



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

**SAR EVALUATION REPORT  
(Class II permissive change)**

**FOR**

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

**MODEL NUMBER: SM-S908B/DS**

**FCC ID: A3LSMS908B**

**REPORT NUMBER: 4790263700-S1V1**

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

*Prepared by*  
**UL Korea, Ltd.  
26th floor, 152, Teheran-ro, Gangnam-gu Seoul, 06236, Korea**

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



**Testing Laboratory**

**TL-637**

**Revision History**

Rev.	Date	Revisions	Revised By
V1	1/13/2022	Initial Issue	--

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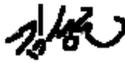
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# 1. Attestation of Test Results

Applicant Name		SAMSUNG ELECTRONICS CO.,LTD.			
FCC ID		A3LSMS908B			
Model Number		SM-S908B/DS			
Applicable Standards		FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures			
Exposure Category		SAR Limits (W/Kg)			
		Peak spatial-average (1g of tissue)		Product Specific 10g (10g of tissue)	
General population / Uncontrolled exposure		1.6		4.0	
RF Exposure Conditions		Equipment Class - The Highest Reported SAR (W/kg)			
		PCE	DTS	NII	DSS
Head		< 0.10	0.32	0.32	0.18
Body-worn		0.63	0.20	1.14	0.18
Hotspot		1.23	0.41	1.29	0.44
Product Specific 10g		2.70	N/A	2.98	N/A
Simultaneous TX	Head	0.71	0.67	0.71	0.71
	Body-worn	1.47	1.47	1.47	1.37
	Hotspot	1.41	1.50	1.50	1.41
	Product Specific 10g	N/A	N/A	N/A	N/A
Date Tested		1/5/2022 to 1/13/2022			
Test Results		Pass			
<p>UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.</p> <p><b>Note:</b> The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.</p>					
Approved & Released By:			Prepared By:		
					
Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory			Sunghoon Kim Senior Test Engineer UL Korea, Ltd. Suwon Laboratory		

## 2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE STD 1528-2013, ANSI C63.26-2015 the following FCC Published RF exposure [KDB](#) procedures:

- 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 D05 SAR for LTE Devices v02r05
- 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; RF Exposure Procedures Update (Overlapping LTE Bands)
- [TCB workshop](#) October, 2016; RF Exposure Procedures (DUT Holder Perturbations)
- [TCB workshop](#) May, 2017; RF Exposure Procedures (LTE Test Conditions)
- [TCB workshop](#) May, 2017; RF Exposure Procedures (LTE Band 41 Power Class 2)
- [TCB workshop](#) April, 2019; RF Exposure Procedures (Tissue Simulating Liquids (TSL))
- [TCB workshop](#) October, 2020; 5G RFX Policies (Intra-band and Inter-band NSA-EN-DC evaluation)

## 3. Facilities and Accreditation

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

Suwon
SAR 3 Room
SAR 4 Room

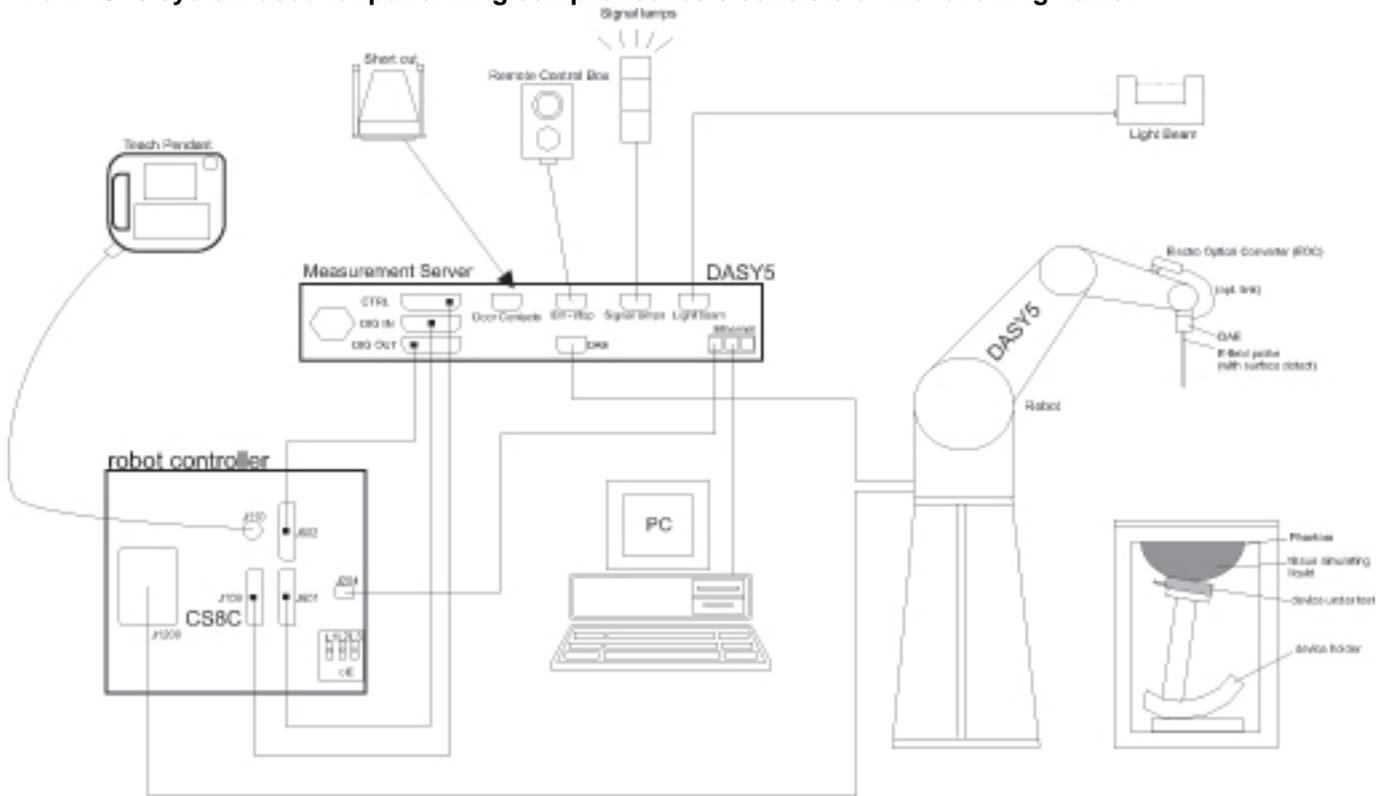
UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.

The full scope of accreditation can be viewed at <https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf>.

## 4. SAR Measurement System & Test Equipment

### 4.1. SAR Measurement System

The DASY5 system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

## 4.2. SAR Scan Procedures

### Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

### Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

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

	$\leq 3$ GHz	$> 3$ GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	$5 \pm 1$ mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: $\Delta x_{Area}$ , $\Delta y_{Area}$	$\leq 2$ GHz: $\leq 15$ mm $2 - 3$ GHz: $\leq 12$ mm	$3 - 4$ GHz: $\leq 12$ mm $4 - 6$ GHz: $\leq 10$ mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

**Step 3: Zoom Scan**

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

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

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$ : between 1 <sup>st</sup> 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: $\delta$ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

**Step 4: Power drift measurement**

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

**Step 5: Z-Scan (FCC only)**

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

### 4.3. Test Equipment

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

#### Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Agilent	E5071C	MY46522054	8-6-2022
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	7-21-2022
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3851	8-4-2022

#### System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8-4-2022
Power Sensor	Agilent	U2000A	MY54260007	8-4-2022
Power Sensor	Agilent	U2000A	MY60180020	8-4-2022
Power Amplifier	EXODUS	1410025-AMP2027-10003	10003	8-4-2022
Directional Coupler	Agilent	772D	MY52180193	8-3-2022
Directional Coupler	Agilent	778D	MY52180432	8-3-2022
Low Pass Filter	MINI-CIRCUITS	NLP-1200	VUU19301915	8-4-2022
Low Pass Filter	MICROLAB	LA-15N	3943	8-3-2022
Low Pass Filter	FILTRON	L14012FL	1410003S	8-3-2022
Attenuator	MINI-CIRCUITS	BW-N3W5+	N/A	8-4-2022
Attenuator	Agilent	8491B/003	MY39272275	8-17-2022
Attenuator	Agilent	8491B/010	MY39272011	8-4-2022
Attenuator	Agilent	8491B/020	MY39271973	8-4-2022
E-Field Probe	SPEAG	EX3DV4	7645	4-15-2022
E-Field Probe	SPEAG	EX3DV4	7330	9-29-2022
E-Field Probe	SPEAG	EX3DV4	7376	7-30-2022
Data Acquisition Electronics	SPEAG	DAE4	1591	3-26-2022
Data Acquisition Electronics	SPEAG	DAE4	1468	9-27-2022
System Validation Dipole	SPEAG	D1750V2	1125	2-21-2022
System Validation Dipole	SPEAG	D2600V2	1178	4-21-2023
Thermometer	Lutron	MHB-382SD	AH.50213	8-4-2022
Thermometer	Lutron	MHB-382SD	AH.50215	8-4-2022
Thermometer	Lutron	MHB-382SD	AJ.45903	8-3-2022
Thermometer	Lutron	MHB-382SD	AK.12123	8-3-2022

#### Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	169801	8-3-2022
Base Station Simulator	R & S	CMW500	169799	8-3-2022
Base Station Simulator	R & S	CMW500	169800	8-3-2022
Base Station Simulator	R & S	CMW500	169798	8-3-2022
Base Station Simulator	R & S	CMW500	169797	8-3-2022
Base Station Simulator	R & S	CMW500	150313	8-3-2022
Base Station Simulator	R & S	CMW500	150314	8-4-2022
Base Station Simulator	R & S	CMW500	162790	8-3-2022

#### Note(s):

1. For System Validation Dipole, Calibration interval applied every 2 years according to referencing KDB 865664 guidance.
2. Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations. (for blue box items)
3. All equipments were used until Cal.Due data.

## 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	<input checked="" type="checkbox"/> The Back Cover is not removable.																								
Battery Options	<input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> Mobile Hotspot (Wi-Fi 2.4 GHz) <input checked="" type="checkbox"/> Mobile Hotspot (Wi-Fi 5.8 GHz)																								
Wi-Fi Direct	Wi-Fi Direct enabled devices transfer data directly between each other <input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 2.4 GHz) <input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 5.2 GHz_UNII-1, Wi-Fi 5.8 GHz_UNII-3)																								
Test Sample Information	<p><b>Version.1</b></p> <table border="1"> <thead> <tr> <th>No.</th> <th>S/N</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>R3CR80AB3FD</td> <td>Main Conducted</td> </tr> <tr> <td>2</td> <td>R3CR80AB3AJ</td> <td>Main Conducted</td> </tr> <tr> <td>3</td> <td>R3CR80ABDAL</td> <td>Main Conducted</td> </tr> <tr> <td>4</td> <td>575854c0513f7ece</td> <td>SAR</td> </tr> <tr> <td>5</td> <td>572cf07d293f7ece</td> <td>SAR</td> </tr> </tbody> </table> <p><b>Version.2</b></p> <table border="1"> <tbody> <tr> <td>1</td> <td>R3CRB0V317Y</td> <td>SAR</td> </tr> </tbody> </table> <p><b>Version.3</b></p> <table border="1"> <tbody> <tr> <td>1</td> <td>R3CRB0V2YPF</td> <td>SAR</td> </tr> </tbody> </table>	No.	S/N	Notes	1	R3CR80AB3FD	Main Conducted	2	R3CR80AB3AJ	Main Conducted	3	R3CR80ABDAL	Main Conducted	4	575854c0513f7ece	SAR	5	572cf07d293f7ece	SAR	1	R3CRB0V317Y	SAR	1	R3CRB0V2YPF	SAR
No.	S/N	Notes																							
1	R3CR80AB3FD	Main Conducted																							
2	R3CR80AB3AJ	Main Conducted																							
3	R3CR80ABDAL	Main Conducted																							
4	575854c0513f7ece	SAR																							
5	572cf07d293f7ece	SAR																							
1	R3CRB0V317Y	SAR																							
1	R3CRB0V2YPF	SAR																							

## 6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK)	GPRS Multi-Slot Class:	GSM Voice: 12.5% (E)GPRS: 1 Slot: 12.5% 2 Slots: 25% 3 Slots: 37.5% 4 Slots: 50%
		GPRS (GMSK)	<input type="checkbox"/> Class 8 - 1 Up, 4 Down <input type="checkbox"/> Class 10 - 2 Up, 4 Down <input type="checkbox"/> Class 12 - 4 Up, 4 Down <input checked="" type="checkbox"/> Class 33 - 4 Up, 5 Down	
Does this device support DTM (Dual Transfer Mode)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
W-CDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Category 24) HSUPA (Category 6) DC-HSDPA (Category 24) HSPA+ (DL only)		100%
LTE	FDD Band 2 FDD Band 4 FDD Band 5 FDD Band 12 FDD Band 13 FDD Band 17 FDD Band 25 FDD Band 26 TDD Band 41 <sup>Power Class 3</sup> TDD Band 41 <sup>Power Class 2</sup> FDD Band 66 <u>Uplink inter-band Carrier Aggregation(2CC)</u> CA_2A-4A CA_4A-5A CA_4A-12A CA_5A-66A CA_12A-66A	QPSK 16QAM 64QAM 256QAM Rel. 15 Carrier Aggregation (2 Uplink and 5 Downlinks)		100% (FDD) 63.3% (TDD) <sup>Power Class 3</sup> 43.3% (TDD) <sup>Power Class 2</sup>
		Does this device support SV-LTE (1xRTT-LTE)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5G NR (Sub 6)	NR Band n5 NR Band n66	DFT-s-OFDM: ■ $\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: ■ QPSK, 16QAM, 64QAM, 256QAM		100%
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20) 802.11ax (HE20)		SISO mode 99.5% (802.11b) MIMO mode 96.4% (802.11g)
	5 GHz	802.11a 802.11n (HT20) & (HT40) 802.11ac (VHT20) & (VHT40) & (VHT80) & (VHT160) 802.11ax (HE20) & (HE40) & (HE80) & (HE160)		MIMO mode 96.4% (802.11a) 96.2% (802.11n (HT20)) 94.4% (802.11ac (VHT80))
	Does this device support bands 5.60 ~ 5.65 GHz? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Does this device support Band gap channel(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Bluetooth	2.4 GHz	Version 5.0 LE		77.1% (DH5)
NFC	13.56 MHz	Type A/B/F		N/A <sup>4</sup>
UWB	6.24 – 8.24 GHz	BPM-BPSK		N/A <sup>4</sup>

### Notes:

- The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 77.1% and was considered and used for SAR Testing.
- Duty cycle for Wi-Fi is referenced from the DTS and UNII report.
- This device supports Power Class 2(HPUE) and Power Class 3 for LTE Band 41.
- Measured Duty Cycle is not required due to SAR test exemption.
- This device supports UL CA inter-band.

### 6.3. Nominal and Maximum Output Power

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

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)		
				Hotspot back-off	Proximity sensor & Ear-jack back-off	RCV back-off
LTE Band 41(PC3)	Main 2 Ant.	QPSK	25.0	23.0	23.0	
LTE Band 41(PC2)	Main 2 Ant.	QPSK	26.0	23.5	23.5	

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)		
				Hotspot back-off	Proximity sensor Earjack back-off	RCV back-off
NR Band n66	Main 1 Ant.	DFT-s-OFDM QPSK	24.5	20.5	20.5	

### 6.4. Power Back-off Operation

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

Power Back-off mode	Technologies Supported	Exposure Conditions Active			
		Head	Body-worn	Hotspot	Product Specific 10-g
WWAN (Hotspot)	LTE Band 41 NR Band n66 (Ant.1)	N/A	N/A	✓	N/A
WWAN (Proximity sensor)	LTE Band 41 NR Band n66(Ant.1)	N/A	N/A	N/A	✓
WWAN (Ear-jack)	LTE Band 41	N/A	✓	N/A	✓

**Note(s):**

1. WWAN Back-off priority: RCV → Ear-jack → Proximity Sensor → Hotspot
2. Body-worn SAR with ear-jack connected is not required due to Body-worn measured at max power is not over 1.2 W/kg.

#### Product Specific 10g Adjusted SAR Calculation

Wireless technologies	Max Tune-up Limit (dBm)	Reduced Tune-Up Limit (dBm)	Power Factor	Reported SAR Limit (W/kg)
LTE Band 41	25.0	23.0	1.58	0.757
NR Band n66_Main Ant.1	24.5	20.5	2.51	0.478

**Note(s):**

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

### 6.5. General LTE SAR Test and Reporting Considerations

Item	Description																																																																			
	Band 41	Frequency range: 2496 - 2690 MHz																																																																		
		Channel Bandwidth																																																																		
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz																																																													
	Low	39750 / 2506.0																																																																		
	Low-Mid	40185 / 2549.5																																																																		
	Mid	40620 / 2593.0																																																																		
	Mid-High	41055 / 2636.5																																																																		
	High	41490 / 2680.0																																																																		
LTE transmitter and antenna implementation	Refer to Appendix A.																																																																			
Maximum power reduction (MPR)	<b>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</b>																																																																			
	<table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (N<sub>RB</sub>)</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 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>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 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>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 3</td> </tr> <tr> <td>256 QAM</td> <td colspan="6">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table>	Modulation	Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> )						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5	MPR Built-in by design The manufacturer MPR values are always within the 3GPP maximum MPR allowance but may not follow the default MPR values. A-MPR (additional MPR) was disabled during SAR testing				
Modulation	Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> )						MPR (dB)																																																													
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz																																																														
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1																																																													
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1																																																													
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2																																																													
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2																																																													
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3																																																													
256 QAM	≥ 1						≤ 5																																																													
Power reduction	Yes																																																																			
Spectrum plots for RB configurations	A properly configured base station simulator was used for the SAR and power measurements; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																																			

**Notes:**

- 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 Band 41 test channels in accordance with October 2014 TCB workshop for all channels bandwidths.
- SAR Testing for LTE was performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

### 6.6. LTE (TDD) Considerations

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

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

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

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

#### Calculated Duty Cycle

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

Calculated Duty Cycle = Extended cyclic prefix in uplink x (T<sub>s</sub>) x # of S + # of U

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

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

where

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

#### Note(s):

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

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

Item	Description													
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band n66	Frequency range: 1710 - 1780 MHz												
		Channel Bandwidth (MHz)												
		100	90	80	70	60	50	40	30	25	20	15	10	5
	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: $\pi/2$ BPSK, 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 n66 (Main Ant.1)	LTE Band 5, 12, 13													

**Notes:**

- 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.
- NR configurations of SAR test were determined according to Section 5.2 of KDB 941225 D05.

### 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	Antennaa	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	SAR Required	Note
WWAN	Head	All Main Antennas	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	All Main Antennas	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	
	Hotspot	Main 2 Ant.	10 mm	Rear	< 25 mm	Yes	✓
				Front	< 25 mm	Yes	✓
				Edge 1 (Top)	> 25 mm	No	1
				Edge 2 (Right)	< 25 mm	Yes	
				Edge 3 (Bottom)	< 25 mm	Yes	
	Product Specific 10-g	All Main Antennas	0 mm	Rear	Refer to notes 2 & 3		
				Front			
				Edge 1 (Top)			
				Edge 2 (Right)			
Edge 3 (Bottom)							
Edge 4 (Left)							

**Notes:**

- SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hot Spot SAR.
- 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.
- 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.

## 8. Dielectric Property Measurements & System Check

### 8.1. Dielectric Property Measurements

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

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

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

#### Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head		Body	
	$\epsilon_r$	$\sigma$ (S/m)	$\epsilon_r$	$\sigma$ (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

**Dielectric Property Measurements Results:  
SAR 3 Room**

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
1/10/2022	Head 1750	e'	41.9400	Relative Permittivity ( $\epsilon_r$ ):	41.94	40.08	4.63	5
		e"	13.6300	Conductivity ( $\sigma$ ):	1.33	1.37	-3.12	5
	Head 1710	e'	42.0100	Relative Permittivity ( $\epsilon_r$ ):	42.01	40.15	4.64	5
		e"	13.7500	Conductivity ( $\sigma$ ):	1.31	1.35	-2.90	5
	Head 1755	e'	41.9300	Relative Permittivity ( $\epsilon_r$ ):	41.93	40.08	4.62	5
		e"	13.6200	Conductivity ( $\sigma$ ):	1.33	1.37	-3.11	5
1/13/2022	Head 1750	e'	41.0000	Relative Permittivity ( $\epsilon_r$ ):	41.00	40.08	2.28	5
		e"	13.5200	Conductivity ( $\sigma$ ):	1.32	1.37	-3.90	5
	Head 1710	e'	41.1200	Relative Permittivity ( $\epsilon_r$ ):	41.12	40.15	2.43	5
		e"	13.6100	Conductivity ( $\sigma$ ):	1.29	1.35	-3.89	5
	Head 1755	e'	40.9800	Relative Permittivity ( $\epsilon_r$ ):	40.98	40.08	2.25	5
		e"	13.5000	Conductivity ( $\sigma$ ):	1.32	1.37	-3.97	5

**SAR 4 Room**

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
1/5/2022	Head 2600	e'	38.6100	Relative Permittivity ( $\epsilon_r$ ):	38.61	39.01	-1.03	5
		e"	13.4700	Conductivity ( $\sigma$ ):	1.95	1.96	-0.76	5
	Head 2500	e'	38.7800	Relative Permittivity ( $\epsilon_r$ ):	38.78	39.14	-0.91	5
		e"	13.4200	Conductivity ( $\sigma$ ):	1.87	1.85	0.62	5
	Head 2700	e'	38.4100	Relative Permittivity ( $\epsilon_r$ ):	38.41	38.88	-1.22	5
		e"	13.5200	Conductivity ( $\sigma$ ):	2.03	2.07	-1.96	5
1/10/2022	Head 2600	e'	39.3000	Relative Permittivity ( $\epsilon_r$ ):	39.30	39.01	0.74	5
		e"	13.2300	Conductivity ( $\sigma$ ):	1.91	1.96	-2.52	5
	Head 2500	e'	39.4600	Relative Permittivity ( $\epsilon_r$ ):	39.46	39.14	0.83	5
		e"	13.1500	Conductivity ( $\sigma$ ):	1.83	1.85	-1.41	5
	Head 2700	e'	39.1100	Relative Permittivity ( $\epsilon_r$ ):	39.11	38.88	0.58	5
		e"	13.2900	Conductivity ( $\sigma$ ):	2.00	2.07	-3.63	5

## 8.2. System Check

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

### System Performance Check Measurement Conditions:

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

### Reference Target SAR Values

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

System Dipole	Serial No.	Cal. Date	Cal. Due Date	Target SAR Values (W/kg)	
				1g/10g	Head
D1750V2	1125	2/21/2020	2/21/2022	1g	36.50
				10g	19.20
D2600V2	1178	4/21/2021	4/21/2023	1g	56.60
				10g	25.40

#### Note(s):

1. For System Validation Dipole, Calibration interval applied every 2 years according to referencing KDB 865664 guidance.
2. Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations.

