13A	[2A]	[2A]	QPSK	10	23230	782	1/25	10	5230	751.0	20	900	1960.0	20	1100	1980.0	23.6	23.7	0.10
2A-2A-[66A]	2A	2A	[66A]	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	20	66786	2145.0	23.8	23.7	-0.07
	[66A]	2A	2A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	20	1100	1980.0	23.8	23.8	0.03
2A-[2A]-66A	2A	[2A]	66A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	20	66786	2145.0	23.8	23.7	-0.05
	[2A]	2A	66A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	20	66786	2145.0	23.8	23.7	-0.05
	66A	2A	[2A]	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	20	1100	1980.0	23.8	23.8	0.07
2A-[2A]-[66A]	2A	[2A]	[66A]	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	20	66786	2145.0	23.8	23.7	-0.09
	[2A]	2A	[66A]	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	20	66786	2145.0	23.8	23.8	-0.02
	[66A]	2A	[2A]	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	20	1100	1980.0	23.8	23.9	0.13
[2A]-[2A]-66A	[2A]	[2A]	66A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	1100	1980.0	20	66786	2145.0	23.8	23.6	-0.13
	66A	[2A]	[2A]	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	20	1100	1980.0	23.8	23.8	0.02
2A-[4A]-4A	2A	[4A]	4A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	2050	2120.0	20	2300	2145.0	23.8	23.8	0.00
	[4A]	2A	4A	QPSK	20	20050	1720	1/49	20	2050	2120.0	20	2300	2145.0	20	900	1960.0	23.5	23.6	0.11
	4A	2A	[4A]	QPSK	20	20050	1720	1/49	20	2050	2120.0	20	2300	2145.0	20	900	1960.0	23.5	23.6	0.08
[2A]-4A-4A	[2A]	4A	4A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	2050	2120.0	20	2300	2145.0	23.8	23.7	-0.08
	4A	[2A]	4A	QPSK	20	20050	1720	1/49	20	2050	2120.0	20	2300	2145.0	20	900	1960.0	23.5	23.6	0.07
2A-[4A]-[4A]	2A	[4A]	[4A]	QPSK	20	18900	1880	1/49	20	900	1960.0	20	2050	2120.0	20	2300	2145.0	23.8	23.6	-0.16
	[4A]	2A	[4A]	QPSK	20	20050	1720	1/49	20	2050	2120.0	20	2300	2145.0	20	900	1960.0	23.5	23.5	0.01
[2A]-[4A]-4A	[2A]	[4A]	4A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	2050	2120.0	20	2300	2145.0	23.8	23.6	-0.14
	[4A]	[2A]	4A	QPSK	20	20050	1720	1/49	20	2050	2120.0	20	2300	2145.0	20	900	1960.0	23.5	23.5	0.04
	4A	[2A]	[4A]	QPSK	20	20050	1720	1/49	20	2050	2120.0	20	2300	2145.0	20	900	1960.0	23.5	23.5	0.01
2A-[4A]-5A	2A	[4A]	5A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	2175	2132.5	10	2525	881.5	23.8	23.7	-0.08
	[4A]	2A	5A	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	20	900	1960.0	10	2525	881.5	23.7	23.6	-0.05
	5A	2A	[4A]	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	900	1960.0	20	2175	2132.5	23.6	23.7	0.06
[2A]-4A-5A	[2A]	4A	5A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	2175	2132.5	10	2525	881.5	23.8	23.7	-0.10
	4A	[2A]	5A	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	20	900	1960.0	10	2525	881.5	23.7	23.7	-0.04
	5A	[2A]	4A	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	900	1960.0	20	2175	2132.5	23.6	23.7	0.10
[2A]-[4A]-5A	[2A]	[4A]	5A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	2175	2132.5	10	2525	881.5	23.8	23.7	-0.08
	[4A]	[2A]	5A	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	20	900	1960.0	10	2525	881.5	23.7	23.6	-0.05
	5A	[2A]	[4A]	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	900	1960.0	20	2175	2132.5	23.6	23.6	0.05
2A-[4A]-13A	2A	[4A]	13A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	2175	2132.5	10	5230	751.0	23.8	23.7	-0.08
	[4A]	2A	13A	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	20	900	1960.0	10	5230	751.0	23.7	23.7	-0.04
	13A	2A	[4A]	QPSK	10	23230	782	1/25	10	5230	751.0	20	900	1960.0	20	2175	2132.5	23.6	23.7	0.09
[2A]-4A-13A	[2A]	4A	13A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	2175	2132.5	10	5230	751.0	23.8	23.7	-0.06
	4A	[2A]	13A	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	20	900	1960.0	10	5230	751.0	23.7	23.7	-0.04
	13A	[2A]	4A	QPSK	10	23230	782	1/25	10	5230	751.0	20	900	1960.0	20	2175	2132.5	23.6	23.7	0.12

Note(s):

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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DL CA with downlink 4X4 MIMO output power results (continued)

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)			
[2A]-[4A]-13A	[2A]	[4A]	13A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	2175	2132.5	10	5230	751.0	23.8	23.7	-0.08
	[4A]	[2A]	13A	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	20	900	1960.0	10	5230	751.0	23.7	23.7	-0.04
	13A	[2A]	[4A]	QPSK	10	23230	782	1/25	10	5230	751.0	20	900	1960.0	20	2175	2132.5	23.6	23.7	0.08
[2A]-5B	[2A]	5B	5B	QPSK	20	18900	1880	1/49	20	900	1960.0	10	2450	874.0	10	2549	883.9	23.8	23.7	-0.08
	5B	5B	[2A]	QPSK	10	20450	829	1/25	10	2450	874.0	10	2549	883.9	20	900	1960.0	23.7	23.7	0.02
2A-5A-[66A]	2A	5A	[66A]	QPSK	20	18900	1880	1/49	20	900	1960.0	10	2525	881.5	20	66786	2145.0	23.8	23.7	-0.08
	5A	2A	[66A]	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	900	1960.0	20	66786	2145.0	23.6	23.6	0.05
	[66A]	2A	5A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	10	2525	881.5	23.8	23.8	0.08
[2A]-5A-66A	[2A]	5A	66A	QPSK	20	18900	1880	1/49	20	900	1960.0	10	2525	881.5	20	66786	2145.0	23.8	23.7	-0.10
	5A	[2A]	66A	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	900	1960.0	20	66786	2145.0	23.6	23.7	0.06
	66A	[2A]	5A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	10	2525	881.5	23.8	23.9	0.13
[2A]-5A-[66A]	[2A]	5A	[66A]	QPSK	20	18900	1880	1/49	20	900	1960.0	10	2525	881.5	20	66786	2145.0	23.8	23.7	-0.12
	5A	[2A]	[66A]	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	900	1960.0	20	66786	2145.0	23.6	23.7	0.10
	[66A]	[2A]	5A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	10	2525	881.5	23.8	23.9	0.11
2A-13A-[66A]	2A	13A	[66A]	QPSK	20	18900	1880	1/49	20	900	1960.0	10	5230	751.0	20	66786	2145.0	23.8	23.7	-0.06
	13A	2A	[66A]	QPSK	10	23230	782	1/25	10	5230	751.0	20	900	1960.0	20	66786	2145.0	23.6	23.8	0.13
	[66A]	2A	13A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	10	5230	751.0	23.8	23.8	0.02
[2A]-13A-66A	[2A]	13A	66A	QPSK	20	18900	1880	1/49	20	900	1960.0	10	5230	751.0	20	66786	2145.0	23.8	23.7	-0.10
	13A	[2A]	66A	QPSK	10	23230	782	1/25	10	5230	751.0	20	900	1960.0	20	66786	2145.0	23.6	23.7	0.10
	66A	[2A]	13A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	10	5230	751.0	23.8	23.8	0.03
[2A]-13A-[66A]	[2A]	13A	[66A]	QPSK	20	18900	1880	1/49	20	900	1960.0	10	5230	751.0	20	66786	2145.0	23.8	23.7	-0.10
	13A	[2A]	[66A]	QPSK	10	23230	782	1/25	10	5230	751.0	20	900	1960.0	20	66786	2145.0	23.6	23.8	0.14
	[66A]	[2A]	13A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	10	5230	751.0	23.8	23.8	0.08
2A-[66A]-66A	2A	[66A]	66A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	66786	2145.0	20	67036	2170.0	23.8	23.7	-0.06
	[66A]	2A	66A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	20	66536	2120.0	23.8	23.9	0.11
	66A	2A	[66A]	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	20	66536	2120.0	23.8	23.9	0.13
[2A]-66A-66A	[2A]	66A	66A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	66786	2145.0	20	67036	2170.0	23.8	23.7	-0.06
	66A	[2A]	66A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	20	66536	2120.0	23.8	23.9	0.11
2A-[66A]-[66A]	2A	[66A]	[66A]	QPSK	20	18900	1880	1/49	20	900	1960.0	20	66786	2145.0	20	67036	2170.0	23.8	23.7	-0.08
	[66A]	2A	[66A]	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	20	66536	2120.0	23.8	23.8	0.08
[2A]-[66A]-66A	[2A]	[66A]	66A	QPSK	20	18900	1880	1/49	20	900	1960.0	20	66786	2145.0	20	67036	2170.0	23.8	23.6	-0.18
	[66A]	[2A]	66A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	20	66536	2120.0	23.8	23.9	0.09
	66A	[2A]	[66A]	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	900	1960.0	20	66536	2120.0	23.8	23.9	0.13
2A-[66B]	2A	[66B]	[66B]	QPSK	20	18900	1880	1/49	20	900	1960.0	15	66786	2145.0	5	67129	2179.3	23.8	23.7	-0.08
	[66B]	[66B]	2A	QPSK	15	132322	1745	1/0	15	66786	2145.0	5	67129	2179.3	20	900	1960.0	23.8	23.8	0.08
[2A]-66B	[2A]	66B	66B	QPSK	20	18900	1880	1/49	20	900	1960.0	15	66786	2145.0	5	67129	2179.3	23.8	23.7	-0.10
	66B	66B	[2A]	QPSK	15	132322	1745	1/0	15	66786	2145.0	5	67129	2179.3	20	900	1960.0	23.8	23.9	0.11
2A-[66C]	2A	[66C]	[66C]	QPSK	20	18900	1880	1/49	20	900	1960.0	20	66786	2145.0	20	66984	2164.8	23.8	23.7	-0.10
	[66C]	[66C]	2A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	66838	2150.2	20	900	1960.0	23.8	23.9	0.11
[2A]-66C	[2A]	66C	66C	QPSK	20	18900	1880	1/49	20	900	1960.0	20	66786	2145.0	20	66984	2164.8	23.8	23.7	-0.08
	66C	66C	[2A]	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	66838	2150.2	20	900	1960.0	23.8	23.9	0.13
4A-[4A]-5A	4A	[4A]	5A	QPSK	20	20050	1720	1/49	20	2050	2120.0	20	2300	2145.0	10	2525	881.5	23.5	23.4	-0.10
	[4A]	4A	5A	QPSK	20	20050	1720	1/49	20	2050	2120.0	20	2300	2145.0	10	2525	881.5	23.5	23.4	-0.11
	5A	4A	[4A]	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	2050	2120.0	20	2300	2145.0	23.6	23.7	0.10
[4A]-[4A]-5A	[4A]	[4A]	5A	QPSK	20	20050	1720	1/49	20	2050	2120.0	20	2300	2145.0	10	2525	881.5	23.5	23.4	-0.09
	5A	[4A]	[4A]	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	2050	2120.0	20	2300	2145.0	23.6	23.6	0.05
4A-[4A]-13A	4A	[4A]	13A	QPSK	20	20050	1720	1/49	20	2050	2120.0	20	2300	2145.0	10	5230	751.0	23.5	23.4	-0.09
	[4A]	4A	13A	QPSK	20	20050	1720	1/49	20	2050	2120.0	20	2300	2145.0	10	5230	751.0	23.5	23.5	-0.01
	13A	4A	[4A]	QPSK	10	23230	782	1/25	10	5230	751.0	20	2050	2120.0	20	2300	2145.0	23.6	23.7	0.07
[4A]-[4A]-13A	[4A]	[4A]	13A	QPSK	20	20050	1720	1/49	20	2050	2120.0	20	2300	2145.0	10	5230	751.0	23.5	23.4	-0.09
	13A	[4A]	[4A]	QPSK	10	23230	782	1/25	10	5230	751.0	20	2050	2120.0	20	2300	2145.0	23.6	23.6	0.02
[4A]-5B	[4A]	5B	5B	QPSK	20	20175	1732.5	1/49	20	2175	2132.5	10	2450	874.0	10	2549	883.9	23.7	23.7	-0.04
	5B	5B	[4A]	QPSK	10	20450	829	1/25	10	2450	874.0	10	2549	883.9	20	2175	2132.5	23.7	23.7	-0.03
5A-5A-[66A]	5A	5A	[66A]	QPSK	10	20450	829	1/25	10	2450	874.0	10	2600	889.0	20	66786	2145.0	23.7	23.7	0.01
	[66A]	5A	5A	QPSK	20	132572	1770	1/49	20	67036	2170.0	10	2450	874.0	10	2600	889.0	23.8	23.9	0.09

Note(s):

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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DL CA with downlink 4X4 MIMO output power results (continued)

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)			
5B-[66A]	5B	5B	[66A]	QPSK	10	20450	829	1/25	10	2450	874.0	10	2549	883.9	20	66786	2145.0	23.7	23.6	-0.07
	[66A]	5B	5B	QPSK	20	132572	1770	1/49	20	67036	2170.0	10	2450	874.0	10	2549	883.9	23.8	23.9	0.11
5A-[66A]-66A	5A	[66A]	66A	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	66786	2145.0	20	67036	2170.0	23.6	23.7	0.08
	[66A]	5A	66A	QPSK	20	132572	1770	1/49	20	67036	2170.0	10	2525	881.5	20	66536	2120.0	23.8	23.7	-0.07
	66A	5A	[66A]	QPSK	20	132572	1770	1/49	20	67036	2170.0	10	2525	881.5	20	66536	2120.0	23.8	23.8	0.08
5A-[66A]-[66A]	5A	[66A]	[66A]	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	66786	2145.0	20	67036	2170.0	23.6	23.6	0.05
	[66A]	5A	[66A]	QPSK	20	132572	1770	1/49	20	67036	2170.0	10	2525	881.5	20	66536	2120.0	23.8	23.8	0.08
5A-[66B]	5A	[66B]	[66B]	QPSK	10	20525	836.5	1/49	10	2525	881.5	15	66786	2145.0	5	67129	2179.3	23.6	23.7	0.10
	[66B]	[66B]	5A	QPSK	15	132322	1745	1/0	15	66786	2145.0	5	67129	2179.3	10	2525	881.5	23.8	23.9	0.13
5A-[66C]	5A	[66C]	[66C]	QPSK	10	20525	836.5	1/49	10	2525	881.5	20	66786	2145.0	20	66984	2164.8	23.6	23.7	0.08
	[66C]	[66C]	5A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	66838	2150.2	10	2525	881.5	23.8	23.8	0.06
13A-[66A]-66A	13A	[66A]	66A	QPSK	10	23230	782	1/25	10	5230	751.0	20	66786	2145.0	20	67036	2170.0	23.6	23.7	0.07
	[66A]	13A	66A	QPSK	20	132572	1770	1/49	20	67036	2170.0	10	5230	751.0	20	66536	2120.0	23.8	23.9	0.10
	66A	13A	[66A]	QPSK	20	132572	1770	1/49	20	67036	2170.0	10	5230	751.0	20	66536	2120.0	23.8	23.9	0.12
13A-[66A]-[66A]	13A	[66A]	[66A]	QPSK	10	23230	782	1/25	10	5230	751.0	20	66786	2145.0	20	67036	2170.0	23.6	23.7	0.05
	[66A]	13A	[66A]	QPSK	20	132572	1770	1/49	20	67036	2170.0	10	5230	751.0	20	66536	2120.0	23.8	23.9	0.12
13A-[66B]	13A	[66B]	[66B]	QPSK	10	23230	782	1/25	10	5230	751.0	15	66786	2145.0	5	67129	2179.3	23.6	23.7	0.07
	[66B]	[66B]	13A	QPSK	15	132322	1745	1/0	15	66786	2145.0	5	67129	2179.3	10	5230	751.0	23.8	23.9	0.11
13A-[66C]	13A	[66C]	[66C]	QPSK	10	23230	782	1/25	10	5230	751.0	20	66786	2145.0	20	66984	2164.8	23.6	23.7	0.05
	[66C]	[66C]	13A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	66838	2150.2	10	5230	751.0	23.8	23.9	0.11
66A-[66C]	66A	[66C]	[66C]	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	66536	2120.0	20	66734	2139.8	23.8	23.9	0.13
	[66C]	[66C]	66A	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	66838	2150.2	20	66536	2120.0	23.8	23.9	0.11
[66A]-66C	[66A]	66C	66C	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	66536	2120.0	20	66734	2139.8	23.8	23.9	0.11
	66C	66C	[66A]	QPSK	20	132572	1770	1/49	20	67036	2170.0	20	66838	2150.2	20	66536	2120.0	23.8	23.9	0.12
[2C]	[2C]	[2C]		QPSK	20	18900	1880	1/49	20	900	1960	20	1098	1979.8				23.8	23.7	-0.10

Note(s):

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.

3. 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 [dBm]	Delta
LTE Band 2	20	18900	1880	QPSK	1/49	23.8	23.7	-0.08
LTE Band 4	20	20175	1732.5	QPSK	1/49	23.7	23.6	-0.10
LTE Band 66	20	132572	1770	QPSK	1/49	23.8	23.8	0.06

Note(s):

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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9.4 NR (Sub 6GHz)

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS 138.521-1 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 TS138.521-1.

Table 6.2.2.3-1: Maximum Power Reduction (MPR) for Power 3

Modulation	MPR (dB)		
	Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM PI/2 BPSK	≤ 3.5[1]	≤ 1.2[1]	≤ 0.2[1]
	≤ 0.5[2]		0[2]
DFT-s-OFDM QPSK	≤ 1		0
DFT-s-OFDM 16 QAM	≤ 2		≤ 1
DFT-s-OFDM 64 QAM	≤ 2.5		
DFT-s-OFDM 256 QAM	≤ 4.5		
CP-OFDM QPSK	≤ 3		≤ 1.5
CP-OFDM 16 QAM	≤ 3		≤ 2
CP-OFDM 64 QAM	≤ 3.5		
CP-OFDM 256 QAM	≤ 6.5		

NOTE 1: Applicable for UE operating in TDD mode with PI/2 BPSK modulation and UE indicates support for UE capability *powerBoosting-pi2BPSK* and if the IE *powerBoostPi2BPSK* is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0dB MPR is 26dBm.

NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 and if the IE *powerBoostPi2BPSK* is set to 0 and if more than 40% of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.

The allowed A-MPR values specified below in Table 6.2.3.3.1-1 of 3GPP TS138.521-1 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 6.2.3.3.1-1: Additional maximum power reduction (A-MPR)

Network Signalling label	Requirements (subclause)	NR Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01		Table 5.2-1	5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 90, 100	Table 5.3.2-1	N/A

Uplink RB allocations were used to Table 6.1-1 of the 3GPP TS 138.521-1.

Channel Bandwidth	SCS(kHz)	OFDM	RB allocation							
			Edge_Full_Left	Edge_Full_Right	Edge_1RB_Left	Edge_1RB_Right	Outer_Full	Inner_Full	Inner_1RB_Left	Inner_1RB_Right
5MHz	15	DFT-s	2@0	2@23	1@0	1@24	25@0	12@6	1@1	1@23
		CP	2@0	2@23	1@0	1@24	25@0	13@6	1@1	1@23
	30	DFT-s	2@0	2@9	1@0	1@10	10@0	5@2[1]	1@1	1@9
		CP	2@0	2@9	1@0	1@10	11@0	5@2[1]	1@1	1@9
	60	DFT-s	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		CP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10MHz	15	DFT-s	2@0	2@50	1@0	1@51	50@0	25@12	1@1	1@50
		CP	2@0	2@50	1@0	1@51	52@0	26@13	1@1	1@50
	30	DFT-s	2@0	2@22	1@0	1@23	24@0	12@6	1@1	1@22
		CP	2@0	2@22	1@0	1@23	24@0	12@6	1@1	1@22
	60	DFT-s	2@0	2@9	1@0	1@10	10@0	5@2[1]	1@1	1@9
		CP	2@0	2@9	1@0	1@10	11@0	5@2[1]	1@1	1@9
15MHz	15	DFT-s	2@0	2@77	1@0	1@78	75@0	36@18	1@1	1@77
		CP	2@0	2@77	1@0	1@78	79@0	39@19[1]	1@1	1@77
	30	DFT-s	2@0	2@36	1@0	1@37	36@0	18@9	1@1	1@36
		CP	2@0	2@36	1@0	1@37	38@0	19@9	1@1	1@36
	60	DFT-s	2@0	2@16	1@0	1@17	18@0	9@4	1@1	1@16
		CP	2@0	2@16	1@0	1@17	18@0	9@4	1@1	1@16
20MHz	15	DFT-s	2@0	2@104	1@0	1@105	100@0	50@25	1@1	1@104
		CP	2@0	2@104	1@0	1@105	106@0	53@26	1@1	1@104
	30	DFT-s	2@0	2@49	1@0	1@50	50@0	25@12	1@1	1@49
		CP	2@0	2@49	1@0	1@50	51@0	25@12[1]	1@1	1@49
	60	DFT-s	2@0	2@22	1@0	1@23	24@0	12@6	1@1	1@22
		CP	2@0	2@22	1@0	1@23	24@0	12@6	1@1	1@22

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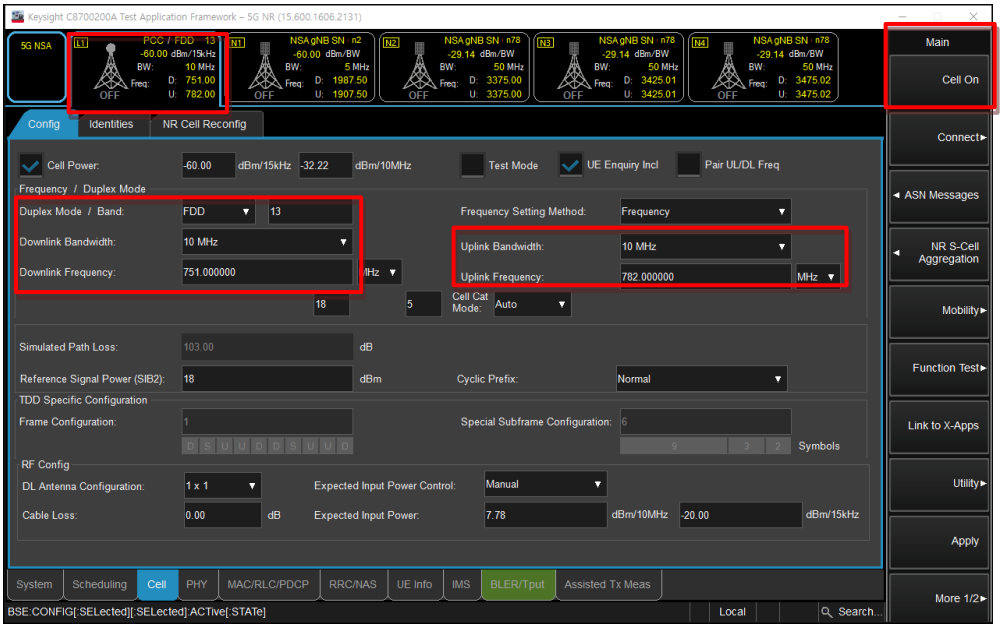
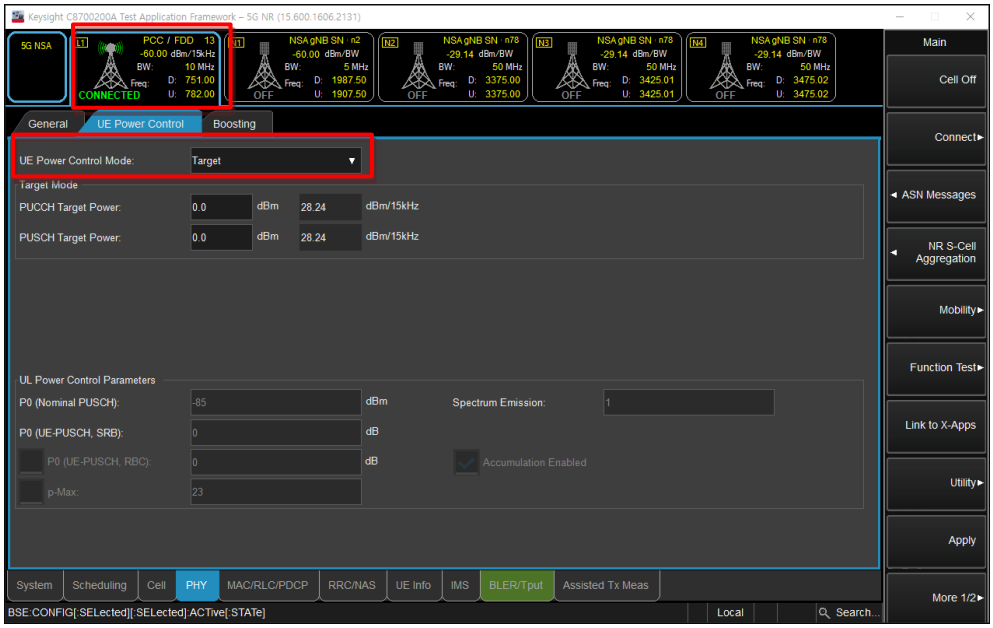
Procedure used to establish output power measurement for NR Bands

- Select operating band, BW and Channel.
- Click Cell on button in the right of Test application screen.
- Turn the LTE Cell On using “ON I OFF” Key.



(Figure-1)

- Turn the Airplane Mode On and then turn the Airplane mode off.
- Select All down bits for UL Power control Mode in LTE.



(Figure-2)

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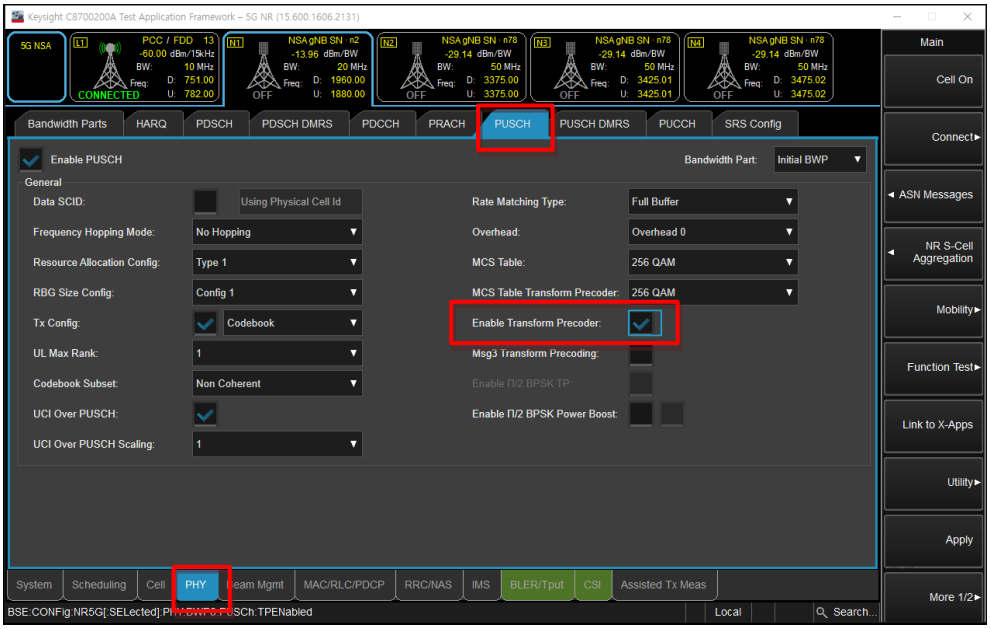
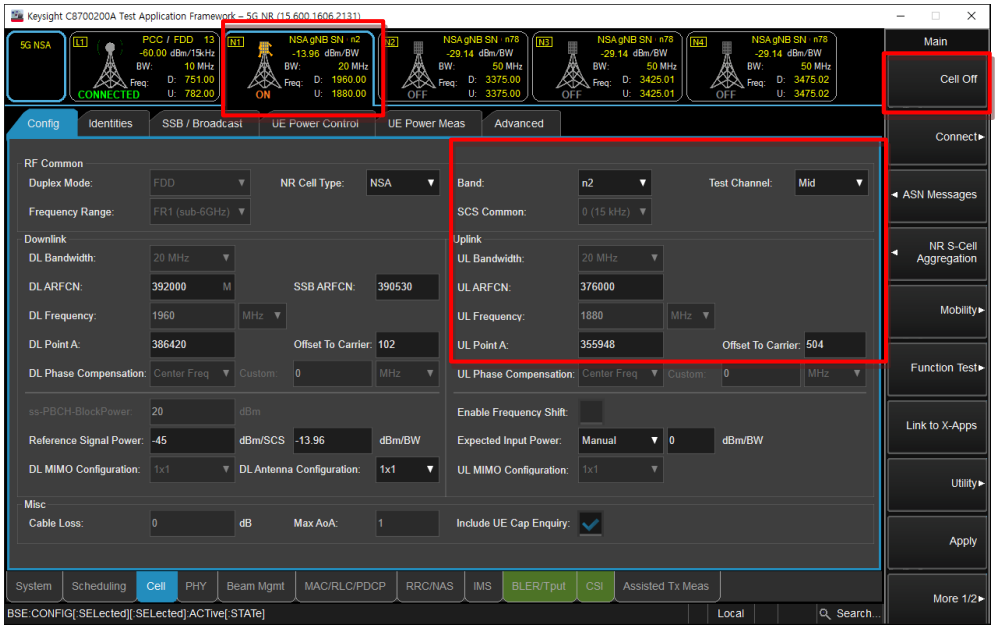
Setup for NR Band

- Select waveform for Setting NR Band (PHY -> PUSCH -> Enable Transform Precoder).
  - Enable : DFT-s-OFDM, Disable : CP-OFDM



(Figure-3)

- Select operating band, BW, SCS and Channel.
- Turn the NR Cell On using “ON I OFF” Key.



(Figure-4)

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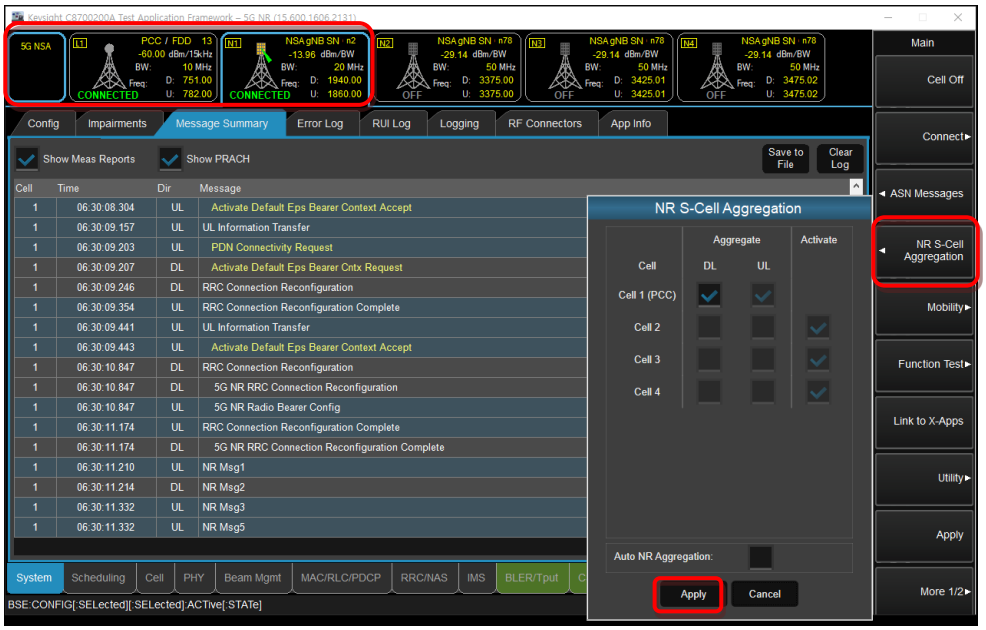
Connect NR S-Cell Aggregation

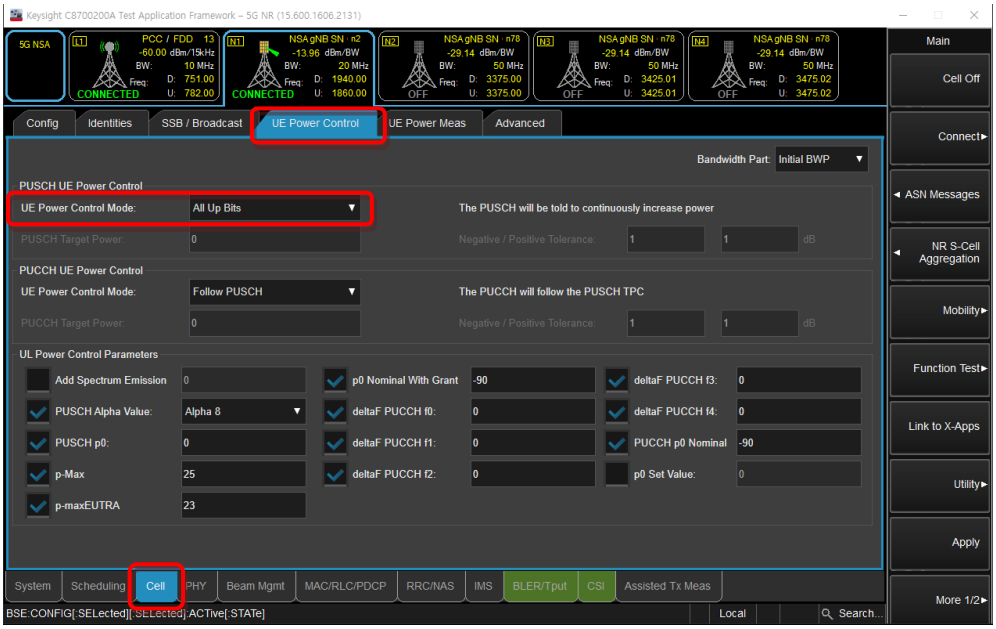
- Click NR S-Cell Aggregation.
- Check the Cell 1's DL and UL box (PCC) and than Click Apply.
- Check the message summary If message shows NR Msg 5, It is connected.



(Figure-5)

Max power setting

- Click "Cell" in the bottom of screen.
- Click "UE Power control" than change UE Power control mode to All Up bits.



(Figure-6)

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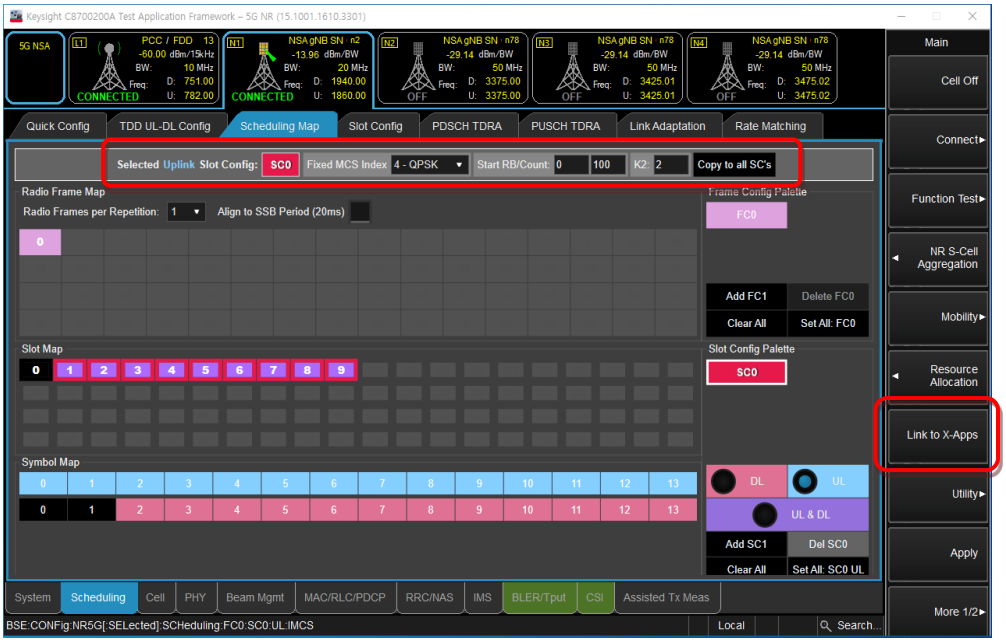
Selecting Start RB/Count/MCS

- Select the each test configuration (Start RB, Count, MCS).



