



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-S906B/DS**

**FCC ID: A3LSMS906B**

**REPORT NUMBER: 4790264492-S1V3**

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**TL-637**

**Revision History**

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## 1. Attestation of Test Results

Applicant Name	SAMSUNG ELECTRONICS CO.,LTD.			
FCC ID	A3LSMS906B			
Model Number	SM-S906B/DS			
Applicable Standards	FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures			
	SAR Limits (W/Kg)			
Exposure Category	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	1.10	0.63	0.65	0.28
Body-worn	0.58	0.19	0.53	0.16
Hotspot	1.20	0.43	0.53	0.45
Product Specific 10g	1.50	N/A	2.29	N/A
Simultaneous TX	Head	1.58	1.55	1.58
	Body-worn	1.58	1.41	1.58
	Hotspot	1.59	1.57	1.59
	Product Specific 10g	3.83	N/A	3.83
Date Tested	1/18/2022 to 3/14/2022			
Test Results	Pass			

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released By:  	Prepared By:  
Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory	Jeongyeon Won Senior Laboratory technician UL Korea, Ltd. Suwon Laboratory

## 1.1. Spot-check Results

Antenna	Test Band	RF Exposure Conditions	Mode	Pwr Back-off	Test distance (mm)	Test Position	Ch	Freq (MHz)	RB Allocation	RB Offset	Power		Version 1 (Original)		Version 2		Version 3		Note
											Tune-up Limit	Meas.	1-g SAR (W/kg) or 10-g SAR (W/kg)	Meas.	Scaled	1-g SAR (W/kg) or 10-g SAR (W/kg)	Meas.	Scaled	
Ant. A	NR Bn25	Head	DFT-s-OFDM (QPSK)	Off	0	Left Tilt	381000	1905.0	1	53	24.0	23.8	0.068	0.071	0.029	0.030	0.251	0.260	
		Body-worn	DFT-s-OFDM (QPSK)	Off	15	Rear	381000	1905.0	1	53	24.0	23.8	0.563	0.584	0.494	0.513	0.461	0.478	
		Hotspot	DFT-s-OFDM (QPSK)	On	10	Edge 3	381000	1905.0	50	28	21.0	20.7	1.120	1.197	1.060	1.133	1.010	1.080	
		Product Specific 10-g	DFT-s-OFDM (QPSK)	On	0	Edge 3	381000	1905.0	1	53	21.0	20.5	1.330	1.502	1.100	1.242	1.330	1.502	
Ant. F	NR Bn41	Head	DFT-s-OFDM (QPSK)	Off	0	Left Tilt	518598	2593.0	135	69	25.5	24.6	0.893	1.103	0.867	1.071	0.691	0.854	
		Body-worn	DFT-s-OFDM (QPSK)	Off	15	Rear	518598	2593.0	1	271	25.5	24.6	0.100	0.124	0.098	0.121	0.085	0.105	
		Hotspot	DFT-s-OFDM (QPSK)	Off	10	Edge 1	518598	2593.0	135	69	25.5	24.6	0.323	0.399	0.300	0.371	0.218	0.269	
Ant. G	NR Bn77	Head	DFT-s-OFDM (QPSK)	On	0	Right Touch	662000	3930.0	135	69	22.5	22.2	0.440	0.473	0.424	0.455	0.439	0.471	
		Body-worn	DFT-s-OFDM (QPSK)	Off	15	Rear	662000	3930.0	135	69	25.5	24.5	0.102	0.129	0.102	0.129	0.098	0.123	
		Hotspot	DFT-s-OFDM (QPSK)	Off	10	Edge 4	650000	3750.0	135	69	25.5	24.2	0.468	0.637	0.418	0.569	0.415	0.565	

## 2. Test Specification, Methods and Procedures

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

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 648474 D04 Handset SAR v01r03
- 690783 D01 SAR Listings on Grants v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02
- 941225 D06 Hotspot Mode v02r01
- 941225 D07 UMPCT 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, 2014; RF Exposure Procedures Update (Other LTE Considerations)
- [TCB workshop](#) October, 2016; RF Exposure Procedures (Bluetooth Duty Factor)
- [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](#) November, 2017; RF Exposure Procedures (LTE UL/DL Carrier Aggregation SAR)
- [TCB workshop](#) April, 2018; RF Exposure Procedures (LTE DL CA SAR Test Exclusion Update)
- [TCB workshop](#) April, 2018; RF Exposure Procedures (LTE Inter-Band Uplink Carrier Aggregation – Interim Procedures)
- [TCB workshop](#) April, 2019; RF Exposure Procedures (Tissue Simulating Liquids (TSL))
- [TCB workshop](#) November, 2019; RF Exposure Procedures (SPLSR Hotspot Combination)
- [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 1 Room
SAR 3 Room
SAR 4 Room
SAR 5 Room

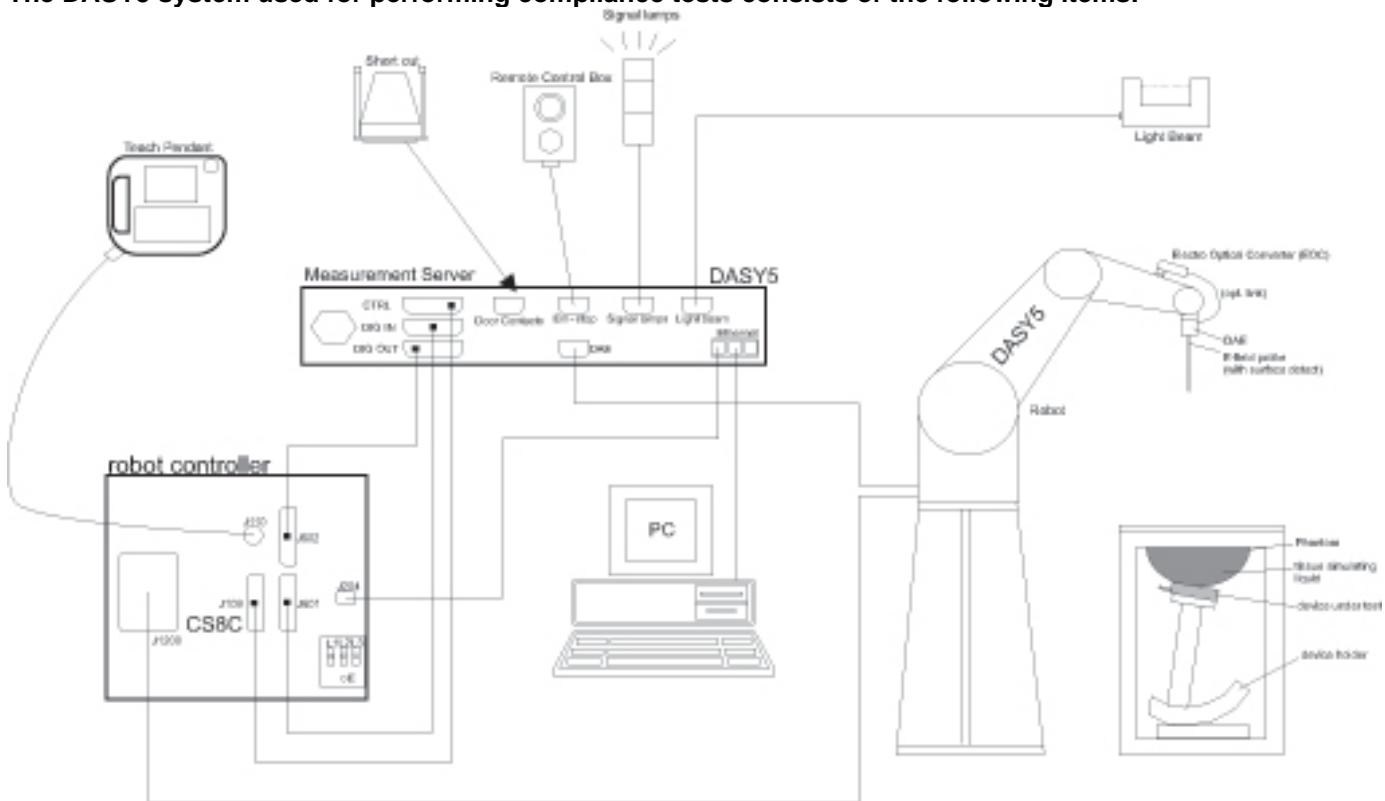
UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.

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

## 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

	$\leq 3 \text{ GHz}$	$> 3 \text{ GHz}$
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	$5 \pm 1 \text{ mm}$	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5 \text{ mm}$
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
	$\leq 2 \text{ GHz}: \leq 15 \text{ mm}$ $2 - 3 \text{ GHz}: \leq 12 \text{ mm}$	$3 - 4 \text{ GHz}: \leq 12 \text{ mm}$ $4 - 6 \text{ GHz}: \leq 10 \text{ mm}$
Maximum area scan spatial resolution: $\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$	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

		$\leq 3$ GHz	$> 3$ GHz
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}$ , $\Delta y_{Zoom}$		$\leq 2$ GHz: $\leq 8$ mm $2 - 3$ GHz: $\leq 5$ mm*	$3 - 4$ GHz: $\leq 5$ mm* $4 - 6$ GHz: $\leq 4$ mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$ graded grid	$\leq 5$ mm	$3 - 4$ GHz: $\leq 4$ mm $4 - 5$ GHz: $\leq 3$ mm $5 - 6$ GHz: $\leq 2$ mm
		$\leq 4$ mm	$3 - 4$ GHz: $\leq 3$ mm $4 - 5$ GHz: $\leq 2.5$ mm $5 - 6$ GHz: $\leq 2$ mm
Minimum zoom scan volume	x, y, z	$\geq 30$ mm	$3 - 4$ GHz: $\geq 28$ mm $4 - 5$ GHz: $\geq 25$ mm $5 - 6$ GHz: $\geq 22$ 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 *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is  $\leq 1.4$  W/kg,  $\leq 8$  mm,  $\leq 7$  mm and  $\leq 5$  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	FILTRON	L14012FL	1410003S	8-3-2022
Low Pass Filter	MICROLAB	LA-60N	3942	8-4-2022
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	7314	5-31-2022
E-Field Probe	SPEAG	EX3DV4	7646	4-23-2022
E-Field Probe	SPEAG	EX3DV4	7645	4-15-2022
E-Field Probe	SPEAG	EX3DV4	7376	7-30-2022
E-Field Probe	SPEAG	EX3DV4	7330	1-28-2023
Data Acquisition Electronics	SPEAG	DAE4	1343	2022-08-23
Data Acquisition Electronics	SPEAG	DAE4	1447	2022-03-23
Data Acquisition Electronics	SPEAG	DAE4	1468	9-27-2022
Data Acquisition Electronics	SPEAG	DAE4	1591	3-26-2022
Data Acquisition Electronics	SPEAG	DAE4	1494	7-27-2022
System Validation Dipole	SPEAG	D750V3	1205	4-27-2023
System Validation Dipole	SPEAG	D835V2	4d194	3-20-2022
System Validation Dipole	SPEAG	D1750V2	1180	4-27-2023
System Validation Dipole	SPEAG	D1900V2	5d199	3-19-2022
System Validation Dipole	SPEAG	D2450V2	960	3-20-2022
System Validation Dipole	SPEAG	D2450V2	939	7-21-2023
System Validation Dipole	SPEAG	D2600V2	1178	4-23-2023
System Validation Dipole	SPEAG	D3500V2	1121	4-21-2023
System Validation Dipole	SPEAG	D3700V2	1036	5-21-2023
System Validation Dipole	SPEAG	D3900V2	1069	4-21-2023
System Validation Dipole	SPEAG	D5GHzV2	1184	12-3-2022
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	CMV500	169801	8-3-2022
UXM 5G Wireless Test Platform	Keysight	E7515B	MY57510596	8-6-2022
UXM 5G Wireless Test Platform	Keysight	E7515B	MY59150850	12-13-2022
UXM 5G Wireless Test Platform	Keysight	E7515B	MY58460570	12-13-2022

#### Note(s):

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

## 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	<b>Version 1 (Original model)</b> <table> <thead> <tr> <th>No.</th> <th>S/N</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>R3CR80TBWBD</td> <td>Main Conducted</td> </tr> <tr> <td>2</td> <td>354601550032483</td> <td>Main Conducted</td> </tr> <tr> <td>3</td> <td>356200260032483</td> <td>Main Conducted</td> </tr> <tr> <td>4</td> <td>5b821305361d7ece</td> <td>Main Conducted</td> </tr> <tr> <td>5</td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>R3CR80TBTPW</td> <td>SAR</td> </tr> <tr> <td>7</td> <td>354601550031949</td> <td>SAR</td> </tr> <tr> <td>8</td> <td>356200260031949</td> <td>SAR</td> </tr> <tr> <td>9</td> <td>R3CR90YJH9K</td> <td>SAR</td> </tr> <tr> <td>10</td> <td>R3CR90YJK5H</td> <td>SAR</td> </tr> <tr> <td>11</td> <td>R3CR90YJKHM</td> <td>SAR</td> </tr> </tbody> </table> <b>Version 2 (Variant model)</b> <table> <thead> <tr> <th>No.</th> <th>S/N</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>R3CRB0P2M5D</td> <td>SAR</td> </tr> </tbody> </table> <b>Version 3 (Variant model)</b> <table> <thead> <tr> <th>No.</th> <th>S/N</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>R3CRB0P339X</td> <td>SAR</td> </tr> <tr> <td>2</td> <td>R3CRB0P33CW</td> <td>SAR</td> </tr> </tbody> </table>		No.	S/N	Notes	1	R3CR80TBWBD	Main Conducted	2	354601550032483	Main Conducted	3	356200260032483	Main Conducted	4	5b821305361d7ece	Main Conducted	5			6	R3CR80TBTPW	SAR	7	354601550031949	SAR	8	356200260031949	SAR	9	R3CR90YJH9K	SAR	10	R3CR90YJK5H	SAR	11	R3CR90YJKHM	SAR	No.	S/N	Notes	1	R3CRB0P2M5D	SAR	No.	S/N	Notes	1	R3CRB0P339X	SAR	2	R3CRB0P33CW	SAR
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2	R3CRB0P33CW	SAR																																																			

## 6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode	Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK) GPRS (GMSK) EGPRS (8PSK)	GPRS Multi-Slot Class: <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</u> <u>Carrier Aggregation(2CC)</u> CA_2A-4A, CA_4A-5A CA_4A-12 <sup>a</sup> , 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) FDD Bands	NR Band n2 NR Band n5 NR Band n25 NR Band n66	DFT-s-ODFM: <input checked="" type="checkbox"/> π/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-ODFM: <input checked="" type="checkbox"/> QPSK, 16QAM, 64QAM, 256QAM	100%
5G NR (Sub 6) TDD Bands	NR Band n41 NR Band n77	DFT-s-ODFM: <input checked="" type="checkbox"/> π/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-ODFM: <input checked="" type="checkbox"/> QPSK, 16QAM, 64QAM, 256QAM	NR TDD bands (Voice/Data/SRS0 = 23.0%) (SRS1/2/3) = 28.6%)
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20) 802.11ax (HE20)	SISO mode 99.5% <sup>(802.11b)</sup> MIMO mode 96.4% <sup>(802.11g)</sup>
	5 GHz	802.11a 802.11n (HT20) & (HT40) 802.11ac (VHT20) & (VHT40) & (VHT80) & (VHT160) 802.11ax (HE20) & (HE40) & (HE80) & (HE160)	MIMO mode 96.4% <sup>(802.11a)</sup> 94.4% <sup>(802.11ac (VHT80))</sup>
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	77.0% (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 77.0% 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 inter-band Uplink Carrier Aggregation.
- For NR TDD Bands, Voice/Data/SRS0 were tested at 23.0% duty cycle using Call simulator. And SRS1/2/3 were tested at 28.6% duty cycle using FTM mode. Duty cycle plot refer to Section 9.1 in Report.

### 6.3. Nominal and Maximum Output Power

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

#### NR FDD Bands

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 n2	Ant. A	DFT-s-OFDM QPSK	24.0	20.5	20.5	
NR Band n25	Ant. A	DFT-s-OFDM QPSK	24.0	21.0	21.0	

#### NR TDD Bands

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)		Reduced. RF Output Power (dBm) -RCV Back-off-	
			Tune-up Limit	Frame Pwr	Tune-up Limit	Frame Pwr
NR Band n41 (Voice/data/SRS0)	Ant. F	DFT-s-OFDM QPSK	25.5	19.1		
NR Band n41-SRS1	Ant. B	DFT-s-OFDM QPSK	22.5	17.1		
NR Band n41-SRS2	Ant. E	DFT-s-OFDM QPSK	22.5	17.1		
NR Band n41-SRS3	Ant. D	DFT-s-OFDM QPSK	20.5	15.1		
NR Band n77 (Voice/data/SRS0)	Ant. G	DFT-s-OFDM QPSK	25.5	19.1	22.5	16.1
NR Band n77-SRS1	Ant. C	DFT-s-OFDM QPSK	22.0	16.6		
NR Band n77-SRS2	Ant. H	DFT-s-OFDM QPSK	23.0	17.6		
NR Band n77-SRS3	Ant. D	DFT-s-OFDM QPSK	22.0	16.6		

#### Notes:

1. Frame Pwr is Tune-up limit X TDD duty cycle in NR TDD Bands. Duty cycle refer to Sec.6.2.
2. Ant. A equals Main 1 Ant. in Original report.
3. Ant. B equals Main 2 Ant. in Original report.
4. Ant. F equals Main 3 Ant. in Original report.