**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 3 Room**

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta $\pm 10\%$	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
1-10-2022	D1750V2	1125	Head	1g	3.73	37.3	36.50	2.19	1, 2
				10g	2.04	20.4	19.20	6.25	
1-13-2022	D1750V2	1125	Head	1g	3.72	37.2	36.50	1.92	
				10g	2.03	20.3	19.20	5.73	

**SAR 4 Room**

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta $\pm 10\%$	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
1-5-2022	D2600V2	1178	Head	1g	5.58	55.8	56.60	-1.41	3, 4
				10g	2.48	24.8	25.40	-2.36	
1-10-2022	D2600V2	1178	Head	1g	5.64	56.4	56.60	-0.35	
				10g	2.52	25.2	25.40	-0.79	

## 9. Conducted Output Power Measurements

### 9.1. 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

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.

# 1. Max power

## LTE Band 41-Power Class 3 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)						
				Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	23.5	23.1	23.8	23.7	23.7	0.0	25.0
		1	49	23.6	23.1	23.5	23.6	23.6	0.0	25.0
		1	99	23.4	23.0	23.5	23.5	23.6	0.0	25.0
		50	0	22.5	22.1	22.7	22.6	22.6	1.0	24.0
		50	24	22.5	22.0	22.7	22.6	22.6	1.0	24.0
		50	50	22.5	22.0	22.6	22.6	22.6	1.0	24.0
	16QAM	100	0	22.5	22.1	22.6	22.6	22.6	1.0	24.0
		1	0	22.3	22.1	22.7	22.6	22.7	1.0	24.0
		1	49	22.4	21.9	22.6	22.6	22.7	1.0	24.0
		1	99	22.4	22.2	22.6	22.5	22.6	1.0	24.0
		50	0	21.4	21.0	21.6	21.6	21.5	2.0	23.0
		50	24	21.4	21.0	21.6	21.6	21.5	2.0	23.0
	64QAM	50	50	21.4	21.0	21.5	21.5	21.5	2.0	23.0
		100	0	21.4	21.1	21.6	21.6	21.5	2.0	23.0
		1	0	21.3	20.7	21.7	21.5	21.4	2.0	23.0
		1	49	21.2	21.1	21.8	21.3	21.5	2.0	23.0
		1	99	21.4	20.7	21.7	21.6	21.3	2.0	23.0
		50	0	20.4	20.1	20.7	20.7	20.6	3.0	22.0
	256QAM	50	24	20.4	20.2	20.6	20.6	20.7	3.0	22.0
		50	50	20.4	20.1	20.6	20.6	20.6	3.0	22.0
		100	0	20.5	20.1	20.6	20.7	20.6	3.0	22.0
		1	0	18.6	18.3	18.6	18.9	19.1	5.0	20.0
		1	49	18.5	18.7	18.7	18.6	18.9	5.0	20.0
		1	99	18.5	18.2	18.9	18.9	19.0	5.0	20.0
15 MHz	QPSK	50	0	18.7	18.2	18.8	18.8	18.8	5.0	20.0
		50	24	18.6	18.2	18.8	18.8	18.8	5.0	20.0
		50	50	18.6	18.2	18.8	18.8	18.8	5.0	20.0
		100	0	18.6	18.2	18.8	18.8	18.8	5.0	20.0
		1	0	23.5	23.0	23.7	23.7	23.7	0.0	25.0
		1	37	23.6	23.1	23.9	23.7	23.6	0.0	25.0
	16QAM	1	74	23.4	23.1	23.7	23.6	23.6	0.0	25.0
		36	0	22.6	22.1	22.8	22.7	22.8	1.0	24.0
		36	20	22.6	22.1	22.8	22.7	22.8	1.0	24.0
		36	39	22.6	22.1	22.8	22.7	22.8	1.0	24.0
		75	0	22.6	22.1	22.8	22.7	22.8	1.0	24.0
		75	0	22.2	21.9	22.5	22.7	22.4	1.0	24.0
	64QAM	1	37	22.5	22.2	22.8	22.9	22.7	1.0	24.0
		1	74	22.4	21.8	22.5	22.6	22.6	1.0	24.0
		36	0	21.5	21.1	21.7	21.7	21.6	2.0	23.0
		36	20	21.6	21.1	21.7	21.7	21.7	2.0	23.0
		36	39	21.5	21.1	21.7	21.7	21.7	2.0	23.0
		75	0	21.5	21.1	21.7	21.6	21.7	2.0	23.0
	256QAM	1	0	21.5	20.8	21.4	21.6	21.2	2.0	23.0
		1	37	21.4	20.6	21.3	21.4	21.4	2.0	23.0
		1	74	21.6	20.7	21.7	21.6	21.4	2.0	23.0
		36	0	20.6	20.2	20.9	20.7	20.8	3.0	22.0
		36	20	20.6	20.1	20.8	20.7	20.7	3.0	22.0
		36	39	20.6	20.1	20.8	20.7	20.7	3.0	22.0
QPSK	75	0	20.5	20.1	20.8	20.7	20.7	3.0	22.0	
	1	0	18.4	17.9	18.8	18.9	18.6	5.0	20.0	
	1	37	18.5	18.3	18.5	18.8	18.9	5.0	20.0	
	1	74	18.3	18.2	18.7	18.8	18.9	5.0	20.0	
	36	0	18.6	18.2	18.8	18.8	18.7	5.0	20.0	
	36	20	18.5	18.2	18.8	18.7	18.7	5.0	20.0	
16QAM	36	39	18.5	18.1	18.8	18.7	18.7	5.0	20.0	
	75	0	18.6	18.2	18.8	18.7	18.8	5.0	20.0	

**LTE Band 41-Power Class 3 Measured Results (Continued)**

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	23.6	23.1	23.7	23.7	23.7	0.0	25.0
		1	25	23.5	23.2	23.6	23.5	23.8	0.0	25.0
		1	49	23.4	23.0	23.7	23.5	23.6	0.0	25.0
		25	0	22.5	22.0	22.6	22.6	22.6	1.0	24.0
		25	12	22.5	22.0	22.6	22.6	22.6	1.0	24.0
		25	25	22.5	22.0	22.6	22.6	22.6	1.0	24.0
	16QAM	50	0	22.5	22.1	22.7	22.6	22.6	1.0	24.0
		1	0	22.2	22.2	22.6	22.3	22.6	1.0	24.0
		1	25	22.2	22.2	22.5	22.2	22.6	1.0	24.0
		1	49	22.2	22.2	22.5	22.3	22.7	1.0	24.0
		25	0	21.3	21.0	21.6	21.5	21.4	2.0	23.0
		25	12	21.3	20.9	21.6	21.5	21.4	2.0	23.0
	64QAM	25	25	21.3	20.9	21.6	21.5	21.4	2.0	23.0
		50	0	21.4	21.0	21.5	21.5	21.5	2.0	23.0
		1	0	21.4	20.8	21.5	21.4	21.5	2.0	23.0
		1	25	21.4	20.8	21.5	21.5	21.3	2.0	23.0
		1	49	21.4	20.9	21.5	21.5	21.4	2.0	23.0
		25	0	20.4	20.0	20.6	20.6	20.5	3.0	22.0
	256QAM	25	12	20.4	20.0	20.6	20.6	20.5	3.0	22.0
		25	25	20.4	20.0	20.6	20.5	20.5	3.0	22.0
		50	0	20.4	20.1	20.6	20.6	20.5	3.0	22.0
		1	0	18.4	18.0	18.7	18.5	18.7	5.0	20.0
		1	25	18.2	17.8	18.6	18.4	18.6	5.0	20.0
		1	49	18.3	17.9	18.7	18.4	18.6	5.0	20.0
5 MHz	QPSK	25	0	18.6	18.1	18.8	18.7	18.8	5.0	20.0
		25	12	18.6	18.1	18.8	18.7	18.8	5.0	20.0
		25	25	18.6	18.2	18.8	18.7	18.7	5.0	20.0
		50	0	18.6	18.2	18.8	18.7	18.8	5.0	20.0
		1	0	23.6	23.0	23.7	23.6	23.6	0.0	25.0
		1	12	23.7	23.1	23.6	23.8	23.7	0.0	25.0
16QAM	QPSK	1	24	23.5	22.9	23.6	23.5	23.5	0.0	25.0
		12	0	22.5	22.0	22.6	22.6	22.5	1.0	24.0
		12	7	22.5	22.0	22.6	22.6	22.5	1.0	24.0
		12	13	22.4	22.0	22.6	22.6	22.5	1.0	24.0
		25	0	22.4	22.0	22.6	22.5	22.5	1.0	24.0
		1	0	22.5	22.0	22.5	22.5	22.6	1.0	24.0
	16QAM	1	12	22.6	22.3	22.7	22.6	22.8	1.0	24.0
		1	24	22.5	22.1	22.6	22.5	22.6	1.0	24.0
		12	0	21.4	21.0	21.5	21.6	21.5	2.0	23.0
		12	7	21.4	21.0	21.5	21.6	21.5	2.0	23.0
		12	13	21.4	21.0	21.5	21.6	21.5	2.0	23.0
		25	0	21.3	21.0	21.5	21.5	21.5	2.0	23.0
64QAM	1	0	21.3	21.1	21.6	21.4	21.5	2.0	23.0	
	1	12	21.4	21.1	21.4	21.3	21.6	2.0	23.0	
	1	24	21.2	21.2	21.5	21.3	21.6	2.0	23.0	
	12	0	20.3	20.1	20.6	20.6	20.5	3.0	22.0	
	12	7	20.3	20.0	20.6	20.5	20.5	3.0	22.0	
	12	13	20.3	20.1	20.6	20.5	20.5	3.0	22.0	
256QAM	25	0	20.3	20.0	20.5	20.6	20.5	3.0	22.0	
	1	0	18.6	18.2	18.8	18.8	18.8	5.0	20.0	
	1	12	18.5	18.2	18.7	18.5	18.7	5.0	20.0	
	1	24	18.5	18.2	18.8	18.7	18.8	5.0	20.0	
	12	0	18.5	18.2	18.7	18.7	18.7	5.0	20.0	
	12	7	18.5	18.1	18.7	18.7	18.7	5.0	20.0	
256QAM	12	13	18.5	18.2	18.7	18.7	18.7	5.0	20.0	
	25	0	18.4	18.0	18.7	18.6	18.6	5.0	20.0	

**LTE Band 41-Power Class 2 Measured Results**

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)						
				Measured Pwr (dBm)					MPR	Tune-up Limit
				39750 2506 MHz	40185 2549.5 MHz	40620 2593 MHz	41055 2636.5 MHz	41490 2680 MHz		
20 MHz	QPSK	1	0	25.2	24.9	25.3	25.3	25.8	0.0	26.0
		1	49	25.3	25.0	25.5	25.5	25.8	0.0	26.0
		1	99	25.1	24.8	25.3	25.3	25.7	0.0	26.0
		50	0	24.0	23.7	24.2	24.2	24.5	1.0	25.0
		50	24	24.0	23.7	24.1	24.1	24.4	1.0	25.0
		50	50	24.0	23.7	24.1	24.1	24.4	1.0	25.0
	16QAM	100	0	24.0	23.7	24.2	24.2	24.5	1.0	25.0
		1	0	24.2	24.1	24.5	24.6	24.8	1.0	25.0
		1	49	24.0	24.0	24.1	24.3	25.0	1.0	25.0
		1	99	24.1	24.0	24.3	24.4	24.7	1.0	25.0
		50	0	22.9	22.7	23.1	23.2	23.4	2.0	24.0
		50	24	23.0	22.7	23.1	23.2	23.3	2.0	24.0
	64QAM	50	50	22.9	22.7	23.1	23.1	23.3	2.0	24.0
		100	0	22.9	22.7	23.1	23.1	23.3	2.0	24.0
		1	0	23.3	23.0	23.3	23.1	23.6	2.0	24.0
		1	49	23.5	23.2	23.4	23.2	23.7	2.0	24.0
		1	99	23.2	23.0	23.3	23.0	23.5	2.0	24.0
		50	0	21.9	21.8	22.2	22.2	22.2	3.0	23.0
	256QAM	50	24	21.9	21.8	22.1	22.1	22.2	3.0	23.0
		50	50	21.9	21.7	22.1	22.1	22.2	3.0	23.0
		100	0	21.9	21.7	22.1	22.1	22.1	3.0	23.0
		1	0	20.3	20.1	20.8	20.5	20.8	5.0	21.0
		1	49	20.3	20.2	20.8	20.6	20.9	5.0	21.0
		1	99	20.2	20.2	20.9	20.4	20.7	5.0	21.0
15 MHz	QPSK	50	0	20.1	19.9	20.3	20.2	20.4	5.0	21.0
		50	24	20.1	19.9	20.3	20.2	20.3	5.0	21.0
		50	50	20.1	19.8	20.3	20.2	20.3	5.0	21.0
		100	0	20.1	19.8	20.3	20.2	20.3	5.0	21.0
		1	0	25.2	24.8	25.3	25.2	25.4	0.0	26.0
		1	37	25.0	24.6	25.3	25.0	25.2	0.0	26.0
	16QAM	1	74	25.0	24.7	25.2	25.1	25.3	0.0	26.0
		36	0	24.2	23.8	24.4	24.3	24.4	1.0	25.0
		36	20	24.2	23.8	24.4	24.2	24.4	1.0	25.0
		36	39	24.1	23.8	24.3	24.2	24.3	1.0	25.0
		75	0	24.1	23.8	24.4	24.2	24.4	1.0	25.0
		1	0	24.0	24.0	24.5	24.6	24.4	1.0	25.0
	64QAM	1	37	23.9	23.9	24.3	24.5	24.3	1.0	25.0
		1	74	23.8	23.9	24.4	24.4	24.3	1.0	25.0
		36	0	23.0	22.8	23.3	23.2	23.2	2.0	24.0
		36	20	23.0	22.8	23.3	23.2	23.2	2.0	24.0
		36	39	23.0	22.8	23.3	23.1	23.2	2.0	24.0
		75	0	23.0	22.8	23.2	23.1	23.2	2.0	24.0
	256QAM	1	0	23.1	23.2	23.3	23.3	23.2	2.0	24.0
		1	37	23.1	23.2	23.4	23.3	23.3	2.0	24.0
		1	74	23.0	23.1	23.4	23.2	23.2	2.0	24.0
		36	0	22.0	21.7	22.2	22.1	22.2	3.0	23.0
		36	20	22.0	21.7	22.3	22.1	22.2	3.0	23.0
		36	39	22.0	21.7	22.2	22.1	22.2	3.0	23.0
256QAM	75	0	22.0	21.7	22.3	22.2	22.2	3.0	23.0	
	1	0	20.4	20.1	20.0	20.3	20.6	5.0	21.0	
	1	37	20.4	19.9	19.6	20.4	20.5	5.0	21.0	
	1	74	20.2	20.0	19.8	20.3	20.6	5.0	21.0	
	36	0	20.0	19.7	20.3	20.2	20.3	5.0	21.0	
	36	20	20.0	19.8	20.2	20.2	20.3	5.0	21.0	
256QAM	36	39	20.0	19.7	20.2	20.1	20.3	5.0	21.0	
	75	0	20.1	19.7	20.2	20.2	20.3	5.0	21.0	

**LTE Band 41-Power Class 2 Measured Results (Continued)**

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	25.1	24.9	25.4	25.1	25.4	0.0	26.0
		1	25	25.4	24.7	25.5	25.4	25.4	0.0	26.0
		1	49	25.1	24.8	25.3	25.2	25.3	0.0	26.0
		25	0	23.9	23.7	24.2	24.1	24.2	1.0	25.0
		25	12	23.9	23.7	24.2	24.1	24.1	1.0	25.0
		25	25	23.9	23.7	24.2	24.1	24.2	1.0	25.0
	16QAM	1	0	24.3	24.3	24.6	24.3	24.5	1.0	25.0
		1	25	24.6	24.4	24.9	24.5	24.6	1.0	25.0
		1	49	24.4	24.3	24.6	24.3	24.4	1.0	25.0
		25	0	22.9	22.7	23.1	23.1	23.0	2.0	24.0
		25	12	22.9	22.6	23.0	23.0	23.0	2.0	24.0
		25	25	22.9	22.6	23.0	23.0	23.0	2.0	24.0
	64QAM	1	0	23.0	22.7	23.3	23.3	23.3	2.0	24.0
		1	25	23.2	22.6	23.3	23.6	23.2	2.0	24.0
		1	49	23.0	22.7	23.3	23.4	23.3	2.0	24.0
		25	0	21.9	21.7	22.2	22.1	22.1	3.0	23.0
		25	12	21.9	21.6	22.1	22.1	22.1	3.0	23.0
		25	25	21.9	21.7	22.1	22.1	22.1	3.0	23.0
	256QAM	1	0	20.1	20.2	20.4	20.5	20.6	5.0	21.0
		1	25	20.3	20.1	20.5	20.6	20.5	5.0	21.0
		1	49	20.1	20.1	20.3	20.5	20.5	5.0	21.0
25		0	20.1	19.7	20.3	20.3	20.4	5.0	21.0	
25		12	20.1	19.7	20.3	20.2	20.3	5.0	21.0	
25		25	20.1	19.7	20.3	20.2	20.3	5.0	21.0	
5 MHz	QPSK	1	0	25.1	24.9	25.4	25.2	25.3	0.0	26.0
		1	12	25.0	24.8	25.4	25.1	25.2	0.0	26.0
		1	24	25.1	24.7	25.3	25.1	25.1	0.0	26.0
		12	0	23.9	23.7	24.2	24.1	24.1	1.0	25.0
		12	7	23.9	23.7	24.2	24.1	24.1	1.0	25.0
		12	13	23.9	23.7	24.2	24.1	24.2	1.0	25.0
	16QAM	1	0	24.2	23.8	24.2	24.3	24.1	1.0	25.0
		1	12	24.3	23.9	24.1	24.4	24.3	1.0	25.0
		1	24	24.1	23.9	24.0	24.2	24.2	1.0	25.0
		12	0	22.8	22.8	23.1	23.1	23.1	2.0	24.0
		12	7	22.8	22.7	23.1	23.1	23.1	2.0	24.0
		12	13	22.9	22.8	23.1	23.1	23.1	2.0	24.0
	64QAM	1	0	22.9	22.6	23.1	23.0	23.0	2.0	24.0
		1	12	22.9	22.8	22.8	23.1	23.3	2.0	24.0
		1	24	22.9	22.9	23.2	23.1	23.3	2.0	24.0
		12	0	21.8	21.6	22.1	22.1	22.0	3.0	23.0
		12	7	21.8	21.6	22.1	22.1	22.0	3.0	23.0
		12	13	21.8	21.7	22.1	22.1	22.1	3.0	23.0
	256QAM	25	0	21.9	21.7	22.0	22.1	22.0	3.0	23.0
		1	0	20.5	20.2	20.7	20.9	20.6	5.0	21.0
		1	12	20.2	20.1	20.6	20.7	20.5	5.0	21.0
1		24	20.5	20.1	20.6	21.0	20.4	5.0	21.0	
12		0	20.1	19.7	20.2	20.3	20.2	5.0	21.0	
12		7	20.1	19.7	20.2	20.3	20.2	5.0	21.0	
	12	13	20.1	19.7	20.2	20.3	20.3	5.0	21.0	
	25	0	20.0	19.7	20.3	20.2	20.2	5.0	21.0	