(Figure-7)

View Tx Power

- Click “Link to X-Apps”. (Please refer to Figure-7)
- Select “ Channel Power”.

(Figure-8)

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NR Band n2 Measured Results

(LTE Anchor band : LTE Band 5_BW : 10MHz_QPSK_RB : 50/0_Ch.Mid)

NR Band n2 Measured Results (DSI 0 or 1)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
					DSI = 0 or 1				
					Measured Pwr (dBm)			MPR	Tune-up Limit
					372000	376000	380000		
					1860 MHz	1880 MHz	1900 MHz		
20MHZ	DFT-s-OFDM	QPSK	1	1	23.3	23.5	23.7	0.0	25.0
			1	53	23.0	23.4	23.5	0.0	25.0
			1	104	22.4	23.6	23.0	0.0	25.0
			50	0	22.8	22.5	23.1	1.0	24.0
			50	28	23.2	23.4	23.6	0.0	25.0
			50	56	22.5	22.9	22.6	1.0	24.0
			100	0	22.8	22.8	23.0	1.0	24.0
		16 QAM	1	1	23.0	21.9	22.5	1.0	24.0
		64 QAM	1	1	20.9	21.1	21.1	2.5	22.5
		256 QAM	1	1	19.4	19.4	19.3	4.5	20.5
	CP-OFDM	QPSK	1	1	22.0	21.5	22.1	1.5	23.5
			1	53	21.9	21.9	22.1	1.5	23.5
			1	104	21.2	22.2	22.0	1.5	23.5
			53	0	20.7	20.5	21.0	3.0	22.0
			53	26	21.3	21.6	21.9	1.5	23.5
			53	53	20.1	20.8	20.3	3.0	22.0
			106	0	20.3	20.7	20.9	3.0	22.0
		16 QAM	1	1	21.3	20.1	21.5	2.0	23.0
		64 QAM	1	1	20.3	19.7	20.4	3.5	21.5
		256 QAM	1	1	17.6	17.7	17.7	6.5	18.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					371500	376000	380500		
					1857.5 MHz	1880 MHz	1902.5 MHz		
15MHz	DFT-s-OFDM	QPSK	1	1	23.2	23.4	23.6	0.0	25.0
			1	39	23.2	23.2	23.0	0.0	25.0
			1	77	22.6	23.7	23.0	0.0	25.0
			36	0	22.9	22.4	23.0	1.0	24.0
			36	22	23.1	23.2	22.9	0.0	25.0
			36	43	22.4	22.9	22.3	1.0	24.0
			75	0	22.6	22.8	22.8	1.0	24.0
		16 QAM	1	1	22.5	21.8	23.1	1.0	24.0
		64 QAM	1	1	21.1	20.9	21.1	2.5	22.5
		256 QAM	1	1	19.3	19.3	19.3	4.5	20.5
	CP-OFDM	QPSK	1	1	21.9	21.6	22.1	1.5	23.5
			1	39	21.9	21.9	21.9	1.5	23.5
			1	77	21.5	22.1	21.8	1.5	23.5
			39	0	20.8	20.5	21.0	3.0	22.0
			39	20	21.5	21.8	21.4	1.5	23.5
			39	40	20.4	20.8	20.3	3.0	22.0
			79	0	20.6	20.8	20.8	3.0	22.0
		16 QAM	1	1	21.2	20.9	21.6	2.0	23.0
		64 QAM	1	1	20.3	20.0	20.3	3.5	21.5
		256 QAM	1	1	17.5	17.6	17.7	6.5	18.5

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NR Band n2 Measured Results (DSI 0 or 1) (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					371000	376000	381000		
					1855 MHz	1880 MHz	1905 MHz		
10MHz	DFT-s-OFDM	QPSK	1	1	23.2	23.1	23.6	0.0	25.0
			1	26	23.6	23.7	22.9	0.0	25.0
			1	50	23.0	23.4	23.2	0.0	25.0
			25	0	22.9	22.8	22.8	1.0	24.0
			25	14	23.4	23.6	22.8	0.0	25.0
			25	27	22.8	22.8	22.5	1.0	24.0
			50	0	22.8	22.8	22.6	1.0	24.0
		16 QAM	1	1	22.6	22.5	23.0	1.0	24.0
		64 QAM	1	1	21.0	21.0	21.1	2.5	22.5
		256 QAM	1	1	19.2	19.1	19.3	4.5	20.5
	CP-OFDM	QPSK	1	1	21.5	22.1	22.1	1.5	23.5
			1	26	22.1	22.1	22.0	1.5	23.5
			1	50	21.5	22.4	22.0	1.5	23.5
			26	0	20.6	20.5	20.8	3.0	22.0
			26	13	21.6	21.8	21.4	1.5	23.5
			26	26	20.6	20.7	20.6	3.0	22.0
			52	0	20.6	20.7	20.7	3.0	22.0
		16 QAM	1	1	20.8	21.1	21.5	2.0	23.0
		64 QAM	1	1	19.9	19.7	20.4	3.5	21.5
		256 QAM	1	1	17.6	17.6	17.6	6.5	18.5

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					370500	376000	381500		
					1852.5 MHz	1880 MHz	1907.5 MHz		
5MHz	DFT-s-OFDM	QPSK	1	1	23.4	23.2	22.6	0.0	25.0
			1	13	23.5	23.5	22.8	0.0	25.0
			1	23	23.5	23.5	23.0	0.0	25.0
			12	0	22.8	22.7	22.2	1.0	24.0
			12	6	23.4	23.3	22.6	0.0	25.0
			12	13	22.7	22.8	22.5	1.0	24.0
			25	0	22.9	22.9	22.4	1.0	24.0
		16 QAM	1	1	22.7	22.5	21.9	1.0	24.0
		64 QAM	1	1	21.1	21.1	21.0	2.5	22.5
		256 QAM	1	1	19.2	19.2	19.3	4.5	20.5
	CP-OFDM	QPSK	1	1	22.0	21.9	21.6	1.5	23.5
			1	13	22.0	21.6	21.9	1.5	23.5
			1	23	21.9	21.7	22.1	1.5	23.5
			13	0	20.9	21.0	20.3	3.0	22.0
			13	6	21.9	22.0	21.3	1.5	23.5
			13	12	20.9	20.9	20.7	3.0	22.0
			25	0	21.0	21.0	20.4	3.0	22.0
		16 QAM	1	1	21.3	21.4	21.2	2.0	23.0
		64 QAM	1	1	20.3	20.4	20.2	3.5	21.5
		256 QAM	1	1	17.5	17.5	17.6	6.5	18.5

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NR Band n2 Measured Results (DSI 2 and 3)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
					DSI = 2					DSI =3				
					Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					372000	376000	380000			372000	376000	380000		
					1860 MHz	1880 MHz	1900 MHz			1860 MHz	1880 MHz	1900 MHz		
20MHZ	DFT-s-OFDM	QPSK	1	1	19.8	20.0	20.0	0.0	20.5	19.9	20.1	20.1	0.0	21.0
			1	53	19.6	19.9	19.8	0.0	20.5	19.7	19.9	19.9	0.0	21.0
			1	104	19.8	20.0	19.9	0.0	20.5	19.9	20.1	20.0	0.0	21.0
			50	0	19.9	19.9	19.8	0.0	20.5	20.0	20.2	20.2	0.0	21.0
			50	28	20.0	19.9	20.0	0.0	20.5	20.0	20.2	20.2	0.0	21.0
			50	56	19.9	20.0	19.8	0.0	20.5	20.0	20.2	20.2	0.0	21.0
			100	0	20.0	19.9	19.8	0.0	20.5	20.0	20.2	20.2	0.0	21.0
		16 QAM	1	1	20.0	19.9	19.9	0.0	20.5	20.1	20.3	20.1	0.0	21.0
		64 QAM	1	1	19.8	19.8	19.8	0.0	20.5	19.7	19.9	19.9	0.0	21.0
		256 QAM	1	1	18.5	18.3	18.3	0.0	20.5	19.0	19.3	19.3	1.0	20.0
	CP-OFDM	QPSK	1	1	19.9	20.0	20.0	0.0	20.5	20.0	20.2	20.1	0.0	21.0
			1	53	19.6	19.9	20.0	0.0	20.5	19.7	20.0	20.0	0.0	21.0
			1	104	19.9	20.0	19.9	0.0	20.5	20.0	20.2	20.1	0.0	21.0
			53	0	19.9	20.2	20.0	0.0	20.5	20.0	20.3	20.2	0.0	21.0
			53	26	19.9	20.0	19.9	0.0	20.5	20.0	20.2	20.3	0.0	21.0
			53	53	19.9	19.9	20.0	0.0	20.5	20.0	20.2	20.2	0.0	21.0
			106	0	20.0	20.0	20.0	0.0	20.5	20.1	20.3	20.3	0.0	21.0
		16 QAM	1	1	19.7	19.9	20.0	0.0	20.5	19.8	20.0	20.0	0.0	21.0
		64 QAM	1	1	19.9	20.0	19.9	0.0	20.5	19.7	19.8	19.9	0.0	21.0
		256 QAM	1	1	17.1	17.7	17.6	2.0	18.5	17.0	17.1	17.2	3.0	18.0
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					371500	376000	380500			371500	376000	380500		
					1857.5 MHz	1880 MHz	1902.5 MHz			1857.5 MHz	1880 MHz	1902.5 MHz		
15MHz	DFT-s-OFDM	QPSK	1	1	19.6	19.7	19.7	0.0	20.5	20.1	20.2	20.2	0.0	21.0
			1	39	19.4	19.6	19.6	0.0	20.5	20.1	20.3	20.3	0.0	21.0
			1	77	19.7	19.8	19.7	0.0	20.5	20.1	20.1	20.2	0.0	21.0
			36	0	19.7	20.0	19.9	0.0	20.5	20.1	20.3	20.3	0.0	21.0
			36	22	19.7	19.9	19.8	0.0	20.5	20.1	20.3	20.2	0.0	21.0
			36	43	19.8	19.9	19.8	0.0	20.5	20.2	20.4	20.2	0.0	21.0
			75	0	19.8	19.9	19.9	0.0	20.5	20.2	20.2	20.2	0.0	21.0
		16 QAM	1	1	19.6	19.9	19.8	0.0	20.5	20.3	20.5	20.4	0.0	21.0
		64 QAM	1	1	19.5	19.6	19.6	0.0	20.5	20.2	20.1	20.1	0.0	21.0
		256 QAM	1	1	18.0	18.3	18.8	1.0	19.5	19.0	19.3	18.7	1.0	20.0
	CP-OFDM	QPSK	1	1	19.8	19.8	19.9	0.0	20.5	20.2	20.4	20.4	0.0	21.0
			1	39	19.6	19.7	19.7	0.0	20.5	20.0	20.4	20.3	0.0	21.0
			1	77	19.7	19.8	19.7	0.0	20.5	20.3	20.4	20.3	0.0	21.0
			39	0	19.7	20.0	19.8	0.0	20.5	20.2	20.5	20.5	0.0	21.0
			39	20	19.5	19.9	19.8	0.0	20.5	20.1	20.4	20.4	0.0	21.0
			39	40	19.7	19.9	19.8	0.0	20.5	20.3	20.4	20.4	0.0	21.0
			79	0	19.8	19.9	19.9	0.0	20.5	20.4	20.4	20.5	0.0	21.0
		16 QAM	1	1	19.8	19.6	19.6	0.0	20.5	20.0	20.3	20.2	0.0	21.0
		64 QAM	1	1	19.8	20.0	19.9	0.0	20.5	19.9	20.1	20.0	0.0	21.0
		256 QAM	1	1	17.1	17.4	17.3	2.0	18.5	17.2	17.4	17.4	3.0	18.0

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NR Band n2 Measured Results (DSI 2 and 3) (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					371000	376000	381000			371000	376000	381000		
					1855 MHz	1880 MHz	1905 MHz			1855 MHz	1880 MHz	1905 MHz		
10MHz	DFT-s-OFDM	QPSK	1	1	19.8	19.8	19.8	0.0	20.5	20.2	20.4	20.3	0.0	21.0
			1	26	19.4	19.8	19.8	0.0	20.5	20.2	20.4	20.3	0.0	21.0
			1	50	19.4	19.8	19.8	0.0	20.5	20.0	20.2	20.3	0.0	21.0
			25	0	19.7	19.7	19.8	0.0	20.5	20.3	20.5	20.5	0.0	21.0
			25	14	19.6	19.8	19.8	0.0	20.5	20.3	20.5	20.5	0.0	21.0
			25	27	19.6	19.8	19.8	0.0	20.5	20.3	20.5	20.3	0.0	21.0
			50	0	19.7	19.8	19.8	0.0	20.5	20.4	20.6	20.5	0.0	21.0
		16 QAM	1	1	19.7	19.5	19.4	0.0	20.5	19.9	20.3	20.3	0.0	21.0
		64 QAM	1	1	19.4	19.7	19.6	0.0	20.5	20.0	20.2	20.3	0.0	21.0
		256 QAM	1	1	19.4	19.4	18.7	0.5	20.0	19.2	18.8	18.8	1.0	20.0
	CP-OFDM	QPSK	1	1	19.6	19.8	19.7	0.0	20.5	20.2	20.5	18.9	0.0	21.0
			1	26	19.5	19.7	19.8	0.0	20.5	20.2	20.5	20.3	0.0	21.0
			1	50	19.4	19.7	19.7	0.0	20.5	20.2	20.5	20.4	0.0	21.0
			26	0	19.7	19.8	19.8	0.0	20.5	20.3	20.4	20.4	0.0	21.0
			26	13	19.7	19.8	19.9	0.0	20.5	20.3	20.5	20.4	0.0	21.0
			26	26	19.6	19.8	19.8	0.0	20.5	20.3	20.5	20.4	0.0	21.0
			52	0	19.6	19.9	19.8	0.0	20.5	20.3	20.5	20.4	0.0	21.0
		16 QAM	1	1	19.4	19.9	19.6	0.0	20.5	20.1	20.5	20.2	0.0	21.0
		64 QAM	1	1	19.8	20.0	19.9	0.0	20.5	20.0	20.1	20.1	0.0	21.0
		256 QAM	1	1	17.2	17.3	17.5	2.0	18.5	17.3	17.5	17.4	3.0	18.0
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					370500	376000	381500			370500	376000	381500		
					1852.5 MHz	1880 MHz	1907.5 MHz			1852.5 MHz	1880 MHz	1907.5 MHz		
5MHz	DFT-s-OFDM	QPSK	1	1	19.2	19.8	19.7	0.0	20.5	20.3	20.2	20.3	0.0	21.0
			1	13	19.5	19.7	19.7	0.0	20.5	20.4	20.3	20.3	0.0	21.0
			1	23	19.5	19.7	19.7	0.0	20.5	20.3	20.4	20.4	0.0	21.0
			12	0	19.8	19.8	19.8	0.0	20.5	20.3	20.5	20.5	0.0	21.0
			12	6	19.7	19.8	19.8	0.0	20.5	20.4	20.5	20.5	0.0	21.0
			12	13	19.7	19.8	19.8	0.0	20.5	20.3	20.4	20.3	0.0	21.0
			25	0	19.7	19.9	19.8	0.0	20.5	20.4	20.6	20.5	0.0	21.0
		16 QAM	1	1	19.7	19.8	19.8	0.0	20.5	20.7	20.5	20.5	0.0	21.0
		64 QAM	1	1	19.1	19.5	19.7	0.0	20.5	20.3	20.2	20.2	0.0	21.0
		256 QAM	1	1	18.7	18.3	18.8	0.0	20.5	19.0	18.1	18.8	1.0	20.0
	CP-OFDM	QPSK	1	1	19.9	19.7	19.8	0.0	20.5	20.2	20.4	20.5	0.0	21.0
			1	13	19.6	19.9	19.7	0.0	20.5	20.2	20.5	20.5	0.0	21.0
			1	23	19.6	19.8	19.8	0.0	20.5	20.2	20.4	20.5	0.0	21.0
			13	0	19.8	19.9	19.8	0.0	20.5	20.3	20.6	20.4	0.0	21.0
			13	6	19.8	19.9	19.8	0.0	20.5	20.4	20.5	20.4	0.0	21.0
			13	12	19.6	19.9	19.8	0.0	20.5	20.4	20.5	20.4	0.0	21.0
			25	0	19.8	19.9	19.9	0.0	20.5	20.4	20.5	20.5	0.0	21.0
		16 QAM	1	1	19.5	19.6	19.6	0.0	20.5	20.1	20.4	20.5	0.0	21.0
		64 QAM	1	1	19.8	20.0	19.9	0.0	20.5	20.1	20.1	20.3	0.0	21.0
		256 QAM	1	1	17.2	17.4	17.4	2.0	18.5	17.2	17.4	17.4	3.0	18.0

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NR Band n5 Measured Results

(LTE Anchor band : LTE Band 2_BW : 20MHz_QPSK_RB : 100/0_Ch.Mid)

NR Band n5 Measured Results (DSI = All (0, 1, 2, 3,))