## 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)	NR Band n2 & n25	N/A	N/A	✓	N/A
WWAN (Proximity sensor)	NR Band n2 & n25	N/A	N/A	N/A	✓
WWAN (Ear-jack)	NR Band n2 & n25	N/A	✓	N/A	✓
WWAN (RCV)	NR Band n77 (Ant.G)	✓	N/A	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)
NR Band n2	24.0	20.5	2.24	0.536
NR Band n25	24.0	21.0	2.00	0.601

### 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. 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 =  $10^{((\text{Max tune-up limit} - \text{Reduced tune-up limit})/10)}$ )

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

Item	Description															
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band n2	Frequency range: 1850 - 1910 MHz														
		Channel Bandwidth (MHz)														
	100	90	80	70	60	50	40	30	25	20	15	10	5			
	Low										372000 /1860	371500 /1857.5	371000 /1855	370500 /1852.5		
	Mid										376000 /1880	376000 /1880	376000 /1880	376000 /1880		
	High										380000 /1900	380500 /1902.5	381000 /1905	381500 /1907.5		
	Band n25	Frequency range: 1850 - 1915 MHz														
		Channel Bandwidth (MHz)														
	100	90	80	70	60	50	40	30	25	20	15	10	5			
	Low										372000 /1860	371500 /1857.5	371000 /1855	370500 /1852.5		
	Mid										376500 /1882.5	376500 /1882.5	376500 /1882.5	376500 /1882.5		
	High										381000 /1905	381500 /1907.5	382000 /1910	382500 /1912.5		
Band n41	Band n41	Frequency range: 2496 - 2690 MHz														
		Channel Bandwidth (MHz)														
	100	90	80	70	60	50	40	30	25	20	15	10	5			
	Low	509202 /2546.01	508200 /2541	507204 /2536.02		505200 /2526	504204 /2512.02	503202 /2516.01	502200 /2511.00		501204 /2506.02	501204 /2506.02	501204 /2506.02	501204 /2506.02		
	Low-Mid							513468 /2567.34	510402 /2552.01		509898 /2549.49	509898 /2549.49	509898 /2549.49	509898 /2549.49		
	Mid	518598 /2592.99				518598 /2592.99	518598 /2592.99		518598 /2592.99		518598 /2592.99	518598 /2592.99	518598 /2592.99	518598 /2592.99		
	Mid-High	528000 /2640	528996 /2644.98	529998 /2649.99		531996 /2659.98	532998 /2664.99	523734 /2618.67	526800 /2634.00		527298 /2636.49	527298 /2636.49	527298 /2636.49	527298 /2636.49		
	High							534000 /2670	534996 /2674.98		535998 /2679.99	535998 /2679.99	535998 /2679.99	535998 /2679.99		
	Band n77 -Lower Band-	Frequency range: 3450 - 3550 MHz														
		Channel Bandwidth (MHz)														
Band n77 -Upper Band-	100	90	80	70	60	50	40	30	25	20	15	10	5			
	Low					631668 /3475.02	631334 /3470.01	631000 /3465		630668 /3460.02	630500 /3457.5	60334 /3445.01				
	Mid	633334 /3500.01	633334 /3500.01	633334 /3500.01	633334 /3500.01				633334 /3500.01		633334 /3500.01	633334 /3500.01	633334 /3500.01			
	High					635000 /3525	635332 /3529.98	635666 /3534.99		636000 /3540	636166 /3542.49	636332 /3544.98				
	Band n77 -Upper Band-	Frequency range: 3700 - 3980 MHz														
		Channel Bandwidth (MHz)														
	100	90	80	70	60	50	40	30	25	20	15	10	5			
	Low	650000 /3750	649668 /3745.02	649334 /3740.01	649000 /3735	648668 /3730.02	648334 /3725.01	648000 /3720	647668 /3715.02		647334 /3710.01	647168 /3707.52	647000 /3705			
	Low-Mid				653666 /3804.99	653556 /3803.34	652166 /3782.49	651200 /3768	651000 /3765		650800 /3762	650700 /3760.5	650600 /3759			
	Mid-A	656000 /3840	656000 /3840	656000 /3840			656000 /3840	654400 /3816	654334 /3815.01		654266 /3813.99	654234 /3813.51	654200 /3813			
	Mid-B						657600 /3864	657666 /3864.99		657734 /3866.01	657766 /3866.49	678000 /3867				
	Mid-High	662000 /3930	662332 /3934.98	662666 /3939.99	658334 /3875.01	658444 /3876.66	659834 /3897.51	660800 /3912	661000 /3915		661200 /3918	661300 /3919.5	661400 /3921			
	High				663000 /3945	663332 /3949.98	663666 /3954.99	664000 /3960	664332 /3964.98		664666 /3969.99	664832 /3972.48	665000 /3975			

**NR (Sub 6GHz) SAR Test and Reporting Considerations (Continued)**

Item	Description
SCS	NR FDD Bands: 15 kHz, NR TDD Bands: 30 kHz
Modulations Supported in UL	DFT-s-OFDM: π/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 n2	LTE Band 5 / 12 / 13
LTE Anchor Bands for NR Band n25	LTE Band 12 / 13
LTE Anchor Bands for NR Band n41	LTE Band 4 / 12 / 66
LTE Anchor Bands for NR Band n77	LTE Band 2 / 5 / 12 / 13 / 25 / 66

**Notes:**

1. SAR test for NR bands and LTE anchor Bands were performed separately due to limitations in SAR probe calibration factors. And, due to test setup limitations, SAR testing for NR was performed using test mode software to establish the connection.
2. NR configurations of SAR test were determined according to Section 5.2 of KDB 941225 D05.
3. All NR Bands support both SA and NSA. But NR Bands of Main Ant.3 supports only NSA mode.

**6.5.1. NR TDD Band (Sub 6GHz) Duty Considerations**

This device supports NR TDD Bands (n41 and n77). Both NR TDD bands can operate up to 100% duty cycle. The manufacturer has implemented it so that it can operate with a specific target power(burst target power) for each duty cycle range. Please below table;

**Target power of each Scenarios**

Band	Scenario	Duty Cycle (%)	Maximum Duty Cycle (%)	Maximum Burst power (dBm)	Maximum Averaged power (dBm)
NR Band n41	<b>Case.1</b>	<b>0 &lt;= X &lt; 23</b>	<b>23</b>	<b>25.50</b>	<b>19.12</b>
	Case.2	23 <= X < 30	30	24.30	19.07
	Case.3	30 <= X < 50	50	22.00	18.99
	Case.4	50 <= X < 70	70	20.50	18.95
	Case.5	70 <= X < 90	90	19.40	18.94
	Case.6	90 <= X < 100	100	18.90	18.90
NR Band n77	<b>Case.1</b>	<b>0 &lt;= X &lt; 23</b>	<b>23</b>	<b>25.50</b>	<b>19.12</b>
	Case.2	23 <= X < 30	30	24.30	19.07
	Case.3	30 <= X < 50	50	22.00	18.99
	Case.4	50 <= X < 70	70	20.50	18.95
	Case.5	70 <= X < 90	90	19.40	18.94
	Case.6	90 <= X < 100	100	18.90	18.90

\*Maximum Averaged power = Maximum Duty Cycle (each scenarios) X Maximum burst power

**Measured power of each Scenarios**

Band	BW	Modul	Mode	Ch.	RB size	RB Offset	Call box test								FTM mode test					
							Case.1		Case.2		Case.3		Case.4		Case.5		Case.5			
							0 - 23 %	Maiximum	23 - 30 %	Maiximum	30 - 50 %	Maiximum	50 - 70 %	Maiximum	70 - 90 %	Maiximum	70 - 90 %	Maiximum		
NR Bn41 -Full-	100	DFT	BPSK	518598	1	1	24.5	25.5	23.3	24.3	21.1	22.0	19.6	20.5	18.6	19.4	18.4	19.4	18.1	18.9
			QPSK	518598	1	1	24.5	25.5	23.4	24.3	21.1	22.0	19.5	20.5	18.5	19.4	18.4	19.4	18.1	18.9
			16QAM	518598	1	1	23.6	24.5	22.4	23.3	20.4	21.0	18.8	19.5	18.1	18.4	17.3	18.4	17.1	17.9
			64QAM	518598	1	1	22.3	23.0	21.2	21.8	18.5	19.5	17.3	18.0	16.0	16.9	15.9	16.9	15.5	16.4
			256QAM	518598	1	1	20.2	21.0	18.9	19.8	16.4	17.5	15.4	16.0	14.0	14.9	13.8	14.9	13.6	14.4
		CP	QPSK	518598	1	1	23.1	24.0	21.8	22.8	19.6	20.5	18.1	19.0	16.3	17.9	16.7	17.9	16.5	17.4
			QPSK	528996	1	1	25.5	25.5	23.4	24.3	21.0	22.0	19.5	20.5	19.2	19.4	19.0	19.4	18.6	18.9
	90	DFT	QPSK	529998	1	1	25.2	25.5	23.2	24.3	20.9	22.0	19.3	20.5	18.9	19.4	18.8	19.4	18.4	18.9
	80	DFT	QPSK	518598	1	1	24.4	25.5	23.5	24.3	20.7	22.0	19.2	20.5	18.2	19.4	17.9	19.4	17.6	18.9
	60	DFT	QPSK	518598	1	1	25.0	25.5	23.6	24.3	21.1	22.0	19.6	20.5	18.6	19.4	18.3	19.4	18.0	18.9
	50	DFT	QPSK	518598	1	1	24.7	25.5	23.5	24.3	21.1	22.0	19.6	20.5	18.2	19.4	18.2	19.4	17.9	18.9
	40	DFT	QPSK	534000	1	1	24.7	25.5	23.5	24.3	21.1	22.0	19.6	20.5	18.2	19.4	18.2	19.4	17.9	18.9
	30	DFT	QPSK	518598	1	1	24.9	25.5	23.5	24.3	21.2	22.0	19.4	20.5	18.5	19.4	18.4	19.4	18.0	18.9
	20	DFT	QPSK	518598	1	1	24.7	25.5	23.6	24.3	21.1	22.0	19.4	20.5	18.5	19.4	18.4	19.4	18.0	18.9
	15	DFT	QPSK	518598	1	1	24.7	25.5	23.5	24.3	21.2	22.0	19.6	20.5	18.5	19.4	18.4	19.4	18.1	18.9
	10	DFT	QPSK	518598	1	1	24.8	25.5	23.5	24.3	21.3	22.0	19.6	20.5	18.7	19.4	18.4	19.4	18.1	18.9
NR Bn77 -Full-	100	DFT	BPSK	662000	1	1	24.6	25.5	23.5	24.3	21.2	22.0	19.4	20.5	18.3	19.4	18.5	19.4	18.2	18.9
			QPSK	662000	1	1	24.8	25.5	23.6	24.3	21.3	22.0	19.4	20.5	18.3	19.4	18.3	19.4	17.9	18.9
			16QAM	662000	1	1	23.6	24.5	22.6	23.3	20.3	21.0	18.5	19.5	17.3	18.4	17.4	18.4	17.2	17.9
			64QAM	662000	1	1	22.1	23.0	21.3	21.8	19.0	19.5	17.2	18.0	15.4	16.9	15.9	16.9	15.5	16.4
			256QAM	662000	1	1	20.4	21.0	18.5	19.8	16.7	17.5	15.3	16.0	14.0	14.9	14.0	14.9	13.6	14.4
		CP	QPSK	662000	1	1	23.2	24.0	22.1	22.8	19.7	20.5	17.7	19.0	16.9	17.9	16.9	17.9	16.5	17.4
			QPSK	662332	1	1	25.1	25.5	23.5	24.3	21.1	22.0	19.3	20.5	18.2	19.4	18.2	19.4	18.0	18.9
	90	DFT	QPSK	662666	1	1	24.5	25.5	23.5	24.3	21.1	22.0	19.3	20.5	18.2	19.4	18.3	19.4	17.8	18.9
	80	DFT	QPSK	658334	1	1	24.5	25.5	23.9	24.3	21.6	22.0	20.0	20.5	18.9	19.4	19.0	19.4	18.5	18.9
	70	DFT	QPSK	658444	1	1	24.6	25.5	23.9	24.3	21.5	22.0	19.9	20.5	18.3	19.4	18.9	19.4	18.4	18.9
	60	DFT	QPSK	659834	1	1	25.2	25.5	23.8	24.3	21.5	22.0	19.6	20.5	18.2	19.4	18.7	19.4	18.2	18.9
	50	DFT	QPSK	660800	1	1	25.2	25.5	24.7	24.3	21.3	22.0	19.7	20.5	18.5	19.4	18.6	19.4	18.1	18.9
	40	DFT	QPSK	661000	1	1	25.1	25.5	23.8	24.3	21.3	22.0	19.5	20.5	18.5	19.4	18.3	19.4	18.2	18.9
	30	DFT	QPSK	661200	1	1	24.8	25.5	23.8	24.3	21.5	22.0	19.8	20.5	18.6	19.4	18.8	19.4	18.3	18.9
	20	DFT	QPSK	661300	1	1	24.8	25.5	23.8	24.3	21.4	22.0	19.8	20.5	18.6	19.4	18.7	19.4	18.2	18.9
	15	DFT	QPSK	661400	1	1	24.6	25.5	24.1	24.3	21.3	22.0	19.6	20.5	18.6	19.4	18.6	19.4	18.2	18.9
NR Bn77 -RCV-	100	DFT	BPSK	662000	1	1	21.6	22.5	20.6	21.3	18.2	19.0	16.5	17.5	15.4	16.4				
			QPSK	662000	1	1	21.7	22.5	20.7	21.3	18.3	19.0	16.2	17.5	15.4	16.4				
			16QAM	662000	1	1	21.6	22.5	20.5	21.3	18.3	19.0	16.3	17.5	15.4	16.4				
			64QAM	662000	1	1	21.8	22.5	20.7	21.3	18.2	19.0	16.4	17.5	15.5	16.4				
			256QAM	662000	1	1	20.4	22.5	20.7	21.3	16.8	19.0	15.6	17.5	14.0	16.4				
			CP	QPSK	662000	1	1	21.7	22.5	20.5	21.3	18.2	19.0	16.3	17.5	15.5	16.4			

**Notes:**

Due to limitation of Equipment, Verifications performed until Case.5 (71.1%) using Call box. Above Case.5 (71.1%), There were verified using FTM mode provided by manufacturer.  
So NR TDD SAR evaluated at Case.1, because Case.1 is maximum averaged power of All Cases.

## 6.5.2. NR TDD – SRS Considerations

This device supports SRS (sounding reference signal) 0 , 1, 2, 3 mode for NR TDD bands. For each SRS 1, 2 and 3, Conducted power and SAR measurement were performed through FTM mode provide by the customer. SRS 0 was considered Data/Voice test.

## 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	Antennas	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	Ant. A	10 mm	Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Edge 1 (Top)	> 25 mm	No	1
				Edge 2 (Right)	< 25 mm	Yes	
	Hotspot	Ant. F	10 mm	Edge 3 (Bottom)	< 25 mm	Yes	
				Edge 4 (Left)	< 25 mm	Yes	
				Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Edge 1 (Top)	< 25 mm	Yes	
	Hotspot	Ant. B & Ant. C	10 mm	Edge 2 (Right)	< 25 mm	Yes	
				Edge 3 (Bottom)	> 25 mm	No	1
				Edge 4 (Left)	> 25 mm	No	1
				Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
	Hotspot	Ant. E & Ant. G & Ant.H	10 mm	Edge 1 (Top)	> 25 mm	No	1
				Edge 2 (Right)	> 25 mm	No	1
				Edge 3 (Bottom)	< 25 mm	Yes	
				Edge 4 (Left)	< 25 mm	Yes	
				Rear	< 25 mm	Yes	
	Hotspot	Ant. D	10 mm	Front	< 25 mm	Yes	
				Edge 1 (Top)	> 25 mm	No	1
				Edge 2 (Right)	< 25 mm	Yes	
				Edge 3 (Bottom)	< 25 mm	Yes	
				Edge 4 (Left)	< 25 mm	Yes	
	Product Specific 10-g	All Main Antennas	0 mm	Rear			
				Front			
				Edge 1 (Top)			
				Edge 2 (Right)			
				Edge 3 (Bottom)			
				Edge 4 (Left)			

Refer to notes 2 & 3

### Notes:

1. SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hot Spot SAR.
2. For Phablet devices: When hotspot mode applies, Product specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.
3. For Phablet devices: When hotspot mode applies and power reduction applies to hotspot mode, Product specific 10-g SAR is required for each test position that has and adjusted SAR to maximum power that is > 1.2 W/kg.

## 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 1 Room**

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2-10-2022	Head 2600	e'	38.1500	Relative Permittivity ( $\epsilon_r$ ):	38.15	39.01	-2.21	5
		e"	13.8100	Conductivity ( $\sigma$ ):	2.00	1.96	1.75	5
	Head 2500	e'	38.3700	Relative Permittivity ( $\epsilon_r$ ):	38.37	39.14	-1.96	5
		e"	13.7800	Conductivity ( $\sigma$ ):	1.92	1.85	3.32	5
	Head 2700	e'	37.9400	Relative Permittivity ( $\epsilon_r$ ):	37.94	38.88	-2.43	5
		e"	13.9100	Conductivity ( $\sigma$ ):	2.09	2.07	0.87	5
2-17-2022	Head 1900	e'	39.0700	Relative Permittivity ( $\epsilon_r$ ):	39.07	40.00	-2.33	5
		e"	13.5900	Conductivity ( $\sigma$ ):	1.44	1.40	2.55	5
	Head 1850	e'	39.1500	Relative Permittivity ( $\epsilon_r$ ):	39.15	40.00	-2.13	5
		e"	13.6500	Conductivity ( $\sigma$ ):	1.40	1.40	0.29	5
	Head 1910	e'	39.0400	Relative Permittivity ( $\epsilon_r$ ):	39.04	40.00	-2.40	5
		e"	13.5900	Conductivity ( $\sigma$ ):	1.44	1.40	3.09	5
2-17-2022	Head 2600	e'	38.0700	Relative Permittivity ( $\epsilon_r$ ):	38.07	39.01	-2.41	5
		e"	13.6800	Conductivity ( $\sigma$ ):	1.98	1.96	0.79	5
	Head 2500	e'	38.1900	Relative Permittivity ( $\epsilon_r$ ):	38.19	39.14	-2.42	5
		e"	13.6500	Conductivity ( $\sigma$ ):	1.90	1.85	2.34	5
	Head 2700	e'	37.9100	Relative Permittivity ( $\epsilon_r$ ):	37.91	38.88	-2.51	5
		e"	13.7800	Conductivity ( $\sigma$ ):	2.07	2.07	-0.07	5
2-21-2022	Head 1750	e'	40.8300	Relative Permittivity ( $\epsilon_r$ ):	40.83	40.08	1.86	5
		e"	14.3100	Conductivity ( $\sigma$ ):	1.39	1.37	1.71	5
	Head 1710	e'	40.8800	Relative Permittivity ( $\epsilon_r$ ):	40.88	40.15	1.83	5
		e"	14.4100	Conductivity ( $\sigma$ ):	1.37	1.35	1.76	5
	Head 1755	e'	40.8200	Relative Permittivity ( $\epsilon_r$ ):	40.82	40.08	1.85	5
		e"	14.3000	Conductivity ( $\sigma$ ):	1.40	1.37	1.72	5
2-21-2022	Head 2450	e'	39.7000	Relative Permittivity ( $\epsilon_r$ ):	39.70	39.20	1.28	5
		e"	13.6000	Conductivity ( $\sigma$ ):	1.85	1.80	2.93	5
	Head 2400	e'	39.7700	Relative Permittivity ( $\epsilon_r$ ):	39.77	39.30	1.20	5
		e"	13.6000	Conductivity ( $\sigma$ ):	1.81	1.75	3.61	5
	Head 2480	e'	39.6700	Relative Permittivity ( $\epsilon_r$ ):	39.67	39.16	1.30	5
		e"	13.5800	Conductivity ( $\sigma$ ):	1.87	1.83	2.19	5
2-21-2022	Head 2600	e'	39.5200	Relative Permittivity ( $\epsilon_r$ ):	39.52	39.01	1.31	5
		e"	13.6200	Conductivity ( $\sigma$ ):	1.97	1.96	0.35	5
	Head 2500	e'	39.6500	Relative Permittivity ( $\epsilon_r$ ):	39.65	39.14	1.31	5
		e"	13.5700	Conductivity ( $\sigma$ ):	1.89	1.85	1.74	5
	Head 2700	e'	39.3500	Relative Permittivity ( $\epsilon_r$ ):	39.35	38.88	1.20	5
		e"	13.6800	Conductivity ( $\sigma$ ):	2.05	2.07	-0.80	5
2-21-2022	Head 5250	e'	37.1600	Relative Permittivity ( $\epsilon_r$ ):	37.16	35.93	3.41	5
		e"	15.5800	Conductivity ( $\sigma$ ):	4.55	4.70	-3.28	5
	Head 5260	e'	37.1400	Relative Permittivity ( $\epsilon_r$ ):	37.14	35.92	3.39	5
		e"	15.5800	Conductivity ( $\sigma$ ):	4.56	4.71	-3.30	5
	Head 5600	e'	36.6000	Relative Permittivity ( $\epsilon_r$ ):	36.60	35.53	3.00	5
		e"	15.7800	Conductivity ( $\sigma$ ):	4.91	5.06	-2.90	5
	Head 5750	e'	36.3200	Relative Permittivity ( $\epsilon_r$ ):	36.32	35.36	2.71	5
		e"	15.9000	Conductivity ( $\sigma$ ):	5.08	5.21	-2.50	5
	Head 5825	e'	36.2000	Relative Permittivity ( $\epsilon_r$ ):	36.20	35.30	2.55	5
		e"	15.9400	Conductivity ( $\sigma$ ):	5.16	5.27	-2.03	5
2-22-2022	Head 750	e'	41.5000	Relative Permittivity ( $\epsilon_r$ ):	41.50	41.96	-1.10	5
		e"	20.9400	Conductivity ( $\sigma$ ):	0.87	0.89	-2.22	5
	Head 700	e'	41.6400	Relative Permittivity ( $\epsilon_r$ ):	41.64	42.22	-1.37	5
		e"	22.0100	Conductivity ( $\sigma$ ):	0.86	0.89	-3.66	5
	Head 790	e'	41.3300	Relative Permittivity ( $\epsilon_r$ ):	41.33	41.76	-1.02	5
		e"	20.2100	Conductivity ( $\sigma$ ):	0.89	0.90	-0.94	5
2-22-2022	Head 1900	e'	39.2000	Relative Permittivity ( $\epsilon_r$ ):	39.20	40.00	-2.00	5
		e"	13.5900	Conductivity ( $\sigma$ ):	1.44	1.40	2.55	5
	Head 1850	e'	39.2800	Relative Permittivity ( $\epsilon_r$ ):	39.28	40.00	-1.80	5
		e"	13.6700	Conductivity ( $\sigma$ ):	1.41	1.40	0.44	5
	Head 1910	e'	39.1800	Relative Permittivity ( $\epsilon_r$ ):	39.18	40.00	-2.05	5
		e"	13.5800	Conductivity ( $\sigma$ ):	1.44	1.40	3.02	5