## 2. Reduced power

### LTE Band 41-Power Class 3 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off							Reduced Average Power (dBm) Proximity sensor back-off						
				Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	22.5	21.8	22.5	22.5	22.4	0.0	23.0	22.5	22.1	22.8	22.6	22.7	0.0	23.0
		1	49	22.3	21.8	22.4	22.5	22.3	0.0	23.0	22.6	22.2	22.5	22.6	22.8	0.0	23.0
		1	99	22.2	21.8	22.5	22.4	22.4	0.0	23.0	22.4	22.0	22.6	22.5	22.6	0.0	23.0
		50	0	22.4	21.9	22.5	22.5	22.5	0.0	23.0	22.5	22.1	22.7	22.7	22.6	0.0	23.0
		50	24	22.4	21.9	22.5	22.5	22.5	0.0	23.0	22.5	22.1	22.6	22.6	22.6	0.0	23.0
		50	50	22.3	21.9	22.4	22.5	22.5	0.0	23.0	22.5	22.1	22.6	22.6	22.6	0.0	23.0
	16QAM	100	0	22.4	21.9	22.5	22.5	22.5	0.0	23.0	22.5	22.1	22.7	22.6	22.6	0.0	23.0
		1	0	22.3	22.2	22.6	22.8	22.6	0.0	23.0	22.6	21.7	22.7	22.6	22.6	0.0	23.0
		1	49	22.7	22.1	22.9	22.4	22.6	0.0	23.0	22.6	22.2	22.4	22.6	22.6	0.0	23.0
		1	99	22.6	21.9	22.6	22.7	22.3	0.0	23.0	22.4	22.0	22.6	22.6	22.7	0.0	23.0
		50	0	21.3	20.9	21.5	21.5	21.4	1.0	22.0	21.5	21.0	21.6	21.6	21.5	1.0	22.0
		50	24	21.4	20.9	21.5	21.5	21.4	1.0	22.0	21.4	21.1	21.5	21.6	21.6	1.0	22.0
	64QAM	50	50	21.3	20.9	21.4	21.4	21.4	1.0	22.0	21.4	21.0	21.6	21.6	21.6	1.0	22.0
		100	0	21.3	20.9	21.5	21.4	21.4	1.0	22.0	21.4	21.0	21.6	21.6	21.6	1.0	22.0
		1	0	21.1	20.7	21.6	21.4	21.4	1.0	22.0	21.6	20.9	21.7	21.5	21.4	1.0	22.0
		1	49	21.2	20.9	21.3	21.5	21.2	1.0	22.0	21.7	20.7	21.3	21.8	21.4	1.0	22.0
		1	99	21.4	20.9	21.3	21.6	21.1	1.0	22.0	21.4	20.8	21.6	21.6	21.3	1.0	22.0
		50	0	20.3	19.9	20.5	20.5	20.4	2.0	21.0	20.4	20.0	20.5	20.5	20.5	2.0	21.0
	256QAM	50	24	20.3	19.9	20.5	20.4	20.4	2.0	21.0	20.4	20.0	20.5	20.5	20.5	2.0	21.0
		50	50	20.3	19.9	20.5	20.4	20.4	2.0	21.0	20.3	20.0	20.5	20.5	20.5	2.0	21.0
		100	0	20.3	19.9	20.5	20.5	20.4	2.0	21.0	20.3	20.0	20.5	20.5	20.5	2.0	21.0
		1	0	18.5	17.8	19.0	18.7	18.6	4.0	19.0	18.7	18.4	18.8	18.5	18.7	4.0	19.0
		1	49	18.5	17.9	19.0	18.6	18.6	4.0	19.0	18.3	18.4	18.7	18.3	19.0	4.0	19.0
		1	99	18.3	17.8	18.5	18.5	18.4	4.0	19.0	18.2	18.3	18.3	18.6	18.8	4.0	19.0
15 MHz	QPSK	50	0	18.5	18.0	18.6	18.6	18.6	4.0	19.0	18.5	18.1	18.7	18.6	18.7	4.0	19.0
		50	24	18.5	18.0	18.6	18.6	18.6	4.0	19.0	18.5	18.0	18.6	18.6	18.6	4.0	19.0
		50	50	18.4	18.0	18.6	18.6	18.5	4.0	19.0	18.5	18.1	18.6	18.6	18.6	4.0	19.0
		100	0	18.5	18.0	18.6	18.6	18.6	4.0	19.0	18.5	18.0	18.6	18.6	18.7	4.0	19.0
		1	0	22.4	21.8	22.6	22.5	22.6	0.0	23.0	22.5	22.1	22.7	22.8	22.8	0.0	23.0
		1	37	22.5	22.0	22.6	22.6	22.8	0.0	23.0	22.8	22.1	22.9	22.8	22.7	0.0	23.0
	16QAM	1	74	22.4	21.9	22.5	22.4	22.4	0.0	23.0	22.5	22.0	22.7	22.6	22.7	0.0	23.0
		36	0	22.5	22.0	22.7	22.6	22.7	0.0	23.0	22.7	22.2	22.8	22.8	22.8	0.0	23.0
		36	20	22.5	22.0	22.7	22.6	22.6	0.0	23.0	22.7	22.2	22.8	22.8	22.8	0.0	23.0
		36	39	22.5	22.0	22.6	22.6	22.6	0.0	23.0	22.6	22.2	22.8	22.7	22.8	0.0	23.0
		75	0	22.5	22.0	22.7	22.6	22.6	0.0	23.0	22.7	22.2	22.8	22.8	22.8	0.0	23.0
		1	0	22.2	21.6	22.5	22.4	22.5	0.0	23.0	22.9	21.8	22.5	22.3	22.4	0.0	23.0
	64QAM	1	37	22.0	21.6	22.3	22.2	22.0	0.0	23.0	22.8	21.8	22.6	22.6	22.7	0.0	23.0
		1	74	22.2	21.9	22.0	22.5	22.5	0.0	23.0	22.8	21.7	22.4	22.6	22.5	0.0	23.0
		36	0	21.4	21.0	21.6	21.6	21.6	1.0	22.0	21.6	21.1	21.8	21.8	21.7	1.0	22.0
		36	20	21.4	21.0	21.6	21.5	21.6	1.0	22.0	21.6	21.2	21.8	21.7	21.7	1.0	22.0
		36	39	21.4	21.0	21.5	21.5	21.6	1.0	22.0	21.6	21.1	21.7	21.7	21.7	1.0	22.0
		75	0	21.4	21.0	21.6	21.5	21.5	1.0	22.0	21.5	21.1	21.7	21.7	21.7	1.0	22.0
	256QAM	1	0	21.4	20.9	21.6	21.6	21.2	1.0	22.0	21.2	20.7	21.3	21.3	21.6	1.0	22.0
		1	37	21.4	20.5	21.8	21.5	21.4	1.0	22.0	21.3	21.3	21.6	21.5	21.6	1.0	22.0
		1	74	21.5	20.9	21.3	21.5	21.4	1.0	22.0	21.4	21.1	21.4	21.6	21.6	1.0	22.0
		36	0	20.4	20.0	20.6	20.6	20.6	2.0	21.0	20.5	20.0	20.7	20.6	20.6	2.0	21.0
		36	20	20.4	20.0	20.6	20.6	20.6	2.0	21.0	20.5	19.9	20.6	20.6	20.5	2.0	21.0
		36	39	20.4	20.0	20.6	20.5	20.6	2.0	21.0	20.4	19.9	20.6	20.6	20.5	2.0	21.0
256QAM	75	0	20.4	19.9	20.6	20.6	20.5	2.0	21.0	20.4	20.0	20.6	20.6	20.5	2.0	21.0	
	1	0	18.4	17.8	18.2	18.8	18.6	4.0	19.0	18.4	18.3	18.2	18.6	18.5	4.0	19.0	
	1	37	18.2	17.8	18.3	18.6	18.8	4.0	19.0	18.7	17.8	18.4	18.5	18.6	4.0	19.0	
	1	74	18.5	17.9	18.6	18.5	18.3	4.0	19.0	18.6	17.9	18.3	18.5	18.7	4.0	19.0	
	36	0	18.4	18.0	18.6	18.6	18.6	4.0	19.0	18.5	18.0	18.6	18.6	18.6	4.0	19.0	
	36	20	18.4	18.0	18.6	18.6	18.6	4.0	19.0	18.5	18.0	18.6	18.6	18.6	4.0	19.0	
36	39	18.4	18.0	18.6	18.5	18.6	4.0	19.0	18.4	18.0	18.6	18.5	18.6	4.0	19.0		
75	0	18.4	18.0	18.6	18.6	18.6	4.0	19.0	18.5	18.0	18.6	18.6	18.6	4.0	19.0		

**LTE Band 41-Power Class 3 Measured Results (Continued)**

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	22.5	22.0	22.7	22.6	22.6	0.0	23.0	22.7	22.2	22.9	22.8	22.8	0.0	23.0
		1	25	22.4	21.8	22.5	22.5	22.6	0.0	23.0	22.7	22.2	22.8	22.7	22.8	0.0	23.0
		1	49	22.4	21.9	22.5	22.5	22.5	0.0	23.0	22.6	22.1	22.8	22.6	22.7	0.0	23.0
		25	0	22.4	21.9	22.5	22.5	22.5	0.0	23.0	22.5	22.1	22.7	22.7	22.7	0.0	23.0
		25	12	22.3	21.9	22.5	22.5	22.5	0.0	23.0	22.5	22.1	22.7	22.6	22.6	0.0	23.0
		25	25	22.3	21.9	22.5	22.5	22.4	0.0	23.0	22.5	22.1	22.7	22.6	22.6	0.0	23.0
	50	0	22.4	21.9	22.5	22.5	22.5	0.0	23.0	22.5	22.1	22.7	22.7	22.6	0.0	23.0	
	16QAM	1	0	22.5	22.0	22.6	22.6	22.6	0.0	23.0	22.7	22.3	22.5	22.3	22.8	0.0	23.0
		1	25	22.7	22.2	22.8	22.7	22.8	0.0	23.0	22.2	22.2	22.4	22.2	22.7	0.0	23.0
		1	49	22.5	22.0	22.6	22.6	22.7	0.0	23.0	22.4	22.3	22.4	22.4	22.8	0.0	23.0
		25	0	21.3	20.9	21.4	21.4	21.3	1.0	22.0	21.5	21.1	21.6	21.6	21.5	1.0	22.0
		25	12	21.3	20.9	21.4	21.4	21.3	1.0	22.0	21.4	21.0	21.6	21.6	21.5	1.0	22.0
		25	25	21.3	20.9	21.4	21.4	21.3	1.0	22.0	21.4	21.0	21.6	21.6	21.5	1.0	22.0
	50	0	21.3	20.9	21.5	21.4	21.4	1.0	22.0	21.5	21.1	21.6	21.6	21.5	1.0	22.0	
	64QAM	1	0	21.1	20.7	21.4	21.5	21.5	1.0	22.0	21.3	20.8	21.4	21.4	21.3	1.0	22.0
		1	25	21.1	20.8	21.5	21.4	21.6	1.0	22.0	21.3	20.9	21.5	21.5	21.3	1.0	22.0
		1	49	21.1	20.8	21.5	21.3	21.4	1.0	22.0	21.2	20.9	21.4	21.4	21.3	1.0	22.0
		25	0	20.3	19.9	20.5	20.5	20.4	2.0	21.0	20.4	19.9	20.5	20.5	20.4	2.0	21.0
		25	12	20.3	19.9	20.5	20.5	20.4	2.0	21.0	20.3	19.9	20.5	20.5	20.4	2.0	21.0
		25	25	20.2	19.9	20.5	20.5	20.3	2.0	21.0	20.3	19.9	20.4	20.4	20.3	2.0	21.0
	50	0	20.3	19.9	20.5	20.5	20.4	2.0	21.0	20.3	19.9	20.5	20.5	20.4	2.0	21.0	
	256QAM	1	0	18.3	18.0	18.6	18.5	18.3	4.0	19.0	18.5	17.9	18.6	18.4	18.5	4.0	19.0
		1	25	18.3	18.0	18.6	18.6	18.3	4.0	19.0	18.3	18.0	18.5	18.4	18.5	4.0	19.0
		1	49	18.3	17.9	18.5	18.5	18.3	4.0	19.0	18.4	17.9	18.5	18.4	18.4	4.0	19.0
		25	0	18.4	18.0	18.6	18.6	18.6	4.0	19.0	18.5	18.0	18.6	18.6	18.5	4.0	19.0
		25	12	18.4	18.0	18.6	18.6	18.6	4.0	19.0	18.4	18.0	18.6	18.6	18.6	4.0	19.0
		25	25	18.4	18.0	18.6	18.6	18.6	4.0	19.0	18.4	18.0	18.6	18.6	18.5	4.0	19.0
	50	0	18.4	18.0	18.7	18.6	18.5	4.0	19.0	18.5	18.0	18.6	18.6	18.6	4.0	19.0	
5 MHz	QPSK	1	0	22.4	22.0	22.5	22.6	22.8	0.0	23.0	22.6	22.1	22.7	22.8	22.7	0.0	23.0
		1	12	22.4	22.2	22.7	22.4	22.8	0.0	23.0	22.7	22.0	22.7	22.8	22.5	0.0	23.0
		1	24	22.3	22.0	22.4	22.4	22.7	0.0	23.0	22.5	22.1	22.6	22.7	22.6	0.0	23.0
		12	0	22.4	21.9	22.6	22.6	22.6	0.0	23.0	22.5	22.1	22.7	22.7	22.6	0.0	23.0
		12	7	22.4	21.9	22.6	22.6	22.6	0.0	23.0	22.5	22.1	22.7	22.7	22.6	0.0	23.0
		12	13	22.4	21.9	22.6	22.5	22.6	0.0	23.0	22.5	22.2	22.7	22.7	22.6	0.0	23.0
	25	0	22.4	21.9	22.5	22.5	22.5	0.0	23.0	22.5	22.1	22.7	22.7	22.6	0.0	23.0	
	16QAM	1	0	22.2	21.9	22.5	22.4	22.6	0.0	23.0	22.5	22.1	22.7	22.7	22.5	0.0	23.0
		1	12	22.3	21.9	22.7	22.5	22.7	0.0	23.0	22.5	22.2	23.0	22.7	22.6	0.0	23.0
		1	24	22.2	21.9	22.5	22.4	22.5	0.0	23.0	22.4	22.1	22.8	22.6	22.6	0.0	23.0
		12	0	21.3	21.0	21.5	21.5	21.5	1.0	22.0	21.5	21.1	21.7	21.6	21.5	1.0	22.0
		12	7	21.3	20.9	21.5	21.5	21.5	1.0	22.0	21.5	21.0	21.6	21.6	21.5	1.0	22.0
		12	13	21.3	20.9	21.5	21.4	21.4	1.0	22.0	21.5	21.1	21.7	21.6	21.6	1.0	22.0
	25	0	21.3	20.9	21.5	21.4	21.4	1.0	22.0	21.4	21.1	21.7	21.5	21.5	1.0	22.0	
	64QAM	1	0	21.3	20.9	21.5	21.4	21.5	1.0	22.0	21.2	20.9	21.5	21.4	21.4	1.0	22.0
		1	12	21.3	21.0	21.7	21.6	21.5	1.0	22.0	21.4	21.0	21.5	21.4	21.4	1.0	22.0
		1	24	21.1	21.0	21.4	21.3	21.6	1.0	22.0	21.2	20.8	21.6	21.3	21.3	1.0	22.0
		12	0	20.3	19.9	20.5	20.5	20.4	2.0	21.0	20.3	19.9	20.5	20.5	20.3	2.0	21.0
		12	7	20.3	19.9	20.5	20.5	20.4	2.0	21.0	20.3	19.9	20.5	20.4	20.3	2.0	21.0
		12	13	20.2	19.9	20.5	20.4	20.4	2.0	21.0	20.3	19.9	20.5	20.4	20.4	2.0	21.0
	25	0	20.3	19.9	20.4	20.5	20.4	2.0	21.0	20.3	19.8	20.5	20.5	20.3	2.0	21.0	
	256QAM	1	0	18.5	18.0	18.8	18.6	18.6	4.0	19.0	18.5	18.2	18.7	18.6	18.7	4.0	19.0
		1	12	18.5	18.0	18.8	18.8	18.7	4.0	19.0	18.6	18.1	18.7	18.6	18.5	4.0	19.0
		1	24	18.4	17.9	18.8	18.6	18.5	4.0	19.0	18.5	18.1	18.6	18.5	18.6	4.0	19.0
		12	0	18.4	18.0	18.5	18.5	18.6	4.0	19.0	18.4	17.9	18.6	18.6	18.4	4.0	19.0
		12	7	18.4	18.0	18.5	18.5	18.5	4.0	19.0	18.4	17.9	18.6	18.6	18.5	4.0	19.0
		12	13	18.4	18.0	18.5	18.5	18.6	4.0	19.0	18.4	17.9	18.6	18.6	18.5	4.0	19.0
	25	0	18.4	17.9	18.5	18.5	18.5	4.0	19.0	18.4	17.9	18.6	18.6	18.5	4.0	19.0	

**LTE Band 41-Power Class 2 Measured Results**

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off							Reduced Average Power (dBm) Proximity sensor back-off						
				Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	22.6	22.4	22.7	22.8	22.9	0.0	23.5	22.6	22.2	22.7	22.8	22.9	0.0	23.5
		1	49	22.6	22.0	22.8	22.8	22.7	0.0	23.5	22.6	22.0	22.6	22.8	22.7	0.0	23.5
		1	99	22.5	22.2	22.7	22.7	22.8	0.0	23.5	22.5	22.1	22.7	22.7	22.7	0.0	23.5
		50	0	22.5	22.1	22.6	22.6	22.7	0.0	23.5	22.5	22.0	22.6	22.6	22.7	0.0	23.5
		50	24	22.5	22.1	22.6	22.6	22.6	0.0	23.5	22.5	22.0	22.6	22.6	22.6	0.0	23.5
		50	50	22.5	22.0	22.6	22.6	22.6	0.0	23.5	22.4	22.0	22.6	22.6	22.6	0.0	23.5
	16QAM	100	0	22.5	22.0	22.6	22.6	22.6	0.0	23.5	22.5	22.0	22.6	22.6	22.6	0.0	23.5
		1	0	22.8	22.7	23.1	22.8	23.1	0.0	23.5	22.8	22.6	23.1	22.9	23.0	0.0	23.5
		1	49	22.5	22.3	22.8	22.5	22.8	0.0	23.5	22.6	22.3	22.7	22.8	22.7	0.0	23.5
		1	99	22.8	22.6	23.0	22.7	23.0	0.0	23.5	22.9	22.5	23.0	22.9	23.0	0.0	23.5
		50	0	22.4	22.0	22.6	22.6	22.5	0.0	23.5	22.4	22.0	22.6	22.6	22.5	0.0	23.5
		50	24	22.4	22.0	22.6	22.6	22.5	0.0	23.5	22.3	22.0	22.6	22.5	22.5	0.0	23.5
	64QAM	50	50	22.4	22.0	22.5	22.5	22.5	0.0	23.5	22.3	22.0	22.6	22.5	22.5	0.0	23.5
		100	0	22.4	22.0	22.5	22.6	22.5	0.0	23.5	22.3	21.9	22.5	22.5	22.5	0.0	23.5
		1	0	22.7	21.9	23.0	22.8	22.6	0.0	23.5	22.7	22.1	22.9	22.8	22.6	0.0	23.5
		1	49	22.6	22.0	22.9	22.6	22.7	0.0	23.5	22.4	22.2	22.6	22.7	22.6	0.0	23.5
		1	99	22.7	21.9	22.9	22.7	22.6	0.0	23.5	22.6	22.1	22.8	22.7	22.7	0.0	23.5
		50	0	22.4	22.1	22.6	22.6	22.5	0.0	23.5	22.4	22.1	22.6	22.6	22.6	0.0	23.5
	256QAM	50	24	22.4	22.1	22.5	22.6	22.5	0.0	23.5	22.4	22.0	22.6	22.6	22.5	0.0	23.5
		50	50	22.4	22.0	22.5	22.5	22.5	0.0	23.5	22.4	22.0	22.5	22.6	22.5	0.0	23.5
		100	0	22.4	22.0	22.5	22.6	22.5	0.0	23.5	22.4	22.0	22.5	22.6	22.5	0.0	23.5
		1	0	21.7	21.6	22.0	21.9	22.2	0.0	23.5	22.1	21.8	22.0	22.0	22.1	0.0	23.5
		1	49	21.5	21.6	22.0	21.6	21.9	0.0	23.5	22.1	21.8	21.9	22.1	22.1	0.0	23.5
		1	99	21.6	21.7	21.9	21.9	22.1	0.0	23.5	22.0	21.7	22.0	21.9	22.1	0.0	23.5
15 MHz	QPSK	50	0	21.5	21.2	21.8	21.7	21.7	1.0	22.5	21.5	21.2	21.8	21.7	21.8	1.0	22.5
		50	24	21.6	21.1	21.8	21.7	21.7	1.0	22.5	21.5	21.1	21.7	21.6	21.7	1.0	22.5
		50	50	21.5	21.1	21.7	21.6	21.7	1.0	22.5	21.5	21.1	21.7	21.6	21.7	1.0	22.5
		100	0	21.6	21.1	21.7	21.7	21.7	1.0	22.5	21.5	21.1	21.7	21.7	21.7	1.0	22.5
		1	0	22.6	22.0	22.7	22.7	22.7	0.0	23.5	22.5	22.1	22.7	22.6	22.8	0.0	23.5
		1	37	22.7	22.1	22.8	22.5	22.9	0.0	23.5	22.6	22.2	22.9	22.7	22.9	0.0	23.5
	16QAM	1	74	22.5	22.0	22.6	22.5	22.6	0.0	23.5	22.4	22.1	22.7	22.5	22.7	0.0	23.5
		36	0	22.6	22.1	22.8	22.7	22.8	0.0	23.5	22.6	22.1	22.8	22.7	22.8	0.0	23.5
		36	20	22.6	22.1	22.8	22.7	22.7	0.0	23.5	22.6	22.1	22.7	22.7	22.7	0.0	23.5
		36	39	22.6	22.1	22.7	22.6	22.7	0.0	23.5	22.5	22.1	22.7	22.7	22.7	0.0	23.5
		75	0	22.6	22.1	22.8	22.7	22.7	0.0	23.5	22.6	22.1	22.7	22.7	22.7	0.0	23.5
		75	0	22.6	22.1	22.8	22.7	22.7	0.0	23.5	22.6	22.1	22.7	22.7	22.7	0.0	23.5
	64QAM	1	0	22.6	22.3	23.0	22.8	22.9	0.0	23.5	22.7	22.3	23.0	23.1	22.8	0.0	23.5
		1	37	22.7	22.5	23.0	22.8	23.0	0.0	23.5	22.8	22.4	23.0	23.0	22.9	0.0	23.5
		1	74	22.4	22.2	22.9	22.7	22.8	0.0	23.5	22.6	22.2	22.9	22.9	22.7	0.0	23.5
		36	0	22.5	22.1	22.8	22.6	22.7	0.0	23.5	22.6	22.1	22.8	22.7	22.6	0.0	23.5
		36	20	22.5	22.0	22.7	22.6	22.7	0.0	23.5	22.6	22.1	22.7	22.7	22.6	0.0	23.5
		36	39	22.5	22.0	22.7	22.6	22.6	0.0	23.5	22.5	22.1	22.7	22.6	22.6	0.0	23.5
	256QAM	75	0	22.5	22.0	22.7	22.6	22.6	0.0	23.5	22.5	22.1	22.7	22.6	22.6	0.0	23.5
		1	0	22.5	22.0	23.0	22.9	22.9	0.0	23.5	22.9	22.4	22.9	22.9	22.7	0.0	23.5
		1	37	22.4	22.1	23.2	22.8	22.8	0.0	23.5	22.9	22.2	23.0	22.8	22.5	0.0	23.5
		1	74	22.4	21.9	23.0	22.8	22.9	0.0	23.5	22.9	22.4	22.9	22.9	22.7	0.0	23.5
		36	0	22.5	22.0	22.7	22.6	22.6	0.0	23.5	22.5	22.1	22.7	22.6	22.6	0.0	23.5
		36	20	22.5	22.0	22.7	22.6	22.6	0.0	23.5	22.5	22.1	22.7	22.6	22.6	0.0	23.5
256QAM	36	39	22.5	22.0	22.7	22.6	22.6	0.0	23.5	22.4	22.1	22.7	22.5	22.6	0.0	23.5	
	75	0	22.5	22.0	22.6	22.6	22.6	0.0	23.5	22.5	22.0	22.7	22.6	22.6	0.0	23.5	
	1	0	21.8	21.6	21.9	21.9	22.0	1.0	22.5	21.9	21.4	21.8	22.3	21.9	1.0	22.5	
	1	37	21.9	21.8	21.9	22.1	22.2	1.0	22.5	22.0	21.5	21.7	22.4	21.9	1.0	22.5	
	1	74	21.8	21.6	21.9	21.8	22.0	1.0	22.5	21.9	21.4	21.7	22.2	21.9	1.0	22.5	
	36	0	21.5	21.1	21.7	21.7	21.7	1.0	22.5	21.5	21.1	21.7	21.7	21.7	1.0	22.5	