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
					DSI = All (0, 1, 2, 3)				
					Measured Pwr (dBm)			MPR	Tune-up Limit
					166800	167300	167800		
					834 MHz	836.5 MHz	839 MHz		
20MHz	DFT-s OFDM	QPSK	1	1		23.1		0.0	24.5
			1	53		23.0		0.0	24.5
			1	104		22.8		0.0	24.5
			50	0		22.5		1.0	23.5
			50	28		23.2		0.0	24.5
			50	56		22.3		1.0	23.5
			100	0		22.4		1.0	23.5
		16 QAM	1	1		22.4		1.0	23.5
		64 QAM	1	1		20.6		2.5	22.0
		256 QAM	1	1		19.1		4.5	20.0
	CP-OFDM	QPSK	1	1		21.8		1.5	23.0
			1	53		21.8		1.5	23.0
			1	104		21.5		1.5	23.0
			53	0		20.4		3.0	21.5
			53	26		21.8		1.5	23.0
			53	53		20.3		3.0	21.5
			106	0		20.5		3.0	21.5
		16 QAM	1	1		21.2		2.0	22.5
		64 QAM	1	1		20.1		3.5	21.0
		256 QAM	1	1		17.6		6.5	18.0
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					166300	167300	168300		
					831.5 MHz	836.5 MHz	841.5 MHz		
15MHz	DFT-s OFDM	QPSK	1	1		23.2		0.0	24.5
			1	39		23.0		0.0	24.5
			1	77		23.0		0.0	24.5
			36	0		22.4		1.0	23.5
			36	22		23.2		0.0	24.5
			36	43		22.2		1.0	23.5
			75	0		22.4		1.0	23.5
		16 QAM	1	1		22.4		1.0	23.5
		64 QAM	1	1		20.7		2.5	22.0
		256 QAM	1	1		18.9		4.5	20.0
	CP-OFDM	QPSK	1	1		21.9		1.5	23.0
			1	39		21.6		1.5	23.0
			1	77		21.6		1.5	23.0
			39	0		20.4		3.0	21.5
			39	20		21.8		1.5	23.0
			39	40		20.4		3.0	21.5
			79	0		20.5		3.0	21.5
		16 QAM	1	1		21.2		2.0	22.5
		64 QAM	1	1		20.1		3.5	21.0
		256 QAM	1	1		17.4		6.5	18.0

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NR Band n5 Measured Results (DSI = All (0, 1, 2, 3,)) (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					165800	167300	168800		
					829 MHz	836.5 MHz	844 MHz		
10MHz	DFT-s OFDM	QPSK	1	1		23.2		0.0	24.5
			1	26		23.1		0.0	24.5
			1	50		23.0		0.0	24.5
			25	0		22.4		1.0	23.5
			25	14		23.3		0.0	24.5
			25	27		22.3		1.0	23.5
			50	0		22.4		1.0	23.5
		16 QAM	1	1		21.4		1.0	23.5
		64 QAM	1	1		20.7		2.5	22.0
		256 QAM	1	1		18.9		4.5	20.0
	CP-OFDM	QPSK	1	1		21.8		1.5	23.0
			1	26		21.7		1.5	23.0
			1	50		21.7		1.5	23.0
			26	0		20.5		3.0	21.5
			26	13		21.8		1.5	23.0
			26	26		20.4		3.0	21.5
			52	0		20.4		3.0	21.5
		16 QAM	1	1		21.5		2.0	22.5
		64 QAM	1	1		20.2		3.5	21.0
		256 QAM	1	1		17.3		6.5	18.0

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					165300	167300	169300		
					826.5 MHz	836.5 MHz	846.5 MHz		
5MHz	DFT-s OFDM	QPSK	1	1	23.1	23.1	22.9	0.0	24.5
			1	13	23.1	23.1	22.9	0.0	24.5
			1	23	23.1	23.1	22.9	0.0	24.5
			12	0	22.4	22.3	22.1	1.0	23.5
			12	6	23.2	23.3	23.0	0.0	24.5
			12	13	22.3	22.3	22.0	1.0	23.5
			25	0	22.4	22.3	22.2	1.0	23.5
		16 QAM	1	1	22.4	22.5	22.1	1.0	23.5
		64 QAM	1	1	20.7	20.7	20.6	2.5	22.0
		256 QAM	1	1	18.4	18.8	18.5	4.5	20.0
	CP-OFDM	QPSK	1	1	21.8	21.8	21.6	1.5	23.0
			1	13	21.8	21.9	21.5	1.5	23.0
			1	23	21.7	21.8	21.5	1.5	23.0
			13	0	20.5	20.6	20.3	3.0	21.5
			13	6	22.0	21.9	21.6	1.5	23.0
			13	12	20.4	20.5	20.3	3.0	21.5
			25	0	20.5	20.5	20.3	3.0	21.5
		16 QAM	1	1	21.0	21.4	21.1	2.0	22.5
		64 QAM	1	1	20.2	20.1	19.9	3.5	21.0
		256 QAM	1	1	17.4	17.3	17.0	6.5	18.0

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NR Band n66 Measured Results

(LTE Anchor band : LTE Band 5_BW : 10MHz_QPSK_RB : 50/0_Ch.Mid)

NR Band n66 Measured Results (DSI 0 or 1)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
					DSI = 0 or 1				
					Measured Pwr (dBm)			MPR	Tune-up Limit
					344000	349000	354000		
					1720 MHz	1745 MHz	1770 MHz		
20MHZ	DFT-s OFDM	QPSK	1	1	23.6	23.7	23.3	0.0	24.5
			1	53	23.5	23.8	23.4	0.0	24.5
			1	104	23.4	23.6	23.1	0.0	24.5
			50	0	22.8	22.9	22.1	1.0	23.5
			50	28	23.7	23.8	22.4	0.0	24.5
			50	56	22.8	22.8	22.4	1.0	23.5
			100	0	22.8	22.9	22.5	1.0	23.5
		16 QAM	1	1	22.9	23.0	22.7	1.0	23.5
		64 QAM	1	1	21.2	21.1	20.9	2.5	22.0
		256 QAM	1	1	19.1	19.2	19.0	4.5	20.0
	CP-OFDM	QPSK	1	1	22.3	22.2	21.9	1.5	23.0
			1	53	22.2	20.6	21.8	1.5	23.0
			1	104	22.2	22.1	21.4	1.5	23.0
			53	0	20.9	20.9	20.4	3.0	21.5
			53	26	22.4	22.2	21.9	1.5	23.0
			53	53	20.8	19.5	20.1	3.0	21.5
			106	0	21.0	20.8	20.2	3.0	21.5
		16 QAM	1	1	21.5	21.8	21.3	2.0	22.5
		64 QAM	1	1	20.6	19.6	18.9	3.5	21.0
		256 QAM	1	1	17.8	17.0	17.4	6.5	18.0
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					343500	349000	354500		
					1717.5 MHz	1745 MHz	1772.5 MHz		
15MHz	DFT-s OFDM	QPSK	1	1	23.7	23.4	23.2	0.0	24.5
			1	39	23.5	22.2	23.2	0.0	24.5
			1	77	23.5	22.6	23.0	0.0	24.5
			36	0	22.9	22.7	22.4	1.0	23.5
			36	22	23.7	23.6	22.3	0.0	24.5
			36	43	22.9	21.4	21.8	1.0	23.5
			75	0	22.9	22.6	22.4	1.0	23.5
		16 QAM	1	1	23.0	22.7	22.2	1.0	23.5
		64 QAM	1	1	21.2	20.9	20.8	2.5	22.0
		256 QAM	1	1	19.3	18.5	19.0	4.5	20.0
	CP-OFDM	QPSK	1	1	22.3	22.2	22.1	1.5	23.0
			1	39	22.4	22.1	21.0	1.5	23.0
			1	77	22.3	22.1	21.6	1.5	23.0
			39	0	21.0	20.8	20.5	3.0	21.5
			39	20	22.4	22.3	21.9	1.5	23.0
			39	40	20.8	20.7	20.4	3.0	21.5
			79	0	21.0	20.8	20.4	3.0	21.5
		16 QAM	1	1	21.8	21.5	21.1	2.0	22.5
		64 QAM	1	1	20.8	19.4	20.1	3.5	21.0
		256 QAM	1	1	17.8	17.6	17.5	6.5	18.0

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NR Band n66 Measured Results (DSI 0 or 1) (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					343000	349000	355000		
					1715 MHz	1745 MHz	1775 MHz		
10MHz	DFT-s OFDM	QPSK	1	1	23.5	23.5	23.0	0.0	24.5
			1	26	23.6	23.7	23.0	0.0	24.5
			1	50	23.5	23.4	23.0	0.0	24.5
			25	0	22.9	22.6	22.4	1.0	23.5
			25	14	23.7	23.5	22.3	0.0	24.5
			25	27	22.8	22.7	22.2	1.0	23.5
			50	0	22.9	22.7	21.4	1.0	23.5
		16 QAM	1	1	22.2	22.5	21.4	1.0	23.5
		64 QAM	1	1	20.9	20.7	21.0	2.5	22.0
		256 QAM	1	1	19.3	18.9	18.5	4.5	20.0
	CP-OFDM	QPSK	1	1	22.1	22.1	21.5	1.5	23.0
			1	26	22.3	22.2	21.3	1.5	23.0
			1	50	22.1	22.1	21.4	1.5	23.0
			26	0	20.7	20.7	19.4	3.0	21.5
			26	13	22.3	22.3	21.9	1.5	23.0
			26	26	20.8	19.0	20.3	3.0	21.5
			52	0	20.8	20.7	20.4	3.0	21.5
		16 QAM	1	1	21.5	21.4	20.7	2.0	22.5
		64 QAM	1	1	20.5	20.4	20.4	3.5	21.0
		256 QAM	1	1	17.7	17.6	15.9	6.5	18.0
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					342500	349000	355500		
					1712.5 MHz	1745 MHz	1777.5 MHz		
5MHz	DFT-s OFDM	QPSK	1	1	23.7	23.3	23.1	0.0	24.5
			1	13	23.7	23.6	22.9	0.0	24.5
			1	23	23.5	23.5	23.0	0.0	24.5
			12	0	22.8	22.7	22.2	1.0	23.5
			12	6	23.7	23.7	23.2	0.0	24.5
			12	13	22.8	22.7	22.3	1.0	23.5
			25	0	22.8	22.8	22.3	1.0	23.5
		16 QAM	1	1	22.9	22.7	22.3	1.0	23.5
		64 QAM	1	1	20.8	20.6	20.6	2.5	22.0
		256 QAM	1	1	19.2	19.0	18.7	4.5	20.0
	CP-OFDM	QPSK	1	1	22.2	22.1	21.8	1.5	23.0
			1	13	22.2	22.1	21.7	1.5	23.0
			1	23	22.1	22.1	21.9	1.5	23.0
			13	0	20.9	20.8	20.4	3.0	21.5
			13	6	22.4	22.3	21.9	1.5	23.0
			13	12	20.8	20.9	20.4	3.0	21.5
			25	0	20.9	20.9	20.4	3.0	21.5
		16 QAM	1	1	21.4	21.5	21.5	2.0	22.5
		64 QAM	1	1	20.5	20.4	20.0	3.5	21.0
		256 QAM	1	1	17.7	17.7	17.3	6.5	18.0

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NR Band n66 Measured Results (DSI 2 and 3)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off DSI = 2					Reduced Average Power (dBm) Proximity sensor back-off DSI = 3				
					Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					344000	349000	354000			344000	349000	354000		
					1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz		
20MHZ	DFT-s OFDM	QPSK	1	1	17.8	17.7	17.7	0.0	19.0	19.9	19.9	19.9	0.0	21.0
			1	53	17.7	17.8	17.4	0.0	19.0	19.7	19.9	19.7	0.0	21.0
			1	104	17.8	17.7	17.3	0.0	19.0	19.7	19.9	19.6	0.0	21.0
			50	0	17.9	17.9	17.8	0.0	19.0	20.0	20.1	20.0	0.0	21.0
			50	28	17.9	17.9	17.7	0.0	19.0	20.0	20.1	19.8	0.0	21.0
			50	56	17.9	17.8	17.6	0.0	19.0	20.0	20.0	19.8	0.0	21.0
			100	0	18.0	18.0	17.8	0.0	19.0	20.0	20.1	19.9	0.0	21.0
		16 QAM	1	1	17.7	17.9	17.9	0.0	19.0	20.0	20.0	20.0	0.0	21.0
		64 QAM	1	1	17.6	17.5	17.5	0.0	19.0	19.8	19.7	19.7	0.0	21.0
		256 QAM	1	1	17.8	17.7	17.7	0.0	19.0	18.4	18.8	18.7	1.0	20.0
	CP-OFDM	QPSK	1	1	17.9	17.9	17.8	0.0	19.0	19.7	19.7	19.6	0.0	21.0
			1	53	17.7	17.7	17.5	0.0	19.0	19.5	19.6	19.3	0.0	21.0
			1	104	17.8	17.9	17.5	0.0	19.0	19.6	19.7	19.3	0.0	21.0
			53	0	17.9	18.0	17.8	0.0	19.0	19.8	19.8	19.7	0.0	21.0
			53	26	17.9	17.9	17.7	0.0	19.0	19.7	19.7	19.5	0.0	21.0
			53	53	17.8	17.9	17.6	0.0	19.0	19.7	19.8	19.5	0.0	21.0
			106	0	18.0	18.0	17.7	0.0	19.0	19.8	19.8	19.5	0.0	21.0
		16 QAM	1	1	17.7	17.6	17.6	0.0	19.0	19.4	19.5	19.5	0.0	21.0
		64 QAM	1	1	18.1	18.1	18.0	0.0	19.0	19.8	19.8	19.8	0.0	21.0
		256 QAM	1	1	17.0	17.1	17.0	1.0	18.0	17.1	17.2	17.1	3.0	18.0
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					343500	349000	354500			343500	349000	354500		
					1717.5 MHz	1745 MHz	1772.5 MHz			1717.5 MHz	1745 MHz	1772.5 MHz		
15MHz	DFT-s OFDM	QPSK	1	1	18.0	18.1	18.4	0.0	19.0	20.0	20.0	19.8	0.0	21.0
			1	39	17.8	17.9	17.7	0.0	19.0	19.8	19.7	19.5	0.0	21.0
			1	77	18.0	18.0	18.7	0.0	19.0	19.9	20.0	19.6	0.0	21.0
			36	0	18.2	18.2	17.9	0.0	19.0	20.1	20.1	20.0	0.0	21.0
			36	22	18.1	18.1	17.8	0.0	19.0	20.0	20.0	19.8	0.0	21.0
			36	43	18.2	18.1	17.8	0.0	19.0	20.0	20.0	19.8	0.0	21.0
			75	0	18.2	18.1	17.9	0.0	19.0	20.1	20.0	19.9	0.0	21.0
		16 QAM	1	1	18.2	18.2	18.0	0.0	19.0	20.2	20.1	20.0	0.0	21.0
		64 QAM	1	1	17.8	18.0	17.7	0.0	19.0	19.9	19.9	19.7	0.0	21.0
		256 QAM	1	1	18.0	18.1	17.9	0.0	19.0	19.3	18.9	18.7	1.0	20.0
	CP-OFDM	QPSK	1	1	18.1	18.2	18.0	0.0	19.0	19.2	19.9	19.9	0.0	21.0
			1	39	18.0	18.0	17.8	0.0	19.0	20.0	19.8	19.7	0.0	21.0
			1	77	18.1	18.2	17.7	0.0	19.0	20.1	19.9	19.7	0.0	21.0
			39	0	18.2	18.1	18.0	0.0	19.0	20.1	20.0	19.9	0.0	21.0
			39	20	18.1	18.1	17.9	0.0	19.0	20.1	20.0	19.8	0.0	21.0
			39	40	18.1	18.1	17.9	0.0	19.0	20.1	20.0	19.8	0.0	21.0
			79	0	18.1	18.1	18.0	0.0	19.0	20.1	20.1	19.9	0.0	21.0
		16 QAM	1	1	17.9	18.0	17.7	0.0	19.0	20.1	19.8	19.7	0.0	21.0
		64 QAM	1	1	18.3	18.4	18.2	0.0	19.0	20.1	20.1	20.0	0.0	21.0
		256 QAM	1	1	17.4	17.4	17.3	1.0	18.0	17.5	17.4	17.3	3.0	18.0

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NR Band n66 Measured Results (DSI 2 and 3) (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					343000	349000	355000			343000	349000	355000		
					1715 MHz	1745 MHz	1775 MHz			1715 MHz	1745 MHz	1775 MHz		
10MHz	DFT-s OFDM	QPSK	1	1	18.0	17.9	17.8	0.0	19.0	19.9	19.9	19.8	0.0	21.0
			1	26	18.0	18.0	17.7	0.0	19.0	19.9	19.9	19.8	0.0	21.0
			1	50	17.9	17.9	17.7	0.0	19.0	19.9	19.9	19.8	0.0	21.0
			25	0	18.2	18.2	17.9	0.0	19.0	20.1	20.1	19.9	0.0	21.0
			25	14	18.2	18.1	17.9	0.0	19.0	20.0	20.1	19.9	0.0	21.0
			25	27	18.2	18.1	17.9	0.0	19.0	20.1	20.1	19.8	0.0	21.0
			50	0	18.2	18.2	17.9	0.0	19.0	20.1	20.1	19.9	0.0	21.0
		16 QAM	1	1	18.1	18.1	17.9	0.0	19.0	20.1	20.0	19.9	0.0	21.0
		64 QAM	1	1	17.9	17.9	17.7	0.0	19.0	19.8	20.0	19.7	0.0	21.0
		256 QAM	1	1	17.8	18.3	18.2	0.0	19.0	19.2	18.8	18.3	1.0	20.0
	CP-OFDM	QPSK	1	1	18.2	18.1	18.0	0.0	19.0	20.0	19.9	20.0	0.0	21.0
			1	26	18.2	18.2	17.9	0.0	19.0	20.1	19.9	19.9	0.0	21.0
			1	50	18.1	18.1	17.8	0.0	19.0	20.0	19.9	19.8	0.0	21.0
			26	0	18.3	18.2	18.0	0.0	19.0	20.0	20.1	19.8	0.0	21.0
			26	13	18.2	18.2	17.9	0.0	19.0	20.0	20.0	19.8	0.0	21.0
			26	26	18.2	18.1	17.9	0.0	19.0	20.0	20.0	19.8	0.0	21.0
			52	0	18.2	18.2	18.0	0.0	19.0	20.0	20.0	19.8	0.0	21.0
		16 QAM	1	1	18.0	17.9	17.8	0.0	19.0	20.1	19.8	19.9	0.0	21.0
		64 QAM	1	1	18.4	18.2	18.1	0.0	19.0	20.1	20.0	19.9	0.0	21.0
		256 QAM	1	1	17.4	17.3	17.3	1.0	18.0	17.4	17.3	17.3	3.0	18.0
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					342500	349000	355500			342500	349000	355500		
					1712.5 MHz	1745 MHz	1777.5 MHz			1712.5 MHz	1745 MHz	1777.5 MHz		
5MHz	DFT-s OFDM	QPSK	1	1	17.9	18.1	17.7	0.0	19.0	19.4	19.1	19.3	0.0	21.0
			1	13	18.0	18.2	17.6	0.0	19.0	19.5	19.3	19.3	0.0	21.0
			1	23	18.0	18.0	17.6	0.0	19.0	19.5	19.3	19.2	0.0	21.0
			12	0	18.2	18.2	17.9	0.0	19.0	19.5	19.6	19.4	0.0	21.0
			12	6	18.2	18.1	17.8	0.0	19.0	19.6	19.6	19.4	0.0	21.0
			12	13	18.2	18.2	17.8	0.0	19.0	19.5	19.6	19.4	0.0	21.0
			25	0	18.2	18.1	17.9	0.0	19.0	19.6	19.6	19.4	0.0	21.0
		16 QAM	1	1	18.2	18.0	17.8	0.0	19.0	19.6	19.7	19.4	0.0	21.0
		64 QAM	1	1	17.9	18.0	17.6	0.0	19.0	19.3	19.3	19.1	0.0	21.0
		256 QAM	1	1	18.1	18.0	17.7	0.0	19.0	17.8	18.1	18.1	2.0	19.0
	CP-OFDM	QPSK	1	1	18.1	18.2	17.9	0.0	19.0	20.0	19.5	19.4	0.0	21.0
			1	13	18.1	18.2	17.9	0.0	19.0	19.7	19.5	19.3	0.0	21.0
			1	23	18.2	18.2	17.9	0.0	19.0	19.8	19.6	19.3	0.0	21.0
			13	0	18.2	18.2	17.9	0.0	19.0	19.8	19.7	19.3	0.0	21.0
			13	6	18.2	18.2	17.8	0.0	19.0	19.9	19.6	19.2	0.0	21.0
			13	12	18.2	18.2	17.8	0.0	19.0	19.8	19.7	19.3	0.0	21.0
			25	0	18.3	18.2	17.9	0.0	19.0	19.8	19.7	19.3	0.0	21.0
		16 QAM	1	1	18.0	18.4	17.7	0.0	19.0	19.5	19.5	19.2	0.0	21.0
		64 QAM	1	1	18.4	18.4	18.1	0.0	19.0	19.9	19.8	19.5	0.0	21.0
		256 QAM	1	1	17.3	17.5	17.2	1.0	18.0	17.3	17.1	17.1	3.0	18.0