**SAR 1 Room (Continued)**

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2-24-2022	Head 3500	e'	39.4200	Relative Permittivity ( $\epsilon_r$ ):	39.42	37.93	3.93	5
		e"	15.0000	Conductivity ( $\sigma$ ):	2.92	2.91	0.26	5
	Head 3560	e'	39.3200	Relative Permittivity ( $\epsilon_r$ ):	39.32	37.86	3.85	5
		e"	15.0400	Conductivity ( $\sigma$ ):	2.98	2.97	0.14	5
	Head 3600	e'	39.2700	Relative Permittivity ( $\epsilon_r$ ):	39.27	37.82	3.85	5
		e"	15.0400	Conductivity ( $\sigma$ ):	3.01	3.01	-0.11	5
	Head 3690	e'	39.1100	Relative Permittivity ( $\epsilon_r$ ):	39.11	37.71	3.70	5
		e"	15.1000	Conductivity ( $\sigma$ ):	3.10	3.11	-0.25	5
2-24-2022	Head 3700	e'	39.0900	Relative Permittivity ( $\epsilon_r$ ):	39.09	37.70	3.68	5
		e"	15.1100	Conductivity ( $\sigma$ ):	3.11	3.12	-0.24	5
	Head 3600	e'	39.2700	Relative Permittivity ( $\epsilon_r$ ):	39.27	37.82	3.85	5
		e"	15.0400	Conductivity ( $\sigma$ ):	3.01	3.01	-0.11	5
	Head 3650	e'	39.1800	Relative Permittivity ( $\epsilon_r$ ):	39.18	37.76	3.76	5
		e"	15.0600	Conductivity ( $\sigma$ ):	3.06	3.07	-0.28	5
	Head 3700	e'	39.0900	Relative Permittivity ( $\epsilon_r$ ):	39.09	37.70	3.68	5
		e"	15.1100	Conductivity ( $\sigma$ ):	3.11	3.12	-0.24	5
	Head 3750	e'	38.9900	Relative Permittivity ( $\epsilon_r$ ):	38.99	37.64	3.57	5
		e"	15.1300	Conductivity ( $\sigma$ ):	3.15	3.17	-0.40	5
2-24-2022	Head 3800	e'	38.9100	Relative Permittivity ( $\epsilon_r$ ):	38.91	37.59	3.52	5
		e"	15.1600	Conductivity ( $\sigma$ ):	3.20	3.22	-0.48	5
	Head 3750	e'	38.99	Relative Permittivity ( $\epsilon_r$ ):	38.99	37.64	3.57	5
		e"	15.13	Conductivity ( $\sigma$ ):	3.15	3.17	-0.40	5
	Head 3800	e'	38.91	Relative Permittivity ( $\epsilon_r$ ):	38.91	37.59	3.52	5
		e"	15.16	Conductivity ( $\sigma$ ):	3.20	3.22	-0.48	5
	Head 3900	e'	38.74	Relative Permittivity ( $\epsilon_r$ ):	38.74	37.47	3.38	5
		e"	15.23	Conductivity ( $\sigma$ ):	3.30	3.32	-0.55	5
	Head 3930	e'	38.68	Relative Permittivity ( $\epsilon_r$ ):	38.68	37.44	3.31	5
		e"	15.26	Conductivity ( $\sigma$ ):	3.33	3.35	-0.51	5
2-28-2022	Head 3950	e'	38.64	Relative Permittivity ( $\epsilon_r$ ):	38.64	37.42	3.27	5
		e"	15.28	Conductivity ( $\sigma$ ):	3.36	3.37	-0.48	5
	Head 835	e'	41.9100	Relative Permittivity ( $\epsilon_r$ ):	41.91	41.50	0.99	5
		e"	19.1800	Conductivity ( $\sigma$ ):	0.89	0.90	-1.06	5
	Head 820	e'	42.0100	Relative Permittivity ( $\epsilon_r$ ):	42.01	41.60	0.98	5
		e"	19.2100	Conductivity ( $\sigma$ ):	0.88	0.90	-2.51	5
	Head 850	e'	42.0100	Relative Permittivity ( $\epsilon_r$ ):	42.01	41.50	1.23	5
		e"	19.3800	Conductivity ( $\sigma$ ):	0.92	0.92	0.10	5
2-28-2022	Head 2450	e'	39.0100	Relative Permittivity ( $\epsilon_r$ ):	39.01	39.20	-0.48	5
		e"	13.5100	Conductivity ( $\sigma$ ):	1.84	1.80	2.25	5
	Head 2400	e'	39.0500	Relative Permittivity ( $\epsilon_r$ ):	39.05	39.30	-0.63	5
		e"	13.4000	Conductivity ( $\sigma$ ):	1.79	1.75	2.09	5
	Head 2480	e'	38.9500	Relative Permittivity ( $\epsilon_r$ ):	38.95	39.16	-0.54	5
		e"	13.4900	Conductivity ( $\sigma$ ):	1.86	1.83	1.52	5
2-28-2022	Head 2600	e'	38.5400	Relative Permittivity ( $\epsilon_r$ ):	38.54	39.01	-1.21	5
		e"	13.7400	Conductivity ( $\sigma$ ):	1.99	1.96	1.23	5
	Head 2500	e'	38.8300	Relative Permittivity ( $\epsilon_r$ ):	38.83	39.14	-0.78	5
		e"	13.4400	Conductivity ( $\sigma$ ):	1.87	1.85	0.77	5
	Head 2700	e'	38.0000	Relative Permittivity ( $\epsilon_r$ ):	38.00	38.88	-2.28	5
		e"	13.7700	Conductivity ( $\sigma$ ):	2.07	2.07	-0.14	5

**SAR 3 Room**

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
1/24/2022	Head 1900	e'	39.9700	Relative Permittivity ( $\epsilon_r$ ):	39.97	40.00	-0.08	5
		e"	13.3800	Conductivity ( $\sigma$ ):	1.41	1.40	0.97	5
	Head 1850	e'	39.9800	Relative Permittivity ( $\epsilon_r$ ):	39.98	40.00	-0.05	5
		e"	13.5100	Conductivity ( $\sigma$ ):	1.39	1.40	-0.73	5
	Head 1910	e'	39.9700	Relative Permittivity ( $\epsilon_r$ ):	39.97	40.00	-0.08	5
		e"	13.3700	Conductivity ( $\sigma$ ):	1.42	1.40	1.42	5
2/15/2022	Head 3500	e'	38.6000	Relative Permittivity ( $\epsilon_r$ ):	38.60	37.93	1.77	5
		e"	14.7000	Conductivity ( $\sigma$ ):	2.86	2.91	-1.74	5
	Head 3560	e'	38.4600	Relative Permittivity ( $\epsilon_r$ ):	38.46	37.86	1.58	5
		e"	14.7800	Conductivity ( $\sigma$ ):	2.93	2.97	-1.59	5
	Head 3600	e'	38.4000	Relative Permittivity ( $\epsilon_r$ ):	38.40	37.82	1.55	5
		e"	14.8000	Conductivity ( $\sigma$ ):	2.96	3.01	-1.70	5
	Head 3690	e'	38.2400	Relative Permittivity ( $\epsilon_r$ ):	38.24	37.71	1.40	5
		e"	14.8400	Conductivity ( $\sigma$ ):	3.04	3.11	-1.97	5
2/15/2022	Head 3700	e'	38.2300	Relative Permittivity ( $\epsilon_r$ ):	38.23	37.70	1.40	5
		e"	14.8500	Conductivity ( $\sigma$ ):	3.06	3.12	-1.96	5
	Head 3600	e'	38.4000	Relative Permittivity ( $\epsilon_r$ ):	38.40	37.82	1.55	5
		e"	14.8000	Conductivity ( $\sigma$ ):	2.96	3.01	-1.70	5
	Head 3650	e'	38.3100	Relative Permittivity ( $\epsilon_r$ ):	38.31	37.76	1.46	5
		e"	14.8200	Conductivity ( $\sigma$ ):	3.01	3.07	-1.87	5
	Head 3700	e'	38.2300	Relative Permittivity ( $\epsilon_r$ ):	38.23	37.70	1.40	5
		e"	14.8500	Conductivity ( $\sigma$ ):	3.06	3.12	-1.96	5
2/15/2022	Head 3750	e'	38.1100	Relative Permittivity ( $\epsilon_r$ ):	38.11	37.64	1.24	5
		e"	14.9000	Conductivity ( $\sigma$ ):	3.11	3.17	-1.91	5
	Head 3800	e'	38.0300	Relative Permittivity ( $\epsilon_r$ ):	38.03	37.59	1.18	5
		e"	14.9500	Conductivity ( $\sigma$ ):	3.16	3.22	-1.86	5
	Head 3750	e'	38.1100	Relative Permittivity ( $\epsilon_r$ ):	38.11	37.64	1.24	5
		e"	14.9000	Conductivity ( $\sigma$ ):	3.11	3.17	-1.91	5
	Head 3800	e'	38.0300	Relative Permittivity ( $\epsilon_r$ ):	38.03	37.59	1.18	5
		e"	14.9500	Conductivity ( $\sigma$ ):	3.16	3.22	-1.86	5
2/15/2022	Head 3900	e'	37.9000	Relative Permittivity ( $\epsilon_r$ ):	37.90	37.47	1.14	5
		e"	15.0200	Conductivity ( $\sigma$ ):	3.26	3.32	-1.92	5
	Head 3930	e'	37.8500	Relative Permittivity ( $\epsilon_r$ ):	37.85	37.44	1.10	5
		e"	15.0300	Conductivity ( $\sigma$ ):	3.28	3.35	-2.00	5
	Head 3950	e'	37.8100	Relative Permittivity ( $\epsilon_r$ ):	37.81	37.42	1.05	5
		e"	15.0500	Conductivity ( $\sigma$ ):	3.31	3.37	-1.97	5
2/28/2022	Head 1900	e'	38.7000	Relative Permittivity ( $\epsilon_r$ ):	38.70	40.00	-3.25	5
		e"	13.3200	Conductivity ( $\sigma$ ):	1.41	1.40	0.51	5
	Head 1850	e'	38.7300	Relative Permittivity ( $\epsilon_r$ ):	38.73	40.00	-3.18	5
		e"	13.5900	Conductivity ( $\sigma$ ):	1.40	1.40	-0.15	5
	Head 1910	e'	38.6800	Relative Permittivity ( $\epsilon_r$ ):	38.68	40.00	-3.30	5
		e"	13.2900	Conductivity ( $\sigma$ ):	1.41	1.40	0.82	5
3/2/2022	Head 3500	e'	38.8400	Relative Permittivity ( $\epsilon_r$ ):	38.84	37.93	2.40	5
		e"	15.0600	Conductivity ( $\sigma$ ):	2.93	2.91	0.66	5
	Head 3560	e'	38.7100	Relative Permittivity ( $\epsilon_r$ ):	38.71	37.86	2.24	5
		e"	15.2400	Conductivity ( $\sigma$ ):	3.02	2.97	1.47	5
	Head 3600	e'	38.7100	Relative Permittivity ( $\epsilon_r$ ):	38.71	37.82	2.37	5
		e"	15.2700	Conductivity ( $\sigma$ ):	3.06	3.01	1.42	5
	Head 3690	e'	38.4300	Relative Permittivity ( $\epsilon_r$ ):	38.43	37.71	1.90	5
		e"	15.3600	Conductivity ( $\sigma$ ):	3.15	3.11	1.47	5
	Head 3700	e'	38.4100	Relative Permittivity ( $\epsilon_r$ ):	38.41	37.70	1.88	5
		e"	15.4000	Conductivity ( $\sigma$ ):	3.17	3.12	1.67	5

## SAR 4 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2-15-2022	Head 3500	e'	38.1900	Relative Permittivity ( $\epsilon_r$ ):	38.19	37.93	0.69	5
		e"	14.8100	Conductivity ( $\sigma$ ):	2.88	2.91	-1.01	5
	Head 3560	e'	38.0200	Relative Permittivity ( $\epsilon_r$ ):	38.02	37.86	0.42	5
		e"	14.9100	Conductivity ( $\sigma$ ):	2.95	2.97	-0.73	5
	Head 3600	e'	37.9200	Relative Permittivity ( $\epsilon_r$ ):	37.92	37.82	0.28	5
		e"	14.9700	Conductivity ( $\sigma$ ):	3.00	3.01	-0.58	5
	Head 3690	e'	37.7100	Relative Permittivity ( $\epsilon_r$ ):	37.71	37.71	-0.01	5
		e"	15.0400	Conductivity ( $\sigma$ ):	3.09	3.11	-0.65	5
2-15-2022	Head 3700	e'	37.6800	Relative Permittivity ( $\epsilon_r$ ):	37.68	37.70	-0.06	5
		e"	15.0500	Conductivity ( $\sigma$ ):	3.10	3.12	-0.64	5
	Head 3600	e'	37.9200	Relative Permittivity ( $\epsilon_r$ ):	37.92	37.82	0.28	5
		e"	14.9700	Conductivity ( $\sigma$ ):	3.00	3.01	-0.58	5
	Head 3650	e'	37.8000	Relative Permittivity ( $\epsilon_r$ ):	37.80	37.76	0.11	5
		e"	15.0100	Conductivity ( $\sigma$ ):	3.05	3.07	-0.61	5
	Head 3700	e'	37.6800	Relative Permittivity ( $\epsilon_r$ ):	37.68	37.70	-0.06	5
		e"	15.0500	Conductivity ( $\sigma$ ):	3.10	3.12	-0.64	5
	Head 3750	e'	37.5400	Relative Permittivity ( $\epsilon_r$ ):	37.54	37.64	-0.28	5
		e"	15.1300	Conductivity ( $\sigma$ ):	3.15	3.17	-0.40	5
2-15-2022	Head 3800	e'	37.4100	Relative Permittivity ( $\epsilon_r$ ):	37.41	37.59	-0.47	5
		e"	15.2000	Conductivity ( $\sigma$ ):	3.21	3.22	-0.21	5
	Head 3750	e'	37.5400	Relative Permittivity ( $\epsilon_r$ ):	37.54	37.64	-0.28	5
		e"	15.1300	Conductivity ( $\sigma$ ):	3.15	3.17	-0.40	5
	Head 3800	e'	37.4100	Relative Permittivity ( $\epsilon_r$ ):	37.41	37.59	-0.47	5
		e"	15.2000	Conductivity ( $\sigma$ ):	3.21	3.22	-0.21	5
	Head 3900	e'	37.2100	Relative Permittivity ( $\epsilon_r$ ):	37.21	37.47	-0.70	5
		e"	15.2800	Conductivity ( $\sigma$ ):	3.31	3.32	-0.22	5
	Head 3930	e'	37.1400	Relative Permittivity ( $\epsilon_r$ ):	37.14	37.44	-0.80	5
		e"	15.3100	Conductivity ( $\sigma$ ):	3.35	3.35	-0.18	5
	Head 3950	e'	37.0900	Relative Permittivity ( $\epsilon_r$ ):	37.09	37.42	-0.87	5
		e"	15.3300	Conductivity ( $\sigma$ ):	3.37	3.37	-0.15	5
2-18-2022	Head 3500	e'	37.9800	Relative Permittivity ( $\epsilon_r$ ):	37.98	37.93	0.13	5
		e"	14.7200	Conductivity ( $\sigma$ ):	2.86	2.91	-1.61	5
	Head 3560	e'	37.8700	Relative Permittivity ( $\epsilon_r$ ):	37.87	37.86	0.02	5
		e"	14.8300	Conductivity ( $\sigma$ ):	2.94	2.97	-1.26	5
	Head 3600	e'	37.8000	Relative Permittivity ( $\epsilon_r$ ):	37.80	37.82	-0.04	5
		e"	14.8600	Conductivity ( $\sigma$ ):	2.97	3.01	-1.31	5
	Head 3690	e'	37.6200	Relative Permittivity ( $\epsilon_r$ ):	37.62	37.71	-0.25	5
		e"	14.9800	Conductivity ( $\sigma$ ):	3.07	3.11	-1.05	5
	Head 3700	e'	37.6000	Relative Permittivity ( $\epsilon_r$ ):	37.60	37.70	-0.27	5
		e"	14.9900	Conductivity ( $\sigma$ ):	3.08	3.12	-1.04	5
2-18-2022	Head 3600	e'	37.8000	Relative Permittivity ( $\epsilon_r$ ):	37.80	37.82	-0.04	5
		e"	14.8600	Conductivity ( $\sigma$ ):	2.97	3.01	-1.31	5
	Head 3650	e'	37.6700	Relative Permittivity ( $\epsilon_r$ ):	37.67	37.76	-0.23	5
		e"	14.9300	Conductivity ( $\sigma$ ):	3.03	3.07	-1.14	5
	Head 3700	e'	37.6000	Relative Permittivity ( $\epsilon_r$ ):	37.60	37.70	-0.27	5
		e"	14.9900	Conductivity ( $\sigma$ ):	3.08	3.12	-1.04	5
	Head 3750	e'	37.5000	Relative Permittivity ( $\epsilon_r$ ):	37.50	37.64	-0.38	5
		e"	15.0300	Conductivity ( $\sigma$ ):	3.13	3.17	-1.06	5
2-18-2022	Head 3800	e'	37.4200	Relative Permittivity ( $\epsilon_r$ ):	37.42	37.59	-0.45	5
		e"	15.1000	Conductivity ( $\sigma$ ):	3.19	3.22	-0.87	5
	Head 3750	e'	37.5000	Relative Permittivity ( $\epsilon_r$ ):	37.50	37.64	-0.38	5
		e"	15.0300	Conductivity ( $\sigma$ ):	3.13	3.17	-1.06	5
	Head 3800	e'	37.4200	Relative Permittivity ( $\epsilon_r$ ):	37.42	37.59	-0.45	5
		e"	15.1000	Conductivity ( $\sigma$ ):	3.19	3.22	-0.87	5
	Head 3750	e'	37.5000	Relative Permittivity ( $\epsilon_r$ ):	37.50	37.64	-0.38	5
		e"	15.0300	Conductivity ( $\sigma$ ):	3.13	3.17	-1.06	5
		e'	37.4200	Relative Permittivity ( $\epsilon_r$ ):	37.42	37.59	-0.45	5
		e"	15.1000	Conductivity ( $\sigma$ ):	3.19	3.22	-0.87	5
		e'	37.2800	Relative Permittivity ( $\epsilon_r$ ):	37.28	37.47	-0.52	5
2-18-2022	Head 3900	e'	37.2800	Relative Permittivity ( $\epsilon_r$ ):	37.28	37.47	-0.52	5
		e"	15.1600	Conductivity ( $\sigma$ ):	3.29	3.32	-1.01	5
	Head 3930	e'	37.2300	Relative Permittivity ( $\epsilon_r$ ):	37.23	37.44	-0.56	5
		e"	15.1900	Conductivity ( $\sigma$ ):	3.32	3.35	-0.96	5
	Head 3950	e'	37.1900	Relative Permittivity ( $\epsilon_r$ ):	37.19	37.42	-0.60	5
		e"	15.2100	Conductivity ( $\sigma$ ):	3.34	3.37	-0.93	5