**LTE Band 41-Power Class 2 Measured Results (Continued)**

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit	
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490			
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			
10 MHz	QPSK	1	0	22.4	22.2	22.7	22.5	22.9	0.0	23.5	22.6	22.3	22.7	22.5	22.9	0.0	23.5	
		1	25	22.3	22.1	22.8	22.6	22.8	0.0	23.5	22.6	22.3	22.9	22.6	23.0	0.0	23.5	
		1	49	22.5	22.1	22.7	22.6	22.7	0.0	23.5	22.6	22.1	22.6	22.6	22.7	0.0	23.5	
		25	0	22.5	22.0	22.7	22.6	22.6	0.0	23.5	22.5	22.1	22.7	22.6	22.6	0.0	23.5	
		25	12	22.4	22.0	22.6	22.6	22.5	0.0	23.5	22.4	22.0	22.6	22.6	22.6	0.0	23.5	
		25	25	22.5	22.0	22.7	22.6	22.5	0.0	23.5	22.5	22.0	22.7	22.6	22.6	0.0	23.5	
	16QAM	50	0	22.4	22.0	22.6	22.6	22.6	0.0	23.5	22.5	22.0	22.7	22.6	22.6	0.0	23.5	
		1	0	22.4	22.4	22.8	23.0	22.8	0.0	23.5	22.8	22.6	22.7	23.0	23.0	0.0	23.5	
		1	25	22.4	22.5	22.7	23.0	22.6	0.0	23.5	22.9	22.6	22.5	22.7	23.1	23.2	0.0	23.5
		1	49	22.5	22.3	22.8	23.1	22.8	0.0	23.5	22.9	22.5	22.7	23.0	23.0	0.0	23.5	
		25	0	22.4	22.0	22.5	22.6	22.5	0.0	23.5	22.4	22.0	22.5	22.6	22.5	0.0	23.5	
		25	12	22.3	22.0	22.5	22.6	22.5	0.0	23.5	22.4	22.0	22.5	22.5	22.4	0.0	23.5	
	64QAM	25	25	22.3	22.0	22.5	22.6	22.4	0.0	23.5	22.4	22.0	22.5	22.5	22.5	0.0	23.5	
		50	0	22.3	22.0	22.5	22.6	22.4	0.0	23.5	22.4	22.0	22.6	22.6	22.4	0.0	23.5	
		1	0	22.4	22.5	22.8	23.0	22.8	0.0	23.5	22.3	22.3	22.8	22.8	22.5	0.0	23.5	
		1	25	22.5	22.6	22.7	23.0	22.9	0.0	23.5	22.4	22.5	22.6	22.8	22.5	0.0	23.5	
		1	49	22.4	22.4	22.7	23.0	22.8	0.0	23.5	22.3	22.3	22.8	22.8	22.5	0.0	23.5	
		25	0	22.3	22.0	22.5	22.5	22.5	0.0	23.5	22.4	21.9	22.6	22.5	22.5	0.0	23.5	
	256QAM	25	12	22.3	22.0	22.5	22.5	22.5	0.0	23.5	22.3	22.0	22.6	22.4	22.5	0.0	23.5	
		25	25	22.3	22.0	22.5	22.5	22.5	0.0	23.5	22.3	21.9	22.6	22.4	22.5	0.0	23.5	
		50	0	22.4	21.9	22.5	22.5	22.4	0.0	23.5	22.3	22.0	22.5	22.5	22.4	0.0	23.5	
		1	0	21.8	21.2	21.6	21.8	22.0	1.0	22.5	21.8	21.4	21.7	22.1	22.1	1.0	22.5	
		1	25	21.6	20.8	21.6	21.7	21.9	1.0	22.5	21.7	21.5	21.8	22.0	21.9	1.0	22.5	
		1	49	21.7	21.3	21.6	21.8	22.0	1.0	22.5	21.7	21.3	21.6	22.0	22.1	1.0	22.5	
	5 MHz	QPSK	25	0	21.5	21.1	21.8	21.6	21.7	1.0	22.5	21.5	21.1	21.8	21.7	21.6	1.0	22.5
25			12	21.5	21.1	21.7	21.6	21.7	1.0	22.5	21.5	21.1	21.7	21.7	21.7	1.0	22.5	
25			25	21.5	21.1	21.7	21.6	21.6	1.0	22.5	21.5	21.1	21.7	21.7	21.6	1.0	22.5	
50			0	21.5	21.1	21.6	21.7	21.6	1.0	22.5	21.5	21.1	21.6	21.7	21.7	1.0	22.5	
1			0	21.9	21.1	21.7	22.2	22.0	1.0	22.5	21.8	21.3	22.0	21.9	21.8	1.0	22.5	
1			12	21.7	20.7	21.3	22.2	21.7	1.0	22.5	21.6	20.9	21.8	21.6	21.4	1.0	22.5	
16QAM		1	24	21.9	21.2	21.7	22.2	22.0	1.0	22.5	21.7	21.4	22.0	21.8	21.7	1.0	22.5	
		12	0	21.5	21.2	21.7	21.7	21.7	1.0	22.5	21.5	21.0	21.7	21.7	21.6	1.0	22.5	
		12	7	21.5	21.2	21.7	21.7	21.7	1.0	22.5	21.5	21.0	21.7	21.7	21.6	1.0	22.5	
		12	13	21.5	21.2	21.7	21.6	21.7	1.0	22.5	21.5	21.0	21.7	21.7	21.6	1.0	22.5	
64QAM	25	0	21.5	21.1	21.7	21.6	21.6	1.0	22.5	21.5	21.0	21.7	21.7	21.6	1.0	22.5		
	1	0	21.9	21.1	21.7	22.2	22.0	1.0	22.5	21.8	21.3	22.0	21.9	21.8	1.0	22.5		
	1	12	21.7	20.7	21.3	22.2	21.7	1.0	22.5	21.6	20.9	21.8	21.6	21.4	1.0	22.5		
	1	24	21.9	21.2	21.7	22.2	22.0	1.0	22.5	21.7	21.4	22.0	21.8	21.7	1.0	22.5		

## 9.2. 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 6.2.3-1: 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 <sup>1</sup>	≤ 1.2 <sup>1</sup>	≤ 0.2 <sup>1</sup>
DFT-s-OFDM QPSK	≤ 1	≤ 0.5 <sup>2</sup>	0 <sup>2</sup>
DFT-s-OFDM 16 QAM	≤ 2	≤ 2.5	≤ 1
DFT-s-OFDM 64 QAM		≤ 4.5	
DFT-s-OFDM 256 QAM		≤ 3	≤ 1.5
CP-OFDM QPSK	≤ 3	≤ 3	≤ 2
CP-OFDM 16 QAM		≤ 3.5	
CP-OFDM 64 QAM		≤ 6.5	
CP-OFDM 256 QAM			

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 <sub>RB</sub> )	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

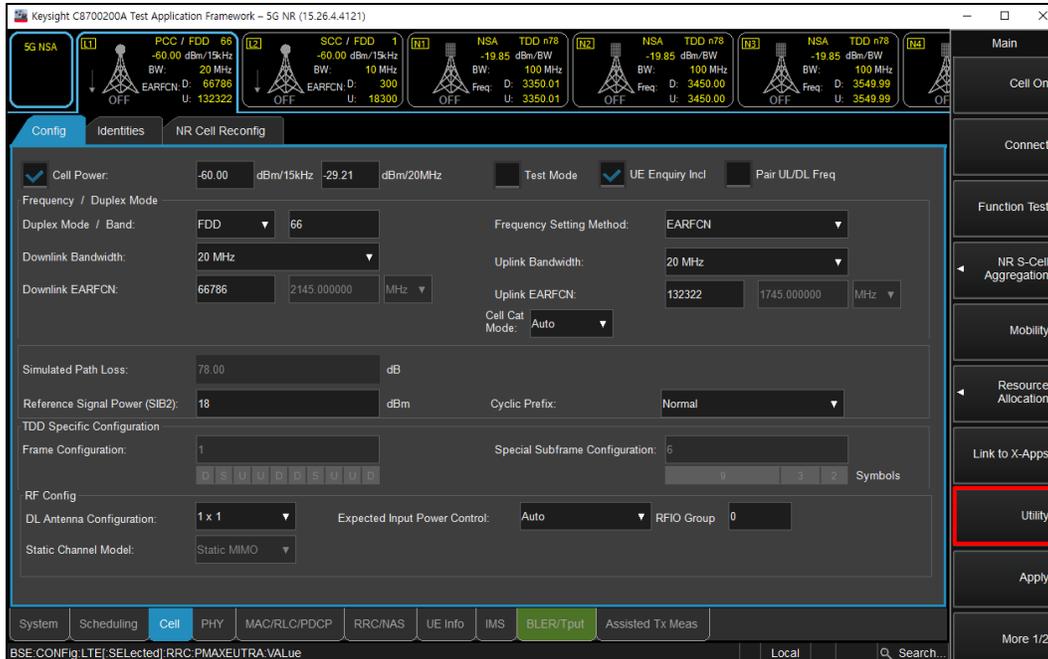
Uplink RB allocations were used to Table 6.1-1 of the 3GPP TS 138.521-1.

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 <sup>1</sup>	1@1	1@9
		CP	2@0	2@9	1@0	1@10	11@0	5@2 <sup>1</sup>	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 <sup>1</sup>	1@1	1@9
		CP	2@0	2@9	1@0	1@10	11@0	5@2 <sup>1</sup>	1@1	1@9
15MHz	15	DFT-s	2@0	2@77	1@0	1@78	75@0	38@18	1@1	1@77
		CP	2@0	2@77	1@0	1@78	79@0	39@19 <sup>1</sup>	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 <sup>1</sup>	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

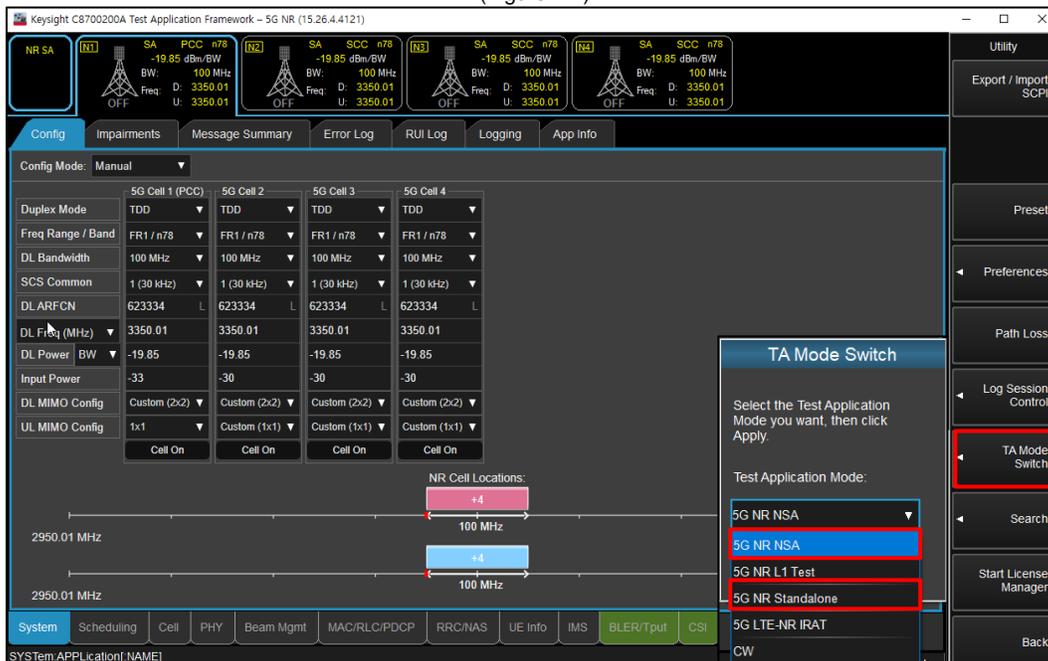
## Procedures used to establish power measurement for NR Bands

### Switching to NSA mode or SA mode

- Click the “Utility” button in the right of Test application screen
- Select “5G NR NSA” in the “TA Mode Switch” for NSA mode
- Select “5G NR Standalone” in the “TA Mode Switch” for SA mode



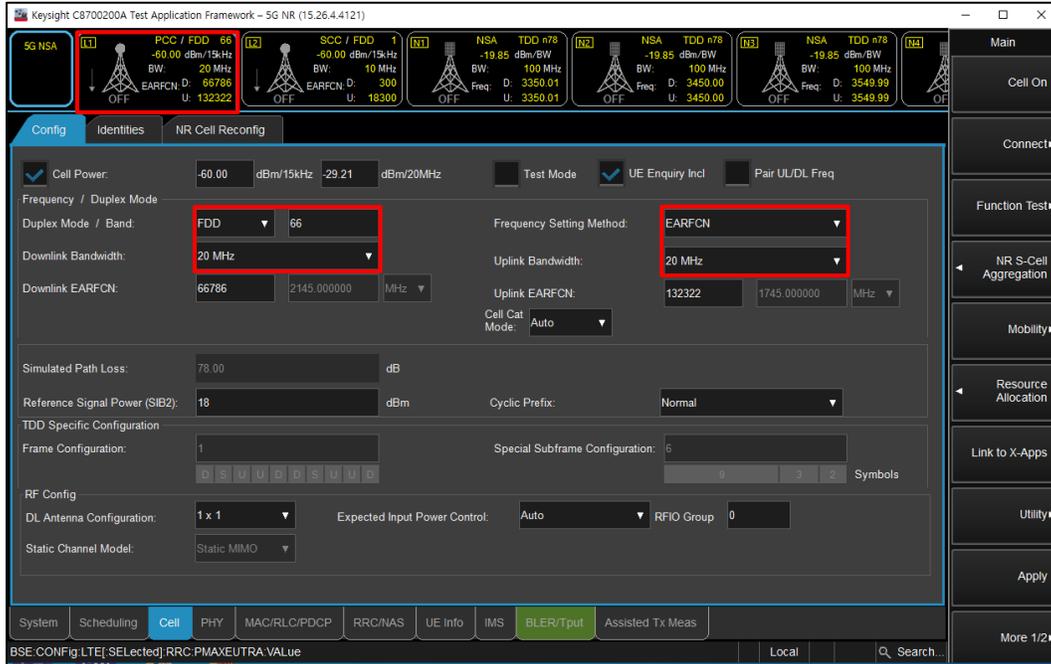
(Figure 1-1)



(Figure 1-2)

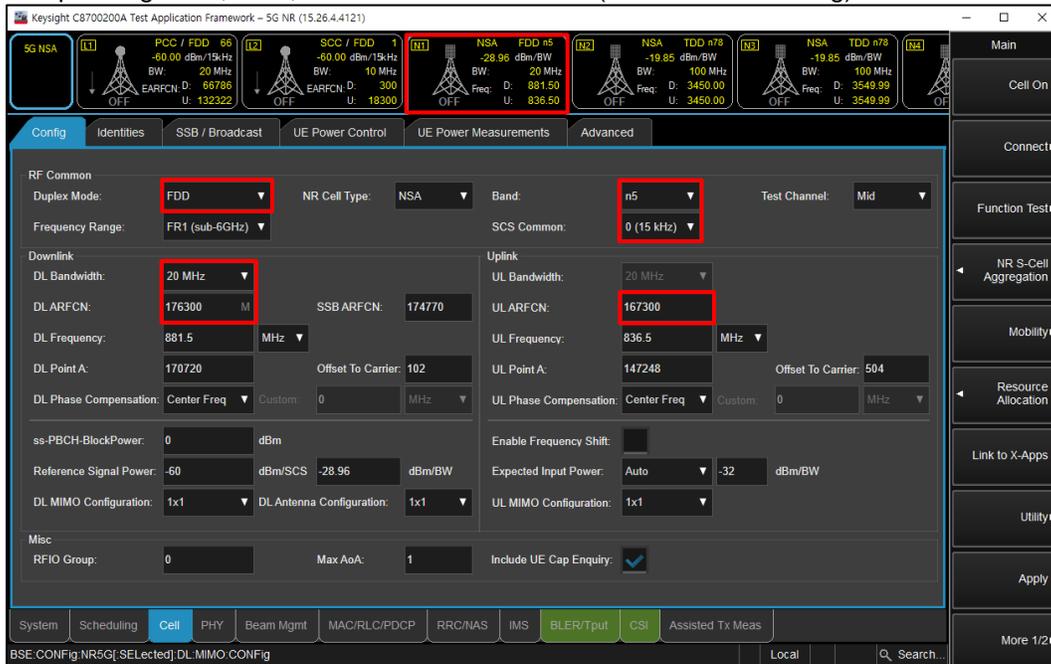
**NSA Mode**

- Select operating band, BW and Channel for LTE (LTE -> Cell -> Config)



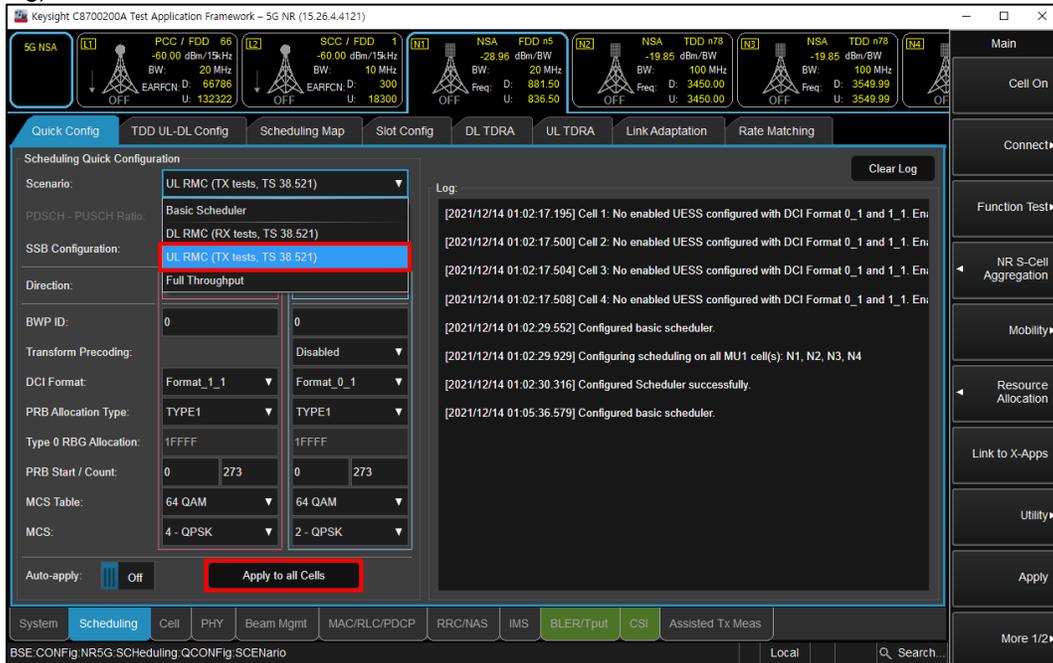
(Figure 2-1)

- Select operating band, SCS, BW and Channel for NR (NR -> Cell -> Config)



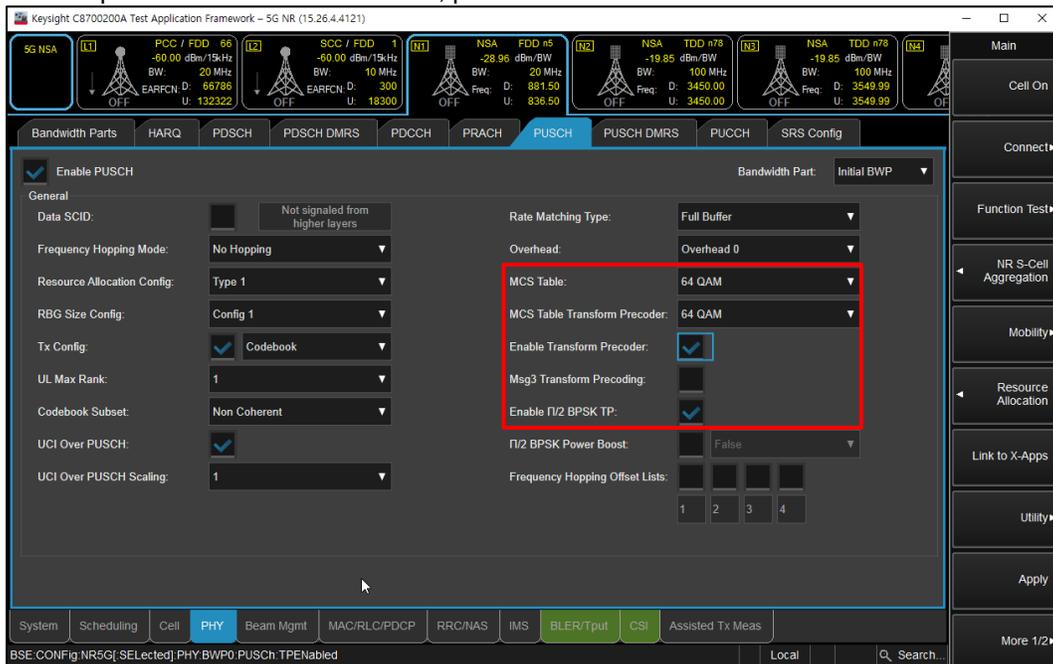
(Figure 2-2)

- Select “UL RMC (TX tests, TS 38.521)” for maximum power RB scheduling (NR -> Scheduling -> Quick Config)



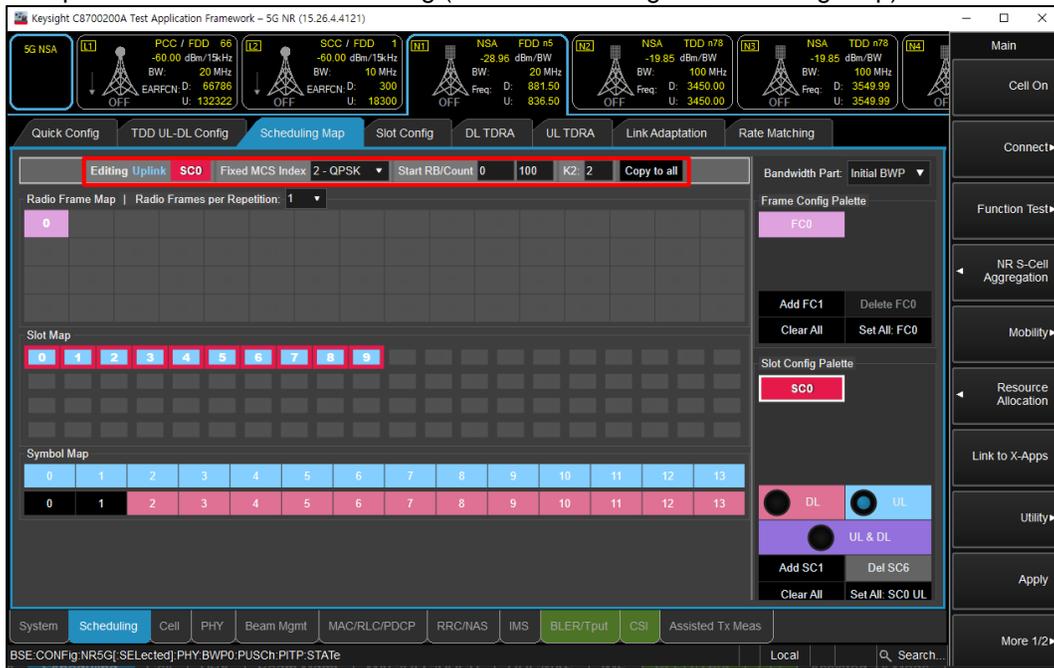
(Figure 2-3)

- To set waveform for NR Band (NR -> PHY -> PUSCH)
  - Select highest modulation in the MCS Table and MCS Table Transform Precoder
  - Enable Transform Precoder: DFT-s-OFDM / disable for CP-OFDM
  - Enable pi/2 BPSK TP: DFT-s-OFDM, pi/2 BPSK modulation



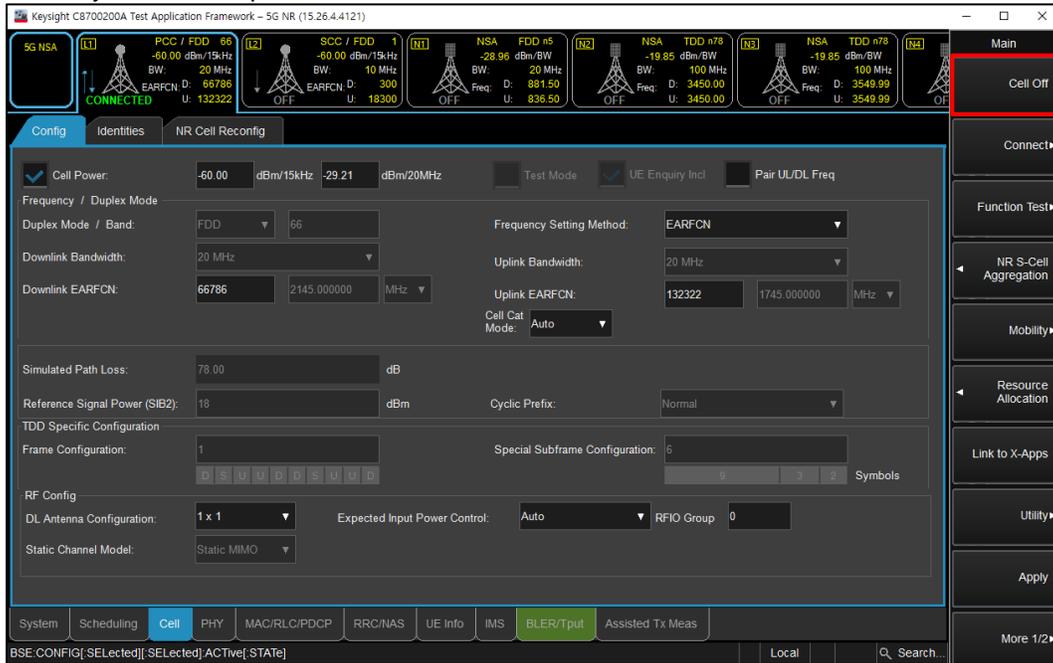
(Figure 2-4)