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9.5 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)	Meas. Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Reduced. Output Power (dBm)	SAR Test (Yes/No)
WiFi SISO Ant.1	802.11b	1 Mbps	1	2412.0	17.4	18.0	Yes	12.6	13.0	Yes
			6	2437.0	17.7			12.5		
			11	2462.0	17.1			12.9		
	802.11g	6 Mbps	1	2412.0	Not Required	16.0	No	Not Required	11.0	No
			6	2437.0						
			11	2462.0						
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	16.0	No	Not Required	11.0	No
			6	2437.0						
			11	2462.0						
Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Reduced. Output Power (dBm)	SAR Test (Yes/No)
WiFi SISO Ant.2	802.11b	1 Mbps	1	2412.0	17.5	18.0	Yes	12.9	13.0	Yes
			6	2437.0	17.6			12.9		
			11	2462.0	17.1			12.5		
	802.11g	6 Mbps	1	2412.0	Not Required	16.0	No	Not Required	11.0	No
			6	2437.0						
			11	2462.0						
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	16.0	No	Not Required	11.0	No
			6	2437.0						
			11	2462.0						
Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)			
WiFi MIMO Ant.1	802.11g	6 Mbps	1	2412.0	15.1	16.0	Yes			
			6	2437.0	14.7					
			11	2462.0	14.8					
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	16.0	No			
			6	2437.0						
			11	2462.0						
Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)			
WiFi MIMO Ant.2	802.11g	6 Mbps	1	2412.0	15.6	16.0	Yes			
			6	2437.0	15.4					
			11	2462.0	15.3					
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	16.0	No			
			6	2437.0						
			11	2462.0						

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. MIMO DTS SAR test were additionally evaluated at Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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9.6 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 Pwr.			Reduction Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
SISO Ant.1	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	16.4	17.0	Yes	14.8	15.0	Yes
				56	5280.0	16.5			14.8		
				60	5300.0	16.3			14.5		
				64	5320.0	16.1			14.4		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	16.0	No	Not Required	14.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	16.0	No	Not Required	14.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	13.0	No	Not Required	11.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	16.1	17.0	Yes	14.3	15.0	Yes
				120	5600.0	16.1			14.7		
				124	5620.0	16.3			15.0		
				144	5720.0	16.1			14.4		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	16.0	No	Not Required	14.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	102	5510.0	Not Required	15.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	16.0	No	Not Required	14.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	102	5510.0	Not Required	15.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	13.0	No	Not Required	11.0	No
				122	5610.0	Not Required			Not Required		
				138	5690.0	Not Required			Not Required		
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	15.9	17.0	Yes	14.5	15.0	Yes
				157	5785.0	16.3			14.9		
				165	5825.0	15.7			14.4		
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	16.0	No	Not Required	14.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	16.0	No	Not Required	14.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	13.0	No	Not Required	11.0	No

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Measured Results of WiFi SISO Ant.2

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.			Reduction Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
SISO Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	16.1	17.0	Yes	14.3	15.0	Yes
				56	5280.0	16.1			14.4		
				60	5300.0	15.9			14.6		
				64	5320.0	16.1			14.8		
		802.11n (HT20)	6.5 Mbps	52	5260.0	Not Required	16.0	No	Not Required	14.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	52	5260.0	Not Required	16.0	No	Not Required	14.0	No
				56	5280.0	Not Required			Not Required		
				60	5300.0	Not Required			Not Required		
				64	5320.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	54	5270.0	Not Required	15.0	No	Not Required	13.0	No
				62	5310.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	13.0	No	Not Required	11.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	16.1	17.0	Yes	14.8	15.0	Yes
				120	5600.0	16.7			14.8		
				124	5620.0	16.2			14.8		
				144	5720.0	15.7			14.4		
		802.11n (HT20)	6.5 Mbps	100	5500.0	Not Required	16.0	No	Not Required	14.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	102	5510.0	Not Required	15.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	100	5500.0	Not Required	16.0	No	Not Required	14.0	No
				120	5600.0	Not Required			Not Required		
				124	5620.0	Not Required			Not Required		
				144	5720.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	102	5510.0	Not Required	15.0	No	Not Required	13.0	No
				118	5590.0	Not Required			Not Required		
				126	5630.0	Not Required			Not Required		
				142	5710.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	13.0	No	Not Required	11.0	No
				122	5610.0	Not Required			Not Required		
				138	5690.0	Not Required			Not Required		
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	16.3	17.0	Yes	14.9	15.0	Yes
				157	5785.0	16.1			14.7		
				165	5825.0	16.4			15.0		
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	16.0	No	Not Required	14.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	16.0	No	Not Required	14.0	No
				157	5785.0	Not Required			Not Required		
				165	5825.0	Not Required			Not Required		
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No	Not Required	13.0	No
				159	5795.0	Not Required			Not Required		
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	13.0	No	Not Required	11.0	No

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Measured Results of WiFi MIMO Ant.1

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
MIMO Ant.1	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	15.9	17.0	Yes
				157	5785.0	16.4		
				165	5825.0	15.7		
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	16.0	No
				157	5785.0	Not Required		
				165	5825.0	Not Required		
		802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No
				159	5795.0	Not Required		
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	16.0	No
				157	5785.0	Not Required		
				165	5825.0	Not Required		
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No
				159	5795.0	Not Required		
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	13.0	No

Measured Results of WiFi MIMO Ant.2

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max Pwr.		
						Avg Pwr (dBm)	Max Output Power (dBm)	SAR Test (Yes/No)
MIMO Ant.2	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	16.2	17.0	Yes
				157	5785.0	16.1		
				165	5825.0	16.3		
		802.11n (HT20)	6.5 Mbps	149	5745.0	Not Required	16.0	No
				157	5785.0	Not Required		
				165	5825.0	Not Required		
		802.11n (HT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No
				159	5795.0	Not Required		
		802.11ac (VHT20)	6.5 Mbps	149	5745.0	Not Required	16.0	No
				157	5785.0	Not Required		
				165	5825.0	Not Required		
		802.11ac (VHT40)	13.5 Mbps	151	5755.0	Not Required	15.0	No
				159	5795.0	Not Required		
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	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 UNII-3 SAR test were additionally evaluated at Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

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9.7 Bluetooth

Measured Results

Band (GHz)	Mode	Ch #	Freq. (MHz)	Maximum Average Power (dBm)	
				Meas Pwr	Tune-up Limit
2.4	GFSK	0	2402	10.9	13.5
		39	2441	12.7	
		78	2480	12.1	
	EDR, 8-DPSK	0	2402	8.1	11.0
		39	2441	10.0	
		78	2480	9.8	
	LE, GFSK-1M, 125/500 kbps	0	2402	1.6	5.0
		19	2440	3.5	
		39	2480	2.9	
	LE, GFSK-2M	0	2402	1.4	5.0
		19	2440	3.3	
		39	2480	2.7	

Note(s):

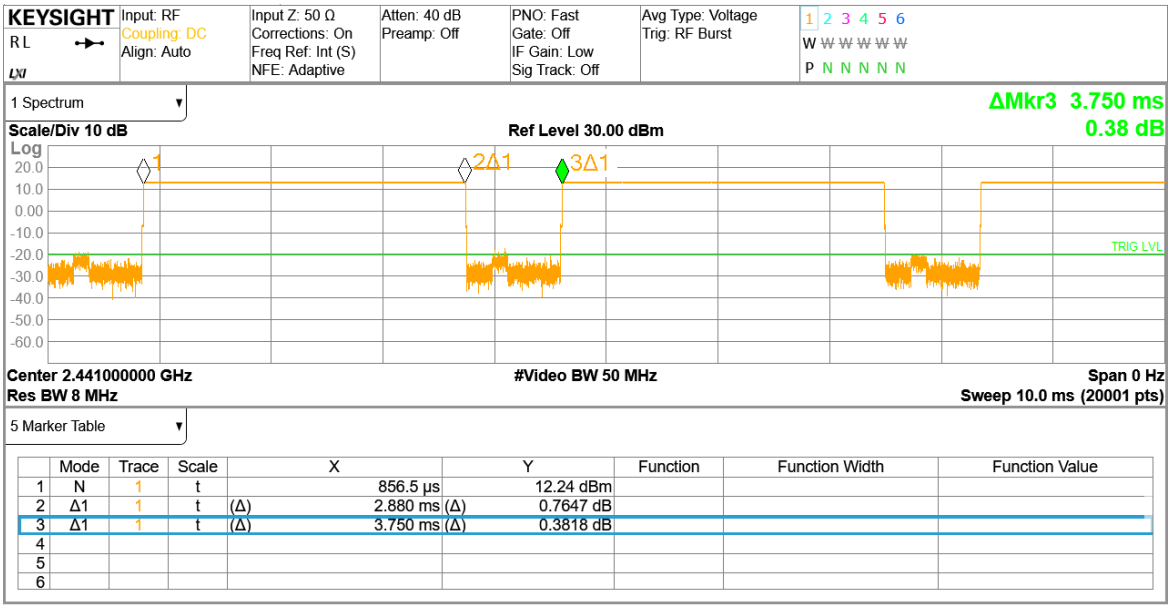
SAR test is evaluated at GFSK mode in Bluetooth

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
GFSK	DH5	2.880	3.750	76.8%	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	DSI	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	GPRS 2 Slot	1	N/A	0	Left Touch	190	836.6	32.5	31.0	0.154	0.216	1
						Left Tilt	190	836.6	32.5	31.0	0.110	0.154	
						Right Touch	190	836.6	32.5	31.0	0.131	0.184	
						Right Tilt	190	836.6	32.5	31.0	0.099	0.139	
	Body-worn	GPRS 2 Slot	0	N/A	15	Rear	190	836.6	32.5	31.0	0.342	0.480	2
						Front	190	836.6	32.5	31.0	0.165	0.232	
	Hotspot	GPRS 2 Slot	2	N/A	10	Rear	128	824.4	32.5	30.8	0.598	0.879	
							190	836.6	32.5	31.0	0.608	0.853	
							251	848.8	32.5	30.8	0.695	1.040	3
						Front	190	836.6	32.5	31.0	0.285	0.400	
						Edge 2	190	836.6	32.5	31.0	0.151	0.212	
						Edge 3	190	836.6	32.5	31.0	0.372	0.522	
						Edge 4	190	836.6	32.5	31.0	0.039	0.055	

10.2 GSM 1900

Antenna	RF Exposure Conditions	Mode	DSI	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	GPRS 3 Slot	1	Off	0	Left Touch	661	1880.0	27.5	26.6	0.052	0.064	4
						Left Tilt	661	1880.0	27.5	26.6	0.013	0.017	
						Right Touch	661	1880.0	27.5	26.6	0.039	0.048	
						Right Tilt	661	1880.0	27.5	26.6	0.026	0.032	
	Body-worn	GPRS 3 Slot	0	Off	15	Rear	661	1880.0	27.5	26.6	0.266	0.328	5
						Front	661	1880.0	27.5	26.6	0.193	0.238	
	Hotspot	GPRS 3 Slot	2	On	10	Rear	661	1880.0	25.0	24.5	0.356	0.399	
						Front	661	1880.0	25.0	24.5	0.213	0.239	
						Edge 2	661	1880.0	25.0	24.5	0.063	0.071	
						Edge 3	512	1850.2	25.0	23.9	0.740	0.955	6
							661	1880.0	25.0	24.5	0.777	0.872	
							810	1909.8	25.0	24.2	0.723	0.875	
						Edge 4	661	1880.0	25.0	24.5	0.102	0.114	
Antenna	RF Exposure Conditions	Mode	DSI	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 1 Ant.	Product Specific 10-g	GPRS 3 Slot	0	Off	11	Edge 3	661	1880.0	27.5	26.6	0.508	0.626	
			3	On	0	Edge 3	661	1880.0	26.0	25.1	1.550	1.915	7

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10.3 W-CDMA Band II

Antenna	RF Exposure Conditions	Mode	DSI	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	Rel 99 RMC	1	Off	0	Left Touch	9400	1880.0	24.5	22.8	0.063	0.092	8
						Left Tilt	9400	1880.0	24.5	22.8	0.018	0.027	
						Right Touch	9400	1880.0	24.5	22.8	0.052	0.075	
						Rightt Tilt	9400	1880.0	24.5	22.8	0.033	0.048	
	Body-worn	Rel 99 RMC	0	Off	15	Rear	9400	1880.0	24.5	22.8	0.345	0.505	9
						Front	9400	1880.0	24.5	22.8	0.246	0.360	
	Hotspot	Rel 99 RMC	2	On	10	Rear	9400	1880.0	21.5	20.4	0.335	0.429	
						Front	9400	1880.0	21.5	20.4	0.267	0.342	
						Edge 2	9400	1880.0	21.5	20.4	0.075	0.096	
						Edge 3	9262	1852.4	21.5	20.5	0.580	0.737	
							9400	1880.0	21.5	20.4	0.750	0.961	10
							9538	1907.6	21.5	20.5	0.710	0.902	
						Edge 4	9400	1880.0	21.5	20.4	0.090	0.115	
Antenna	RF Exposure Conditions	Mode	DSI	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 1 Ant.	Product Specific 10-g	Rel 99 RMC	0	Off	11	Edge 3	9400	1880.0	24.5	22.8	0.701	1.026	
			3	On	0	Edge 3	9262	1852.4	21.5	20.5	1.830	2.324	
							9400	1880.0	21.5	20.4	2.170	2.764	11
							9538	1907.6	21.5	20.5	2.030	2.577	

10.4 W-CDMA Band V

Antenna	RF Exposure Conditions	Mode	DSI	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	Rel 99 RMC	1	N/A	0	Left Touch	4183	836.6	24.5	23.0	0.081	0.116	
						Left Tilt	4183	836.6	24.5	23.0	0.055	0.078	
						Right Touch	4183	836.6	24.5	23.0	0.157	0.224	12
						Rightt Tilt	4183	836.6	24.5	23.0	0.072	0.102	
	Body-worn	Rel 99 RMC	0	N/A	15	Rear	4183	836.6	24.5	23.0	0.185	0.264	13
						Front	4183	836.6	24.5	23.0	0.159	0.227	
	Hotspot	Rel 99 RMC	2	N/A	10	Rear	4183	836.6	24.5	23.0	0.305	0.436	14
						Front	4183	836.6	24.5	23.0	0.230	0.328	
						Edge 2	4183	836.6	24.5	23.0	0.157	0.224	
						Edge 3	4183	836.6	24.5	23.0	0.221	0.316	
						Edge 4	4183	836.6	24.5	23.0	0.056	0.079	

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10.5 LTE Band 2 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI	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 1 Ant.	Head	QPSK	1	Off	0	Left Touch	18900	1880.0	1	49	24.5	23.8	0.089	0.105	15
									50	24	23.5	22.8	0.071	0.084	
						Left Tilt	18900	1880.0	1	49	24.5	23.8	0.050	0.060	
									50	24	23.5	22.8	0.041	0.048	
						Right Touch	18900	1880.0	1	49	24.5	23.8	0.065	0.077	
									50	24	23.5	22.8	0.044	0.052	
						Right Tilt	18900	1880.0	1	49	24.5	23.8	0.042	0.050	
									50	24	23.5	22.8	0.031	0.036	
	Body-worn	QPSK	0	Off	15	Rear	18900	1880.0	1	49	24.5	23.8	0.344	0.407	16
									50	24	23.5	22.8	0.276	0.325	
						Front	18900	1880.0	1	49	24.5	23.8	0.281	0.333	
									50	24	23.5	22.8	0.221	0.261	
	Hotspot	QPSK	2	On	10	Rear	18900	1880.0	1	49	21.5	20.8	0.360	0.426	
									50	24	21.5	20.9	0.347	0.398	
						Front	18900	1880.0	1	49	21.5	20.8	0.291	0.344	
									50	24	21.5	20.9	0.291	0.334	
						Edge 2	18900	1880.0	1	49	21.5	20.8	0.095	0.113	
									50	24	21.5	20.9	0.095	0.109	
						Edge 3	18700	1860.0	1	49	21.5	20.7	0.795	0.949	
									50	24	21.5	20.9	0.824	0.952	
							18900	1880.0	1	49	21.5	20.8	0.907	1.073	
									50	24	21.5	20.9	0.907	1.040	
									100	0	21.5	20.8	0.889	1.040	
							19100	1900.0	1	49	21.5	20.8	0.900	1.069	
									50	24	21.5	20.8	0.931	1.086	17
						Edge 4	18900	1880.0	1	49	21.5	20.8	0.093	0.110	
									50	24	21.5	20.9	0.093	0.107	