**SAR 4 Room (Continued)**

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2-24-2022	Head 3500	e'	38.7400	Relative Permittivity ( $\epsilon_r$ ):	38.74	37.93	2.14	5
		e"	14.9300	Conductivity ( $\sigma$ ):	2.91	2.91	-0.21	5
	Head 3560	e'	38.6200	Relative Permittivity ( $\epsilon_r$ ):	38.62	37.86	2.00	5
		e"	14.9500	Conductivity ( $\sigma$ ):	2.96	2.97	-0.46	5
	Head 3600	e'	38.5400	Relative Permittivity ( $\epsilon_r$ ):	38.54	37.82	1.92	5
		e"	14.9900	Conductivity ( $\sigma$ ):	3.00	3.01	-0.44	5
	Head 3690	e'	38.3800	Relative Permittivity ( $\epsilon_r$ ):	38.38	37.71	1.77	5
		e"	15.0400	Conductivity ( $\sigma$ ):	3.09	3.11	-0.65	5
2-24-2022	Head 3700	e'	38.3700	Relative Permittivity ( $\epsilon_r$ ):	38.37	37.70	1.77	5
		e"	15.0400	Conductivity ( $\sigma$ ):	3.09	3.12	-0.71	5
	Head 3600	e'	38.5400	Relative Permittivity ( $\epsilon_r$ ):	38.54	37.82	1.92	5
		e"	14.9900	Conductivity ( $\sigma$ ):	3.00	3.01	-0.44	5
	Head 3650	e'	38.4500	Relative Permittivity ( $\epsilon_r$ ):	38.45	37.76	1.83	5
		e"	15.0100	Conductivity ( $\sigma$ ):	3.05	3.07	-0.61	5
	Head 3700	e'	38.3700	Relative Permittivity ( $\epsilon_r$ ):	38.37	37.70	1.77	5
		e"	15.0400	Conductivity ( $\sigma$ ):	3.09	3.12	-0.71	5
2-24-2022	Head 3750	e'	38.2800	Relative Permittivity ( $\epsilon_r$ ):	38.28	37.64	1.69	5
		e"	15.0700	Conductivity ( $\sigma$ ):	3.14	3.17	-0.79	5
	Head 3800	e'	38.2000	Relative Permittivity ( $\epsilon_r$ ):	38.20	37.59	1.63	5
		e"	15.1100	Conductivity ( $\sigma$ ):	3.19	3.22	-0.81	5
	Head 3750	e'	38.2800	Relative Permittivity ( $\epsilon_r$ ):	38.28	37.64	1.69	5
		e"	15.0700	Conductivity ( $\sigma$ ):	3.14	3.17	-0.79	5
	Head 3800	e'	38.2000	Relative Permittivity ( $\epsilon_r$ ):	38.20	37.59	1.63	5
		e"	15.1100	Conductivity ( $\sigma$ ):	3.19	3.22	-0.81	5
2-24-2022	Head 3900	e'	38.0400	Relative Permittivity ( $\epsilon_r$ ):	38.04	37.47	1.51	5
		e"	15.1800	Conductivity ( $\sigma$ ):	3.29	3.32	-0.87	5
	Head 3930	e'	37.9900	Relative Permittivity ( $\epsilon_r$ ):	37.99	37.44	1.47	5
		e"	15.2000	Conductivity ( $\sigma$ ):	3.32	3.35	-0.90	5
	Head 3950	e'	37.9500	Relative Permittivity ( $\epsilon_r$ ):	37.95	37.42	1.43	5
		e"	15.2100	Conductivity ( $\sigma$ ):	3.34	3.37	-0.93	5
2-28-2022	Head 2600	e'	38.2400	Relative Permittivity ( $\epsilon_r$ ):	38.24	39.01	-1.98	5
		e"	14.0800	Conductivity ( $\sigma$ ):	2.04	1.96	3.74	5
	Head 2500	e'	38.6300	Relative Permittivity ( $\epsilon_r$ ):	38.63	39.14	-1.30	5
		e"	13.8000	Conductivity ( $\sigma$ ):	1.92	1.85	3.47	5
	Head 2700	e'	37.6900	Relative Permittivity ( $\epsilon_r$ ):	37.69	38.88	-3.07	5
		e"	14.1100	Conductivity ( $\sigma$ ):	2.12	2.07	2.32	5

**SAR 5 Room**

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2-21-2022	Head 2600	e'	38.9500	Relative Permittivity ( $\epsilon_r$ ):	38.95	39.01	-0.16	5
		e"	13.5300	Conductivity ( $\sigma$ ):	1.96	1.96	-0.31	5
	Head 2500	e'	39.1400	Relative Permittivity ( $\epsilon_r$ ):	39.14	39.14	0.01	5
		e"	13.5200	Conductivity ( $\sigma$ ):	1.88	1.85	1.37	5
	Head 2700	e'	38.5200	Relative Permittivity ( $\epsilon_r$ ):	38.52	38.88	-0.94	5
		e"	13.4100	Conductivity ( $\sigma$ ):	2.01	2.07	-2.76	5
2-24-2022	Head 2600	e'	38.1200	Relative Permittivity ( $\epsilon_r$ ):	38.12	39.01	-2.28	5
		e"	13.4100	Conductivity ( $\sigma$ ):	1.94	1.96	-1.20	5
	Head 2500	e'	38.2400	Relative Permittivity ( $\epsilon_r$ ):	38.24	39.14	-2.29	5
		e"	13.3400	Conductivity ( $\sigma$ ):	1.85	1.85	0.02	5
	Head 2700	e'	37.9400	Relative Permittivity ( $\epsilon_r$ ):	37.94	38.88	-2.43	5
		e"	13.5300	Conductivity ( $\sigma$ ):	2.03	2.07	-1.89	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	Freq. (MHz)	Target SAR Values (W/kg)	
					1g/10g	Head
D750V3	1205	4-27-2021	4-27-2023	750	1g	8.66
					10g	5.65
D835V2	4d194	3-20-2020	3-20-2022	835	1g	9.76
					10g	6.42
D1750V2	1180	4-27-2021	4-27-2023	1750	1g	36.40
					10g	19.10
D1900V2	5d199	3-19-2020	3-19-2022	1900	1g	40.50
					10g	21.00
D2450V2	960	3-20-2020	3-20-2022	2450	1g	53.20
					10g	24.80
D2450V2	939	7-21-2021	7-21-2023	2450	1g	53.00
					10g	24.70
D2600V2	1178	4-21-2021	4-21-2023	2600	1g	56.60
					10g	25.40
D3500V2	1121	4-21-2021	4-21-2023	3500	1g	66.30
					10g	25.00
D3700V2	1036	5-21-2021	5-21-2023	3700	1g	67.90
					10g	24.30
D3900V2	1069	4-21-2021	4-21-2023	3900	1g	70.10
					10g	24.30
D5GHzV2	1184	12-3-2020	12-3-2022	5250	1g	79.10
					10g	22.70

#### Note(s):

- For System Validation Dipole, Calibration interval applied every 2 years according to referencing KDB 865664 guidance.
- 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 1 Room

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W			
2-10-2022	D2600V2	1178	Head	1g	5.88	58.8	56.60	3.89
				10g	2.69	26.9	25.40	5.91
2-17-2022	D1900V2	5d199	Head	1g	4.11	41.1	40.50	1.48
				10g	2.12	21.2	21.00	0.95
2-17-2022	D2600V2	1178	Head	1g	5.67	56.7	56.60	0.18
				10g	2.58	25.8	25.40	1.57
2-21-2022	D1750V2	1180	Head	1g	3.54	35.4	36.40	-2.75
				10g	1.93	19.3	19.10	1.05
2-21-2022	D2450V2	960	Head	1g	5.62	56.2	53.20	5.64
				10g	2.65	26.5	24.80	6.85
2-21-2022	D2600V2	1178	Head	1g	5.97	59.7	56.60	5.48
				10g	2.74	27.4	25.40	7.87
2-21-2022	D5GHzV2	1184	Head	1g	8.06	80.6	79.10	1.90
				10g	2.42	24.2	22.70	6.61
2-22-2022	D750V3	1205	Head	1g	0.91	9.1	8.66	5.08
				10g	0.59	5.9	5.65	3.89
2-22-2022	D1900V2	5d199	Head	1g	4.21	42.1	40.50	3.95
				10g	2.17	21.7	21.00	3.33
2-24-2022	D3500V2	1121	Head	1g	6.62	66.2	66.30	-0.15
				10g	2.59	25.9	25.00	3.60
2-24-2022	D3700V2	1036	Head	1g	6.57	65.7	67.90	-3.24
				10g	2.50	25.0	24.30	2.88
2-24-2022	D3900V2	1069	Head	1g	7.04	70.4	70.10	0.43
				10g	2.56	25.6	24.30	5.35
2-28-2022	D835V2	4d194	Head	1g	0.99	9.9	9.76	1.13
				10g	0.64	6.4	6.42	-0.16
2-28-2022	D2450V2	939	Head	1g	5.38	53.8	53.00	1.51
				10g	2.53	25.3	24.70	2.43
2-28-2022	D2600V2	1178	Head	1g	5.89	58.9	56.60	4.06
				10g	2.68	26.8	25.40	5.51

**SAR 3 Room**

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
1/24/2022	D1900V2	5d199	Head	1g	3.93	39.3	40.50	-2.96	
				10g	2.09	20.9	21.00	-0.48	
2/15/2022	D3500V2	1121	Head	1g	6.35	63.5	66.30	-4.22	
				10g	2.41	24.1	25.00	-3.60	
2/15/2022	D3700V2	1036	Head	1g	6.50	65.0	67.90	-4.27	
				10g	2.37	23.7	24.30	-2.47	
2/15/2022	D3900V2	1069	Head	1g	6.46	64.6	70.10	-7.85	17, 18
				10g	2.27	22.7	24.30	-6.58	
2/28/2022	D1900V2	5d199	Head	1g	4.00	40.0	40.50	-1.23	
				10g	2.11	21.1	21.00	0.48	
3/2/2022	D3500V2	1121	Head	1g	6.54	65.4	66.30	-1.36	
				10g	2.58	25.8	25.00	3.20	

**SAR 4 Room**

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
2-15-2022	D3500V2	1121	Head	1g	6.39	63.9	66.30	-3.62	
				10g	2.44	24.4	25.00	-2.40	
2-15-2022	D3700V2	1036	Head	1g	6.56	65.6	67.90	-3.39	
				10g	2.42	24.2	24.30	-0.41	
2-15-2022	D3900V2	1069	Head	1g	6.85	68.5	70.10	-2.28	
				10g	2.40	24.0	24.30	-1.23	
2-18-2022	D3500V2	1121	Head	1g	6.24	62.4	66.30	-5.88	
				10g	2.39	23.9	25.00	-4.40	
2-18-2022	D3700V2	1036	Head	1g	6.45	64.5	67.90	-5.01	19, 20
				10g	2.39	23.9	24.30	-1.65	
2-18-2022	D3900V2	1069	Head	1g	6.81	68.1	70.10	-2.85	
				10g	2.41	24.1	24.30	-0.82	
2-24-2022	D3500V2	1121	Head	1g	6.09	60.9	66.30	-8.14	21, 22
				10g	2.29	22.9	25.00	-8.40	
2-24-2022	D3700V2	1036	Head	1g	6.70	67.0	67.90	-1.33	
				10g	2.46	24.6	24.30	1.23	
2-24-2022	D3900V2	1069	Head	1g	7.22	72.2	70.10	3.00	
				10g	2.53	25.3	24.30	4.12	
2-28-2022	D2600V2	1178	Head	1g	5.84	58.4	56.60	3.18	
				10g	2.59	25.9	25.40	1.97	

**SAR 5 Room**

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
2-21-2022	D2600V2	1178	Head	1g	5.61	56.1	56.60	-0.88	
				10g	2.60	26.0	25.40	2.36	
2-24-2022	D2600V2	1178	Head	1g	5.42	54.2	56.60	-4.24	23, 24
				10g	2.42	24.2	25.40	-4.72	

## 9. Conducted Output Power Measurements

### 9.1. NR (Sub 6GHz)

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

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS138.521-1.

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

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

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

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

The allowed A-MPR values specified below in Table 6.2.3.3.1-1 of 3GPP TS138.521-1 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS\_01"

Table 6.2.3.3.1-1: Additional maximum power reduction (A-MPR)

Network Signalling label	Requirements (subclause)	NR Band	Channel bandwidth (MHz)	Resources Blocks (NRB)	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

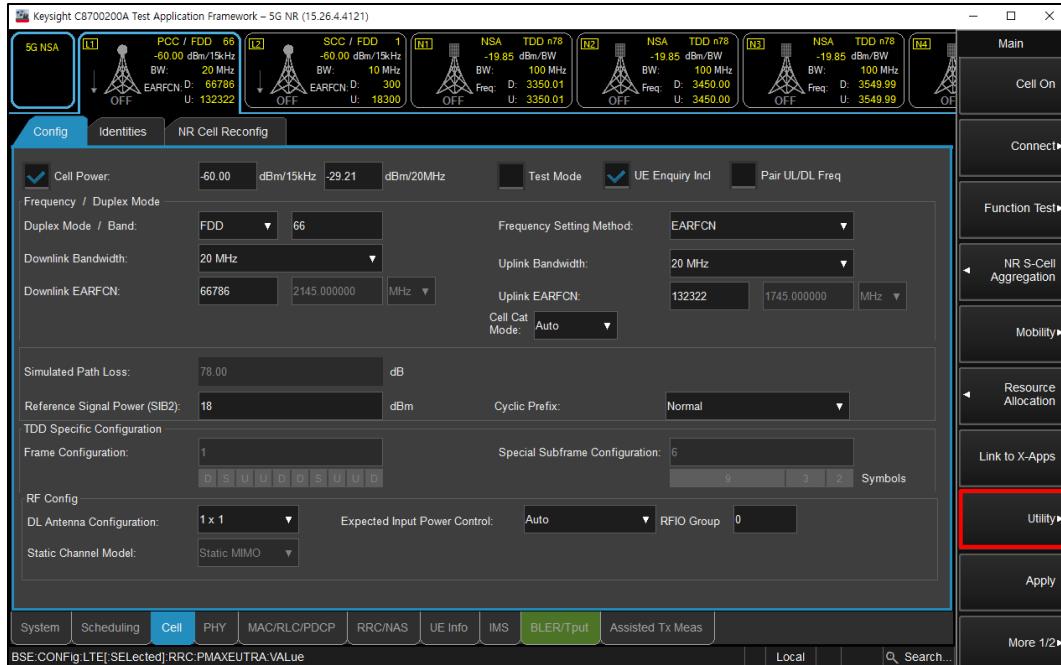
Uplink RB allocations were used to Table 6.1-1 of the 3GPP TS 138.521-1.