- Select Uplink Modulation and RB setting (NR -> Scheduling -> Scheduling Map)



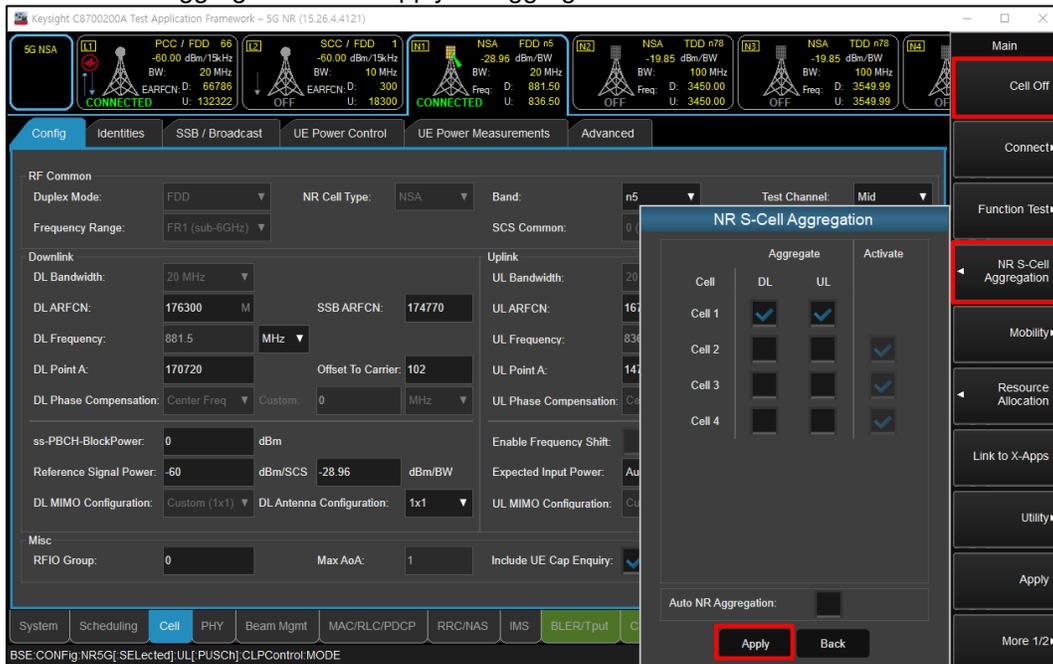
(Figure 2-5)

- Click “Cell On” button in the right of Test application screen in the LTE tab
- If necessary, turn the Airplane Mode on/off in the DUT



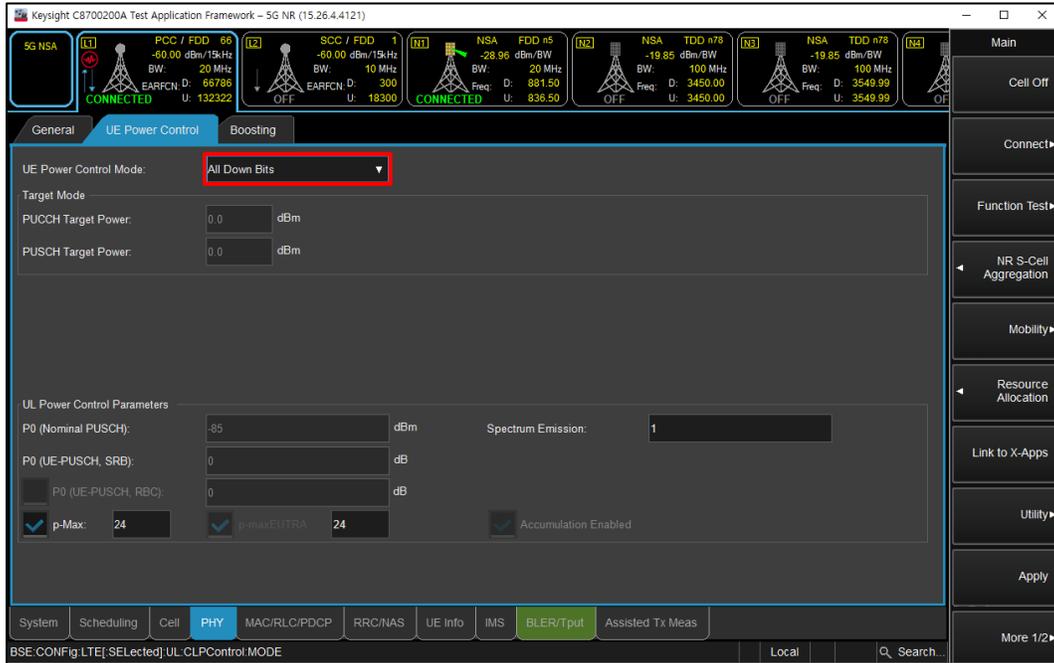
(Figure 2-6)

- Click “Cell On” button in the right of Test application screen in the NR tab
- Click “NR S-Cell Aggregation” and “Apply” to aggregate NR band



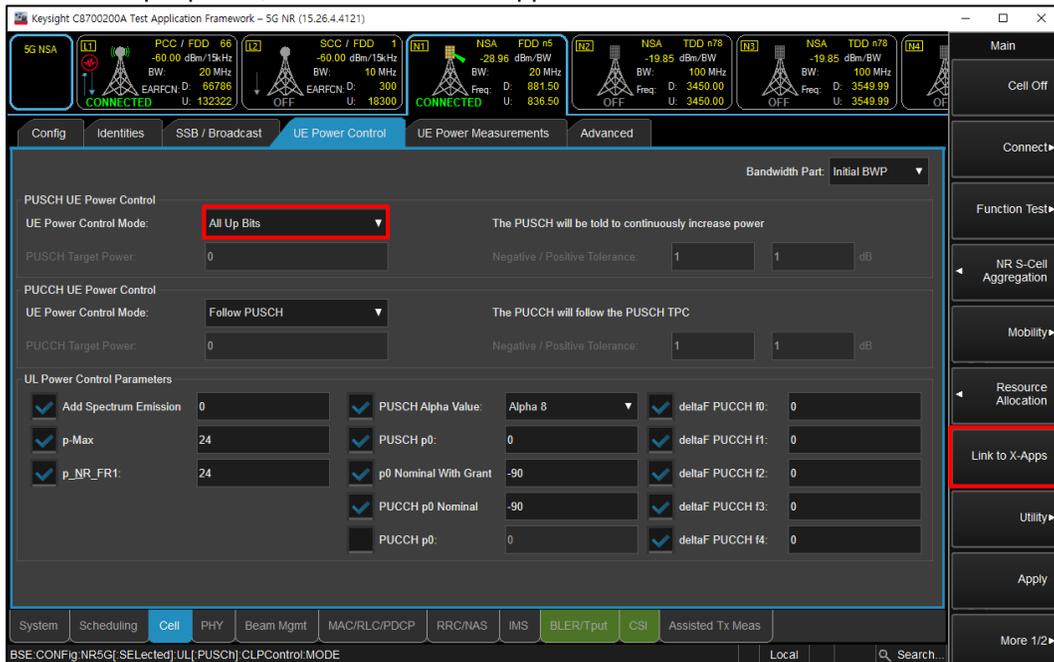
(Figure 2-7)

- Select “All Down Bits” of UL Power control Mode in LTE tab for NR maximum power (LTE -> PHY -> UE Power Control)



(Figure 2-8)

- Select “All Up Bits” of UL Power control Mode in NR tab for NR maximum power (NR -> Cell -> UE Power Control)
- To read the output power, click the “Link to X-Apps”



(Figure 2-9)

- Select “Channel Power” for NR output power



(Figure 2-10)

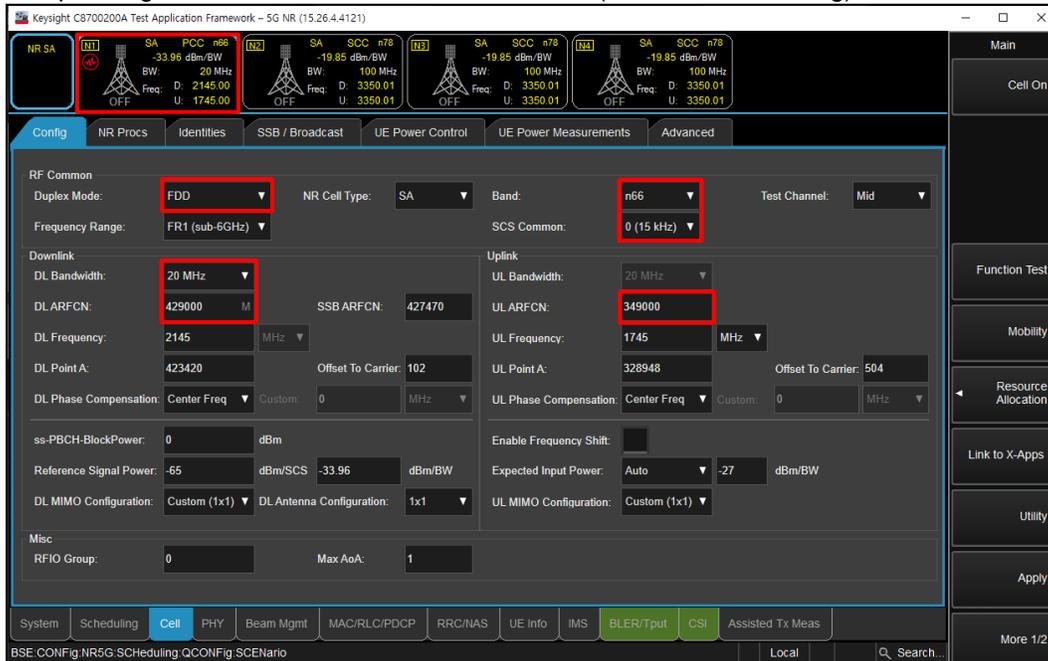
- Select “Channel Power” for LTE output power



(Figure 2-11)

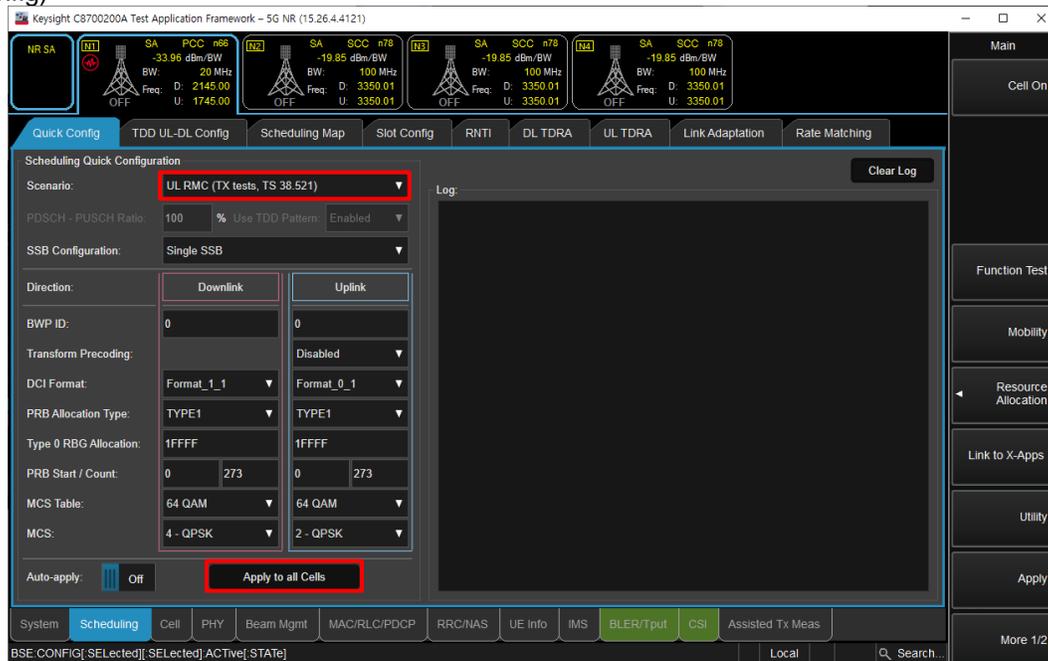
### SA Mode

- Select operating band, SCS, BW and Channel for NR (NR -> Cell -> Config)



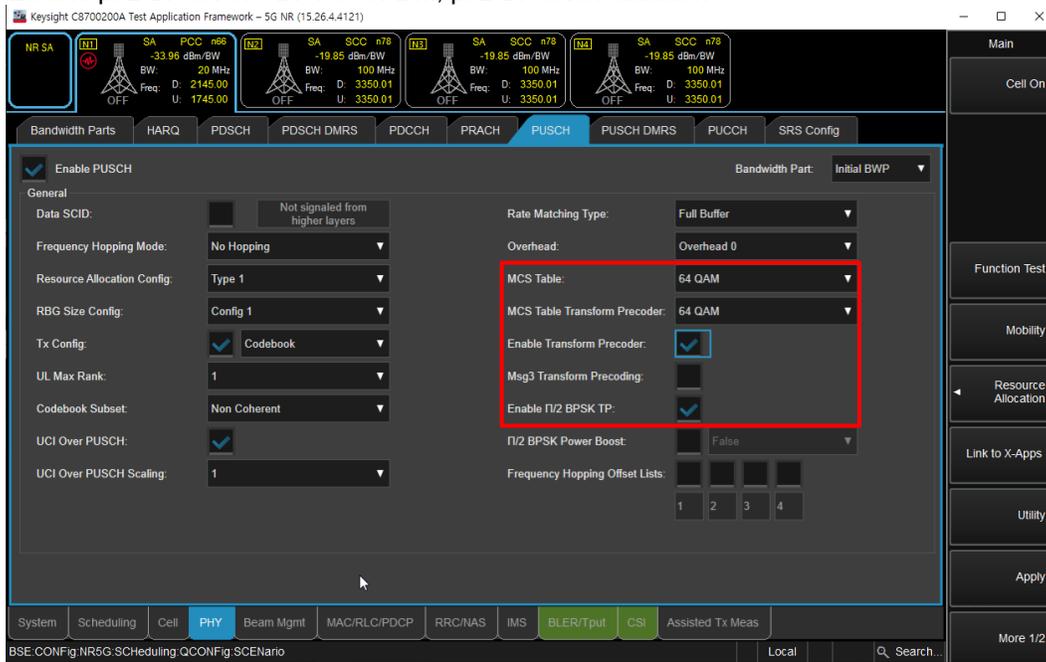
(Figure 3-1)

- Select "UL RMC (TX tests, TS 38.521)" for maximum power RB scheduling (NR -> Scheduling -> Quick Config)



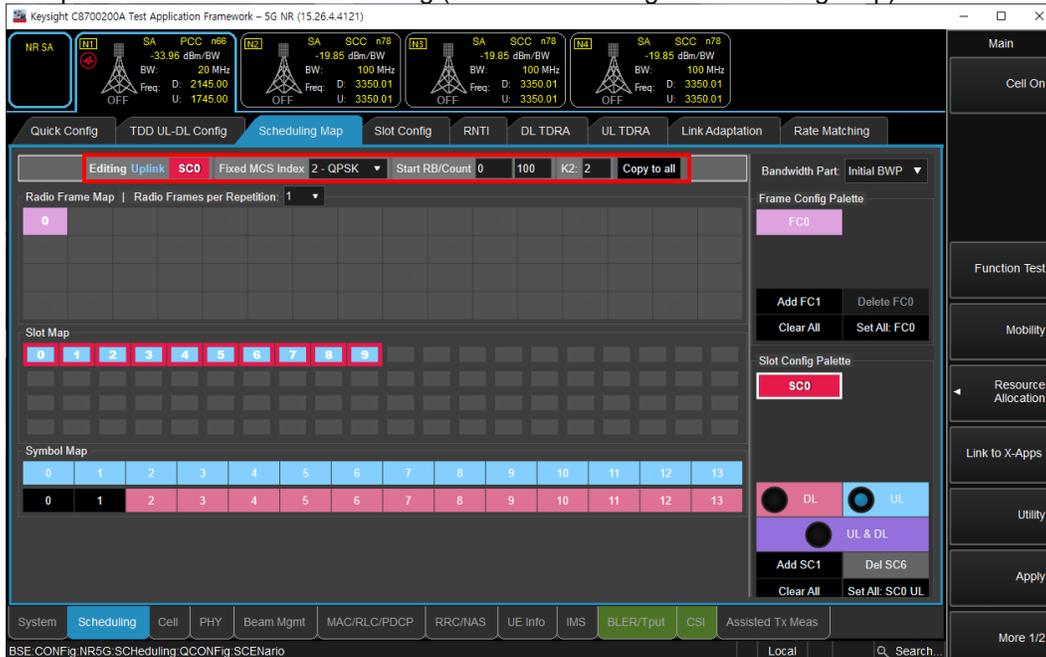
(Figure 3-2)

- To set waveform for NR Band (NR -> PHY -> PUSCH)
  - Select highest modulation in the MCS Table and MCS Table Transform Precoder
  - Enable Transform Precoder: DFT-s-OFDM / disable for CP-OFDM
  - Enable pi/2 BPSK TP: DFT-s-OFDM, pi/2 BPSK modulation



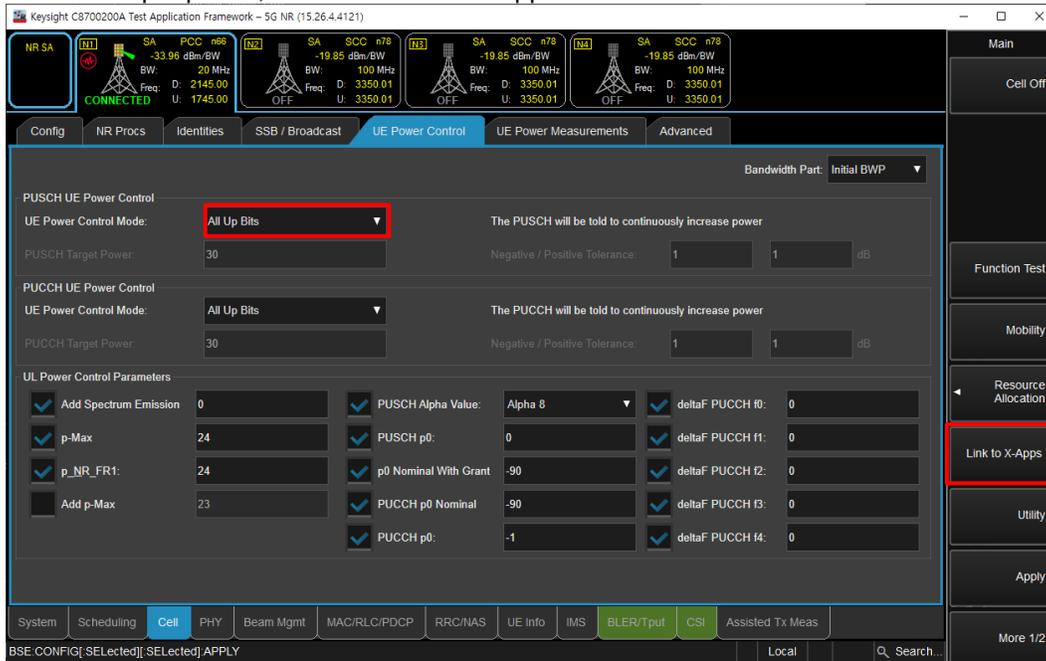
(Figure 3-3)

- Select Uplink Modulation and RB setting (NR -> Scheduling -> Scheduling Map)



(Figure 3-4)

- Click “Cell On” button in the right of Test application screen
- If necessary, turn the Airplane Mode on/off in the DUT
- Select “All Up Bits” of UL Power control Mode (Cell -> UE Power Control)
- To read the output power, click the “Link to X-Apps”



(Figure 3-5)

- Select “Channel Power”



(Figure 3-6)

# 1. Max power

## NR Band n66 (Main Ant.1) Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
					Measured Pwr (dBm)			MPR	Tune-up Limit
					344000	349000	354000		
					1720 MHz	1745 MHz	1770 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.2	23.2	22.9	0.0	24.5
			1	53	23.1	23.0	23.1	0.0	24.5
			1	104	23.2	22.8	23.2	0.0	24.5
			50	0	22.7	22.6	22.5	0.5	24
			50	25	23.2	23.0	23.1	0.0	24.5
			50	54	22.7	22.4	22.7	0.5	24
		100	0	22.7	22.5	22.6	0.5	24	
		QPSK	1	1	23.3	23.3	22.9	0.0	24.5
			1	53	23.3	23.0	23.0	0.0	24.5
			1	104	23.2	22.8	23.2	0.0	24.5
			50	0	22.2	22.1	22.0	0.0	24.5
			50	25	23.2	23.0	23.1	0.0	24.5
			50	54	22.2	22.1	22.1	1.0	23.5
	100	0	22.1	22.0	22.1	1.0	23.5		
16QAM	1	1	22.2	22.2	21.9	1.0	23.5		
64QAM	1	1	20.9	20.4	20.0	2.5	22		
256QAM	1	1	18.8	18.5	18.0	4.5	20		
CP-OFDM	QPSK	1	1	21.9	21.7	21.4	1.5	23	
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		
					15 MHz	DFT-s-OFDM	π/2 BPSK	1	1
1	40	23.1	22.9	23.0				0.0	24.5
1	77	23.2	22.8	23.2				0.0	24.5
36	0	22.7	22.6	22.6				0.5	24
36	18	23.2	23.0	23.1				0.0	24.5
36	43	22.7	22.4	22.7				0.5	24
75	0	22.7	22.5	22.6			0.5	24	
QPSK	1	1	23.3	23.2			23.0	0.0	24.5
	1	40	23.1	23.0			23.1	0.0	24.5
	1	77	23.2	22.8			23.2	0.0	24.5
	36	0	22.2	22.1			22.1	1.0	23.5
	36	18	23.2	23.0			23.1	0.0	24.5
	36	43	22.2	21.9			22.2	1.0	23.5
75	0	22.2	22.0	22.1		1.0	23.5		
16QAM	1	1	22.3	22.1	21.5	1.0	23.5		
64QAM	1	1	20.8	20.5	20.6	2.5	22		
256QAM	1	1	18.8	18.6	18.7	4.5	20		
CP-OFDM	QPSK	1	1	21.9	21.7	21.5	1.5	23	