Antenna	RF Exposure Conditions	Mode	DSI	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	0	Off	11	Edge 3	18900	1880.0	1	49	24.5	23.8	0.841	0.996	
									50	24	23.5	22.8	0.662	0.780	
			3	On	0	Edge 3	18700	1860.0	1	49	21.5	20.6	2.040	2.495	
									50	24	21.5	20.7	2.120	2.540	
							18900	1880.0	1	49	21.5	20.7	2.280	2.749	
									50	24	21.5	20.7	2.280	2.724	
									100	0	21.5	20.7	2.240	2.719	
							19100	1900.0	1	49	21.5	20.6	2.190	2.721	
									50	24	21.5	20.7	2.290	2.761	18

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10.6 LTE Band 5 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI	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 1 Ant.	Head	QPSK	1	N/A	0	Left Touch	20525	836.5	1	25	24.5	23.6	0.151	0.186	
									25	12	23.5	22.7	0.117	0.140	
						Left Tilt	20525	836.5	1	25	24.5	23.6	0.088	0.109	
									25	12	23.5	22.7	0.070	0.084	
						Right Touch	20525	836.5	1	25	24.5	23.6	0.202	0.249	19
									25	12	23.5	22.7	0.162	0.194	
						Right Tilt	20525	836.5	1	25	24.5	23.6	0.086	0.107	
									25	12	23.5	22.7	0.070	0.084	
	Body-worn	QPSK	0	N/A	15	Rear	20525	836.5	1	25	24.5	23.6	0.287	0.354	20
									25	12	23.5	22.7	0.219	0.262	
						Front	20525	836.5	1	25	24.5	23.6	0.254	0.313	
									25	12	23.5	22.7	0.203	0.243	
	Hotspot	QPSK	2	N/A	10	Rear	20525	836.5	1	25	24.5	23.6	0.528	0.651	21
									25	12	23.5	22.7	0.427	0.512	
						Front	20525	836.5	1	25	24.5	23.6	0.363	0.448	
									25	12	23.5	22.7	0.268	0.321	
						Edge 2	20525	836.5	1	25	24.5	23.6	0.242	0.299	
									25	12	23.5	22.7	0.197	0.236	
						Edge 3	20525	836.5	1	25	24.5	23.6	0.304	0.375	
									25	12	23.5	22.7	0.243	0.291	
						Edge 4	20525	836.5	1	25	24.5	23.6	0.063	0.078	
									25	12	23.5	22.7	0.050	0.059	

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10.7 LTE Band 7 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI	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 2 Ant.	Head	QPSK	1	Off	0	Left Touch	20850	2510.0	1	49	23.5	22.5	0.119	0.151	22
									50	24	22.5	21.5	0.098	0.123	
						Left Tilt	20850	2510.0	1	49	23.5	22.5	0.059	0.075	
									50	24	22.5	21.5	0.047	0.059	
						Right Touch	20850	2510.0	1	49	23.5	22.5	0.088	0.112	
									50	24	22.5	21.5	0.088	0.111	
						Right Tilt	20850	2510.0	1	49	23.5	22.5	0.088	0.111	
									50	24	22.5	21.5	0.072	0.090	
	Body-worn	QPSK	0	Off	15	Rear	20850	2510.0	1	49	23.5	22.5	0.204	0.259	23
									50	24	22.5	21.5	0.166	0.209	
						Front	20850	2510.0	1	49	23.5	22.5	0.162	0.205	
									50	24	22.5	21.5	0.131	0.165	
	Hotspot	QPSK	2	On	10	Rear	20850	2510.0	1	49	22.5	21.5	0.273	0.341	
									50	24	22.5	21.6	0.281	0.346	
						Front	20850	2510.0	1	49	22.5	21.5	0.272	0.340	
									50	24	22.5	21.6	0.276	0.340	
						Edge 3	20850	2510.0	1	49	22.5	21.5	0.358	0.447	
									50	24	22.5	21.6	0.365	0.449	24
						Edge 4	20850	2510.0	1	49	22.5	21.5	0.267	0.333	
									50	24	22.5	21.6	0.272	0.335	

Antenna	RF Exposure Conditions	Mode	DSI	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 2 Ant.	Product Specific 10-g	QPSK	3	On	0	Edge 3	20850	2510.0	1	49	21.5	21.3	1.820	1.926	
									50	24	21.5	21.2	1.870	2.015	
							21100	2535.0	50	24	21.5	21.1	1.840	2.011	
							21350	2560.0	50	24	21.5	20.9	1.790	2.043	25

Note(s):

Product Specific 10-g SAR of DSI=3 were additionally evaluated to check to satisfy within *SAR_design_target*.

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10.8 LTE Band 12 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI	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 1 Ant.	Head	QPSK	1	N/A	0	Left Touch	23095	707.5	1	25	24.5	23.8	0.078	0.093	
									25	0	23.5	22.8	0.055	0.065	
						Left Tilt	23095	707.5	1	25	24.5	23.8	0.056	0.066	
									25	0	23.5	22.8	0.040	0.047	
						Right Touch	23095	707.5	1	25	24.5	23.8	0.091	0.108	26
									25	0	23.5	22.8	0.066	0.077	
						Right Tilt	23095	707.5	1	25	24.5	23.8	0.051	0.060	
									25	0	23.5	22.8	0.037	0.044	
	Body-worn	QPSK	0	N/A	15	Rear	23095	707.5	1	25	24.5	23.8	0.224	0.265	27
									25	0	23.5	22.8	0.176	0.206	
						Front	23095	707.5	1	25	24.5	23.8	0.183	0.217	
									25	0	23.5	22.8	0.142	0.166	
	Hotspot	QPSK	2	N/A	10	Rear	23095	707.5	1	25	24.5	23.8	0.291	0.344	28
									25	0	23.5	22.8	0.222	0.260	
						Front	23095	707.5	1	25	24.5	23.8	0.231	0.273	
									25	0	23.5	22.8	0.180	0.211	
						Edge 2	23095	707.5	1	25	24.5	23.8	0.175	0.207	
									25	0	23.5	22.8	0.131	0.153	
						Edge 3	23095	707.5	1	25	24.5	23.8	0.116	0.137	
									25	0	23.5	22.8	0.088	0.103	
						Edge 4	23095	707.5	1	25	24.5	23.8	0.081	0.096	
									25	0	23.5	22.8	0.067	0.079	

10.9 LTE Band 13 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI	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 1 Ant.	Head	QPSK	1	N/A	0	Left Touch	23230	782.0	1	25	25.0	23.6	0.123	0.169	
									25	12	24.0	22.8	0.104	0.138	
						Left Tilt	23230	782.0	1	25	25.0	23.6	0.084	0.115	
									25	12	24.0	22.8	0.070	0.093	
						Right Touch	23230	782.0	1	25	25.0	23.6	0.165	0.227	29
									25	12	24.0	22.8	0.137	0.182	
						Right Tilt	23230	782.0	1	25	25.0	23.6	0.080	0.110	
									25	12	24.0	22.8	0.067	0.089	
	Body-worn	QPSK	0	N/A	15	Rear	23230	782.0	1	25	25.0	23.6	0.267	0.367	30
									25	12	24.0	22.8	0.218	0.290	
						Front	23230	782.0	1	25	25.0	23.6	0.214	0.294	
									25	12	24.0	22.8	0.175	0.233	
	Hotspot	QPSK	2	N/A	10	Rear	23230	782.0	1	25	25.0	23.6	0.452	0.622	31
									25	12	24.0	22.8	0.374	0.497	
						Front	23230	782.0	1	25	25.0	23.6	0.281	0.386	
									25	12	24.0	22.8	0.234	0.311	
						Edge 2	23230	782.0	1	25	25.0	23.6	0.229	0.315	
									25	12	24.0	22.8	0.187	0.249	
						Edge 3	23230	782.0	1	25	25.0	23.6	0.313	0.430	
									25	12	24.0	22.8	0.258	0.343	
						Edge 4	23230	782.0	1	25	25.0	23.6	0.114	0.157	
									25	12	24.0	22.8	0.095	0.127	

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10.10 LTE Band 66 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI	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 1 Ant.	Head	QPSK	1	Off	0	Left Touch	132572	1770.0	1	49	25.0	23.8	0.035	0.047	32
									50	24	24.0	22.8	0.031	0.041	
						Left Tilt	132572	1770.0	1	49	25.0	23.8	0.033	0.044	
									50	24	24.0	22.8	0.026	0.034	
						Right Touch	132572	1770.0	1	49	25.0	23.8	0.027	0.036	
									50	24	24.0	22.8	0.024	0.032	
						Right Tilt	132572	1770.0	1	49	25.0	23.8	0.016	0.021	
									50	24	24.0	22.8	0.021	0.028	
	Body-worn	QPSK	0	Off	15	Rear	132572	1770.0	1	49	25.0	23.8	0.312	0.415	33
									50	24	24.0	22.8	0.247	0.326	
						Front	132572	1770.0	1	49	25.0	23.8	0.284	0.377	
									50	24	24.0	22.8	0.230	0.303	
	Hotspot	QPSK	2	On	10	Rear	132572	1770.0	1	49	22.0	21.2	0.295	0.353	
									50	24	22.0	21.3	0.287	0.337	
						Front	132572	1770.0	1	49	22.0	21.2	0.289	0.346	
									50	24	22.0	21.3	0.294	0.345	
						Edge 2	132572	1770.0	1	49	22.0	21.2	0.123	0.147	
									50	24	22.0	21.3	0.126	0.148	
						Edge 3	132072	1720.0	1	49	22.0	20.8	0.919	1.204	
									50	24	22.0	21.0	0.967	1.223	34
							132322	1745.0	1	49	22.0	21.2	0.879	1.055	
									50	24	22.0	21.2	0.899	1.080	
							132572	1770.0	1	49	22.0	21.2	0.750	0.899	
									50	24	22.0	21.3	0.761	0.893	
									100	0	22.0	21.2	0.756	0.904	
						Edge 4	132572	1770.0	1	49	22.0	21.2	0.059	0.071	
									50	24	22.0	21.3	0.060	0.071	

Antenna	RF Exposure Conditions	Mode	DSI	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	0	Off	11	Edge 3	132572	1770.0	1	49	25.0	23.8	0.768	1.021	
									50	24	24.0	22.8	0.630	0.831	
			3	On	0	Edge 3	132072	1720.0	1	49	22.0	20.6	2.170	3.006	
									50	24	22.0	20.7	2.310	3.091	35
							132322	1745.0	1	49	22.0	20.9	2.110	2.737	
									50	24	22.0	20.9	2.170	2.777	
							132572	1770.0	1	49	22.0	20.9	2.070	2.655	
									50	24	22.0	21.0	2.120	2.700	
									100	0	22.0	20.9	2.120	2.740	

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10.11 NR Band n2 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	DSI	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 1 Ant.	Head	DFT-s-OFDM	QPSK	1	Off	0	Left Touch	380000	1900.0	1	1	25.0	23.7	0.100	0.135	36
										50	28	25.0	23.6	0.094	0.130	
							Left Tilt	380000	1900.0	1	1	25.0	23.7	0.057	0.077	
										50	28	25.0	23.6	0.032	0.044	
							Right Touch	380000	1900.0	1	1	25.0	23.7	0.072	0.097	
										50	28	25.0	23.6	0.052	0.071	
							Right Tilt	380000	1900.0	1	1	25.0	23.7	0.058	0.078	
										50	28	25.0	23.6	0.049	0.068	
		CP-OFDM	QPSK	1	Off	0	Left Touch	380000	1900.0	1	1	23.5	22.1	0.078	0.107	
	Body-worn	DFT-s-OFDM	QPSK	0	Off	15	Rear	380000	1900.0	1	1	25.0	23.7	0.388	0.526	37
										50	28	25.0	23.6	0.316	0.435	
							Front	380000	1900.0	1	1	25.0	23.7	0.285	0.386	
										50	28	25.0	23.6	0.226	0.311	
		CP-OFDM	QPSK	0	Off	15	Rear	380000	1900.0	1	1	23.5	22.1	0.319	0.437	
	Hotspot	DFT-s-OFDM	QPSK	2	On	10	Rear	380000	1900.0	1	1	20.5	20.0	0.260	0.290	
										50	28	20.5	20.0	0.264	0.293	
							Front	380000	1900.0	1	1	20.5	20.0	0.209	0.233	
										50	28	20.5	20.0	0.214	0.238	
							Edge 2	380000	1900.0	1	1	20.5	20.0	0.052	0.058	
										50	28	20.5	20.0	0.048	0.053	
							Edge 3	380000	1900.0	1	1	20.5	20.0	0.667	0.745	
										50	28	20.5	20.0	0.679	0.755	38
							Edge 4	380000	1900.0	1	1	20.5	20.0	0.034	0.038	
										50	28	20.5	20.0	0.033	0.037	
		CP-OFDM	QPSK	2	On	10	Edge 3	380000	1900.0	53	0	20.5	20.2	0.525	0.559	

Antenna	RF Exposure Conditions	Modulation	Mode	DSI	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	DFT-s-OFDM	QPSK	0	Off	11	Edge 3	380000	1900.0	1	1	25.0	23.7	0.531	0.720	
										50	28	25.0	23.6	0.510	0.702	
		DFT-s-OFDM	QPSK	3	On	0	Edge 3	372000	1860.0	1	1	21.0	19.9	1.550	2.011	
										50	28	21.0	20.0	1.480	1.880	
								376000	1880.0	1	1	21.0	20.1	1.650	2.049	39
										50	28	21.0	20.2	1.610	1.945	
								380000	1900.0	1	1	21.0	20.1	1.670	2.040	
										50	28	21.0	20.2	1.670	2.008	
										100	0	21.0	20.2	1.630	1.946	
		CP-OFDM	QPSK	3	On	0	Edge 3	380000	1900.0	53	0	21.0	20.2	1.590	1.920	

Note(s):

CP-OFDM mode were evaluated at worst configuration of DFT-s-OFDM in each RF exposure conditions.

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10.12 NR Band n5 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	DSI	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 1 Ant.	Head	DFT-s-OFDM	QPSK	1	N/A	0	Left Touch	167300	836.5	1	1	24.5	23.1	0.123	0.169	
										50	28	24.5	23.2	0.127	0.172	
							Left Tilt	167300	836.5	1	1	24.5	23.1	0.088	0.120	
										50	28	24.5	23.2	0.087	0.118	
							Right Touch	167300	836.5	1	1	24.5	23.1	0.177	0.243	
										50	28	24.5	23.2	0.188	0.254	40
							Right Tilt	167300	836.5	1	1	24.5	23.1	0.090	0.123	
										50	28	24.5	23.2	0.092	0.124	
		CP-OFDM	QPSK	1	N/A	0	Left Touch	167300	836.5	53	26	23.0	21.8	0.132	0.173	
	Body-worn	DFT-s-OFDM	QPSK	0	N/A	15	Rear	167300	836.5	1	1	24.5	23.1	0.282	0.387	
										50	28	24.5	23.2	0.294	0.398	41
							Front	167300	836.5	1	1	24.5	23.1	0.245	0.337	
										50	28	24.5	23.2	0.249	0.337	
		CP-OFDM	QPSK	0	N/A	15	Rear	167300	836.5	53	26	23.0	21.8	0.186	0.244	
	Hotspot	DFT-s-OFDM	QPSK	2	N/A	10	Rear	167300	836.5	1	1	24.5	23.1	0.467	0.642	42
										50	28	24.5	23.2	0.465	0.629	
							Front	167300	836.5	1	1	24.5	23.1	0.346	0.475	
										50	28	24.5	23.2	0.335	0.453	
							Edge 2	167300	836.5	1	1	24.5	23.1	0.182	0.250	
										50	28	24.5	23.2	0.175	0.237	
							Edge 3	167300	836.5	1	1	24.5	23.1	0.322	0.442	
										50	28	24.5	23.2	0.320	0.433	
							Edge 4	167300	836.5	1	1	24.5	23.1	0.079	0.108	
										50	28	24.5	23.2	0.079	0.106	
		CP-OFDM	QPSK	2	N/A	10	Rear	167300	836.5	1	1	23.0	21.8	0.357	0.470	

Note(s):

CP-OFDM mode were evaluated at worst configuration of DFT-s-OFDM in each RF exposure conditions.

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10.13 NR Band n66 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	DSI	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 1 Ant.	Head	DFT-s-OFDM	QPSK	1	Off	0	Left Touch	349000	1745.0	1	53	24.5	23.8	0.143	0.170	43
										50	28	24.5	23.8	0.133	0.157	
							Left Tilt	349000	1745.0	1	53	24.5	23.8	0.058	0.069	
										50	28	24.5	23.8	0.068	0.080	
							Right Touch	349000	1745.0	1	53	24.5	23.8	0.112	0.133	
										50	28	24.5	23.8	0.122	0.144	
							Right Tilt	349000	1745.0	1	53	24.5	23.8	0.117	0.139	
										50	28	24.5	23.8	0.127	0.150	
		CP-OFDM	QPSK	1	Off	0	Left Touch	349000	1745.0	1	1	23.0	22.2	0.106	0.127	
	Body-worn	DFT-s-OFDM	QPSK	0	Off	15	Rear	349000	1745.0	1	53	24.5	23.8	0.649	0.771	
										50	28	24.5	23.8	0.658	0.777	44
							Front	349000	1745.0	1	53	24.5	23.8	0.438	0.521	
										50	28	24.5	23.8	0.483	0.570	
		CP-OFDM	QPSK	0	Off	15	Rear	349000	1745.0	53	26	23.0	22.2	0.464	0.554	
	Hotspot	DFT-s-OFDM	QPSK	2	On	10	Rear	349000	1745.0	1	53	19.0	17.8	0.232	0.305	
										50	28	19.0	17.9	0.239	0.307	
							Front	349000	1745.0	1	53	19.0	17.8	0.196	0.258	
										50	28	19.0	17.9	0.199	0.256	
							Edge 2	349000	1745.0	1	53	19.0	17.8	0.064	0.084	
										50	28	19.0	17.9	0.067	0.086	
							Edge 3	349000	1745.0	1	53	19.0	17.8	0.557	0.733	45
										50	28	19.0	17.9	0.566	0.727	
							Edge 4	349000	1745.0	1	53	19.0	17.8	0.062	0.081	
										50	28	19.0	17.9	0.068	0.087	
		CP-OFDM	QPSK	2	On	10	Edge 3	349000	1745.0	1	1	19.0	17.9	0.500	0.646	

Antenna	RF Exposure Conditions	Modulation	Mode	DSI	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	DFT-s-OFDM	QPSK	0	Off	11	Edge 3	349000	1745.0	1	53	24.5	23.8	0.876	1.041	
										50	28	24.5	23.8	0.921	1.087	
		DFT-s-OFDM	QPSK	3	On	0	Edge 3	344000	1720.0	1	53	21.0	19.7	1.490	2.015	
										50	28	21.0	20.0	1.770	2.213	46
								349000	1745.0	1	53	21.0	19.9	1.710	2.198	
										50	28	21.0	20.1	1.760	2.165	
										100	0	21.0	20.1	1.730	2.143	
								354000	1770.0	1	53	21.0	19.7	1.290	1.760	
										50	28	21.0	19.8	1.500	1.964	
		CP-OFDM	QPSK	3	On	0	Edge 3	344000	1720.0	53	0	21.0	19.8	1.670	2.201	

Note(s):

CP-OFDM mode were evaluated at worst configuration of DFT-s-OFDM in each RF exposure conditions.