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	108@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

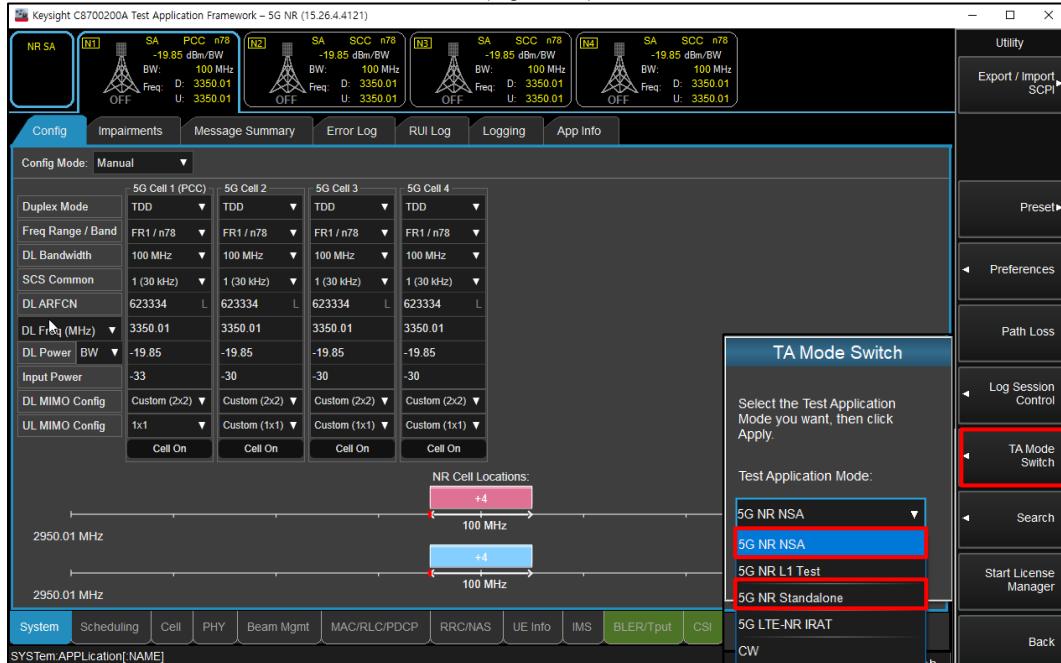
## Procedures used to establish power measurement for NR Bands

### 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



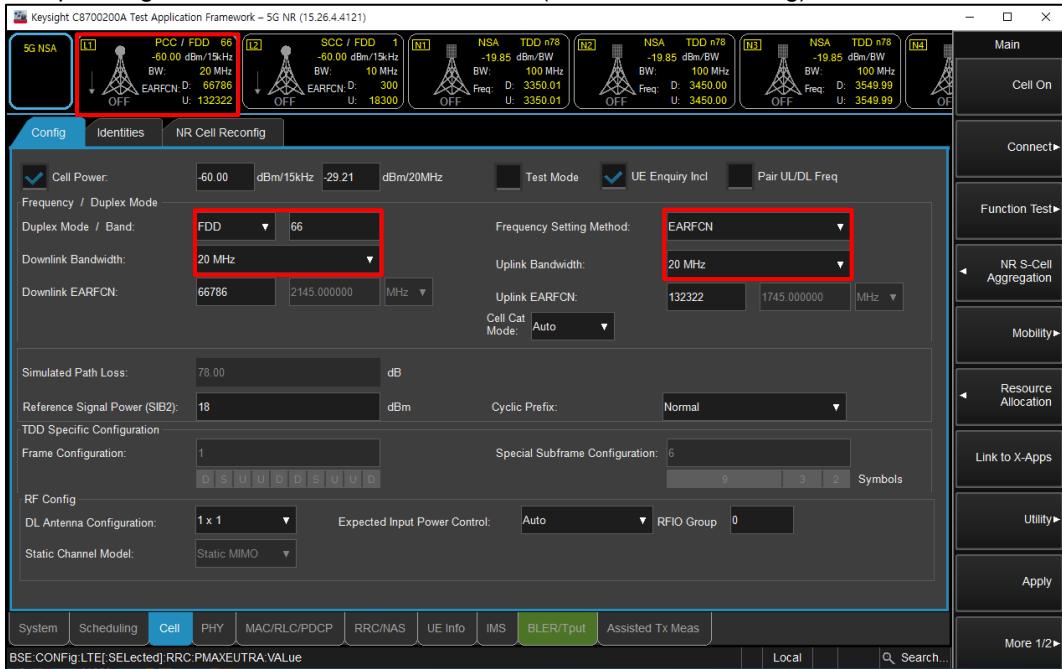
(Figure 1-1)



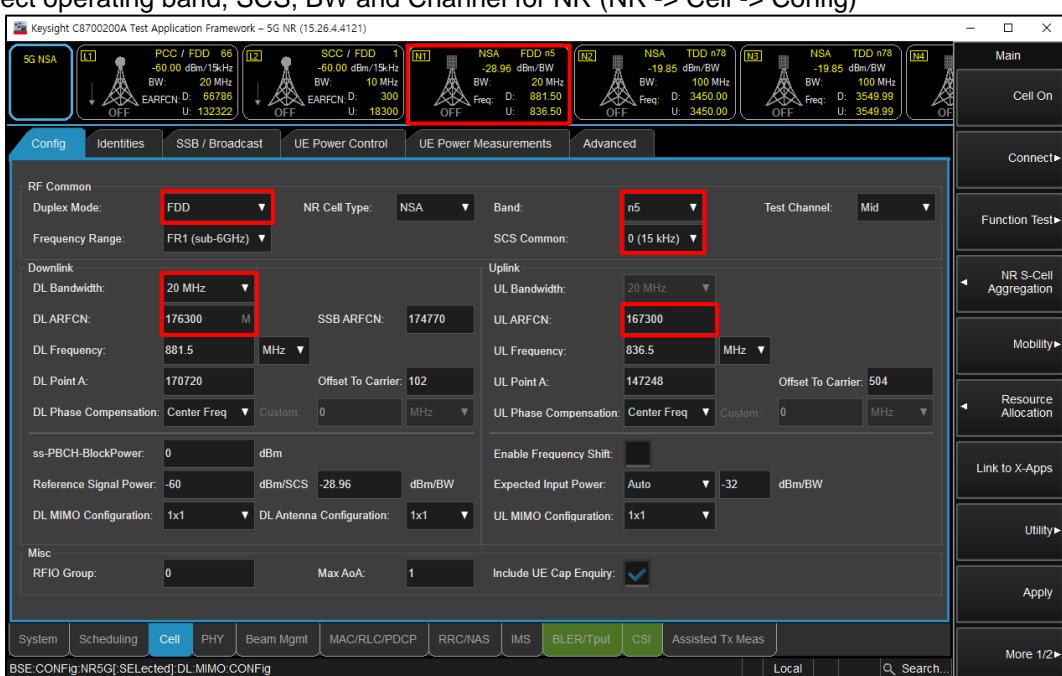
(Figure 1-2)

## NSA Mode

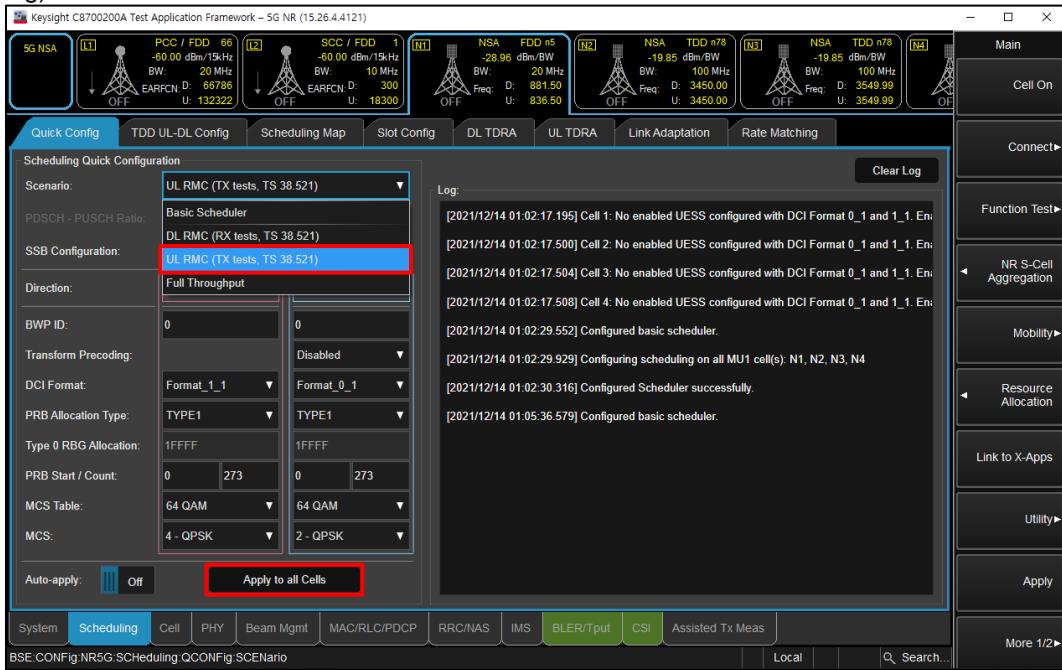
- Select operating band, BW and Channel for LTE (LTE -> Cell -> Config)



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

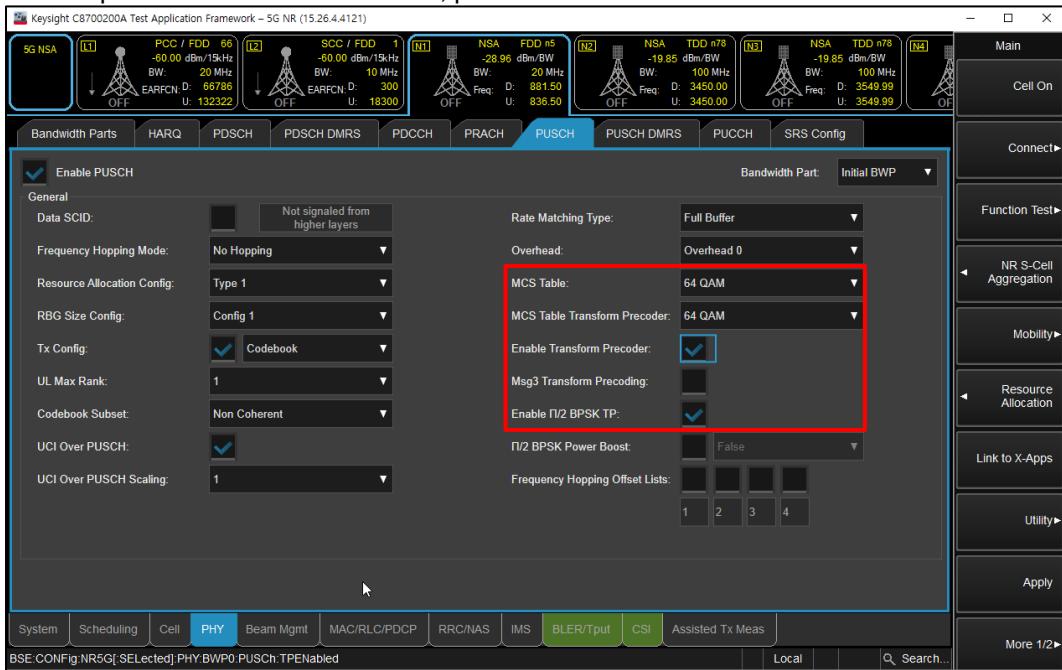


- Select “UL RMC (TX tests, TS 38.521)” for maximum power RB scheduling (NR -> Scheduling -> Quick Config)



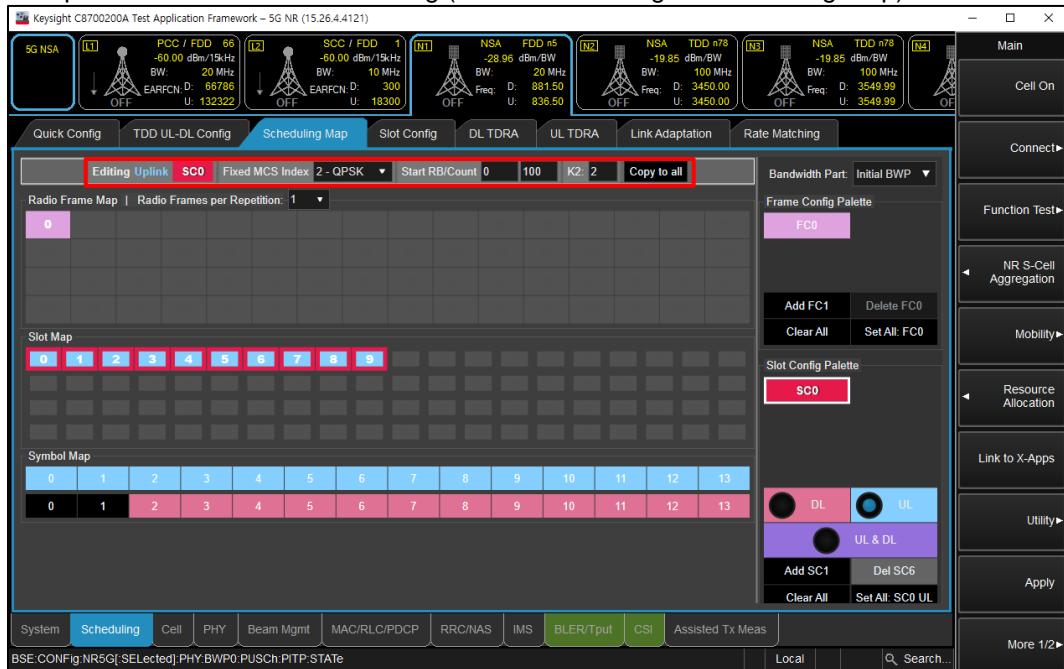
(Figure 2-3)

- 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



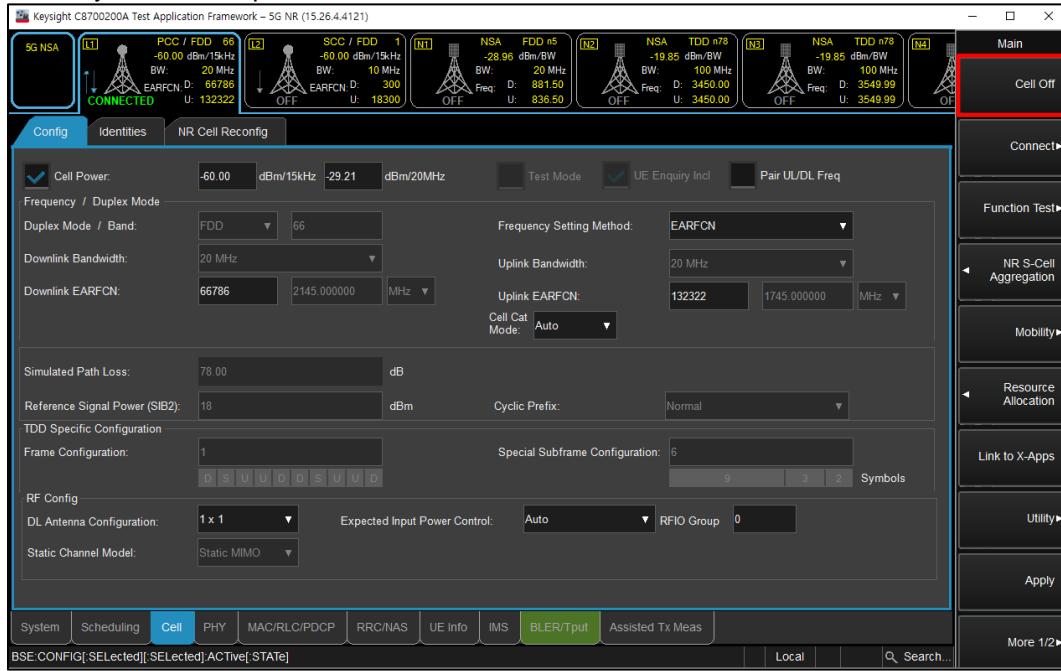
(Figure 2-4)

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



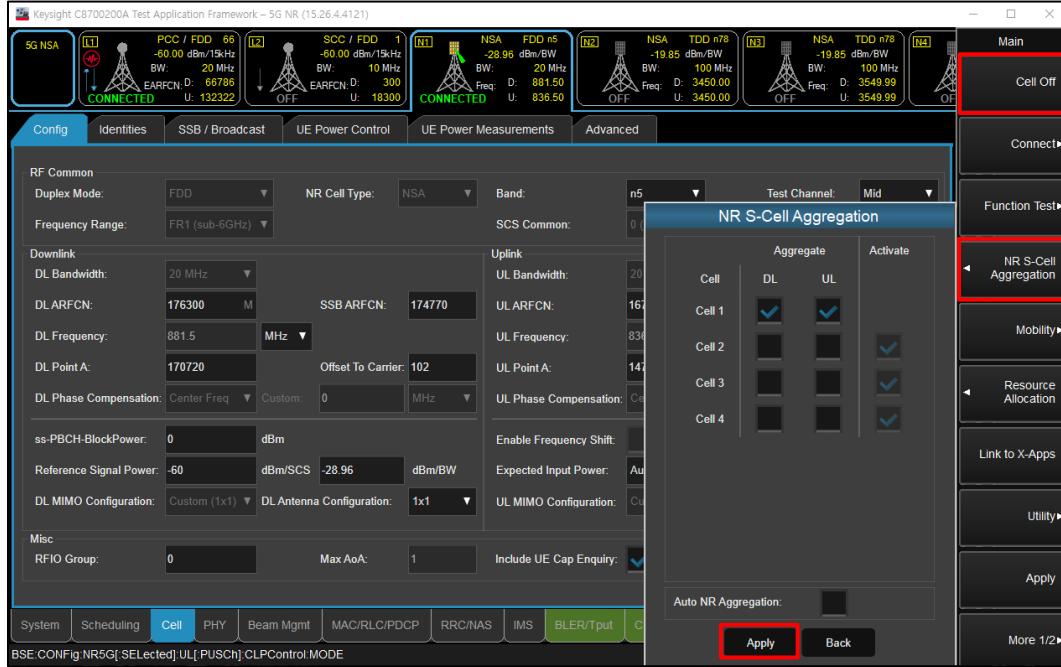
(Figure 2-5)

- 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



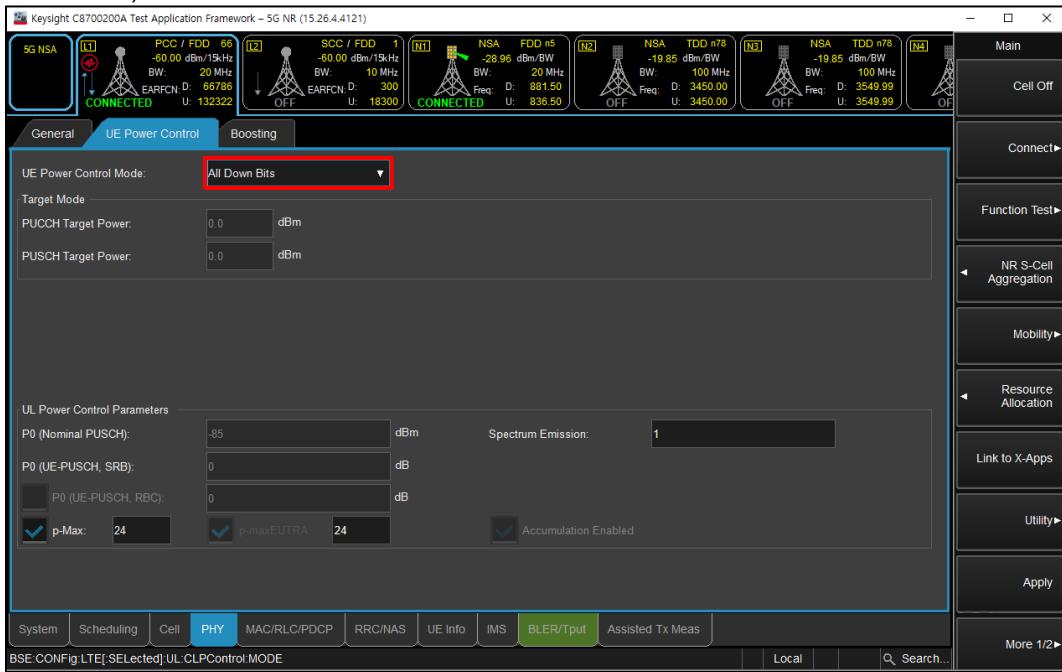
(Figure 2-6)

- 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



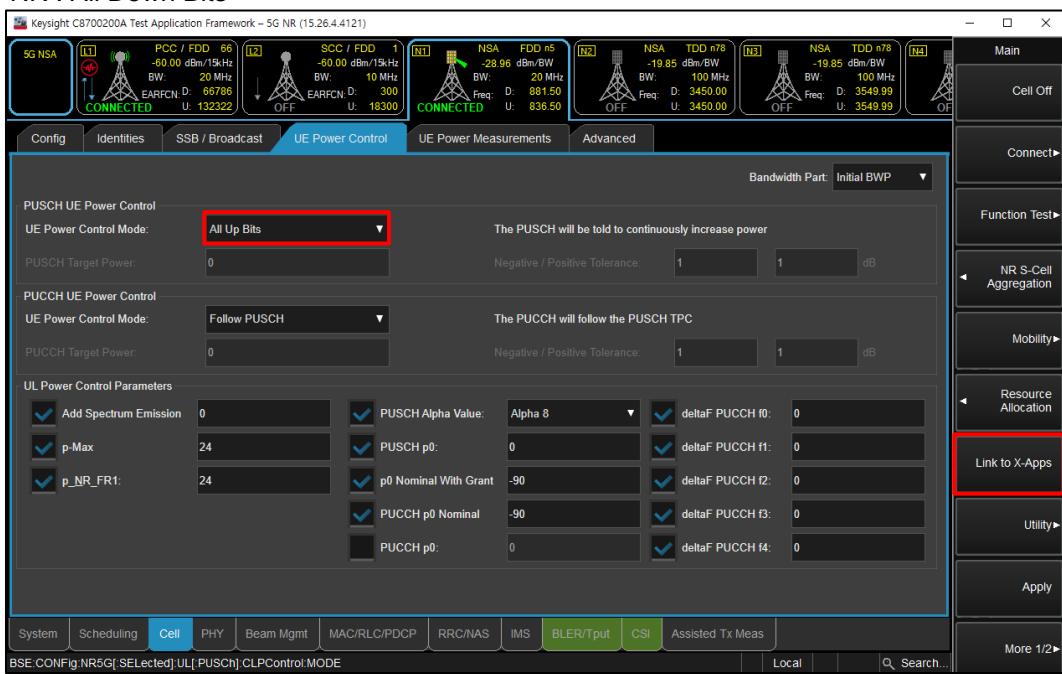
(Figure 2-7)