**NR Band n66 (Main Ant.1) Measured Results (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		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.2	23.1	23.1	0.0	24.5
			1	26	23.2	23.0	23.1	0.0	24.5
			1	50	23.1	22.8	23.2	0.0	24.5
			25	0	22.7	22.5	22.6	0.5	24
			25	12	23.2	23.0	23.2	0.0	24.5
			25	27	22.7	22.4	22.8	0.5	24
		50	0	22.7	22.5	22.7	0.5	24	
		QPSK	1	1	23.3	23.2	23.2	0.0	24.5
			1	26	23.2	23.1	23.2	0.0	24.5
			1	50	23.2	22.9	23.2	0.0	24.5
			25	0	22.2	22.0	22.1	1.0	23.5
			25	12	23.2	23.0	23.2	0.0	24.5
			25	27	22.1	21.9	22.2	1.0	23.5
	50	0	22.2	22.0	22.1	1.0	23.5		
16QAM	1	1	22.5	22.1	22.3	1.0	23.5		
64QAM	1	1	20.9	20.5	20.8	2.5	22		
256QAM	1	1	18.8	18.5	18.7	4.5	20		
CP-OFDM	QPSK	1	1	22.0	21.8	21.7	1.5	23	
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		
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.3	23.0	23.2	0.0	24.5
			1	13	23.2	22.8	23.1	0.0	24.5
			1	23	23.3	22.9	23.2	0.0	24.5
			12	0	22.8	22.5	22.7	0.5	24
			12	6	23.3	23.0	23.2	0.0	24.5
			12	13	22.7	22.4	22.7	0.5	24
		25	0	22.7	22.4	22.7	0.5	24	
		QPSK	1	1	23.2	23.1	23.2	0.0	24.5
			1	13	23.2	22.9	23.2	0.0	24.5
			1	23	23.1	22.9	23.2	0.0	24.5
			12	0	22.2	22.0	22.2	1.0	23.5
			12	6	23.2	22.9	23.2	0.0	24.5
			12	13	22.2	21.9	22.2	1.0	23.5
	25	0	22.2	22.0	22.2	1.0	23.5		
16QAM	1	1	22.2	22.1	22.3	1.0	23.5		
64QAM	1	1	20.7	20.7	21.0	2.5	22		
256QAM	1	1	19.0	18.7	18.7	4.5	20		
CP-OFDM	QPSK	1	1	21.9	21.6	21.7	1.5	23	

## 2. Reduced power

### NR Band n66 (Main Ant.1) Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
					Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					344000	349000	354000			344000	349000	354000		
					1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.8	19.6	19.3	0.0	20.5	19.8	19.6	19.3	0.0	20.5
			1	53	19.7	19.4	19.5	0.0	20.5	19.7	19.4	19.5	0.0	20.5
			1	104	19.8	19.1	19.5	0.0	20.5	19.7	19.1	19.6	0.0	20.5
			50	0	19.7	19.5	19.4	0.0	20.5	19.7	19.5	19.4	0.0	20.5
			50	25	19.8	19.5	19.5	0.0	20.5	19.8	19.5	19.6	0.0	20.5
			50	54	19.7	19.2	19.6	0.0	20.5	19.7	19.3	19.6	0.0	20.5
		100	0	19.7	19.4	19.5	0.0	20.5	19.7	19.5	19.5	0.0	20.5	
		QPSK	1	1	19.7	19.6	19.3	0.0	20.5	19.7	19.6	19.3	0.0	20.5
			1	53	19.7	19.4	19.5	0.0	20.5	19.7	19.4	19.5	0.0	20.5
			1	104	19.7	19.1	19.5	0.0	20.5	19.7	19.2	19.5	0.0	20.5
			50	0	19.7	19.5	19.5	0.0	20.5	19.7	19.5	19.4	0.0	20.5
			50	25	19.8	19.4	19.6	0.0	20.5	19.8	19.4	19.5	0.0	20.5
			50	54	19.7	19.3	19.6	0.0	20.5	19.7	19.3	19.5	0.0	20.5
		100	0	19.7	19.4	19.5	0.0	20.5	19.7	19.5	19.5	0.0	20.5	
16QAM	1	1	19.7	19.7	19.6	0.0	20.5	19.7	19.7	19.6	0.0	20.5		
64QAM	1	1	19.7	19.5	19.6	0.0	20.5	19.6	19.4	19.6	0.0	20.5		
256QAM	1	1	18.5	18.5	18.7	0.0	20.5	18.5	18.5	18.6	0.0	20.5		
CP-OFDM	QPSK	1	1	20.0	19.8	19.5	0.0	20.5	20.0	19.8	19.4	0.0	20.5	
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		
					15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.8	19.7	19.5	0.0	20.5
1	40	19.7	19.4	19.5				0.0	20.5	19.7	19.4	19.6	0.0	20.5
1	77	19.8	19.3	19.7				0.0	20.5	19.8	19.3	19.7	0.0	20.5
36	0	19.9	19.7	19.6				0.0	20.5	19.9	19.7	19.7	0.0	20.5
36	18	19.9	19.6	19.7				0.0	20.5	19.9	19.6	19.7	0.0	20.5
36	43	19.9	19.4	19.8				0.0	20.5	19.9	19.5	19.8	0.0	20.5
75	0	19.9	19.6	19.7			0.0	20.5	19.9	19.6	19.7	0.0	20.5	
QPSK	1	1	19.9	19.7			19.5	0.0	20.5	19.9	19.7	19.5	0.0	20.5
	1	40	19.7	19.4			19.5	0.0	20.5	19.8	19.5	19.5	0.0	20.5
	1	77	19.8	19.3			19.7	0.0	20.5	19.9	19.3	19.7	0.0	20.5
	36	0	19.9	19.7			19.7	0.0	20.5	19.9	19.7	19.7	0.0	20.5
	36	18	19.9	19.6			19.7	0.0	20.5	19.9	19.6	19.7	0.0	20.5
	36	43	19.8	19.4			19.8	0.0	20.5	19.9	19.5	19.8	0.0	20.5
75	0	19.9	19.6	19.7			0.0	20.5	19.9	19.6	19.7	0.0	20.5	
16QAM	1	1	19.9	19.7	19.4	0.0	20.5	20.0	19.8	19.6	0.0	20.5		
64QAM	1	1	19.9	20.0	19.6	0.0	20.5	20.1	19.8	19.3	0.0	20.5		
256QAM	1	1	18.9	18.7	18.5	0.0	20.5	19.1	18.7	18.7	0.0	20.5		
CP-OFDM	QPSK	1	1	19.9	19.9	19.6	0.0	20.5	20.0	19.9	19.6	0.0	20.5	

**NR Band n66 (Main Ant.1) Measured Results (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		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.9	19.7	19.7	0.0	20.5	19.9	19.7	19.7	0.0	20.5
			1	26	19.9	19.6	19.7	0.0	20.5	19.9	19.6	19.7	0.0	20.5
			1	50	19.8	19.4	19.8	0.0	20.5	19.8	19.4	19.8	0.0	20.5
			25	0	19.9	19.6	19.7	0.0	20.5	19.9	19.7	19.7	0.0	20.5
			25	12	19.9	19.6	19.7	0.0	20.5	19.9	19.6	19.8	0.0	20.5
			25	27	19.9	19.5	19.8	0.0	20.5	19.9	19.5	19.8	0.0	20.5
			50	0	19.9	19.6	19.8	0.0	20.5	19.9	19.6	19.8	0.0	20.5
		QPSK	1	1	19.9	19.7	19.7	0.0	20.5	19.9	19.7	19.7	0.0	20.5
			1	26	19.9	19.5	19.7	0.0	20.5	19.9	19.6	19.8	0.0	20.5
			1	50	19.8	19.4	19.8	0.0	20.5	19.8	19.5	19.8	0.0	20.5
			25	0	19.9	19.6	19.7	0.0	20.5	19.9	19.7	19.7	0.0	20.5
			25	12	19.9	19.6	19.7	0.0	20.5	19.9	19.6	19.8	0.0	20.5
			25	27	19.9	19.5	19.8	0.0	20.5	19.9	19.5	19.8	0.0	20.5
			50	0	19.9	19.6	19.8	0.0	20.5	19.9	19.6	19.8	0.0	20.5
16QAM	1	1	19.9	19.7	19.7	0.0	20.5	19.9	19.7	19.6	0.0	20.5		
64QAM	1	1	20.0	19.6	19.8	0.0	20.5	19.9	19.8	19.8	0.0	20.5		
256QAM	1	1	18.9	18.7	18.7	0.0	20.5	19.0	18.7	18.7	0.0	20.5		
CP-OFDM	QPSK	1	1	20.0	19.8	19.8	0.0	20.5	20.0	19.8	19.8	0.0	20.5	
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		
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	20.0	19.6	19.8	0.0	20.5	19.9	19.6	19.8	0.0	20.5
			1	13	19.9	19.5	19.7	0.0	20.5	19.8	19.4	19.7	0.0	20.5
			1	23	20.0	19.5	19.8	0.0	20.5	19.9	19.5	19.8	0.0	20.5
			12	0	20.0	19.6	19.8	0.0	20.5	19.9	19.6	19.8	0.0	20.5
			12	6	19.9	19.6	19.8	0.0	20.5	19.9	19.6	19.8	0.0	20.5
			12	13	19.9	19.5	19.8	0.0	20.5	19.9	19.5	19.8	0.0	20.5
			25	0	19.9	19.6	19.8	0.0	20.5	19.9	19.6	19.8	0.0	20.5
		QPSK	1	1	19.9	19.6	19.8	0.0	20.5	19.9	19.6	19.8	0.0	20.5
			1	13	19.8	19.5	19.7	0.0	20.5	19.8	19.5	19.7	0.0	20.5
			1	23	19.8	19.5	19.8	0.0	20.5	19.8	19.5	19.8	0.0	20.5
			12	0	19.9	19.6	19.8	0.0	20.5	19.9	19.6	19.8	0.0	20.5
			12	6	19.9	19.6	19.8	0.0	20.5	19.9	19.6	19.8	0.0	20.5
			12	13	19.9	19.5	19.8	0.0	20.5	19.9	19.5	19.9	0.0	20.5
			25	0	19.9	19.5	19.8	0.0	20.5	19.9	19.6	19.8	0.0	20.5
16QAM	1	1	20.0	19.6	19.7	0.0	20.5	20.0	19.8	19.8	0.0	20.5		
64QAM	1	1	20.0	19.9	19.9	0.0	20.5	20.1	19.7	20.1	0.0	20.5		
256QAM	1	1	19.0	18.6	18.8	0.0	20.5	19.0	18.7	18.8	0.0	20.5		
CP-OFDM	QPSK	1	1	20.0	19.7	19.8	0.0	20.5	20.0	19.8	19.8	0.0	20.5	

## 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:

- $\leq 0.8$  W/kg or  $2.0$  W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz
- $\leq 0.6$  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
- $\leq 0.4$  W/kg or  $1.0$  W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  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  $\leq 25$ mm 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  $\leq \frac{1}{4}$  dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is  $\leq 1.2$  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.

### 10.1. LTE Band 41 (20MHz Bandwidth)

#### LTE Band 41 Power Class 3

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Hotspot	QPSK	On	10	Rear	40620	2593.0	1	0	23.0	22.5	0.405	0.450	
								50	0	23.0	22.5	0.320	0.356	
					Front	40620	2593.0	1	0	23.0	22.5	0.278	0.309	
								50	0	23.0	22.5	0.222	0.247	
					Edge 2	40620	2593.0	1	0	23.0	22.5	0.283	0.314	
								50	0	23.0	22.5	0.228	0.254	
					Edge 3	39750	2506.0	1	0	23.0	22.5	0.805	0.899	
								50	0	23.0	22.4	0.662	0.760	
						40185	2549.5	1	0	23.0	21.8	0.939	1.233	1
								50	0	23.0	21.9	0.674	0.859	
						40620	2593.0	1	0	23.0	22.5	0.928	1.031	
								50	0	23.0	22.5	0.735	0.819	
						41055	2636.5	1	0	23.0	22.5	0.613	0.681	
								50	0	23.0	22.5	0.464	0.518	
41490	2680.0	1	0	23.0	22.4	0.681	0.779							
		50	0	23.0	22.5	0.511	0.572							
							100	0	23.0	22.5	0.517	0.580		
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		10-g SAR (W/kg)		Plot No.
Main 2 Ant.	Product Specific 10-g	QPSK	Off	12	Edge 3	40620	2593.0	1	0	25.0	23.8	0.440	0.587	
			On	0	Edge 3	39750	2506.0	1	0	23.0	22.5	2.140	2.384	
						40185	2549.5	1	0	23.0	22.1	2.200	2.702	2
						40620	2593.0	1	0	23.0	22.8	2.230	2.341	
						41055	2636.5	1	0	23.0	22.6	1.900	2.102	
						41490	2680.0	1	0	23.0	22.7	1.910	2.034	

#### Spot-check results

Antenna	RF Exposure Conditions	Sample.	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Note.
											Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Hotspot	Version.1	QPSK	On	10	Edge 3	40185	2549.5	1	0	23.0	21.8	0.839	1.101	
		Version.2				Edge 3	40185	2549.5	1	0	23.0	21.8	0.939	1.233	1
		Version.3				Edge 3	40185	2549.5	1	0	23.0	21.8	0.860	1.129	
Antenna	RF Exposure Conditions	Sample.	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		10-g SAR (W/kg)		Note.
Main 2 Ant.	Product Specific 10-g	Version.1	QPSK	On	0	Edge 3	40620	2593.0	1	0	23.0	22.1	2.200	2.702	1
		Version.2				Edge 3	39750	2506.0	1	0	23.0	22.1	1.580	1.940	
		Version.3				Edge 3	40185	2549.5	1	0	23.0	22.1	1.570	1.928	

#### Note(s):

1. This device has 3 type versions. We tested SAR evaluation in each RF exposure condition using the worst case version.

**LTE Band 41 Power Class 2**

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Note.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Hotspot	QPSK	On	10	Edge 3	40185	2549.5	1	0	23.5	22.4	0.544	0.709	1
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		10-g SAR (W/kg)		Note.
Tune-up limit	Meas.	Meas.	Scaled											
Main 2 Ant.	Product Specific 10-	QPSK	On	0	Edge 3	40185	2549.5	1	0	23.5	22.2	1.27	1.700	1

**Note(s):**

1. For each RF exposure conditions, LTE Band 41 Power Class 2 tested as the version used for LTE Band 41 Power Class 3

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

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

- The reported SAR vs. output power can be linearly scaled with < 10% discrepancy between power classes and all reported SAR are < 1.4 or 3.5 W/kg (1-g or 10-g respectively)

**Reported SAR vs. Output power linearly scaled**

Antenna	RF Exposure Conditions	SAR Volume	Power Class 2				Power Class 3				PC2 linearly scaled Reported SAR (W/kg)	Linearly scaled (<10%)
			Duty Cycle (%)	Tune-up Power (dBm)	Fram Avg. Power (dBm)	Reported SAR (W/kg)	Duty Cycle	Tune-up Power (dBm)	Fram Avg. Power (dBm)	Reported SAR (W/kg)		
Main 2 Ant.	Hotspot	1-g SAR	43.3	24.0	108.8	0.709	63.3	23.0	126.3	1.233	1.062	-33.2
	Product Specific 10-g	10-SAR	43.3	24.0	108.8	1.700	63.3	23.0	126.3	2.702	2.327	-26.9

**Note(s):**

SAR test for Power Class 2 is not required base on the reported SAR < 1.4 or 3.5 W/kg (1-g or 10-g respectively) and reported SAR vs. output power linearly scaled < 10%.

## 10.2. NR Band n66 (20MHz Bandwidth)

### Main 1 Ant. SAR results

Antenna	RF Exposure Conditions	Modulation	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.		
											Tune-up limit	Meas.	Meas.	Scaled			
Main 1 Ant.	Head	DFT-s-OFDM	QPSK	Off	0	Left Touch	344000	1720.0	1	1	24.5	23.3	0.044	0.058			
									50	25	24.5	23.2	0.050	0.068			
						Left Tilt	344000	1720.0	1	1	24.5	23.3	0.030	0.039			
									50	25	24.5	23.2	0.034	0.045			
						Right Touch	344000	1720.0	1	1	24.5	23.3	0.046	0.061			
									50	25	24.5	23.2	0.052	0.070	3		
	Right Tilt	344000	1720.0	1	1	24.5	23.3	0.027	0.036								
				50	25	24.5	23.2	0.031	0.041								
	CP-OFDM	QPSK	Off	0	Right Touch	344000	1720.0	1	1	23.0	21.9	0.031	0.040				
	Body-w orn	DFT-s-OFDM	QPSK	Off	15	Rear	344000	1720.0	1	1	24.5	23.3	0.440	0.581			
						50	25	24.5	23.2	0.464	0.627	4					
		CP-OFDM	QPSK	Off	15	Front	344000	1720.0	1	1	24.5	23.3	0.356	0.470			
						50	25	24.5	23.2	0.375	0.507						
	Hotspot	DFT-s-OFDM	QPSK	On	10	Rear	344000	1720.0	1	1	20.5	19.7	0.275	0.329			
									50	25	20.5	19.8	0.288	0.341			
						Front	344000	1720.0	1	1	20.5	19.7	0.285	0.341			
									50	25	20.5	19.8	0.298	0.353			
						Edge 2	344000	1720.0	1	1	20.5	19.7	0.048	0.058			
50									25	20.5	19.8	0.049	0.058				
Edge 3		344000	1720.0	1	1	20.5	19.7	0.608	0.728								
				50	25	20.5	19.8	0.654	0.774	5							
CP-OFDM		QPSK	On	10	Edge 3	344000	1720.0	1	1	20.5	19.8	0.037	0.045				
					50	25	20.5	19.8	0.038	0.045							
Edge 3	344000	1720.0	1	1	20.5	20.0	0.517	0.584									
Antenna	RF Exposure Conditions	Modulation	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		10-g SAR (W/kg)		Plot No.		
Main 1 Ant.	Product Specific 10-g	DFT-s-OFDM	QPSK	Off	12	Edge 3	344000	1720.0	1	1	24.5	23.3	0.607	0.802			
				On	0	Edge 3	344000	1720.0	50	25	24.5	23.2	0.647	0.875			
				CP-OFDM	QPSK	On	0	Edge 3	344000	1720.0	1	1	20.5	19.7	1.610	1.922	
											50	25	20.5	19.8	1.640	1.936	6
				Edge 3	344000	1720.0	1	1	20.5	20.0	1.510	1.686					

### Spot-check results

Antenna	RF Exposure Conditions	Sample.	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Note.
											Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	Version.1	QPSK	Off	10	Right Touch	344000	1720.0	50	25	24.5	23.2	0.046	0.062	
		Version.2				Right Touch	344000	1720.0	50	25	24.5	23.2	0.052	0.070	1
		Version.3				Right Touch	344000	1720.0	50	25	24.5	23.2	0.051	0.069	
	Body-w orn	Version.1	QPSK	Off	15	Rear	344000	1720.0	1	1	24.5	23.3	0.373	0.493	
		Version.2				Rear	344000	1720.0	1	1	24.5	23.3	0.440	0.581	1
		Version.3				Rear	344000	1720.0	1	1	24.5	23.3	0.407	0.537	
	Hotspot	Version.1	QPSK	On	10	Edge 3	344000	1720.0	1	1	20.5	19.7	0.575	0.688	
		Version.2				Edge 3	344000	1720.0	1	1	20.5	19.7	0.608	0.728	1
		Version.3				Edge 3	344000	1720.0	1	1	20.5	19.7	0.608	0.728	
Antenna	RF Exposure Conditions	Sample.	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		10-g SAR (W/kg)		Note.
Main 2 Ant.	Product Specific 10-g	Version.1	QPSK	On	0	Edge 3	344000	1720.0	1	1	20.5	19.7	1.090	1.301	
		Version.2				Edge 3	344000	1720.0	1	1	20.5	19.7	1.610	1.922	1
		Version.3				Edge 3	344000	1720.0	1	1	20.5	19.7	1.460	1.743	

#### Note(s):

1. This device has 3 type versions. We tested SAR evaluation in each RF exposure condition using the worst case version.
2. CP-OFDM mode were evaluated at worst configuration of DFT-s-OFDM in each exposure conditions.

## 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  $\geq 0.8$  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  $\geq 1.45$  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  $\geq 1.5$  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
1750	NR Band n66	Hotspot	Edge 3	No	0.654	N/A	N/A
2600	LTE Band 41	Hotspot	Edge 3	Yes	0.939	0.923	1.02

### 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	NR Band n66	Product Specific 10-g	Edge 3	No	1.640	N/A	N/A
2600	LTE Band 41	Product Specific 10-g	Edge 3	Yes	2.230	2.200	1.01

### Note(s):

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

## 12. Simultaneous Transmission SAR Analysis

### Simultaneous Transmission Condition

RF Exposure Condition	Item	Capable Transmit Configurations					
Head & Body-w orn & Hotspot & Phablet-10g	1	WWAN (LTE/NR)	+	DTS Ant.1	or	DTS Ant.2	Non-RSDB Scenarios
	2	WWAN (LTE/NR)	+	DTS MIMO			
	3	WWAN (LTE/NR)	+	UNII MIMO			
	4	WWAN (LTE/NR)	+	BT Ant.1	or	BT Ant.2	
	5	WWAN (LTE/NR)	+	BT MIMO			
	6	WWAN (LTE/NR)	+	UNII MIMO	+	BT Ant.1 or BT Ant.2	
	7	WWAN (LTE/NR)	+	UNII MIMO	+	BT MIMO	
	8	WWAN (LTE/NR)	+	UNII MIMO	+	DTS Ant.1 or DTS Ant.2	RSDB Scenarios
	9	WWAN (LTE/NR)	+	UNII MIMO	+	DTS MIMO	RSDB Scenarios
	10	WWAN (ENDC(LTE+NR)	+	DTS Ant.1	or	DTS Ant.2	Non-RSDB Scenarios
	11	WWAN (ENDC(LTE+NR)	+	DTS MIMO			
	12	WWAN (ENDC(LTE+NR)	+	UNII MIMO			
	13	WWAN (ENDC(LTE+NR)	+	BT Ant.1	or	BT Ant.2	
	14	WWAN (ENDC(LTE+NR)	+	BT MIMO			
	15	WWAN (ENDC(LTE+NR)	+	UNII MIMO	+	BT Ant.1 or BT Ant.2	
	16	WWAN (ENDC(LTE+NR)	+	UNII MIMO	+	BT MIMO	
	17	WWAN (ENDC(LTE+NR)	+	UNII MIMO	+	DTS Ant.1 or DTS Ant.2	RSDB Scenarios
	18	WWAN (ENDC(LTE+NR)	+	UNII MIMO	+	DTS MIMO	RSDB Scenarios

Notes:

1. DTS supports Wi-Fi Direct, Hotspot and VoIP.
2. U-NII supports Wi-Fi Direct, Hotspot and VoIP.
3. U-NII only supports MIMO mode.
4. LTE, NR supports Hotspot and VoIP
5. U-NII Radio can transmit simultaneously w ith Bluetooth Radio.
6. DTS Radio cannot transmit simultaneously w ith Bluetooth Radio.
7. DTS Radio can transmit simultaneously w ith U-NII Radio in only RSDB Scenarios
8. NR Radio support to both SA and NSA (ENDC) Radio.
9. BT tethering is considered about each RF exposure conditions.