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10.14 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	11	2462.0	0.220	98.6	13.0	12.9				
						Left Tilt	11	2462.0	0.267	98.6	13.0	12.9				
						Right Touch	11	2462.0	0.454	98.6	13.0	12.9	0.299	0.313	1	47
						Rightt Tilt	11	2462.0	0.419	98.6	13.0	12.9				
			Body-worn	Off	15	Rear	6	2437.0	0.127	98.6	18.0	17.7	0.101	0.111	1	48
						Front	6	2437.0	0.095	98.6	18.0	17.7				
			Hotspot	Off	10	Rear	6	2437.0	0.241	98.6	18.0	17.7	0.169	0.186	2	
						Front	6	2437.0	0.153	98.6	18.0	17.7				
						Edge 1	6	2437.0	0.402	98.6	18.0	17.7	0.368	0.405		49
						Edge 4	6	2437.0	0.028	98.6	18.0	17.7	0.019	0.021	4	
SISO (WiFi Ant.2)	2.4GHz	802.11b 1 Mbps	Head	On	0	Left Touch	6	2437.0	0.004	98.6	13.0	12.9				
						Left Tilt	6	2437.0	0.004	98.6	13.0	12.9				
						Right Touch	6	2437.0	0.028	98.6	13.0	12.9	0.024	0.025	1	
						Rightt Tilt	6	2437.0	0.019	98.6	13.0	12.9				
			Body-worn	Off	15	Rear	6	2437.0	0.022	98.6	18.0	17.6	0.016	0.018	1	
						Front	6	2437.0	0.007	98.6	18.0	17.6				
			Hotspot	Off	10	Rear	6	2437.0	0.058	98.6	18.0	17.6	0.042	0.047	1	
						Front	6	2437.0	0.011	98.6	18.0	17.6				
						Edge 1	6	2437.0	0.012	98.6	18.0	17.6				
						Edge 4	6	2437.0	0.038	98.6	18.0	17.6				
MIMO (WiFi Ant.1)	2.4GHz	802.11g 6 Mbps	Hotspot	Off	10	Rear	1	2412.0	0.197	98.6	16.0	15.1	0.132	0.166	4	
						Front	1	2412.0	0.107	98.6	16.0	15.1	0.081	0.102	4	
						Edge 1	1	2412.0	0.238	98.6	16.0	15.1	0.210	0.264	1	50
						Edge 4	1	2412.0	0.077	98.6	16.0	15.1				
MIMO (WiFi Ant.2)	2.4GHz	802.11g 6 Mbps	Hotspot	Off	10	Rear	1	2412.0	0.197	98.6	16.0	15.6				
						Front	1	2412.0	0.107	98.6	16.0	15.6				
						Edge 1	1	2412.0	0.238	98.6	16.0	15.6				
						Edge 4	1	2412.0	0.077	98.6	16.0	15.6	0.065	0.072	4	

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.
6. For Hotspot exposure condition, MIMO SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

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10.15 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	802.11a 6 Mbps	Head	On	0	Left Touch	56	5280.0	0.102	98.7	15.0	14.8						
						Left Tilt	56	5280.0	0.133	98.7	15.0	14.8						
						Right Touch	56	5280.0	0.266	98.7	15.0	14.8	0.112	0.119			1	
						Right Tilt	56	5280.0	0.245	98.7	15.0	14.8						
		802.11a 6 Mbps	Body-worn	Off	15	Rear	56	5280.0	0.272	98.7	17.0	16.5	0.134	0.154			1	51
						Front	56	5280.0	0.057	98.7	17.0	16.5						
			Product Specific 10-g	Off	0	Rear	56	5280.0	3.262	98.7	17.0	16.5			0.478	0.550	1	
						Front	56	5280.0	0.778	98.7	17.0	16.5						
						Edge 1	56	5280.0	1.417	98.7	17.0	16.5						
						Edge 4	56	5280.0	5.000	98.7	17.0	16.5			0.341	0.392	4	
SISO (WiFI Ant.2)	5.3 GHz U-NII 2A	802.11a 6 Mbps	Head	On	0	Left Touch	64	5320.0	0.269	98.7	15.0	14.8						
						Left Tilt	64	5320.0	0.186	98.7	15.0	14.8						
						Right Touch	64	5320.0	1.187	98.7	15.0	14.8	0.466	0.498				52
						Right Tilt	64	5320.0	0.567	98.7	15.0	14.8	0.238	0.254			2	
		802.11a 6 Mbps	Body-worn	Off	15	Rear	56	5280.0	0.256	98.7	17.0	16.1	0.091	0.114			1	
						Front	56	5280.0	0.076	98.7	17.0	16.1						
			Product Specific 10-g	Off	0	Rear	56	5280.0	1.541	98.7	17.0	16.1			0.212	0.265	4	
						Front	56	5280.0	1.547	98.7	17.0	16.1						
						Edge 1	56	5280.0	0.270	98.7	17.0	16.1						
						Edge 4	56	5280.0	6.863	98.7	17.0	16.1			0.569	0.711	1	53

Additional Product Specific 10-g test for mmWave + 5GHz WLAN scenario

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	802.11a 6 Mbps	Product Specific 10-g	Off	0	Rear	56	5280.0	3.754	98.7	15.0	14.8			0.430	0.456	1	
						Front	56	5280.0	0.650	98.7	15.0	14.8						
						Edge 1	56	5280.0	0.936	98.7	15.0	14.8						
						Edge 4	56	5280.0	2.391	98.7	15.0	14.8			0.181	0.192	4	
SISO (WiFI Ant.2)	5.3 GHz U-NII 2A	802.11a 6 Mbps	Product Specific 10-g	Off	0	Rear	64	5320.0	1.872	98.7	15.0	14.8			0.224	0.239	4	
						Front	64	5320.0	2.377	98.7	15.0	14.8						
						Edge 1	64	5320.0	0.270	98.7	15.0	14.8						
						Edge 4	64	5320.0	5.081	98.7	15.0	14.8			0.558	0.596	1	

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 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	802.11a 6 Mbps	Head	On	0	Left Touch	124	5620.0	0.165	98.7	15.0	15.0						
						Left Tilt	124	5620.0	0.267	98.7	15.0	15.0	0.110	0.112			1	
						Right Touch	124	5620.0	0.210	98.7	15.0	15.0						
						Right Tilt	124	5620.0	0.165	98.7	15.0	15.0						
		802.11a 6 Mbps	Body-worn	Off	15	Rear	124	5620.0	0.452	98.7	17.0	16.3	0.209	0.252			1	54
						Front	124	5620.0	0.047	98.7	17.0	16.3						
			Product Specific 10-g	Off	0	Rear	124	5620.0	7.247	98.7	17.0	16.3			0.657	0.791	1	55
						Front	124	5620.0	0.709	98.7	17.0	16.3						
						Edge 1	124	5620.0	1.628	98.7	17.0	16.3						
						Edge 4	124	5620.0	8.125	98.7	17.0	16.3			0.487	0.587	4	
SISO (WiFI Ant.2)	5.5 GHz U-NII 2C	802.11a 6 Mbps	Head	On	0	Left Touch	124	5620.0	0.070	98.7	15.0	14.8						
						Left Tilt	124	5620.0	0.061	98.7	15.0	14.8						
						Right Touch	124	5620.0	0.385	98.7	15.0	14.8	0.172	0.184			1	56
						Right Tilt	124	5620.0	0.160	98.7	15.0	14.8						
		802.11a 6 Mbps	Body-worn	Off	15	Rear	120	5600.0	0.325	98.7	17.0	16.7	0.138	0.149			1	
						Front	120	5600.0	0.069	98.7	17.0	16.7						
			Product Specific 10-g	Off	0	Rear	120	5600.0	2.745	98.7	17.0	16.7			0.349	0.376	4	
						Front	120	5600.0	1.877	98.7	17.0	16.7						
						Edge 1	120	5600.0	0.186	98.7	17.0	16.7						
						Edge 4	120	5600.0	5.713	98.7	17.0	16.7			0.460	0.496	1	

Additional Product Specific 10-g test for mmWave + 5GHz WLAN scenario

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	802.11a 6 Mbps	Product Specific 10-g	Off	0	Rear	124	5620.0	4.413	98.7	15.0	15.0			0.601	0.613	1	
						Front	124	5620.0	0.480	98.7	15.0	15.0						
						Edge 1	124	5620.0	1.284	98.7	15.0	15.0						
						Edge 4	124	5620.0	4.775	98.7	15.0	15.0			0.348	0.355	4	
SISO (WiFI Ant.2)	5.5 GHz U-NII 2C	802.11a 6 Mbps	Product Specific 10-g	Off	0	Rear	124	5620.0	1.774	98.7	15.0	14.8			0.229	0.245	4	
						Front	124	5620.0	0.984	98.7	15.0	14.8						
						Edge 1	124	5620.0	0.112	98.7	15.0	14.8						
						Edge 4	124	5620.0	4.202	98.7	15.0	14.8			0.328	0.351	1	

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	802.11a 6 Mbps	Head	On	0	Left Touch	157	5785.0	0.184	98.7	15.0	14.9				
						Left Tilt	157	5785.0	0.270	98.7	15.0	14.9				
						Right Touch	157	5785.0	0.363	98.7	15.0	14.9	0.125	0.129	1	
						Right Tilt	157	5785.0	0.260	98.7	15.0	14.9				
			Body-worn	Off	15	Rear	157	5785.0	0.591	98.7	17.0	16.3	0.264	0.316	1	57
						Front	157	5785.0	0.043	98.7	17.0	16.3				
		802.11a 6 Mbps	Hotspot	Off	10	Rear	149	5745.0	0.818	98.7	17.0	15.9	0.381	0.501		58
						Front	149	5745.0	0.074	98.7	17.0	15.9				
						Edge 1	149	5745.0	0.419	98.7	17.0	15.9				
						Edge 4	149	5745.0	0.537	98.7	17.0	15.9	0.215	0.283	2	
SISO (WiFI Ant.2)	5.8 GHz U-NII 3	802.11a 6 Mbps	Head	On	0	Left Touch	165	5825.0	0.068	98.7	15.0	15.0				
						Left Tilt	165	5825.0	0.047	98.7	15.0	15.0				
						Right Touch	165	5825.0	0.322	98.7	15.0	15.0	0.203	0.207	1	59
						Right Tilt	165	5825.0	0.169	98.7	15.0	15.0				
			Body-worn	Off	15	Rear	165	5825.0	0.319	98.7	17.0	16.4	0.136	0.158	1	
						Front	165	5825.0	0.053	98.7	17.0	16.4				
		802.11a 6 Mbps	Hotspot	Off	10	Rear	149	5745.0	0.379	98.7	17.0	16.3	0.153	0.181	1	
						Front	149	5745.0	0.052	98.7	17.0	16.3				
						Edge 1	149	5745.0	0.034	98.7	17.0	16.3				
						Edge 4	149	5745.0	0.227	98.7	17.0	16.3	0.080	0.095	4	
MIMO (WiFI Ant.1)	5.8 GHz U-NII 3	802.11a 6 Mbps	Hotspot	Off	10	Rear	149	5745.0	0.692	98.7	17.0	15.9	0.293	0.383	1	60
						Front	149	5745.0	0.157	98.7	17.0	15.9				
						Edge 1	149	5745.0	0.511	98.7	17.0	15.9				
						Edge 4	149	5745.0	0.568	98.7	17.0	15.9				
MIMO (WiFI Ant.2)	5.8 GHz U-NII 3	802.11a 6 Mbps	Hotspot	Off	10	Rear	149	5745.0	0.692	98.7	17.0	16.2				
						Front	149	5745.0	0.157	98.7	17.0	16.2				
						Edge 1	149	5745.0	0.511	98.7	17.0	16.2				
						Edge 4	149	5745.0	0.568	98.7	17.0	16.2				

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.
5. For Hotspot exposure condition, MIMO SAR test were additionally evaluated for determining simultaneous transmission SAR test exclusion.

10.16 Bluetooth

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
2.4 GHz	GFSK	Head	N/A	0	Left Touch	39	2441.0	76.8	13.5	12.7	0.107	0.166	
					Left Tilt	39	2441.0	76.8	13.5	12.7	0.163	0.252	
					Right Touch	39	2441.0	76.8	13.5	12.7	0.230	0.356	
					Right Tilt	39	2441.0	76.8	13.5	12.7	0.241	0.373	61
		Body-worn	N/A	15	Rear	39	2441.0	76.8	13.5	12.7	0.035	0.055	62
					Front	39	2441.0	76.8	13.5	12.7	0.023	0.036	
		Hotspot	N/A	10	Rear	39	2441.0	76.8	13.5	12.7	0.052	0.081	
					Front	39	2441.0	76.8	13.5	12.7	0.034	0.052	
					Edge 1	39	2441.0	76.8	13.5	12.7	0.099	0.152	63
					Edge 4	39	2441.0	76.8	13.5	12.7	0.005	0.007	

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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	0.291	N/A	N/A
	LTE Band 13	Hotspot	Rear	No	0.452	N/A	N/A
835	GSM 850	Hotspot	Rear	No	0.695	N/A	N/A
	WCDMA Band V	Hotspot	Rear	No	0.305	N/A	N/A
	LTE Band 5	Hotspot	Rear	No	0.528	N/A	N/A
	NR Band n5	Hotspot	Rear	No	0.467	N/A	N/A
1750	LTE Band 66	Hotspot	Edge 3	Yes	0.967	0.974	1.01
	NR Band n66	Body	Rear	No	0.658	N/A	N/A
1900	GSM 1900	Hotspot	Edge 3	No	0.777	N/A	N/A
	WCDMA Band II	Hotspot	Edge 3	No	0.750	N/A	N/A
	LTE Band 2	Hotspot	Edge 3	Yes	0.931	0.918	1.01
	NR Band n2	Hotspot	Edge 3	No	0.679	N/A	N/A
2400	Wi-Fi 802.11b/g/n	Hotspot	Edge 1	N/A	0.368	N/A	N/A
	Bluetooth	Head	Right Tilt	N/A	0.241	N/A	N/A
2600	LTE Band 7	Hotspot	Edge 3	No	0.365	N/A	N/A
5250	Wi-Fi 802.11a/n	Head	Right Touch	No	0.466	N/A	N/A
5500	Wi-Fi 802.11a/n	Body	Rear	No	0.209	N/A	N/A
5800	Wi-Fi 802.11a/n	Hotspot	Rear	No	0.381	N/A	N/A

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	LTE Band 66	Product specific 10g	Edge 3	Yes	2.310	2.300	1.00
	NR Band n66	Product specific 10g	Edge 3	No	1.770	N/A	N/A
1900	GSM 1900	Product specific 10g	Edge 3	No	1.550	N/A	N/A
	WCDMA Band II	Product specific 10g	Edge 3	No	2.170	N/A	N/A
	LTE Band 2	Product specific 10g	Edge 3	Yes	2.290	2.230	1.03
	NR Band n2	Product specific 10g	Edge 3	No	1.670	N/A	N/A
2600	LTE Band 7	Product specific 10g	Edge 3	No	1.870	N/A	N/A
5250	Wi-Fi 802.11a/n	Product specific 10g	Edge 4	No	0.569	N/A	N/A
5500	Wi-Fi 802.11a/n	Product specific 10g	Rear	No	0.657	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. DUT Holder Perturbations

In accordance with published DUT Holder Perturbations in Oct.2016 TCB workshop,

When Highest reported SAR is over 1.2 or 3.0 W/kg (1-g or 10-g respectively), Holder perturbation verification is required for each antenna, using the highest configuration among all applicable frequency bands. Both Head test and Body test (Edge 1-4 sides) are evaluated with DUT holder. Both Front and Rear sides are evaluated without DUT holder. (Details of test setup are refer to Appendix A.)

So we are only consider about Head test and Body test (Edge 1-4 sides).

Peak spatial-average (1g of tissue)

Antenna	Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	DUT Holder Perturbation (Yes/No)	Highest Reported SAR (W/kg)	SAR test without holder Scaled SAR (W/kg)	Deviation (%)
Main 1 Ant.	1750	LTE Band 66	Hotspot	Edge 3	Yes	1.223	1.191	-2.6

Peak spatial-average (10g of tissue)

Antenna	Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	DUT Holder Perturbation (Yes/No)	Highest Reported SAR (W/kg)	SAR test without holder Scaled SAR (W/kg)	Deviation (%)
Main 1 Ant.	1750	LTE Band 66	Product Specific 10-g	Edge 3	Yes	3.091	3.051	-1.3

Note(s):

Both deviation should be within measurement uncertainty (22%).