- 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 NR output power, click the “Link to X-Apps” in the NR tab (NR -> Link to X-Apps)  
UE Power Control Mode
  - LTE : All Down Bits
  - NR : All Up Bits
- To read the LTE output power, click the “Link to X-Apps” in the LTE tab (LTE -> Link to X-Apps)  
UE Power Control Mode
  - LTE : All Up Bits
  - NR : All Down Bits



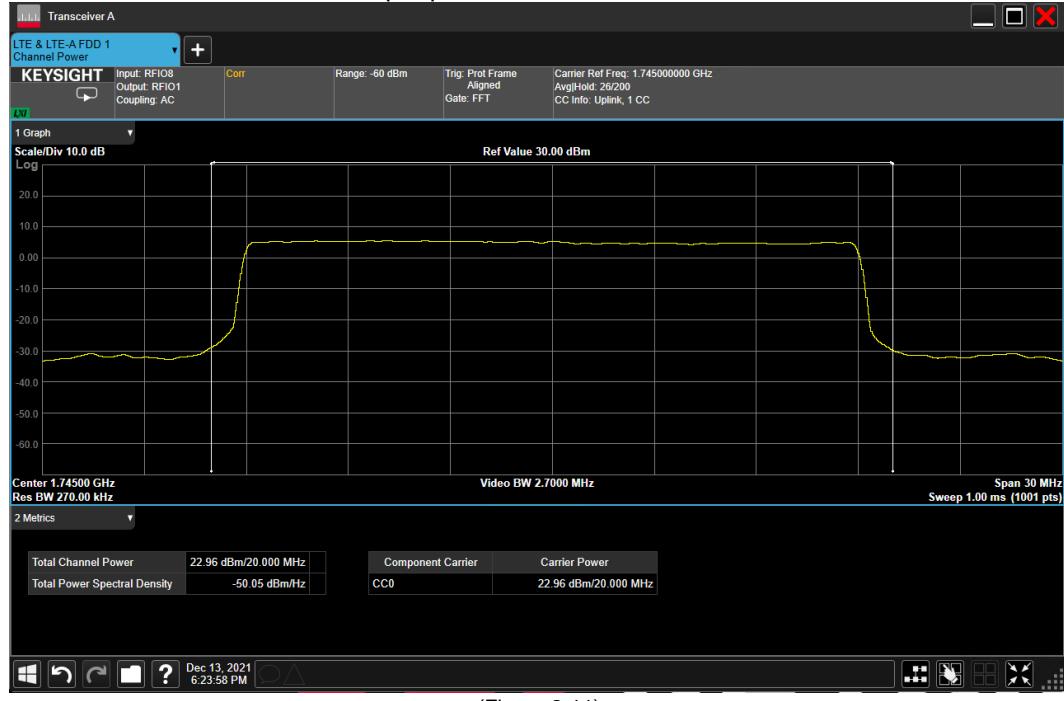
(Figure 2-9)

- Select “Channel Power” for NR output power



(Figure 2-10)

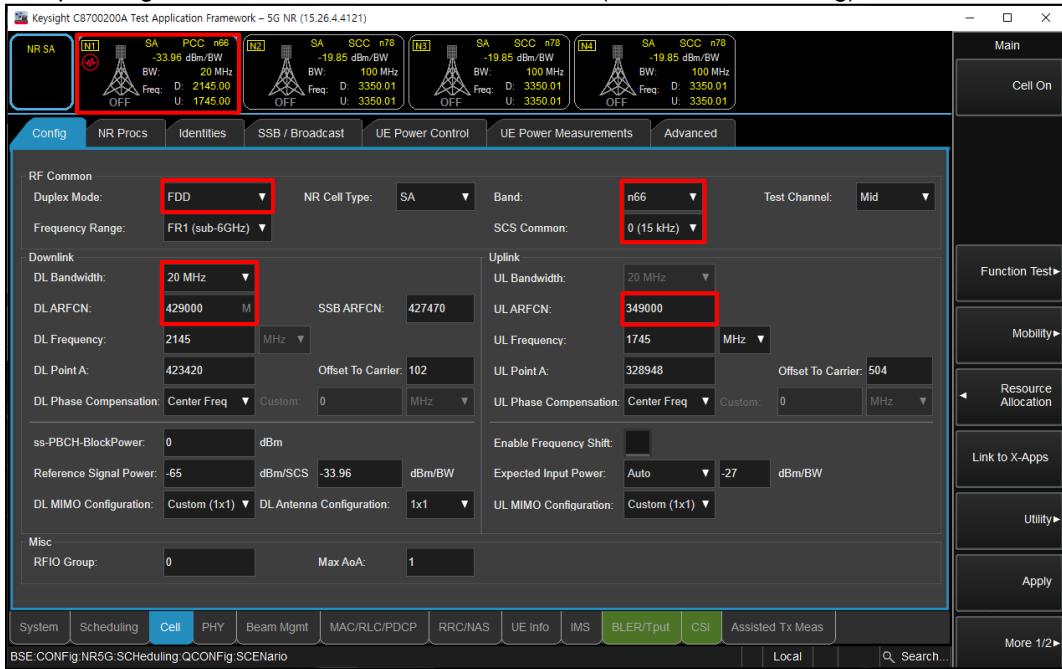
- Select “Channel Power” for LTE output power



(Figure 2-11)

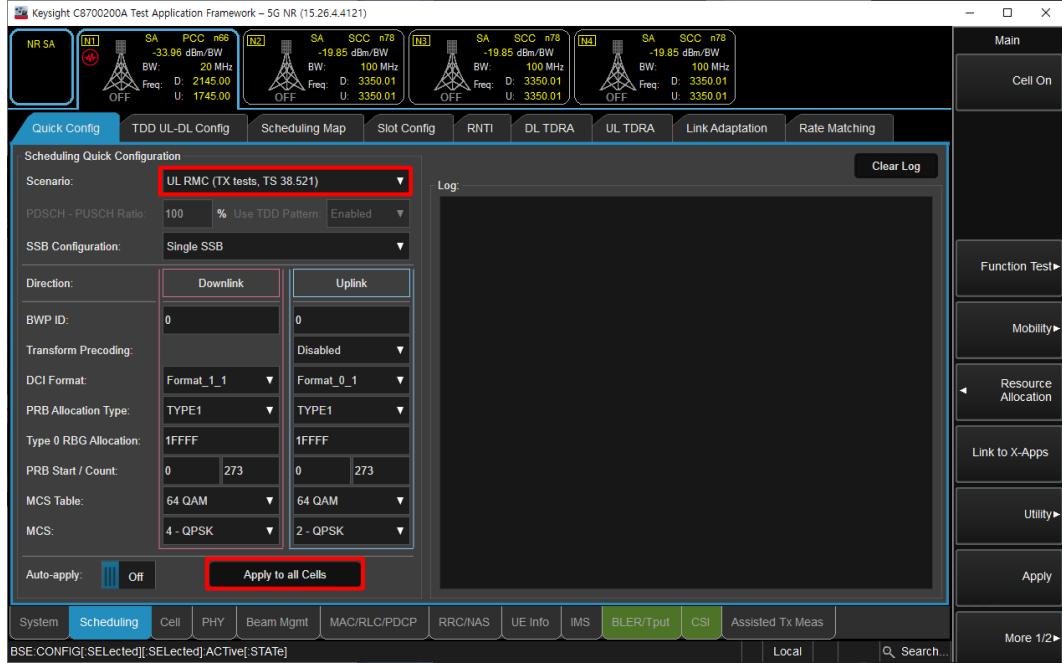
## SA Mode

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



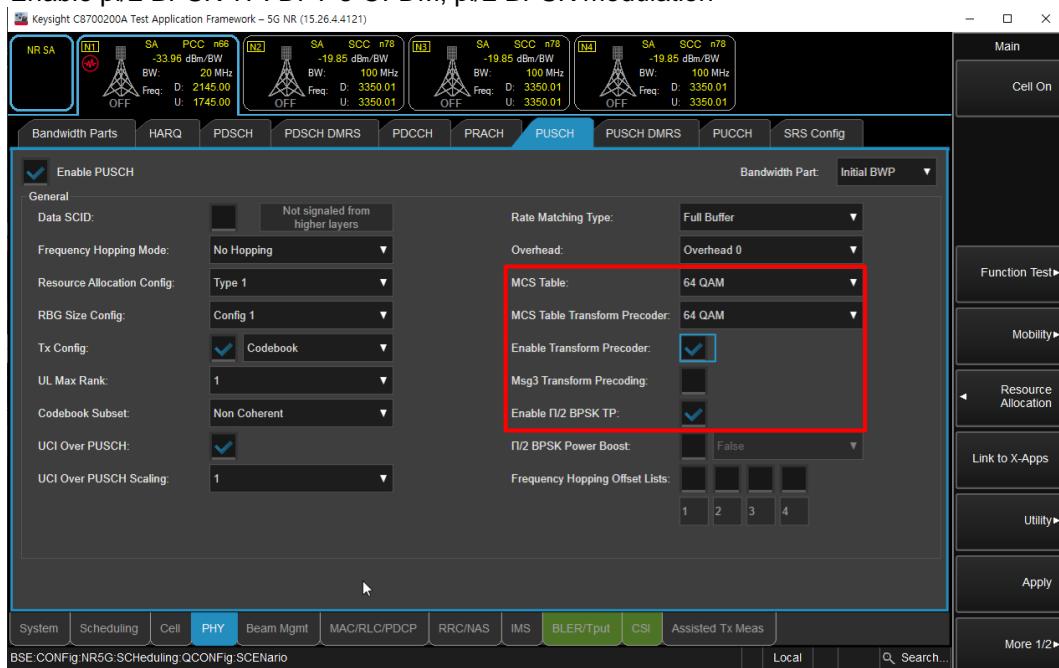
(Figure 3-1)

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



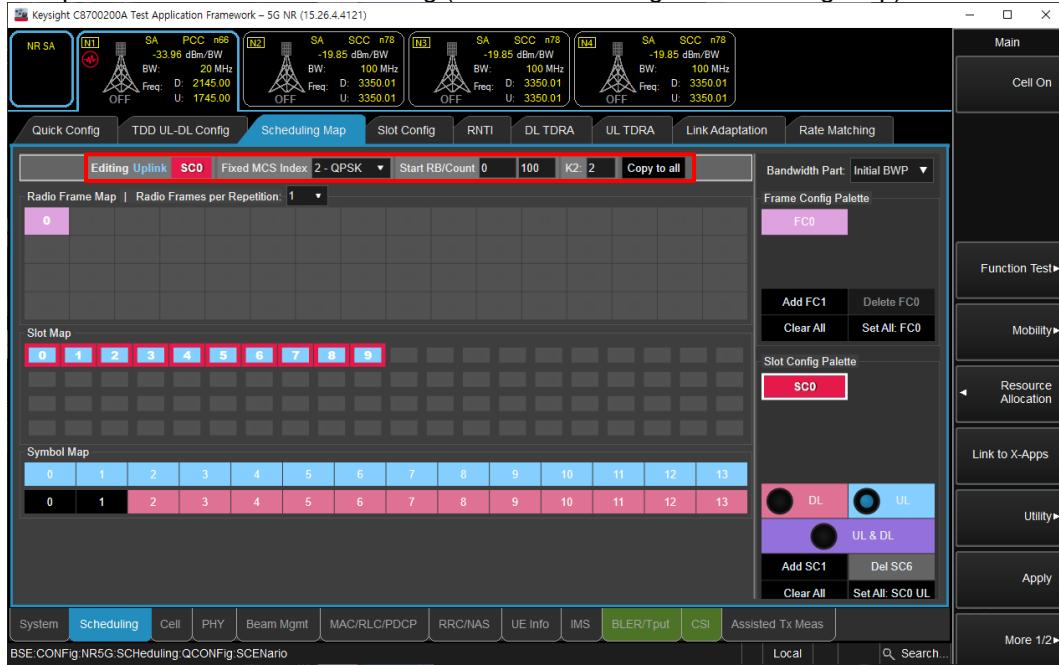
(Figure 3-2)

- 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



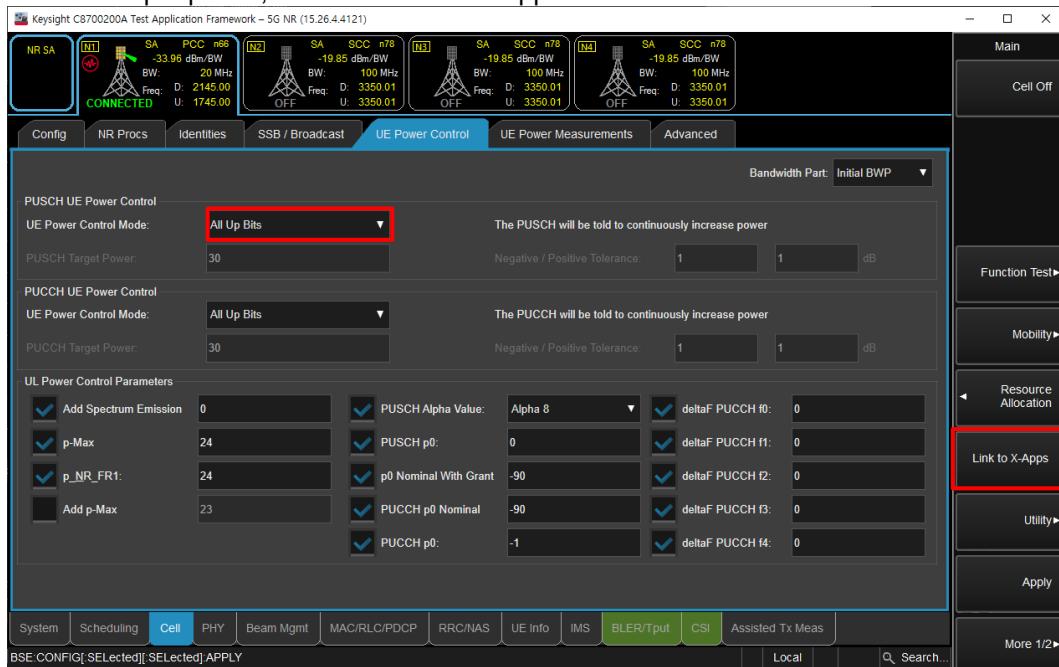
(Figure 3-3)

- 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)

**NR Band n25 Measured Results**

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			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	Measured Pwr (dBm)			MPR	Tune-up Limit
					372000	376500	381000			372000	376500	381000			372000	376500	381000		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.6	23.6	23.7	0.0	24.0	20.2	20.2	20.4	0.0	21.0	20.2	20.2	20.5	0.0	21.0
			1	53	23.6	23.5	23.8	0.0	24.0	20.3	20.1	20.5	0.0	21.0	20.3	20.1	20.5	0.0	21.0
			1	104	23.5	23.6	23.7	0.0	24.0	20.2	20.2	20.3	0.0	21.0	20.1	20.3	20.4	0.0	21.0
			50	0	23.1	23.0	23.3	0.5	23.5	20.3	20.2	20.5	0.0	21.0	20.3	20.2	20.5	0.0	21.0
			50	28	23.6	23.5	23.8	0.0	24.0	20.3	20.2	20.5	0.0	21.0	20.3	20.2	20.5	0.0	21.0
			50	56	23.1	23.1	23.3	0.5	23.5	20.2	20.2	20.5	0.0	21.0	20.3	20.3	20.5	0.0	21.0
			100	0	23.1	23.0	23.3	0.5	23.5	20.3	20.2	20.5	0.0	21.0	20.3	20.2	20.5	0.0	21.0
	QPSK	1	1	23.6	23.5	23.7	0.0	24.0	20.2	20.2	20.4	0.0	21.0	20.3	20.2	20.4	0.0	21.0	
		1	53	23.7	23.5	23.8	0.0	24.0	20.2	20.3	20.6	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
		1	104	23.5	23.6	23.6	0.0	24.0	20.1	20.4	20.3	0.0	21.0	20.1	20.3	20.4	0.0	21.0	
		50	0	22.6	22.5	22.8	1.0	23.0	20.3	20.2	20.5	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
		50	28	23.6	23.5	23.8	0.0	24.0	20.2	20.3	20.7	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
		50	56	22.6	22.6	22.8	1.0	23.0	20.3	20.2	20.5	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
		100	0	22.6	22.5	22.8	1.0	23.0	20.3	20.2	20.5	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
	16QAM	1	1	22.0	22.2	22.5	1.0	23.0	20.2	20.1	20.4	0.0	21.0	20.2	20.2	20.4	0.0	21.0	
	64QAM	1	1	21.1	20.7	21.0	2.5	21.5	20.3	20.2	20.5	0.0	21.0	20.4	20.3	20.5	0.0	21.0	
	256QAM	1	1	18.6	18.6	18.8	4.5	19.5	18.7	18.8	18.8	1.5	19.5	18.8	18.7	18.9	1.5	19.5	
	CP-OFDM	QPSK	1	1	21.7	21.7	21.8	1.5	22.5	20.3	20.2	20.5	0.0	21.0	20.3	20.2	20.5	0.0	21.0
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.6	23.5	23.8	0.0	24.0	20.2	20.1	20.4	0.0	21.0	20.3	20.1	20.5	0.0	21.0
			1	40	23.5	23.4	23.8	0.0	24.0	20.1	20.0	20.4	0.0	21.0	20.2	20.0	20.5	0.0	21.0
			1	77	23.5	23.6	23.7	0.0	24.0	20.1	20.2	20.4	0.0	21.0	20.2	20.3	20.4	0.0	21.0
			36	0	23.2	23.0	23.3	0.5	23.5	20.3	20.2	20.5	0.0	21.0	20.4	20.2	20.6	0.0	21.0
			36	22	23.6	23.5	23.9	0.0	24.0	20.3	20.2	20.5	0.0	21.0	20.3	20.2	20.6	0.0	21.0
			36	43	23.1	23.1	23.3	0.5	23.5	20.3	20.2	20.5	0.0	21.0	20.3	20.3	20.5	0.0	21.0
			75	0	23.1	23.0	23.4	0.5	23.5	20.3	20.2	20.5	0.0	21.0	20.3	20.2	20.6	0.0	21.0
		QPSK	1	1	23.5	23.4	23.8	0.0	24.0	20.2	20.1	20.5	0.0	21.0	20.2	20.1	20.5	0.0	21.0
			1	40	23.5	23.4	23.7	0.0	24.0	20.1	20.0	20.5	0.0	21.0	20.1	20.1	20.5	0.0	21.0
			1	77	23.5	23.5	23.7	0.0	24.0	20.2	20.2	20.4	0.0	21.0	20.2	20.2	20.4	0.0	21.0
			36	0	22.6	22.5	22.8	1.0	23.0	20.3	20.2	20.5	0.0	21.0	20.3	20.2	20.6	0.0	21.0
			36	22	23.6	23.5	23.8	0.0	24.0	20.3	20.2	20.6	0.0	21.0	20.3	20.2	20.6	0.0	21.0
			36	43	22.6	22.6	22.8	1.0	23.0	20.2	20.2	20.5	0.0	21.0	20.3	20.3	20.5	0.0	21.0
			75	0	22.6	22.5	22.9	1.0	23.0	20.3	20.1	20.6	0.0	21.0	20.3	20.2	20.6	0.0	21.0
		16QAM	1	1	22.4	22.1	22.7	1.0	23.0	20.2	20.2	20.4	0.0	21.0	20.2	20.2	20.6	0.0	21.0
		64QAM	1	1	20.9	20.6	21.0	2.5	21.5	20.4	20.2	20.6	0.0	21.0	20.4	20.2	20.4	0.0	21.0
		256QAM	1	1	18.7	18.6	18.9	4.5	19.5	18.8	18.6	18.9	1.5	19.5	18.8	18.6	18.9	1.5	19.5
		CP-OFDM	QPSK	1	1	22.0	21.7	21.9	1.5	22.5	20.3	20.2	20.5	0.0	21.0	20.3	20.2	20.5	0.0

**Note(s):**

- For NR Band n2 and NR Band n25, NR Band n2 is covered by NR Band n25.