## 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<sub>1</sub>** 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<sub>2</sub>** 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<sub>1</sub>** or **SAR<sub>2</sub>**. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

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

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

## Simultaneous transmission SAR measurement

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

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

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

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

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

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

## SPLSR Hotspot Combination

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

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

## Test procedure

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

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





## 12.2. Sum of the SAR for NR Band n66 (Main 1 Ant.) & Wi-Fi & BT

### Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)									Sum of SAR (W/kg)															
		Non-RSDB scenarios																								
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO (5GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNI MIMO (5GHz)	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNI MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + BT MIMO	WWAN + UNI MIMO + BT Ant.1	WWAN + UNI MIMO + BT Ant.2	WWAN + UNI MIMO + BT MIMO	WWAN + UNI MIMO	WWAN + UNI MIMO + BT Ant.1	WWAN + UNI MIMO + BT Ant.2	WWAN + UNI MIMO + BT MIMO		
1	2	3	4	5	6	7	8	9	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+5+6	1+5+7	1+5+8	1+9	1+6+9	1+7+9	1+8+9				
Head (1-g SAR)	Left Touch	0.068	0.097	0.278	0.375	0.104	0.150	0.121	0.101	0.018	0.165	0.346	0.443	0.172	0.218	0.189	0.169	0.322	0.293	0.273	0.086	0.236	0.207	0.187		
	Left Tilt	0.045	0.060	0.053	0.113	0.036	0.055	0.017	0.022	0.016	0.105	0.098	0.158	0.081	0.100	0.062	0.067	0.136	0.098	0.103	0.061	0.116	0.078	0.083		
	Right Touch	0.070	0.143	0.316	0.459	0.318	0.183	0.160	0.130	0.072	0.213	0.386	0.529	0.388	0.253	0.230	0.200	0.571	0.548	0.518	0.142	0.325	0.302	0.272		
	Right Tilt	0.041	0.143	0.316	0.459	0.318	0.103	0.043	0.062	0.023	0.184	0.357	0.500	0.359	0.144	0.084	0.103	0.462	0.402	0.421	0.064	0.167	0.107	0.126		
Body-Worn (1-g SAR)	Rear	0.627	0.056	0.204	0.107	1.137	0.042	0.177	0.050	0.222	0.683	0.831	0.734	1.764	0.669	0.804	0.677	1.806	1.941	1.814	0.849	0.891	1.026	0.899		
	Front	0.507	0.056	0.204	0.107	1.137	0.007	0.113	0.030	0.002	0.563	0.711	0.614	0.612	0.514	0.620	0.537	0.619	0.725	0.642	0.509	0.516	0.622	0.539		
Hotspot (1-g SAR)	Rear	0.341	0.183	0.366	0.211	1.288	0.135	0.391	0.141		0.524	0.707	0.552	1.629	0.476	0.732	0.482	1.764	2.020	1.770						
	Front	0.353	0.183	0.413	0.211	1.288	0.209	0.017	0.255	0.074	0.536	0.766	0.564	0.562	0.370	0.608	0.427	0.579	0.817	0.636						
	Edge 1		0.183		0.211	1.288	0.023		0.013																	
	Edge 2	0.058																								
	Edge 3	0.774																								
Product Specific 10-g (10-g SAR)	Edge 4	0.045	0.183	0.413	0.211	0.642	0.018	0.442	0.096		0.228	0.458	0.256	0.687	0.063	0.487	0.141	0.705	1.129	0.783						
	Rear					2.978				0.377																
	Front					0.449				0.048																
	Edge 1					2.978				0.026																
	Edge 4	1.936																								
					1.576					0.214																

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)									Sum of SAR (W/kg) (1-g or 10-g)	Calculated Distance (mm)	1-g SPLSR (=d.04) or 10-g SPLSR (=d.10)	Volume Scan (Yes/No) Note.3	Figure
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO (5GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNI MIMO (5GHz)					
1	2	3	4	5	6	7	8	9							
Body-Worn (1-g SAR)	Rear	0.627				1.137				1 + 5	1.764	158.3	0.01	No	7
Body-Worn (1-g SAR)	Rear	0.627				1.137	0.042			1 + 5 + 6	1.806			No	
		0.627				1.137		0.042		1 + 6	0.669	154.7	0.00	No	
		0.627				1.137	0.042			5 + 6	1.179	5.8	0.22	Yes	
Hybrid SPLSR Note.4		0.627				1.110				1 + (5 + 6)	1.737	157.9	0.01	No	7-a
Body-Worn (1-g SAR)	Rear	0.627				1.137		0.177		1 + 5 + 7	1.941			No	8
		0.627				1.137				1 + 5	1.764	158.3	0.01	No	
		0.627				1.137		0.177		1 + 7	0.804	122.3	0.01	No	
		0.627				1.137		0.177		5 + 7	1.314	41.2	0.04	No	
Body-Worn (1-g SAR)	Rear	0.627				1.137			0.050	1 + 5 + 8	1.814			No	9
		0.627				1.137				1 + 5	1.764	158.3	0.01	No	
		0.627				1.137			0.050	1 + 8	0.677	121.4	0.00	No	
Hotspot (1-g SAR)	Rear	0.341				1.288				5 + 8	1.187	42.2	0.03	No	10
		0.341				1.288	0.135			1 + 5	1.764			No	
		0.341				1.288		0.135		1 + 6	0.476	157.8	0.00	No	
		0.341				1.288	0.135			5 + 6	1.423	9.4	0.18	Yes	
Hybrid SPLSR Note.4		0.341				1.27				1 + (5 + 6)	1.611	156.3	0.01	No	10-a
Hotspot (1-g SAR)	Rear	0.341				1.288		0.391		1 + 5 + 7	2.020			No	11
		0.341				1.288				1 + 5	1.629	156.3	0.01	No	
		0.341				1.288		0.391		1 + 7	0.732	121.5	0.01	No	
		0.341				1.288		0.391		5 + 7	1.679	44	0.05	Yes	
Hybrid SPLSR Note.4		0.341				1.3				1 + (5 + 7)	1.641	156.3	0.01	No	11-a
Hotspot (1-g SAR)	Rear	0.341				1.288			0.141	1 + 5 + 8	1.770			No	12
		0.341				1.288				1 + 5	1.629	156.3	0.01	No	
		0.341				1.288			0.141	1 + 8	0.482	149.7	0.00	No	
		0.341				1.288			0.141	5 + 8	1.429	15.2	0.11	Yes	
Hybrid SPLSR Note.4		0.341				1.25				1 + (5 + 8)	1.591	156.3	0.01	No	12-a

**Note(s):**

- Green value is estimated SAR value. And Blue values are summation of DTS Ant.1 and DTS Ant.2
- WiFi&BT data refer to Original model(4790089631-S1 FCC Report SAR).
- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to Original model(4790089631-S1 FCC Report SAR) for detailed Volume Scan Result.
- SPLSR Hotspot Combination Step.2) Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair. Hybrid SPLSR procedure was applied for the spatially separated main bands and unlicensed bands for Multi-band Combined results.

**RSDB scenarios**

RF Exposure	Test Position	Standalone SAR (W/kg)						Sum of SAR (W/kg)							
		WWAN	RSDB scenarios					WWAN + DTS Ant.1 + UNII MIMO	WWAN + DTS Ant.2 + UNII MIMO	WWAN + DTS MIMO + UNII MIMO	RSDB Sum (DTS MIMO + UNII MIMO)	WWAN + DTS Ant.1 + UNII MIMO	WWAN + DTS Ant.2 + UNII MIMO	WWAN + DTS MIMO + UNII MIMO	RSDB Sum (DTS MIMO + UNII MIMO)
			DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (6GHz)								
1	2	3	4	5	6	1+2+5	1+3+5	1+4+5	4+5	1+2+6	1+3+6	1+4+6	4+6		
Head (1-g SAR)	Left Touch	0.068	0.048	0.065	0.113	0.104	0.018	0.220	0.237	0.285	0.217	0.134	0.151	0.199	0.131
	Left Tilt	0.045	0.029	0.008	0.037	0.036	0.016	0.110	0.089	0.118	0.073	0.090	0.069	0.098	0.053
	Right Touch	0.070	0.064	0.009	0.073	0.318	0.072	0.452	0.397	0.461	0.391	0.206	0.151	0.215	0.145
	Right Tilt	0.041	0.064	0.065	0.129	0.318	0.023	0.423	0.424	0.488	0.447	0.128	0.129	0.193	0.152
Body-Worn (1-g SAR)	Rear	0.627	0.056	0.204	0.107	0.297	0.222	0.980	1.128	1.031	0.404	0.905	1.053	0.956	0.329
	Front	0.507	0.056	0.204	0.107	0.023	0.002	0.586	0.734	0.637	0.130	0.565	0.713	0.616	0.109
Hotspot (1-g SAR)	Rear	0.341	0.183	0.366	0.211	1.288		1.812	1.995	1.840	1.499				
	Front	0.353	0.183	0.413	0.211	0.209		0.745	0.975	0.773	0.420				
	Edge 1		0.183		0.211	1.288									
	Edge 2	0.058													
	Edge 3	0.774													
	Edge 4	0.045	0.183	0.413	0.211	0.642		0.870	1.100	0.898	0.853				

**SAR to Peak Location Separation Ratio (SPLSR)**

RF Exposure	Test Position	Standalone SAR (W/kg)						Sum of SAR (W/kg) (1-g or 10-g)	Calculated Distance (mm)	1-g SPLSR (>=0.04) or 10-g SPLSR (=<0.10)	Volume Scan (Yes/No) Note.3	Figure
		WWAN	RSDB scenarios									
			DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (6GHz)					
1	2	3	4	5	6							
Hotspot (1-g SAR)	Rear	0.341	0.183			1.288	1 + 2 + 5	1.812				13
		0.341	0.183				1 + 2	0.524	159.7	0.00	No	
		0.341				1.288	1 + 5	1.629	156.3	0.01	No	
			0.183			1.288	2 + 5	1.471	9.3	0.19	Yes	
Hybrid SPLSR Note.4		0.341	1.270				1+(2+5)	1.611	156.3	0.01	No	13-a
Hotspot (1-g SAR)	Rear	0.341		0.366		1.288	1 + 3 + 5	1.995				14
		0.341		0.366			1 + 3	0.707	124.4	0.00	No	
		0.341				1.288	1 + 5	1.629	156.3	0.01	No	
				0.366		1.288	3 + 5	1.654	39.4	0.05	Yes	
Hybrid SPLSR Note.4		0.341	1.310				1+(3+5)	1.651	156.3	0.01	No	14-a
Hotspot (1-g SAR)	Rear	0.341			0.211	1.288	1 + 4 + 5	1.840				15
		0.341			0.211		1 + 4	0.552	158.7	0.00	No	
		0.341				1.288	1 + 5	1.629	156.3	0.01	No	
					0.211	1.288	4 + 5	1.499	8.4	0.22	Yes	
Hybrid SPLSR Note.4		0.341	1.300				1+(4+5)	1.641	156.3	0.01	No	15-a

**Note(s):**

- Green value is estimated SAR value. And Blue values are summation of DTS Ant.1 and DTS Ant.2
- WiFi&BT data refer to Original model(4790089631-S1 FCC Report SAR).
- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to Original model(4790089631-S1 FCC Report SAR) for detailed Volume Scan Result.
- SPLSR Hotspot Combination Step.2) Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair. Hybrid SPLSR procedure was applied for the spatially separated main bands and unlicensed bands for Multi-band Combined results.

### 12.3. Sum of the SAR for ENDC(LTE B5 + NR Bn66(Main Ant.1)) & Wi-Fi & BT

#### Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)													
		WWAN		Non-RSDB scenarios								WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNI MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + BT MIMO	WWAN + UNI MIMO + BT Ant.1	WWAN + UNI MIMO + BT Ant.2	WWAN + UNI MIMO + BT MIMO	WWAN + UNI MIMO + BT Ant.1	WWAN + UNI MIMO + BT Ant.2	WWAN + UNI MIMO + BT MIMO	
		1-a (LTE)	1-b (NR)	2	3	4	5	6	7	8	9	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+5+6	1+5+7	1+5+8	1+9	1+5+9	1+7+9	1+8+9
Head (1-g SAR)	Left Touch	0.208	0.068	0.097	0.278	0.375	0.104	0.150	0.121	0.101	0.018	0.373	0.554	0.651	0.380	0.426	0.397	0.377	0.530	0.501	0.481	0.294	0.444	0.415	0.395
	Left Tilt	0.085	0.045	0.060	0.053	0.113	0.036	0.055	0.017	0.022	0.016	0.190	0.183	0.243	0.166	0.185	0.147	0.152	0.221	0.183	0.188	0.146	0.201	0.163	0.168
	Right Touch	0.123	0.070	0.143	0.316	0.459	0.318	0.183	0.160	0.130	0.072	0.336	0.509	0.652	0.511	0.376	0.353	0.323	0.694	0.671	0.641	0.265	0.448	0.425	0.395
	Right Tilt	0.073	0.041	0.143	0.316	0.459	0.318	0.103	0.043	0.062	0.023	0.257	0.430	0.573	0.432	0.217	0.157	0.176	0.535	0.475	0.494	0.137	0.240	0.180	0.199
Body-Worn (1-g SAR)	Rear	0.341	0.627	0.056	0.204	0.107	1.137	0.042	0.177	0.050	0.222	1.024	1.172	1.075	2.105	1.010	1.145	1.018	2.147	2.282	2.155	1.190	1.232	1.367	1.240
	Front	0.225	0.507	0.056	0.204	0.107	0.105	0.007	0.113	0.030	0.002	0.788	0.936	0.839	0.837	0.739	0.845	0.762	0.844	0.950	0.867	0.734	0.741	0.847	0.764
Hotspot (1-g SAR)	Rear	0.680	0.341	0.183	0.366	0.211	1.288	0.135	0.391	0.141		1.204	1.387	1.232	2.309	1.156	1.412	1.162	2.444	2.700	2.450				
	Front	0.373	0.353	0.183	0.413	0.211	0.209	0.017	0.255	0.074		0.909	1.139	0.937	0.935	0.743	0.981	0.800	0.952	1.190	1.009				
	Edge 1			0.183		0.211	1.288	0.023		0.013															
	Edge 2	0.082	0.058																						
	Edge 3	0.297	0.774																						
Product Specific 10-g (10-g SAR)	Rear						2.978				0.377														
	Front						0.449				0.048														
	Edge 1						2.978				0.026														
	Edge 2																								
	Edge 4		1.936																						
	Edge 4					1.576					0.214														

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg) (1-g or 10-g)	Calculated Distance (mm)	1-g SPLSR (±0.04) or 10-g SPLSR (±0.10)	Volume Scan (Yes/No)	Figure		
		WWAN		Non-RSDB scenarios														
		1-a	1-b	2	3	4	5	6	7	8	9							
Body-Worn (1-g SAR)	Rear	0.341	0.627				1.137	0.042				1a+1b+5+6	2.147					
		0.341	0.627				1.110					1a+1b+5+6	2.078					
		0.341	0.627									1a+1b	0.968	24.7	0.04	No		
							1.110					1a+(5+6)	1.451	149.4	0.01	No		
			0.627				1.110					1b+(5+6)	1.737	157.9	0.01	No		
Hybrid SPLSR Note.4						1.110					(5+6)							
Body-Worn (1-g SAR)	Rear	0.341	0.627				1.137		0.177			1a+1b+5+7	2.282					
		0.341	0.627				1.120					1a+1b+5+7	2.088					
		0.341	0.627									1a+1b	0.968	24.7	0.04	No		
		0.341					1.120					1a+(5+7)	1.120	149.4	0.01	No		
			0.627				1.120					1b+(5+7)	1.747	157.9	0.01	No		
Hybrid SPLSR Note.4						1.120					(5+7)							
Body-Worn (1-g SAR)	Rear	0.341	0.627				1.137			0.050		1a+1b+5+8	2.155					
		0.341	0.627				1.100					1a+1b+5+8	2.068					
		0.341	0.627									1a+1b	0.968	24.7	0.04	No		
		0.341					1.100					1a+(5+8)	1.441	149.4	0.01	No		
			0.627				1.100					1b+(5+8)	1.727	157.9	0.01	No		
Hybrid SPLSR Note.4						1.100					(5+8)							
Hotspot (1-g SAR)	Rear	0.680	0.341				1.288	0.135				1a+1b+5+6	2.444					
		0.680	0.341				1.270					1a+1b+5+6	2.291					
		0.680	0.341									1a+1b	1.021	24.7	0.04	No		
							1.270					1a+(5+6)	1.950	147.7	0.02	No		
			0.341				1.270					1b+(5+6)	1.611	156.3	0.01	No		
Hybrid SPLSR Note.4						1.270					(5+6)							

**Sum of the SAR for ENDC(LTE B5 + NR Bn66(Main Ant.1) & Wi-Fi & BT (Continued)**

Hotspot (1-g SAR)	Rear	0.680	0.341			1.288		0.391		1a+1b+5+7	2.700				20
		0.680	0.341			1.300				1a+1b+5+7	2.321				
		0.680	0.341							1a+1b	1.021	24.7	0.04	No	
		0.680				1.300				1a+(5+7)	1.980	147.7	0.02	No	
			0.341			1.300				1b+(5+7)	1.641	156.3	0.01	No	
Hybrid SPLSR Note.4						1.300			(5+7)						
Hotspot (1-g SAR)	Rear	0.680	0.341			1.288		0.141		1a+1b+5+8	2.450			21	
		0.680	0.341			1.250				1a+1b+5+8	2.271				
		0.680	0.341							1a+1b	1.021	24.7	0.04		No
		0.680				1.250				1a+(5+8)	1.930	147.7	0.02		No
			0.341			1.250				1b+(5+8)	1.591	156.3	0.01		No
Hybrid SPLSR Note.4						1.25			(5+8)						

**RSDB scenarios**

RF Exposure	Test Position	Standalone SAR (W/kg)						Sum of SAR (W/kg)								
		WWAN		RSDB scenarios				WWAN + DTS Ant.1 + UNII MIMO	WWAN + DTS Ant.2 + UNII MIMO	WWAN + DTS MIMO + UNII MIMO	RSDB Sum (DTS MIMO + UNII MIMO)	WWAN + DTS Ant.1 + UNII MIMO	WWAN + DTS Ant.2 + UNII MIMO	WWAN + DTS MIMO + UNII MIMO	RSDB Sum (DTS MIMO + UNII MIMO)	
		1-a(LTE)	1-b(NR)	2	3	4	5	6	1+2+5	1+3+5	1+4+5	4+5	1+2+6	1+3+6	1+4+6	4+6
Head (1-g SAR)	Left Touch	0.208	0.068	0.048	0.065	0.113	0.104	0.018	0.428	0.445	0.493	0.217	0.342	0.359	0.407	0.131
	Left Tilt	0.085	0.045	0.029	0.008	0.037	0.036	0.016	0.195	0.174	0.203	0.073	0.175	0.154	0.183	0.053
	Right Touch	0.123	0.070	0.064	0.009	0.073	0.318	0.072	0.575	0.520	0.584	0.391	0.329	0.274	0.338	0.145
	Right Tilt	0.073	0.041	0.064	0.065	0.129	0.318	0.023	0.496	0.497	0.561	0.447	0.201	0.202	0.266	0.152
Body-Worn (1-g SAR)	Rear	0.341	0.627	0.056	0.204	0.107	0.297	0.222	1.321	1.469	1.372	0.404	1.246	1.394	1.297	0.329
	Front	0.225	0.507	0.056	0.204	0.107	0.023	0.002	0.811	0.959	0.862	0.130	0.790	0.938	0.841	0.109
Hotspot (1-g SAR)	Rear	0.680	0.341	0.183	0.366	0.211	1.288		2.492	2.675	2.520	1.499				
	Front	0.373	0.353	0.183	0.413	0.211	0.209		1.118	1.348	1.146	0.420				
	Edge 1			0.183		0.211	1.288									
	Edge 2	0.082	0.058													
	Edge 3	0.297	0.774													
	Edge 4	0.167	0.045	0.183	0.413	0.211	0.642		1.037	1.267	1.065	0.853				

**SAR to Peak Location Separation Ratio (SPLSR)**

RF Exposure	Test Position	Standalone SAR (W/kg)						Sum of SAR (W/kg) (1-g or 10-g)	Calculated Distance (mm)	1-g SPLSR (= <0.04) or 10-g SPLSR (= <0.10)	Volume Scan (Yes/No) Note.3	Figure	
		WWAN		RSDB scenarios									
		1-a(LTE)	1-b(NR)	2	3	4	5						6
Hotspot (1-g SAR)	Rear	0.680	0.341	0.183			1.288	1a+1b+2+5	2.492			22	
		0.680	0.341					1a+1b+(2+5)	2.291				
		0.680	0.341					1a+1b	1.021	24.7	0.04		No
		0.680				1.270		1b+(2+5)	1.950	147.7	0.02		No
			0.341			1.270		1b+(2+5)	1.611	156.3	0.01		No
Hybrid SPLSR Note.4						1.270	(2+5)						
Hotspot (1-g SAR)	Rear	0.680	0.341		0.366		1.288	1a+1b+3+5	2.675			23	
		0.680	0.341					1a+1b+(3+5)	2.331				
		0.680	0.341					1a+1b	1.021	24.7	0.04		No
		0.680				1.310		1b+(3+5)	1.990	147.7	0.02		No
			0.341			1.310		1b+(3+5)	1.651	156.3	0.01		No
Hybrid SPLSR Note.4						1.310	(3+5)						
Hotspot (1-g SAR)	Rear	0.680	0.341			0.211	1.288	1a+1b+4+5	2.520			24	
		0.680	0.341				1.300	1a+1b+(4+5)	2.321				
		0.680	0.341					1a+1b	1.021	24.7	0.04		No
		0.680				1.300		1b+(4+5)	1.980	147.7	0.02		No
			0.341			1.300		1b+(4+5)	1.641	156.3	0.01		No
Hybrid SPLSR Note.4						1.300	(4+5)						

**Note(s):**

- Green value is estimated SAR value. And Blue values are summation of DTS Ant.1 and DTS Ant.2
- WiFi&BT data refer to Original model(4790089631-S1 FCC Report SAR).
- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to Original model(4790089631-S1 FCC Report SAR) for detailed Volume Scan Result.
- SPLSR Hotspot Combination Step.2) Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair. Hybrid SPLSR procedure was applied for the spatially separated main bands and unlicensed bands for Multi-band Combined results.
- LTE Band 5 is subset of LTE Band 26, So LTE Band 26 was used to do Simultaneous transmission analysis.
- Simultaneous transmission scenarios (1+5) are subset of (1+5+7) scenarios.