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13. 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)	+	U-NII_Ant.1	+	U-NII_Ant.2
	3	GSM(Voice/GPRS)	+	BT		
	4	GSM(Voice/GPRS)	+	***RSDB scenarios***		
	5	W-CDMA	+	DTS_Ant.1	+	DTS_Ant.2
	6	W-CDMA	+	U-NII_Ant.1	+	U-NII_Ant.2
	7	W-CDMA	+	BT		
	8	W-CDMA	+	***RSDB scenarios***		
	9	LTE	+	DTS_Ant.1	+	DTS_Ant.2
	10	LTE	+	U-NII_Ant.1	+	U-NII_Ant.2
	11	LTE	+	BT		
	12	LTE	+	***RSDB scenarios***		
	13	EN-DC (LTE + NR)	+	DTS_Ant.1	+	DTS_Ant.2
	14	EN-DC (LTE + NR)	+	U-NII_Ant.1	+	U-NII_Ant.2
	15	EN-DC (LTE + NR)	+	BT		
	16	EN-DC (LTE + NR)	+	***RSDB scenarios***		
Hotspot	17	GSM(GPRS)	+	DTS_Ant.1	+	DTS_Ant.2
	18	GSM(GPRS)	+	U-NII_Ant.1	+	U-NII_Ant.2
	19	GSM(GPRS)	+	BT		
	20	GSM(GPRS)	+	***RSDB scenarios***		
	21	W-CDMA	+	DTS_Ant.1	+	DTS_Ant.2
	22	W-CDMA	+	U-NII_Ant.1	+	U-NII_Ant.2
	23	W-CDMA	+	BT		
	24	W-CDMA	+	***RSDB scenarios***		
	25	LTE	+	DTS_Ant.1	+	DTS_Ant.2
	26	LTE	+	U-NII_Ant.1	+	U-NII_Ant.2
	27	LTE	+	BT		
	28	LTE	+	***RSDB scenarios***		
	29	EN-DC (LTE + NR)	+	DTS_Ant.1	+	DTS_Ant.2
	30	EN-DC (LTE + NR)	+	U-NII_Ant.1	+	U-NII_Ant.2
	31	EN-DC (LTE + NR)	+	BT		
	32	EN-DC (LTE + NR)	+	***RSDB scenarios***		

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. 5G NR supports Hotspot.
5. DTS or UNII Radio cannot transmit simultaneously with Bluetooth Radio.
6. DTS Radio can only transmit simultaneously with U-NII Radio in RSDB scenarios.
7. DTS and UNII Radio can operating both SISO and MIMO modes.
8. BT tethering is consider about each RF exposure conditions
9. NR Radio can transmit through EN-DC mode with LTE anchor bands (Please refer to Sec.6.7)
10. NR Radio cannot transmit simultaneously with other NR Radio.

RSDB scenarios

Mode	Scenario	# of TX	5GHz		2.4GHz	
			Ant1	Ant2	Ant1	Ant2
2.4GHz+5GHz RSDB Only	1	2	-	On	On	-

Note(s):

For EN-DC mode, Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure from 4G(LTE) and time-averaged RF exposure from 5G NR. Smart Transmit algorithm controls the total RF exposure from both 4G and 5G NR to not exceed FCC limit. Therefore, simultaneous transmission compliance between 4G+5G NR operation is demonstrated in the Part 2 Report during algorithm validation. In Part 1 Report, simultaneous transmission compliance was evaluated individually with other Radios (WLAN or BT) using one of 4G or 5G NR.

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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.

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13.1 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	DTS MIMO	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 + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	A, B :1+2+3 C :1+4	1+5	1+6	A, B :1+5+6 C :1+7	1+8	1+2+6
A : Head (1g-SAR)	All position	0.216	0.313	0.025		0.129	0.498		0.373	0.529	0.241	0.554	0.345	0.714	0.843	0.589	1.027
B : Body-Worn (1g-SAR)	All position	0.480	0.111	0.018		0.316	0.158		0.055	0.591	0.498	0.609	0.796	0.638	0.954	0.535	0.749
C : Hotspot (1-g SAR)	Rear	1.040	0.186	0.047	0.166	0.501	0.181	0.383	0.081	1.226	1.087	1.206	1.541	1.221	1.423	1.121	1.407
	Front	0.400	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.805	0.447	0.502	0.901	0.581	0.783	0.452	0.986
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2	0.212															
	Edge 3	0.522															
	Edge 4	0.055	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.076	0.102	0.127	0.338	0.150	0.438	0.062	0.171

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

13.2 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	DTS MIMO	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 + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	A, B :1+2+3 C :1+4	1+5	1+6	A, B, D :1+5+6 C :1+7	1+8	1+2+6
A : Head (1g-SAR)	All position	0.064	0.313	0.025		0.129	0.498		0.373	0.377	0.089	0.402	0.193	0.562	0.691	0.437	0.875
B : Body-Worn (1g-SAR)	All position	0.328	0.111	0.018		0.316	0.158		0.055	0.439	0.346	0.457	0.644	0.486	0.802	0.383	0.597
C : Hotspot (1-g SAR)	Rear	0.399	0.186	0.047	0.166	0.501	0.181	0.383	0.081	0.585	0.446	0.565	0.900	0.580	0.782	0.480	0.766
	Front	0.239	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.644	0.286	0.341	0.740	0.420	0.622	0.291	0.825
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2	0.071															
	Edge 3	0.955															
	Edge 4	0.114	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.135	0.161	0.186	0.397	0.209	0.497	0.121	0.230
D : Product Specific 10-g (10-g SAR)	All position	1.915				0.791	0.711						2.706	2.626	3.417		

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

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13.3 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	DTS MIMO	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 + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	**A, B**:1+2+3 **C**:1+4	1+5	1+6	**A, B, D**:1+5+6 **C**:1+7	1+8	1+2+6
A: Head (1g-SAR)	All position	0.092	0.313	0.025		0.129	0.498		0.373	0.405	0.117	0.430	0.221	0.590	0.719	0.465	0.903
B: Body-Worn (1g-SAR)	All position	0.505	0.111	0.018		0.316	0.158		0.055	0.616	0.523	0.634	0.821	0.663	0.979	0.560	0.774
C: Hotspot (1-g SAR)	Rear	0.429	0.186	0.047	0.166	0.501	0.181	0.383	0.081	0.615	0.476	0.595	0.930	0.610	0.812	0.510	0.796
	Front	0.342	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.747	0.389	0.444	0.843	0.523	0.725	0.394	0.928
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2	0.096															
	Edge 3	0.961															
	Edge 4	0.115	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.136	0.162	0.187	0.398	0.210	0.498	0.122	0.231
D: Product Specific 10-g (10-g SAR)	Rear					0.791	0.376								1.167		
	Front					0.791	0.711								1.502		
	Edge 1					0.791	0.711								1.502		
	Edge 2																
	Edge 3	2.764															
	Edge 4					0.587	0.711								1.298		

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

13.4 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	DTS MIMO	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 + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	**A, B**:1+2+3 **C**:1+4	1+5	1+6	**A, B**:1+5+6 **C**:1+7	1+8	1+2+6
A: Head (1g-SAR)	All position	0.224	0.313	0.025		0.129	0.498		0.373	0.537	0.249	0.562	0.353	0.722	0.851	0.597	1.035
B: Body-Worn (1g-SAR)	All position	0.264	0.111	0.018		0.316	0.158		0.055	0.375	0.282	0.393	0.580	0.422	0.738	0.319	0.533
C: Hotspot (1-g SAR)	Rear	0.436	0.186	0.047	0.166	0.501	0.181	0.383	0.081	0.622	0.483	0.602	0.937	0.617	0.819	0.517	0.803
	Front	0.328	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.733	0.375	0.430	0.829	0.509	0.711	0.380	0.914
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2	0.224															
	Edge 3	0.316															
	Edge 4	0.079	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.100	0.126	0.151	0.362	0.174	0.462	0.086	0.195

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

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

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	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	**A, B**:1+2+3 **C**:1+4	1+5	1+6	**A, B, D**:1+5+6 **C**:1+7	1+8	1+2+6
A: Head (1g-SAR)	All position	0.105	0.313	0.025		0.129	0.498		0.373	0.418	0.130	0.443	0.234	0.603	0.732	0.478	0.916
B: Body-Worn (1g-SAR)	All position	0.407	0.111	0.018		0.316	0.158		0.055	0.518	0.425	0.536	0.723	0.565	0.881	0.462	0.676
C: Hotspot (1-g SAR)	Rear	0.426	0.186	0.047	0.166	0.501	0.181	0.383	0.081	0.612	0.473	0.592	0.927	0.607	0.809	0.507	0.793
	Front	0.344	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.749	0.391	0.446	0.845	0.525	0.727	0.396	0.930
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2	0.113															
	Edge 3	1.086															
	Edge 4	0.110	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.131	0.157	0.182	0.393	0.205	0.493	0.117	0.226
D: Product Specific 10-g (10-g SAR)	Rear					0.791	0.376								1.167		
	Front					0.791	0.711								1.502		
	Edge 1					0.791	0.711								1.502		
	Edge 2																
	Edge 3	2.761															
	Edge 4					0.587	0.711								1.298		

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

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

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	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	**A, B**:1+2+3 **C**:1+4	1+5	1+6	**A, B**:1+5+6 **C**:1+7	1+8	1+2+6
A: Head (1g-SAR)	All position	0.249	0.313	0.025		0.129	0.498		0.373	0.562	0.274	0.587	0.378	0.747	0.876	0.622	1.060
B: Body-Worn (1g-SAR)	All position	0.354	0.111	0.018		0.316	0.158		0.055	0.465	0.372	0.483	0.670	0.512	0.828	0.409	0.623
C: Hotspot (1-g SAR)	Rear	0.651	0.186	0.047	0.166	0.501	0.181	0.383	0.081	0.837	0.698	0.817	1.152	0.832	1.034	0.732	1.018
	Front	0.448	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.853	0.495	0.550	0.949	0.629	0.831	0.500	1.034
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2	0.299															
	Edge 3	0.375															
	Edge 4	0.078	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.099	0.125	0.150	0.361	0.173	0.461	0.085	0.194

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

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

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	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	**A, B**:1+2+3 **C**:1+4	1+5	1+6	**A, B, D**:1+5+6 **C**:1+7	1+8	1+2+6
A: Head (1g-SAR)	All position	0.151	0.313	0.025		0.129	0.498		0.373	0.464	0.176	0.489	0.280	0.649	0.778	0.524	0.962
B: Body-Worn (1g-SAR)	All position	0.259	0.111	0.018		0.316	0.158		0.055	0.370	0.277	0.388	0.575	0.417	0.733	0.314	0.528
C: Hotspot (1-g SAR)	Rear	0.346	0.186	0.047	0.166	0.501	0.181	0.383	0.081	0.532	0.393	0.512	0.847	0.527	0.729	0.427	0.713
	Front	0.340	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.745	0.387	0.442	0.841	0.521	0.723	0.392	0.926
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2																
	Edge 3	0.449															
	Edge 4	0.335	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.356	0.382	0.407	0.618	0.430	0.718	0.342	0.451
D: Product Specific 10-g (10-g SAR)	All position	2.043				0.791	0.711						2.834	2.754	3.545		

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

13.8 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	DTS MIMO	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 + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	**A, B**:1+2+3 **C**:1+4	1+5	1+6	**A, B**:1+5+6 **C**:1+7	1+8	1+2+6
A: Head (1g-SAR)	All position	0.108	0.313	0.025		0.129	0.498		0.373	0.421	0.133	0.446	0.237	0.606	0.735	0.481	0.919
B: Body-Worn (1g-SAR)	All position	0.265	0.111	0.018		0.316	0.158		0.055	0.376	0.283	0.394	0.581	0.423	0.739	0.320	0.534
C: Hotspot (1-g SAR)	Rear	0.344	0.186	0.047	0.166	0.501	0.181	0.383	0.081	0.530	0.391	0.510	0.845	0.525	0.727	0.425	0.711
	Front	0.273	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.678	0.320	0.375	0.774	0.454	0.656	0.325	0.859
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2	0.207															
	Edge 3	0.137															
	Edge 4	0.096	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.117	0.143	0.168	0.379	0.191	0.479	0.103	0.212

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

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13.9 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	DTS MIMO	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 + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	**A, B**:1+2+3 **C**:1+4	1+5	1+6	**A, B**:1+5+6 **C**:1+7	1+8	1+2+6
A: Head (1g-SAR)	All position	0.227	0.313	0.025		0.129	0.498		0.373	0.540	0.252	0.565	0.356	0.725	0.854	0.600	1.038
B: Body-Worn (1g-SAR)	All position	0.367	0.111	0.018		0.316	0.158		0.055	0.478	0.385	0.496	0.683	0.525	0.841	0.422	0.636
C: Hotspot (1-g SAR)	Rear	0.622	0.186	0.047	0.166	0.501	0.181	0.383	0.081	0.808	0.669	0.788	1.123	0.803	1.005	0.703	0.989
	Front	0.386	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.791	0.433	0.488	0.887	0.567	0.769	0.438	0.972
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2	0.315															
	Edge 3	0.430															
	Edge 4	0.157	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.178	0.204	0.229	0.440	0.252	0.540	0.164	0.273

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

13.10 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	DTS MIMO	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 + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	**A, B**:1+2+3 **C**:1+4	1+5	1+6	**A, B, D**:1+5+6 **C**:1+7	1+8	1+2+6
A: Head (1g-SAR)	All position	0.047	0.313	0.025		0.129	0.498		0.373	0.360	0.072	0.385	0.176	0.545	0.674	0.420	0.858
B: Body-Worn (1g-SAR)	All position	0.415	0.111	0.018		0.316	0.158		0.055	0.526	0.433	0.544	0.731	0.573	0.889	0.470	0.684
C: Hotspot (1-g SAR)	Rear	0.353	0.186	0.047	0.166	0.501	0.181	0.383	0.081	0.539	0.400	0.519	0.854	0.534	0.736	0.434	0.720
	Front	0.346	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.751	0.393	0.448	0.847	0.527	0.729	0.398	0.932
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2	0.148															
	Edge 3	1.223															
	Edge 4	0.071	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.092	0.118	0.143	0.354	0.166	0.454	0.078	0.187
D: Product Specific 10-g (10-g SAR)	Rear					0.791	0.376								1.167		
	Front					0.791	0.711								1.502		
	Edge 1					0.791	0.711								1.502		
	Edge 2																
	Edge 3	3.091															
	Edge 4					0.587	0.711								1.298		

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

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13.11 Sum of the SAR for NR Band n2 & Wi-Fi & BT

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	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	**A, B**:1+2+3 **C**:1+4	1+5	1+6	**A, B, D**:1+5+6 **C**:1+7	1+8	1+2+6
A: Head (1g-SAR)	All position	0.135	0.313	0.025		0.129	0.498		0.373	0.448	0.160	0.473	0.264	0.633	0.762	0.508	0.946
B: Body-Worn (1g-SAR)	All position	0.526	0.111	0.018		0.316	0.158		0.055	0.637	0.544	0.655	0.842	0.684	1.000	0.581	0.795
C: Hotspot (1-g SAR)	Rear	0.293	0.186	0.047	0.166	0.501	0.181	0.383	0.081	0.479	0.340	0.459	0.794	0.474	0.676	0.374	0.660
	Front	0.238	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.643	0.285	0.340	0.739	0.419	0.621	0.290	0.824
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2	0.058															
	Edge 3	0.755															
	Edge 4	0.038	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.059	0.085	0.110	0.321	0.133	0.421	0.045	0.154
D: Product Specific 10-g (10-g SAR)	All position	2.049				0.791	0.711						2.840	2.760	3.551		

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

13.12 Sum of the SAR for NR Band n5 & Wi-Fi & BT

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	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	**A, B**:1+2+3 **C**:1+4	1+5	1+6	**A, B**:1+5+6 **C**:1+7	1+8	1+2+6
A: Head (1g-SAR)	All position	0.254	0.313	0.025		0.129	0.498		0.373	0.567	0.279	0.592	0.383	0.752	0.881	0.627	1.065
B: Body-Worn (1g-SAR)	All position	0.398	0.111	0.018		0.316	0.158		0.055	0.509	0.416	0.527	0.714	0.556	0.872	0.453	0.667
C: Hotspot (1-g SAR)	Rear	0.642	0.186	0.047	0.166	0.501	0.181	0.383	0.081	0.828	0.689	0.808	1.143	0.823	1.025	0.723	1.009
	Front	0.475	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.880	0.522	0.577	0.976	0.656	0.858	0.527	1.061
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2	0.250															
	Edge 3	0.442															
	Edge 4	0.108	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.129	0.155	0.180	0.391	0.203	0.491	0.115	0.224

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

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13.13 Sum of the SAR for NR Band n66 & Wi-Fi & BT

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	BT	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	(RSDB Scenario) WWAN + DTS Ant.1 + UNII Ant.2
		1	2	3	4	5	6	7	8	1+2	1+3	**A, B**:1+2+3 **C**:1+4	1+5	1+6	**A, B, D**:1+5+6 **C**:1+7	1+8	1+2+6
A: Head (1g-SAR)	All position	0.170	0.313	0.025		0.129	0.498		0.373	0.483	0.195	0.508	0.299	0.668	0.797	0.543	0.981
B: Body-Worn (1g-SAR)	All position	0.777	0.111	0.018		0.316	0.158		0.055	0.888	0.795	0.906	1.093	0.935	1.251	0.832	1.046
C: Hotspot (1-g SAR)	Rear	0.307	0.186	0.047	0.166	0.501	0.181	0.383	0.081	0.493	0.354	0.473	0.808	0.488	0.690	0.388	0.674
	Front	0.258	0.405	0.047	0.102	0.501	0.181	0.383	0.052	0.663	0.305	0.360	0.759	0.439	0.641	0.310	0.844
	Edge 1		0.405	0.047	0.264	0.501	0.181	0.383	0.152								
	Edge 2	0.086															
	Edge 3	0.733															
	Edge 4	0.087	0.021	0.047	0.072	0.283	0.095	0.383	0.007	0.108	0.134	0.159	0.370	0.182	0.470	0.094	0.203
D: Product Specific 10-g (10-g SAR)	All position	2.213				0.791	0.711						3.004	2.924	3.715		

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 Wi-Fi of DTS & UNII, MIMO SAR test were additionally evaluated at Hotspot exposure condition for determining simultaneous transmission SAR test exclusion.

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR (10-g SAR) is < 1.6 W/kg (4.0 W/kg).

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Appendixes

Refer to separated files for the following appendixes.

4789424849-S1V4 FCC Report SAR_App A_Photos & Ant. Locations

4789424849-S1V4 FCC Report SAR_App B_Highest SAR Test Plots

4789424849-S1V4 FCC Report SAR_App C_System Check Plots

4789424849-S1V4 FCC Report SAR_App D_SAR Tissue Ingredients

4789424849-S1V4 FCC Report SAR_App E_Probe Cal. Certificates

4789424849-S1V4 FCC Report SAR_App F_Dipole Cal. Certificates

END OF REPORT

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