**NR Band n25 Measured Results (Continued)**

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Measured Pwr (dBm)			MPR	Measured Pwr (dBm)			MPR	Tune-up Limit		
					371000	376500	382000		371000	376500	382000		371000	376500	382000		371000	376500	382000
					1855 MHz	1862.5 MHz	1910 MHz		1855 MHz	1862.5 MHz	1910 MHz		1855 MHz	1862.5 MHz	1910 MHz		1855 MHz	1862.5 MHz	1910 MHz
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.6	23.6	23.9	0.0	24.0	20.6	20.6	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
			1	26	23.6	23.6	23.9	0.0	24.0	20.7	20.6	0.0	21.0	20.4	20.2	20.5	0.0	21.0	
			1	50	23.6	23.6	23.7	0.0	24.0	20.7	20.6	0.0	21.0	20.3	20.3	20.4	0.0	21.0	
			25	0	23.1	23.0	23.4	0.5	23.5	20.6	20.6	0.0	21.0	20.3	20.2	20.6	0.0	21.0	
			25	14	23.6	23.5	23.8	0.0	24.0	20.6	20.5	0.0	21.0	20.3	20.2	20.6	0.0	21.0	
			25	27	23.1	23.1	23.2	0.5	23.5	20.6	20.6	0.0	21.0	20.3	20.3	20.5	0.0	21.0	
			50	0	23.1	23.0	23.3	0.5	23.5	20.6	20.6	0.0	21.0	20.3	20.2	20.6	0.0	21.0	
	QPSK	16QAM	1	1	23.6	23.5	23.8	0.0	24.0	20.6	20.5	0.0	21.0	20.3	20.2	20.6	0.0	21.0	
			1	26	23.7	23.5	23.8	0.0	24.0	20.7	20.6	0.0	21.0	20.3	20.2	20.6	0.0	21.0	
			1	50	23.5	23.6	23.7	0.0	24.0	20.6	20.6	0.0	21.0	20.3	20.3	20.4	0.0	21.0	
			25	0	22.6	22.5	22.9	1.0	23.0	20.7	20.6	0.0	21.0	20.3	20.2	20.6	0.0	21.0	
			25	14	23.6	23.5	23.9	0.0	24.0	20.7	20.6	0.0	21.0	20.3	20.2	20.6	0.0	21.0	
			25	27	22.6	22.6	22.8	1.0	23.0	20.6	20.6	0.0	21.0	20.3	20.3	20.5	0.0	21.0	
			50	0	22.6	22.5	22.8	1.0	23.0	20.6	20.6	0.0	21.0	20.3	20.2	20.6	0.0	21.0	
		64QAM	1	1	22.4	22.3	22.6	1.0	23.0	20.3	20.2	0.0	21.0	20.4	20.2	20.6	0.0	21.0	
			1	1	20.9	20.7	21.1	2.5	21.5	20.5	20.2	0.0	21.0	20.6	20.4	20.4	0.0	21.0	
		256QAM	1	1	18.8	18.6	19.0	4.5	19.5	18.8	18.7	1.5	19.5	18.7	18.8	19.0	1.5	19.5	
			QPSK	1	1	21.8	21.6	21.7	1.5	22.5	20.4	20.2	20.6	0.0	21.0	20.3	20.2	20.6	0.0
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.6	23.6	23.9	0.0	24.0	20.6	20.6	0.0	21.0	20.3	20.1	20.5	0.0	21.0	
			1	13	23.6	23.4	23.7	0.0	24.0	20.5	20.5	0.0	21.0	20.2	20.1	20.4	0.0	21.0	
			1	23	23.7	23.6	23.7	0.0	24.0	20.7	20.6	0.0	21.0	20.3	20.2	20.4	0.0	21.0	
			12	0	23.1	23.0	23.3	0.5	23.5	20.6	20.5	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
			12	7	23.6	23.5	23.7	0.0	24.0	20.6	20.5	0.0	21.0	20.3	20.2	20.4	0.0	21.0	
			12	13	23.1	23.0	23.2	0.5	23.5	20.7	20.6	0.0	21.0	20.3	20.2	20.4	0.0	21.0	
			25	0	23.1	23.0	23.3	0.5	23.5	20.6	20.6	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
		QPSK	1	1	23.6	23.5	23.8	0.0	24.0	20.6	20.5	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
			1	13	23.5	23.4	23.7	0.0	24.0	20.5	20.5	0.0	21.0	20.2	20.1	20.4	0.0	21.0	
			1	23	23.6	23.5	23.7	0.0	24.0	20.6	20.6	0.0	21.0	20.3	20.2	20.4	0.0	21.0	
			12	0	22.6	22.6	22.8	1.0	23.0	20.6	20.6	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
			12	7	23.6	23.5	23.7	0.0	24.0	20.6	20.6	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
			12	13	22.6	22.6	22.8	1.0	23.0	20.7	20.6	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
			25	0	22.6	22.6	22.8	1.0	23.0	20.6	20.6	0.0	21.0	20.3	20.2	20.5	0.0	21.0	
		16QAM	1	1	22.2	22.2	22.5	1.0	23.0	20.3	20.1	20.6	0.0	21.0	20.3	20.2	20.6	0.0	21.0
			1	1	20.7	20.8	21.1	2.5	21.5	20.4	20.2	20.6	0.0	21.0	20.3	20.4	20.7	0.0	21.0
		64QAM	1	1	18.5	18.7	19.0	4.5	19.5	18.6	18.6	1.5	19.5	18.6	18.6	18.9	1.5	19.5	
			QPSK	1	1	21.7	21.6	21.8	1.5	22.5	20.3	20.2	20.5	0.0	21.0	20.3	20.2	20.5	0.0

**Note(s):**

- For NR Band n2 and NR Band n25, NR Band n2 is covered by NR Band n25.

**NR Band n41 (Voice/Data/SRS0) Measured Results**

BW (MHz)	Modula-tion	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)						MPR	Tune-up Limit		
					Measured Pwr (dBm)									
					518598	2592.98	MHz	518598	2592.98	MHz				
100 MHz	DFT-s-OFDM	$\pi/2$ BPSK	1	1	24.5						0.0	25.5		
			1	137	24.7						0.0	25.5		
			1	271	24.3						0.0	25.5		
			135	0	24.1						0.5	25.0		
			135	69	24.7						0.0	25.5		
			135	138	24.1						0.5	25.0		
			270	0	24.3						0.5	25.0		
		QPSK	1	1	24.6						0.0	25.5		
			1	137	24.6						0.0	25.5		
			1	271	24.6						0.0	25.5		
			135	0	23.7						1.0	24.5		
			135	69	24.6						0.0	25.5		
			135	138	23.6						1.0	24.5		
			270	0	23.8						1.0	24.5		
		16QAM	1	1	23.3						1.0	24.5		
		64QAM	1	1	21.9						2.5	23.0		
		256QAM	1	1	20.2						4.5	21.0		
		CP-OFDM	QPSK	1	23.1						1.5	24.0		
90 MHz	DFT-s-OFDM	$\pi/2$ BPSK	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit			
					508200									
					2541 MHz									
					528996									
					2644.98									
					MHz									
					2541 MHz									
					25	4.9				25.4	0.0	25.5		
					24.6					24.3	0.0	25.5		
					25.2					24.6	0.0	25.5		
					24.2					24.3	0.5	25.0		
					24.5					24.5	0.0	25.5		
					24.2					24.0	0.5	25.0		
					24.1					24.2	0.5	25.0		
		QPSK			24.9					25.5	0.0	25.5		
					24.5					24.5	0.0	25.5		
					25.1					24.7	0.0	25.5		
					23.6					23.7	1.0	24.5		
					24.5					24.5	0.0	25.5		
					23.7					23.4	1.0	24.5		
					23.6					23.5	1.0	24.5		
		16QAM	1	1	23.7					24.3	1.0	24.5		
		64QAM	1	1	22.6					23.0	2.5	23.0		
		256QAM	1	1	20.4					21.0	4.5	21.0		
		CP-OFDM	QPSK	1	23.4					24.0	1.5	24.0		

**NR Band n41 (Voice/Data/SRS0) Measured Results (Continued)**

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)				MPR	Tune-up Limit	
					507204 2536.02 MHz	529998 2649.99 MHz	505200 2592.99 MHz	531996 2609.98 MHz			
80 MHz	DFT-s-OFDM	$\pi/2$ BPSK	1	1	24.6				25.2	0.0	25.5
			1	109	24.3				24.4	0.0	25.5
			1	215	24.3				24.5	0.0	25.5
			108	0	24.2				24.1	0.5	25.0
			108	55	24.5				24.5	0.0	25.5
			108	109	24.2				23.9	0.5	25.0
			216	0	24.1				24.0	0.5	25.0
		QPSK	1	1	24.7				25.2	0.0	25.5
			1	109	24.5				24.4	0.0	25.5
			1	215	24.9				24.4	0.0	25.5
			108	0	23.0				23.6	1.0	24.5
			108	55	24.4				24.5	0.0	25.5
			108	109	23.5				23.4	1.0	24.5
			216	0	23.4				23.6	1.0	24.5
	CP-OFDM	16QAM	1	1	23.8				24.2	1.0	24.5
		64QAM	1	1	22.5				22.7	2.5	23.0
		256QAM	1	1	20.2				20.7	4.5	21.0
	CP-OFDM	QPSK	1	1	23.3				23.7	1.5	24.0
60 MHz	DFT-s-OFDM	$\pi/2$ BPSK	1	1	24.3				24.8	0.0	25.5
			1	81	24.3				24.5	0.0	25.5
			1	160	24.2				24.5	0.0	25.5
			81	0	22.7				24.2	0.5	25.0
			81	41	24.4				24.6	0.0	25.5
			81	81	24.0				24.0	0.5	25.0
			162	0	23.9				24.1	0.5	25.0
		QPSK	1	1	24.4				24.9	0.0	25.5
			1	81	24.4				24.5	0.0	25.5
			1	160	24.6				24.5	0.0	25.5
			81	0	23.5				23.6	1.0	24.5
			81	41	24.3				24.6	0.0	25.5
			81	81	23.4				23.4	1.0	24.5
			162	0	23.4				23.5	1.0	24.5
	CP-OFDM	16QAM	1	1	23.4				23.8	1.0	24.5
		64QAM	1	1	22.1				22.5	2.5	23.0
		256QAM	1	1	20.1				20.3	4.5	21.0
	CP-OFDM	QPSK	1	1	22.9				23.4	1.5	24.0

**NR Band n41 (Voice/Data/SRS0) Measured Results (Continued)**

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
					504204 2521.02 MHz	518598 2592.99MHz	532998 2604.99 MHz	503202 2516.01 MHz	513468 2567.34 MHz		
50 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.8	25.0	24.6	0.0	25.5		
			1	67	24.2	24.9	24.4	0.0	25.5		
			1	131	24.3	24.8	24.4	0.0	25.5		
			64	0	24.3	24.3	24.1	0.5	25.0		
			64	35	24.2	24.9	24.5	0.0	25.5		
			64	69	24.3	24.4	23.9	0.5	25.0		
			128	0	24.3	24.4	24.0	0.5	25.0		
		QPSK	1	1	24.3	25.0	24.7	0.0	25.5		
			1	67	24.3	24.9	24.4	0.0	25.5		
			1	131	24.3	24.8	24.5	0.0	25.5		
			64	0	24.3	23.8	23.5	1.0	24.5		
			64	35	24.3	24.9	24.5	0.0	25.5		
			64	69	24.3	23.8	23.3	1.0	24.5		
			128	0	24.3	23.9	23.4	1.0	24.5		
	CP-OFDM	16QAM	1	1	22.9	23.8	23.3	1.0	24.5		
		64QAM	1	1	21.5	22.5	22.1	2.5	23.0		
		256QAM	1	1	20.4	20.4	20.2	4.5	21.0		
	QPSK	QPSK	1	1	23.5	23.5	23.2	1.5	24.0		
40 MHz	DFT-s-OFDM	π/2 BPSK	1	1	25.0	24.7	25.0	0.0	25.5		
			1	53	24.5	24.6	24.6	0.0	25.5		
			1	104	24.6	24.8	24.5	0.0	25.5		
			50	0	24.3	24.2	24.3	0.5	25.0		
			50	28	24.6	24.7	24.7	0.0	25.5		
			50	56	24.0	24.2	24.0	0.5	25.0		
			100	0	24.1	24.2	24.2	0.5	25.0		
		QPSK	1	1	25.0	24.7	25.0	0.0	25.5		
			1	53	24.5	24.6	24.7	0.0	25.5		
			1	104	24.6	24.7	24.5	0.0	25.5		
			50	0	23.8	23.6	23.8	1.0	24.5		
			50	28	24.6	24.7	24.7	0.0	25.5		
			50	56	23.5	23.7	23.5	1.0	24.5		
			100	0	23.5	23.6	23.7	1.0	24.5		
	CP-OFDM	16QAM	1	1	23.8	23.6	23.9	1.0	24.5		
		64QAM	1	1	22.5	22.1	22.5	2.5	23.0		
		256QAM	1	1	20.4	20.2	20.4	4.5	21.0		
		QPSK	1	1	23.5	23.2	23.4	1.5	24.0		

**NR Band n41 (Voice/Data/SRS0) Measured Results (Continued)**

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit					
					502200	510402	518598	526800	534996							
					2511 MHz	2552.01 MHz	2592.99 MHz	2634 MHz	2674.98 MHz							
30 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.7	24.7	24.9	24.7	24.5	0.0	25.5					
			1	39	24.4	24.6	25.0	24.5	24.3	0.0	25.5					
			1	76	24.4	24.7	24.9	24.5	24.4	0.0	25.5					
			36	0	24.3	24.2	24.4	24.2	24.0	0.5	25.0					
			36	21	24.4	24.7	25.0	24.6	24.4	0.0	25.5					
			36	42	24.0	24.1	24.5	24.0	23.9	0.5	25.0					
			75	0	24.1	24.1	24.5	24.1	23.9	0.5	25.0					
	CP-OFDM	QPSK	1	1	24.4	24.6	24.9	24.7	24.6	0.0	25.5					
			1	39	24.4	24.6	25.0	24.5	24.3	0.0	25.5					
			1	76	24.4	24.7	24.9	24.5	24.3	0.0	25.5					
			36	0	23.8	23.6	23.9	23.6	23.5	1.0	24.5					
			36	21	24.4	24.5	25.0	24.5	24.4	0.0	25.5					
			36	42	23.4	23.5	23.9	23.4	23.3	1.0	24.5					
			75	0	23.6	23.5	23.9	23.5	23.4	1.0	24.5					
			16QAM	1	1	23.8	23.4	23.8	23.6	23.4	1.0	24.5				
			64QAM	1	1	22.5	22.1	22.4	22.3	22.1	2.5	23.0				
			256QAM	1	1	20.5	20.1	20.3	20.2	20.0	4.5	21.0				
			CP-OFDM	QPSK	1	1	23.6	23.1	23.2	23.1	23.0	1.5	24.0			
20 MHz	DFT-s-OFDM	π/2 BPSK	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit					
					501204	509898	518598	527298	535998							
					2500.02	2349.49	2592.99	2036.49	2679.99							
					1	1	24.7	24.5	24.6	24.4	0.0	25.5				
					1	26	24.5	24.7	24.7	24.5	0.0	25.5				
					1	49	24.5	24.7	24.7	24.5	0.0	25.5				
					25	0	24.4	24.2	24.4	24.0	0.5	25.0				
		QPSK			25	13	24.5	24.7	24.7	24.5	0.0	25.5				
					25	26	24.2	24.2	24.5	24.0	0.5	25.0				
					50	0	24.3	24.2	24.4	24.0	0.5	25.0				
					1	1	24.5	24.7	24.7	24.7	0.0	25.5				
					1	26	24.5	24.7	24.7	24.5	0.0	25.5				
					1	49	24.5	24.7	24.7	24.5	0.0	25.5				
					25	0	23.8	23.6	24.3	23.5	1.0	24.5				
					25	13	24.5	24.7	24.7	24.5	0.0	25.5				
					25	26	23.6	23.7	24.4	23.5	1.0	24.5				
					50	0	23.7	23.6	24.4	23.5	1.0	24.5				
					16QAM	1	1	23.7	23.6	23.8	23.5	23.4	1.0	24.5		
					64QAM	1	1	22.5	22.3	22.4	22.2	22.1	2.5	23.0		
					256QAM	1	1	20.5	20.0	20.2	20.2	20.0	4.5	21.0		
					CP-OFDM	QPSK	1	1	23.4	23.2	23.2	23.1	23.0	1.5	24.0	