### 12.4. Sum of the SAR for ENDC(LTE B12 + NR Bn66(Main Ant.1)) & Wi-Fi & BT Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)													
		WWAN		Non-RSDB scenarios								WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNI MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + BT MIMO	WWAN + UNI MIMO + BT Ant.1	WWAN + UNI MIMO + BT Ant.2	WWAN + UNI MIMO + BT MIMO	WWAN + UNI MIMO + BT Ant.1	WWAN + UNI MIMO + BT Ant.2	WWAN + UNI MIMO + BT MIMO	
		1-a (LTE)	1-b (NR)	2	3	4	5	6	7	8	9	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+5+6	1+5+7	1+5+8	1+9	1+5+9	1+7+9	1+8+9
Head (1-g SAR)	Left Touch	0.161	0.068	0.097	0.278	0.375	0.104	0.150	0.121	0.101	0.018	0.326	0.507	0.604	0.333	0.379	0.350	0.330	0.483	0.454	0.434	0.247	0.397	0.368	0.348
	Left Tilt	0.070	0.045	0.060	0.053	0.113	0.036	0.055	0.017	0.022	0.016	0.175	0.168	0.228	0.151	0.170	0.132	0.137	0.206	0.168	0.173	0.131	0.186	0.148	0.153
	Right Touch	0.108	0.070	0.143	0.316	0.459	0.318	0.183	0.160	0.130	0.072	0.321	0.494	0.637	0.496	0.361	0.338	0.308	0.679	0.656	0.626	0.250	0.433	0.410	0.380
	Right Tilt	0.054	0.041	0.143	0.316	0.459	0.318	0.103	0.043	0.062	0.023	0.238	0.411	0.554	0.413	0.198	0.138	0.157	0.516	0.456	0.475	0.118	0.221	0.161	0.180
Body-Worn (1-g SAR)	Rear	0.181	0.627	0.056	0.204	0.107	1.137	0.042	0.177	0.050	0.222	0.864	1.012	0.915	1.945	0.850	0.985	0.858	1.987	2.122	1.995	1.030	1.072	1.207	1.080
	Front	0.181	0.507	0.056	0.204	0.107	0.105	0.007	0.113	0.030	0.002	0.744	0.892	0.795	0.793	0.695	0.801	0.718	0.800	0.906	0.823	0.690	0.697	0.803	0.720
Hotspot (1-g SAR)	Rear	0.335	0.341	0.183	0.366	0.211	1.288	0.135	0.391	0.141		0.859	1.042	0.887	1.964	0.811	1.067	0.817	2.099	2.355	2.105				
	Front	0.193	0.353	0.183	0.413	0.211	0.209	0.017	0.255	0.074		0.729	0.959	0.757	0.755	0.563	0.801	0.620	0.772	1.010	0.829				
	Edge 1			0.183		0.211	1.288		0.023		0.013														
	Edge 2	0.195	0.058																						
	Edge 3	0.090	0.774																						
Product Specific 10-g (10-g SAR)	Rear						2.978				0.377														
	Front						0.449				0.048														
	Edge 1						2.978				0.026														
	Edge 2																								
	Edge 4		1.936																						
	Edge 4					1.576					0.214														

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg) (1-g or 10-g)	Calculated Distance (mm)	1-g SPLSR (±0.04) or 10-g SPLSR (±0.10)	Volume Scan (Yes/No) <small>Note.3</small>	Figure											
		WWAN		DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO (SPH)	BT Ant.1	BT Ant.2	BT MIMO	UNI MIMO (SPH)																
		1-a	1-b	2	3	4	5	6	7	8	9																
Body-Worn (1-g SAR)	Rear	0.181	0.627				1.137	0.042				1a+1b+5+6	1.987													25	
		0.181	0.627				1.110					1a+1b+(5+6)	1.918														
		0.181	0.627									1a+1b	0.808	23.4	0.03	No											
							1.110					1a+(5+6)	1.291	147.0	0.01	No											
			0.627				1.110					1b+(5+6)	1.737	157.9	0.01	No											
Hybrid SPLSR <small>Note.4</small>						1.110					(5+6)																
Body-Worn (1-g SAR)	Rear	0.181	0.627				1.137		0.177			1a+1b+5+7	2.122													26	
		0.181	0.627				1.120					1a+1b+(5+7)	1.928														
		0.181	0.627									1a+1b	0.808	23.4	0.03	No											
		0.181					1.120					1a+(5+7)	1.120	147.0	0.01	No											
			0.627				1.120					1b+(5+7)	1.747	157.9	0.01	No											
Hybrid SPLSR <small>Note.4</small>						1.120					(5+7)																
Body-Worn (1-g SAR)	Rear	0.181	0.627				1.137			0.050		1a+1b+5+8	1.995												27		
		0.181	0.627				1.100					1a+1b+(5+8)	1.908														
		0.181	0.627									1a+1b	0.808	23.4	0.03	No											
		0.181					1.100					1a+(5+8)	1.281	147.0	0.01	No											
			0.627				1.100					1b+(5+8)	1.727	157.9	0.01	No											
Hybrid SPLSR <small>Note.4</small>						1.100					(5+8)																
Hotspot (1-g SAR)	Rear	0.335	0.341				1.288	0.135				1a+1b+5+6	2.099												28		
		0.335	0.341				1.270					1a+1b+(5+6)	1.946														
		0.335	0.341									1a+1b	0.676	19.8	0.03	No											
		0.335					1.270					1a+(5+6)	1.605	151.3	0.01	No											
			0.341				1.270					1b+(5+6)	1.611	156.3	0.01	No											
Hybrid SPLSR <small>Note.4</small>						1.270					(5+6)																

**Sum of the SAR for ENDC(LTE B12 + NR Bn66(Main Ant.1) & Wi-Fi & BT (Continued)**

Hotspot (1-g SAR)	Rear	0.335	0.341			1.288	0.391		1a+1b+5+7	2.355				29
		0.335	0.341			1.300			1a+1b+5+7	1.976				
		0.335	0.341						1a+1b	0.676	19.8	0.03	No	
		0.335				1.300			1a+5+7	1.635	151.3	0.01	No	
			0.341			1.300			1b+5+7	1.641	156.3	0.01	No	
Hybrid SPLSR Note.4						1.300		(5+7)						
Hotspot (1-g SAR)	Rear	0.335	0.341			1.288		0.141	1a+1b+5+8	2.105				30
		0.335	0.341			1.250			1a+1b+5+8	1.926				
		0.335	0.341						1a+1b	0.676	19.8	0.03	No	
		0.335				1.250			1a+5+8	1.585	151.3	0.01	No	
			0.341			1.250			1b+5+8	1.591	156.3	0.01	No	
Hybrid SPLSR Note.4						1.25		(5+7)						

**RSDB scenarios**

RF Exposure	Test Position	Standalone SAR (W/kg)						Sum of SAR (W/kg)								
		WWAN		RSDB scenarios				WWAN + DTS Ant.1 + UNII MIMO	WWAN + DTS Ant.2 + UNII MIMO	WWAN + DTS MIMO + UNII MIMO	RSDB Sum (DTS MIMO + UNII MIMO)	WWAN + DTS Ant.1 + UNII MIMO	WWAN + DTS Ant.2 + UNII MIMO	WWAN + DTS MIMO + UNII MIMO	RSDB Sum (DTS MIMO + UNII MIMO)	
		1-a(LTE)	1-b(NR)	2	3	4	5	6	1+2+5	1+3+5	1+4+5	4+5	1+2+6	1+3+6	1+4+6	4+6
Head (1-g SAR)	Left Touch	0.161	0.068	0.048	0.065	0.113	0.104	0.018	0.381	0.398	0.446	0.217	0.295	0.312	0.360	0.131
	Left Tilt	0.070	0.045	0.029	0.008	0.037	0.036	0.016	0.180	0.159	0.188	0.073	0.160	0.139	0.168	0.053
	Right Touch	0.108	0.070	0.064	0.009	0.073	0.318	0.072	0.560	0.505	0.569	0.391	0.314	0.259	0.323	0.145
	Right Tilt	0.054	0.041	0.064	0.065	0.129	0.318	0.023	0.477	0.478	0.542	0.447	0.182	0.183	0.247	0.152
Body-Worn (1-g SAR)	Rear	0.181	0.627	0.056	0.204	0.107	0.297	0.222	1.161	1.309	1.212	0.404	1.086	1.234	1.137	0.329
	Front	0.181	0.507	0.056	0.204	0.107	0.023	0.002	0.767	0.915	0.818	0.130	0.746	0.894	0.797	0.109
Hotspot (1-g SAR)	Rear	0.335	0.341	0.183	0.366	0.211	1.288		2.147	2.330	2.175	1.499				
	Front	0.193	0.353	0.183	0.413	0.211	0.209		0.938	1.168	0.966	0.420				
	Edge 1			0.183		0.211	1.288									
	Edge 2	0.195	0.058													
	Edge 3	0.090	0.774													
	Edge 4	0.141	0.045	0.183	0.413	0.211	0.642		1.011	1.241	1.039	0.853				

**SAR to Peak Location Separation Ratio (SPLSR)**

RF Exposure	Test Position	Standalone SAR (W/kg)						Sum of SAR (W/kg) (1-g or 10-g)	Calculated Distance (mm)	1-g SPLSR (≤0.04) or 10-g SPLSR (≤0.10)	Volume Scan (Yes/No) Note.3	Figure	
		WWAN		RSDB scenarios									
		1-a(LTE)	1-b(NR)	2	3	4	5						6
Hotspot (1-g SAR)	Rear	0.335	0.341	0.183			1.288	1a+1b+2+5	2.147			31	
		0.335	0.341			1.270		1a+1b+(2+5)	1.946				
		0.335	0.341					1a+1b	0.676	19.8	0.03		No
		0.335				1.270		1b+(2+5)	1.605	151.3	0.01		No
			0.341			1.270		1b+(2+5)	1.611	156.3	0.01		No
Hybrid SPLSR Note.4						1.270	(2+5)						
Hotspot (1-g SAR)	Rear	0.335	0.341		0.366		1.288	1a+1b+3+5	2.330			32	
		0.335	0.341			1.310		1a+1b+(3+5)	1.986				
		0.335	0.341					1a+1b	0.676	19.8	0.03		No
		0.335				1.310		1b+(3+5)	1.645	151.3	0.01		No
			0.341			1.310		1b+(3+5)	1.651	156.3	0.01		No
Hybrid SPLSR Note.4						1.310	(3+5)						
Hotspot (1-g SAR)	Rear	0.335	0.341			0.211	1.288	1a+1b+4+5	2.175			33	
		0.335	0.341			1.300		1a+1b+(4+5)	1.976				
		0.335	0.341					1a+1b	0.676	19.8	0.03		No
		0.335				1.300		1b+(4+5)	1.635	151.3	0.01		No
			0.341			1.300		1b+(4+5)	1.641	156.3	0.01		No
Hybrid SPLSR Note.4						1.300	(4+5)						

**Note(s):**

- Green value is estimated SAR value. And Blue values are summation of DTS Ant.1 and DTS Ant.2
- WiFi&BT data refer to Original model(4790089631-S1 FCC Report SAR).
- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to Original model(4790089631-S1 FCC Report SAR) for detailed Volume Scan Result.
- SPLSR Hotspot Combination Step.2) Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair. Hybrid SPLSR procedure was applied for the spatially separated main bands and unlicensed bands for Multi-band Combined results.
- Simultaneous transmission scenarios (1+5) are subset of (1+5+7) scenarios.

## 12.5. Sum of the SAR for ENDC(LTE B13 + NR Bn66(Main Ant.1)) & Wi-Fi & BT Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)													
		WWAN		Non-RSDB scenarios								WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNI MIMO	WWAN + BT Ant.1	WWAN + BT Ant.2	WWAN + BT MIMO	WWAN + UNI MIMO + BT Ant.1	WWAN + UNI MIMO + BT Ant.2	WWAN + UNI MIMO + BT MIMO	WWAN + UNI MIMO + BT Ant.1	WWAN + UNI MIMO + BT Ant.2	WWAN + UNI MIMO + BT MIMO	
		1-a (LTE)	1-b (NR)	2	3	4	5	6	7	8	9	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+5+6	1+5+7	1+5+8	1+9	1+5+9	1+7+9	1+8+9
		0.171	0.068	0.097	0.278	0.375	0.104	0.150	0.121	0.101	0.018	0.336	0.517	0.614	0.343	0.389	0.360	0.340	0.493	0.464	0.444	0.257	0.407	0.378	0.358
Head (1-g SAR)	Left Touch	0.078	0.045	0.060	0.053	0.113	0.036	0.055	0.017	0.022	0.016	0.183	0.176	0.236	0.159	0.178	0.140	0.145	0.214	0.176	0.181	0.139	0.194	0.156	0.161
	Left Tilt	0.137	0.070	0.143	0.316	0.459	0.318	0.183	0.160	0.130	0.072	0.350	0.523	0.666	0.525	0.390	0.367	0.337	0.708	0.685	0.655	0.279	0.462	0.439	0.409
	Right Touch	0.091	0.041	0.143	0.316	0.459	0.318	0.103	0.043	0.062	0.023	0.275	0.448	0.591	0.450	0.235	0.175	0.194	0.553	0.493	0.512	0.155	0.258	0.198	0.217
	Right Tilt	0.236	0.627	0.056	0.204	0.107	1.137	0.042	0.177	0.050	0.222	0.919	1.067	0.970	2.000	0.905	1.040	0.913	2.042	2.177	2.050	1.085	1.127	1.262	1.135
Body-Worn (1-g SAR)	Rear	0.217	0.507	0.056	0.204	0.107	0.105	0.007	0.113	0.030	0.002	0.780	0.928	0.831	0.829	0.731	0.837	0.754	0.836	0.942	0.859	0.726	0.733	0.839	0.756
	Front	0.576	0.341	0.183	0.366	0.211	1.288	0.135	0.391	0.141		1.100	1.283	1.128	2.205	1.052	1.308	1.058	2.340	2.596	2.346				
Hotspot (1-g SAR)	Front	0.325	0.353	0.183	0.413	0.211	0.209	0.017	0.255	0.074		0.861	1.091	0.889	0.887	0.695	0.933	0.752	0.904	1.142	0.961				
	Edge 1	0.208	0.058																						
	Edge 2	0.180	0.774																						
	Edge 3	0.231	0.045	0.183	0.413	0.211	0.642	0.018	0.442	0.096		0.459	0.689	0.467	0.918	0.294	0.718	0.372	0.936	1.360	1.014				
	Edge 4																								
Product Specific 10-g (10-g SAR)	Rear						2.978				0.377														
	Front						0.449				0.048														
	Edge 1						2.978				0.026														
	Edge 2																								
	Edge 4		1.936																						
						1.576					0.214														

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg) (1-g or 10-g)	Calculated Distance (mm)	1-g SPLSR (±0.04) or 10-g SPLSR (±0.10)	Volume Scan (Yes/No) <small>Note.3</small>	Figure		
		WWAN		DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO (SPH)	BT Ant.1	BT Ant.2	BT MIMO	UNI MIMO (SPH)							
		1-a	1-b	2	3	4	5	6	7	8	9							
Body-Worn (1-g SAR)	Rear	0.236	0.627				1.137	0.042				1a+1b+5+6	2.042					
		0.236	0.627				1.110					1a+1b+(5+6)	1.973					
		0.236	0.627									1a+1b	0.863	24.5	0.03	No		
							1.110					1a+(5+6)	1.346	145.5	0.01	No		
			0.627				1.110					1b+(5+6)	1.737	157.9	0.01	No		
Hybrid SPLSR <small>Note.4</small>						1.110					(5+6)							
Body-Worn (1-g SAR)	Rear	0.236	0.627				1.137		0.177			1a+1b+5+7	2.177					
		0.236	0.627				1.120					1a+1b+(5+7)	1.983					
		0.236	0.627									1a+1b	0.863	24.5	0.03	No		
		0.236					1.120					1a+(5+7)	1.120	145.5	0.01	No		
			0.627				1.120					1b+(5+7)	1.747	157.9	0.01	No		
Hybrid SPLSR <small>Note.4</small>						1.120					(5+7)							
Body-Worn (1-g SAR)	Rear	0.236	0.627				1.137			0.050		1a+1b+5+8	2.050					
		0.236	0.627				1.100					1a+1b+(5+8)	1.963					
		0.236	0.627									1a+1b	0.863	24.5	0.03	No		
		0.236					1.100					1a+(5+8)	1.336	145.5	0.01	No		
			0.627				1.100					1b+(5+8)	1.727	157.9	0.01	No		
Hybrid SPLSR <small>Note.4</small>						1.100					(5+8)							
Hotspot (1-g SAR)	Rear	0.576	0.341				1.288	0.135				1a+1b+5+6	2.340					
		0.576	0.341				1.270					1a+1b+(5+6)	2.187					
		0.576	0.341									1a+1b	0.917	21.2	0.04	No		
							1.270					1a+(5+6)	1.846	146.3	0.02	No		
			0.341				1.270					1b+(5+6)	1.611	156.3	0.01	No		
Hybrid SPLSR <small>Note.4</small>						1.270					(5+6)							

**Sum of the SAR for ENDC(LTE B13 + NR Bn66(Main Ant.1) & Wi-Fi & BT (Continued)**

Hotspot (1-g SAR)	Rear	0.576	0.341			1.288		0.391		1a+1b+5+7	2.596							
		0.576	0.341			1.300				1a+1b+5+7	2.217							
		0.576	0.341							1a+1b	0.917	21.2	0.04	No				
		0.576				1.300				1a+(5+7)	1.876	146.3	0.02	No				
			0.341			1.300				1b+(5+7)	1.641	156.3	0.01	No				
Hybrid SPLSR Note.4						1.300			(5+7)									
Hotspot (1-g SAR)	Rear	0.576	0.341			1.288		0.141		1a+1b+5+8	2.346							
		0.576	0.341			1.250				1a+1b+5+8	2.167							
		0.576	0.341							1a+1b	0.917	21.2	0.04	No				
		0.576				1.250				1a+(5+8)	1.826	146.3	0.02	No				
			0.341			1.250				1b+(5+8)	1.591	156.3	0.01	No				
Hybrid SPLSR Note.4						1.250			(5+8)									

**RSDB scenarios**

RF Exposure	Test Position	Standalone SAR (W/kg)						Sum of SAR (W/kg)								
		WWAN		RSDB scenarios				WWAN + DTS Ant.1 + UNII MIMO	WWAN + DTS Ant.2 + UNII MIMO	WWAN + DTS MIMO + UNII MIMO	RSDB Sum (DTS MIMO + UNII MIMO)	WWAN + DTS Ant.1 + UNII MIMO	WWAN + DTS Ant.2 + UNII MIMO	WWAN + DTS MIMO + UNII MIMO	RSDB Sum (DTS MIMO + UNII MIMO)	
		1-a(LTE)	1-b(NR)	2	3	4	5	6	1+2+5	1+3+5	1+4+5	4+5	1+2+6	1+3+6	1+4+6	4+6
Head (1-g SAR)	Left Touch	0.171	0.068	0.048	0.065	0.113	0.104	0.018	0.391	0.408	0.456	0.217	0.305	0.322	0.370	0.131
	Left Tilt	0.078	0.045	0.029	0.008	0.037	0.036	0.016	0.188	0.167	0.196	0.073	0.168	0.147	0.176	0.053
	Right Touch	0.137	0.070	0.064	0.009	0.073	0.318	0.072	0.589	0.534	0.598	0.391	0.343	0.288	0.352	0.145
	Right Tilt	0.091	0.041	0.064	0.065	0.129	0.318	0.023	0.514	0.515	0.579	0.447	0.219	0.220	0.284	0.152
Body-Worn (1-g SAR)	Rear	0.236	0.627	0.056	0.204	0.107	0.297	0.222	1.216	1.364	1.267	0.404	1.141	1.289	1.192	0.329
	Front	0.217	0.507	0.056	0.204	0.107	0.023	0.002	0.803	0.951	0.854	0.130	0.782	0.930	0.833	0.109
Hotspot (1-g SAR)	Rear	0.576	0.341	0.183	0.366	0.211	1.288		2.388	2.571	2.416	1.499				
	Front	0.325	0.353	0.183	0.413	0.211	0.209		1.070	1.300	1.098	0.420				
	Edge 1			0.183		0.211	1.288									
	Edge 2	0.208	0.058													
	Edge 3	0.180	0.774													
	Edge 4	0.231	0.045	0.183	0.413	0.211	0.642		1.101	1.331	1.129	0.853				

**SAR to Peak Location Separation Ratio (SPLSR)**

RF Exposure	Test Position	Standalone SAR (W/kg)						Sum of SAR (W/kg) (1-g or 10-g)	Calculated Distance (mm)	1-g SPLSR (=<0.04) or 10-g SPLSR (=<0.10)	Volume Scan (Yes/No) Note.3	Figure	
		WWAN		RSDB scenarios									
		1-a(LTE)	1-b(NR)	2	3	4	5						6
Hotspot (1-g SAR)	Rear	0.576	0.341	0.183			1.288	1a+1b+2+5	2.388			40	
		0.576	0.341			1.270		1a+1b+(2+5)	2.187				
		0.576	0.341					1a+1b	0.917	21.2	0.04		No
		0.576				1.270		1b+(2+5)	1.846	146.3	0.02		No
			0.341			1.270		1b+(2+5)	1.611	156.3	0.01		No
Hybrid SPLSR Note.4						1.270		(2+5)					
Hotspot (1-g SAR)	Rear	0.576	0.341		0.366		1.288	1a+1b+3+5	2.571			41	
		0.576	0.341			1.310		1a+1b+(3+5)	2.227				
		0.576	0.341					1a+1b	0.917	21.2	0.04		No
		0.576				1.310		1b+(3+5)	1.886	146.3	0.02		No
			0.341			1.310		1b+(3+5)	1.651	156.3	0.01		No
Hybrid SPLSR Note.4						1.310		(3+5)					
Hotspot (1-g SAR)	Rear	0.576	0.341			0.211	1.288	1a+1b+4+5	2.416			42	
		0.576	0.341				1.300	1a+1b+(4+5)	2.217				
		0.576	0.341					1a+1b	0.917	21.2	0.04		No
		0.576				1.300		1b+(4+5)	1.876	146.3	0.02		No
			0.341			1.300		1b+(4+5)	1.641	156.3	0.01		No
Hybrid SPLSR Note.4						1.300		(4+5)					

**Note(s):**

- Green value is estimated SAR value. And Blue values are summation of DTS Ant.1 and DTS Ant.2
- WiFi&BT data refer to Original model(4790089631-S1 FCC Report SAR).
- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to Original model(4790089631-S1 FCC Report SAR) for detailed Volume Scan Result.
- SPLSR Hotspot Combination Step.2) Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair. Hybrid SPLSR procedure was applied for the spatially separated main bands and unlicensed bands for Multi-band Combined results.
- Simultaneous transmission scenarios (1+5) are subset of (1+5+7) scenarios.

**Conclusion:**

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

## **Appendixes**

**Refer to separated files for the following appendixes.**

**4790263700-S1 FCC Report SAR\_App A\_Photos & Ant. Locations**

**4790263700-S1 FCC Report SAR\_App B\_Highest SAR Test Plots**

**4790263700-S1 FCC Report SAR\_App C\_System Check Plots**

**4790263700-S1 FCC Report SAR\_App D\_SAR Tissue Ingredients**

**4790263700-S1 FCC Report SAR\_App E\_Probe Cal. Certificates**

**4790263700-S1 FCC Report SAR\_App F\_Dipole Cal. Certificates**

**4790263700-S1 FCC Report SAR\_App G\_Proximity Sensor feature**

**4790263700-S1 FCC Report SAR\_App H\_SPLSR criteria plots**

**END OF REPORT**