**NR Band n41 (Voice/Data/SRS0) Measured Results (Continued)**

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit		
					501204 2506.02 MHz	509898 2349.49 MHz	518598 2592.99 MHz	527298 2636.49 MHz	535998 2679.99 MHz				
					1	19	36	0	10	20	0	10	20
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.6	24.5	24.6	24.4	24.2	24.2	0.0	25.5	
			1	19	24.5	24.6	24.7	24.3	24.2	24.2	0.0	25.5	
			1	36	24.4	24.6	24.7	24.2	24.2	24.2	0.0	25.5	
			18	0	24.1	24.0	24.7	23.8	23.7	23.7	0.5	25.0	
			18	10	24.6	24.5	24.7	24.3	24.2	24.2	0.0	25.5	
			18	20	24.0	24.0	24.7	23.8	23.6	23.6	0.5	25.0	
			36	0	24.1	24.0	24.7	23.8	23.7	23.7	0.5	25.0	
		QPSK	1	1	24.7	24.5	24.7	24.4	24.1	24.1	0.0	25.5	
			1	19	24.5	24.6	24.6	24.3	24.1	24.1	0.0	25.5	
			1	36	24.4	24.6	24.7	24.3	24.1	24.1	0.0	25.5	
			18	0	23.6	23.5	23.8	23.3	23.1	23.1	1.0	24.5	
			18	10	24.6	24.5	24.7	24.3	24.1	24.1	0.0	25.5	
			18	20	23.4	23.5	23.9	23.3	23.1	23.1	1.0	24.5	
			36	0	23.6	23.5	23.8	23.3	23.1	23.1	1.0	24.5	
			16QAM	1	1	23.7	23.5	23.8	23.3	23.2	1.0	24.5	
		64QAM	1	1	22.1	22.0	22.1	21.7	21.7	21.7	2.5	23.0	
			256QAM	1	1	20.2	19.9	20.1	19.8	19.7	4.5	21.0	
			CP-OFDM	QPSK	1	1	23.2	22.9	23.3	23.0	22.8	1.5	24.0
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.7	24.4	24.7	24.4	24.2	24.2	0.0	25.5	
			1	12	24.7	24.6	24.8	24.4	24.2	24.2	0.0	25.5	
			1	22	24.7	24.5	24.8	24.3	24.2	24.2	0.0	25.5	
			12	0	24.2	23.9	24.3	23.8	23.7	23.7	0.5	25.0	
			12	6	24.7	24.5	24.7	24.3	24.1	24.1	0.0	25.5	
			12	12	24.2	23.9	24.3	23.8	23.7	23.7	0.5	25.0	
			24	0	24.2	23.9	24.3	23.9	23.7	23.7	0.5	25.0	
		QPSK	1	1	24.8	24.5	24.8	24.4	24.2	24.2	0.0	25.5	
			1	12	24.7	24.5	24.8	24.3	24.3	24.3	0.0	25.5	
			1	22	24.6	24.4	24.8	24.3	24.2	24.2	0.0	25.5	
			12	0	23.7	23.4	23.8	23.3	23.2	23.2	1.0	24.5	
			12	6	24.7	24.5	24.7	24.4	24.1	24.1	0.0	25.5	
			12	12	23.7	23.4	23.8	23.3	23.1	23.1	1.0	24.5	
			24	0	23.6	23.5	23.7	23.3	23.1	23.1	1.0	24.5	
			16QAM	1	1	23.8	23.5	23.7	23.4	23.3	1.0	24.5	
		64QAM	1	1	22.1	21.8	22.2	21.9	21.6	21.6	2.5	23.0	
			256QAM	1	1	20.0	19.9	20.2	19.9	19.7	4.5	21.0	
			CP-OFDM	QPSK	1	1	23.2	23.0	23.1	22.8	22.7	1.5	24.0

**NR Band n41 (SRS1/SRS2/SRS3) Measured Results**

BW (MHz)	Mode	Maximum Average Power (dBm) -SRS 1-				Maximum Average Power (dBm) -SRS 2-				Maximum Average Power (dBm) -SRS 3-								
		Measured Pwr (dBm)			Tune-up Limit	Measured Pwr (dBm)			Tune-up Limit	Measured Pwr (dBm)			Tune-up Limit					
		508202	518598	528996		508202	518598	528996		508202	518598	528996						
2546.01 MHz		2592.99 MHz		2640 MHz		2546.01 MHz		2592.99 MHz		2546.01 MHz		2592.99 MHz						
100 MHz	SRS/CW	22.0			22.5		21.9		22.5		19.8		20.5					
BW (MHz)	Mode	Measured Pwr (dBm)				Measured Pwr (dBm)				Measured Pwr (dBm)								
508200		518598		528996		508200		518598		508200		518598						
2541 MHz			2644.98 MHz			2541 MHz				2541 MHz			2644.98 MHz					
90 MHz	SRS/CW	21.8			21.9	22.5	21.4		22.5	19.6			19.6	20.5				
BW (MHz)	Mode	Measured Pwr (dBm)				Measured Pwr (dBm)				Measured Pwr (dBm)								
507204		518598		529998		507204		518598		507204		518598						
2536.02 MHz			2649.99 MHz			2536.02 MHz				2536.02 MHz			2649.99 MHz					
80 MHz	SRS/CW	21.8			21.8	22.5	21.3		22.5	19.6			19.5	20.5				
BW (MHz)	Mode	Measured Pwr (dBm)				Measured Pwr (dBm)				Measured Pwr (dBm)								
505200		518598		531996		505200		518598		505200		518598						
2526 MHz		2592.99 MHz		2659.98 MHz		2526 MHz		2592.99 MHz		2526 MHz		2592.99 MHz						
60 MHz	SRS/CW	21.7	22.0		21.8	22.5	21.1		22.5	19.5	19.7		19.5	20.5				
BW (MHz)	Mode	Measured Pwr (dBm)				Measured Pwr (dBm)				Measured Pwr (dBm)								
504204		518598		532998		504204		518598		504204		518598						
2521.02 MHz		2592.99 MHz		2664.99 MHz		2521.02 MHz		2592.99 MHz		2521.02 MHz		2592.99 MHz						
50 MHz	SRS/CW	21.7	22.0		21.8	22.5	21.0		22.5	19.5	19.7		19.5	20.5				
BW (MHz)	Mode	Measured Pwr (dBm)				Measured Pwr (dBm)				Measured Pwr (dBm)								
503202		513468		523734		503202		513468		503202		513468						
2516.01 MHz		2567.34 MHz		2618.67 MHz		2516.01 MHz		2567.34 MHz		2516.01 MHz		2567.34 MHz						
40 MHz	SRS/CW	21.7	21.7		21.8	22.5	21.0	21.5		22.5	19.5	19.4	19.6	19.4	20.5			
BW (MHz)	Mode	Measured Pwr (dBm)				Measured Pwr (dBm)				Measured Pwr (dBm)								
502200		510402	518598	526800	534996	502200	510402	518598	526800	502200	510402	518598	526800					
2511 MHz		2552.01 MHz	2592.99 MHz	2634 MHz	2674.98 MHz	2511 MHz	2552.01 MHz	2592.99 MHz	2634 MHz	2511 MHz	2552.01 MHz	2592.99 MHz	2634 MHz					
30 MHz	SRS/CW	21.7	21.7	21.9	21.8	21.7	22.5	21.0	21.3	21.8	21.7	21.5	19.5	19.3	20.5			
BW (MHz)	Mode	Measured Pwr (dBm)				Measured Pwr (dBm)				Measured Pwr (dBm)								
501204		509898	518598	527298	535998	501204	509898	518598	527298	501204	509898	518598	527298					
2506.02 MHz		2549.49 MHz	2592.99 MHz	2636.49 MHz	2679.99 MHz	2506.02 MHz	2549.49 MHz	2592.99 MHz	2636.49 MHz	2506.02 MHz	2549.49 MHz	2592.99 MHz	2636.49 MHz					
20 MHz	SRS/CW	21.7	21.7	21.9	21.8	21.7	22.5	20.9	21.3	21.8	21.6	21.4	19.5	19.4	19.7	19.6	19.3	20.5
BW (MHz)	Mode	Measured Pwr (dBm)				Measured Pwr (dBm)				Measured Pwr (dBm)								
501204		509898	518598	527298	535998	501204	509898	518598	527298	501204	509898	518598	527298					
2506.02 MHz		2549.49 MHz	2592.99 MHz	2636.49 MHz	2679.99 MHz	2506.02 MHz	2549.49 MHz	2592.99 MHz	2636.49 MHz	2506.02 MHz	2549.49 MHz	2592.99 MHz	2636.49 MHz					
15 MHz	SRS/CW	21.7	21.7	21.9	21.8	21.7	22.5	20.9	21.3	21.8	21.7	21.4	19.5	19.4	19.7	19.6	19.3	20.5
BW (MHz)	Mode	Measured Pwr (dBm)				Measured Pwr (dBm)				Measured Pwr (dBm)								
501204		509898	518598	527298	535998	501204	509898	518598	527298	501204	509898	518598	527298					
2506.02 MHz		2549.49 MHz	2592.99 MHz	2636.49 MHz	2679.99 MHz	2506.02 MHz	2549.49 MHz	2592.99 MHz	2636.49 MHz	2506.02 MHz	2549.49 MHz	2592.99 MHz	2636.49 MHz					
10 MHz	SRS/CW	21.8	21.7	21.9	21.8	21.7	22.5	20.9	21.3	21.8	21.6	21.5	19.5	19.4	19.7	19.6	19.3	20.5

**Note(s):**

SRS1, SRS2 and SRS3 were measured output power through FTM mode provided by manufacturer.

**NR Band n77-Lower Band- (Voice/Data/SRS0) Measured Results**

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)						Reduced Average Power (dBm) RCV sensor back-off								
					Measured Pwr (dBm)						MPR	Tune-up Limit	Measured Pwr (dBm)						
						633334								633334				3500.01 MHz	
100 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.4						0.0	25.5	20.4				0.0	22.5	
			1	137	25.0						0.0	25.5	21.9				0.0	22.5	
			1	271	23.8						0.0	25.5	20.9				0.0	22.5	
			135	0	24.4						0.5	25.0	21.9				0.0	22.5	
			135	69	25.0						0.0	25.5	22.0				0.0	22.5	
			135	138	24.4						0.5	25.0	21.8				0.0	22.5	
			270	0	24.4						0.5	25.0	22.0				0.0	22.5	
		QPSK	1	1	23.5						0.0	25.5	20.5				0.0	22.5	
			1	137	25.0						0.0	25.5	22.0				0.0	22.5	
			1	271	23.9						0.0	25.5	21.0				0.0	22.5	
			135	0	23.9						1.0	24.5	21.9				0.0	22.5	
			135	69	25.0						0.0	25.5	22.0				0.0	22.5	
			135	138	23.7						1.0	24.5	21.8				0.0	22.5	
			270	0	23.9						1.0	24.5	21.9				0.0	22.5	
		16QAM	1	1	22.4						1.0	24.5	20.5				0.0	22.5	
			1	137	23.0						1.0	24.5					0.0	22.5	
			1	271	23.2						1.0	24.5					0.0	22.5	
			64QAM	1	1	21.0					2.5	23.0	20.4				0.0	22.5	
		256QAM	1	1	19.4						4.5	21.0	19.3				1.5	21.0	
			CP-OFDM	QPSK	1	1	22.1				1.5	24.0	20.5				0.0	22.5	
90 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.4						MPR	Tune-up Limit	Measured Pwr (dBm)						
			1	123	24.9								21.9					0.0	22.5
			1	243	24.6								21.8					0.0	22.5
			120	0	23.4						0.5	25.0	21.9				0.0	22.5	
			120	63	24.9						0.0	25.5	22.0				0.0	22.5	
			120	125	24.2						0.5	25.0	21.8				0.0	22.5	
			243	0	24.5						0.5	25.0	21.9				0.0	22.5	
		QPSK	1	1	23.2						0.0	25.5	20.4				0.0	22.5	
			1	123	24.9						0.0	25.5	22.0				0.0	22.5	
			1	243	24.7						0.0	25.5	21.7				0.0	22.5	
			120	0	23.9						1.0	24.5	21.9				0.0	22.5	
			120	63	24.9						0.0	25.5	22.0				0.0	22.5	
			120	125	23.8						1.0	24.5	21.8				0.0	22.5	
			243	0	24.0						1.0	24.5	21.9				0.0	22.5	
		16QAM	1	1	22.2						1.0	24.5	20.4				0.0	22.5	
			1	123	23.2						1.0	24.5					0.0	22.5	
			1	243	23.2						1.0	24.5					0.0	22.5	
			64QAM	1	1	21.0					2.5	23.0	20.3				0.0	22.5	
		256QAM	1	1	19.6						4.5	21.0	19.3				1.5	21.0	
			CP-OFDM	QPSK	1	1	21.8				1.5	24.0	20.3				0.0	22.5	

**Note(s):**

The orange box is data measured for RF Test.

**NR Band n77-Lower Band- (Voice/Data/SRS0) 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
							633334				633334					
							3500.01 MHz				3500.01 MHz					
80 MHz	DFT-s-OFDM	$\pi/2$ BPSK	1	1		23.2			0.0	25.5		20.4			0.0	22.5
			1	109		24.9			0.0	25.5		21.9			0.0	22.5
			1	215		23.8			0.0	25.5		20.8			0.0	22.5
			108	0		24.5			0.5	25.0		22.0			0.0	22.5
			108	55		25.0			0.0	25.5		22.0			0.0	22.5
			108	109		24.3			0.5	25.0		21.8			0.0	22.5
			216	0		24.5			0.5	25.0		21.9			0.0	22.5
		QPSK	1	1		23.2			0.0	25.5		20.4			0.0	22.5
			1	109		24.9			0.0	25.5		22.0			0.0	22.5
			1	215		23.7			0.0	25.5		20.8			0.0	22.5
			108	0		24.0			1.0	24.5		22.0			0.0	22.5
			108	55		25.1			0.0	25.5		22.0			0.0	22.5
			108	109		23.8			1.0	24.5		21.7			0.0	22.5
			216	0		24.0			1.0	24.5		22.0			0.0	22.5
	16QAM	1	1			22.2			1.0	24.5		20.3			0.0	22.5
		1	109			23.2			1.0	24.5					0.0	22.5
		1	215			22.1			1.0	24.5					0.0	22.5
		64QAM	1	1		21.2			2.5	23.0		20.4			0.0	22.5
		256QAM	1	1		19.6			4.5	21.0		19.7			1.5	21.0
	CP-OFDM	QPSK	1	1		22.0			1.5	24.0		20.5			0.0	22.5
70 MHz	DFT-s-OFDM	$\pi/2$ BPSK	1	1		23.3			0.0	25.5		20.3			0.0	22.5
			1	95		25.0			0.0	25.5		21.9			0.0	22.5
			1	187		23.1			0.0	25.5		20.7			0.0	22.5
			90	0		24.5			0.5	25.0		22.0			0.0	22.5
			90	50		25.0			0.0	25.5		22.0			0.0	22.5
			90	99		24.2			0.5	25.0		21.9			0.0	22.5
			180	0		24.6			0.5	25.0		22.0			0.0	22.5
		QPSK	1	1		23.4			0.0	25.5		20.3			0.0	22.5
			1	95		25.0			0.0	25.5		22.0			0.0	22.5
			1	187		25.0			0.0	25.5		20.6			0.0	22.5
			90	0		24.0			1.0	24.5		22.0			0.0	22.5
			90	50		25.0			0.0	25.5		22.0			0.0	22.5
			90	99		23.8			1.0	24.5		21.7			0.0	22.5
			180	0		24.1			1.0	24.5		22.0			0.0	22.5
	16QAM	1	1			22.4			1.0	24.5		20.4			0.0	22.5
		1	95			23.1			1.0	24.5					0.0	22.5
		1	188			22.2			1.0	24.5					0.0	22.5
		64QAM	1	1		20.7			2.5	23.0		20.5			0.0	22.5
		256QAM	1	1		19.4			4.5	21.0		19.6			1.5	21.0
	CP-OFDM	QPSK	1	1		21.7			1.5	24.0		20.5			0.0	22.5

**Note(s):**

The orange box is data measured for RF Test.

**NR Band n77-Lower Band- (Voice/Data/SRS0) 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		
					633334			3500.01 MHz						633334			3500.01 MHz					
					1	81	160	81	41	81			1	81	160	81	0	81	41	81		
60 MHz	DFT-s-OFDM	π/2 BPSK	1	1			23.4				0.0	25.5					20.5				0.0	22.5
			1	81			25.0				0.0	25.5					22.0				0.0	22.5
			1	160			23.7				0.0	25.5					20.7				0.0	22.5
			81	0			24.5				0.5	25.0					22.1				0.0	22.5
			81	41			25.0				0.0	25.5					22.1				0.0	22.5
			81	81			24.5				0.5	25.0					22.0				0.0	22.5
			162	0			24.5				0.5	25.0					22.1				0.0	22.5
		QPSK	1	1			23.5				0.0	25.5					20.5				0.0	22.5
			1	81			25.1				0.0	25.5					22.2				0.0	22.5
			1	160			23.6				0.0	25.5					20.6				0.0	22.5
			81	0			24.1				1.0	24.5					22.1				0.0	22.5
			81	41			25.0				0.0	25.5					22.1				0.0	22.5
			81	81			24.0				1.0	24.5					22.1				0.0	22.5
			162	0			23.9				1.0	24.5					22.1				0.0	22.5
		16QAM	1	1			22.4				1.0	24.5					20.5				0.0	22.5
			1	81			23.2				1.0	24.5									0.0	22.5
			1	160			22.0				1.0	24.5									0.0	22.5
			64QAM	1	1		21.1				2.5	23.0					20.6				0.0	22.5
			256QAM	1	1		19.5				4.5	21.0					19.6				1.5	21.0
	CP-OFDM	QPSK	1	1			22.1				1.5	24.0					20.6				0.0	22.5
50 MHz	DFT-s-OFDM	π/2 BPSK	Measured Pwr (dBm)						MPR	Tune-up Limit	Measured Pwr (dBm)						MPR	Tune-up Limit				
			631668					635000			631668						635000					
			3475.02 MHz					3525 MHz			3475.02 MHz						3525 MHz					
			1	1	24.5			23.7			0.0	25.5	21.6							20.6	0.0	22.5
		QPSK	1	67	24.7			23.1			0.0	25.5	21.6							20.1	0.0	22.5
			1	131	24.8			23.4			0.0	25.5	21.8							20.5	0.0	22.5
			64	0	24.0			22.8			0.5	25.0	21.5							20.3	0.0	22.5
			64	35	24.8			23.2			0.0	25.5	21.8							20.3	0.0	22.5
			64	69	24.4			22.8			0.5	25.0	21.9							20.3	0.0	22.5
			128	0	24.2			22.7			0.5	25.0	21.8							20.2	0.0	22.5
			1	1	24.5			23.5			0.0	25.5	21.7							20.5	0.0	22.5
50 MHz	DFT-s-OFDM	16QAM	1	67	24.7			23.2			0.0	25.5	21.8							20.1	0.0	22.5
			1	131	24.8			23.4			0.0	25.5	22.0							20.4	0.0	22.5
			64	0	23.5			22.4			1.0	24.5	21.5							20.4	0.0	22.5
			64	35	24.7			23.2			0.0	25.5	21.8							20.2	0.0	22.5
			64	69	23.8			22.3			1.0	24.5	21.9							20.4	0.0	22.5
			128	0	23.7			22.2			1.0	24.5	21.8							20.2	0.0	22.5
			1	1	23.5			22.7			1.0	24.5	21.6							20.8	0.0	22.5
		64QAM	1	67	23.8			23.2			1.0	24.5								0.0	22.5	
			1	131	23.3			23.2			1.0	24.5								0.0	22.5	
			1	1	22.3			21.3			2.5	23.0	21.5							20.8	0.0	22.5
			256QAM	1	1	20.2			19.3		4.5	21.0	20.2							19.3	1.5	21.0
			CP-OFDM	QPSK	1	1	23.2			22.2	1.5	24.0	21.5							20.7	0.0	22.5

**Note(s):**

The orange box is data measured for RF Test.

**NR Band n77-Lower Band- (Voice/Data/SRS0) 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		
					631334			635332			631334			635332				
					3470.01 MHz			3529.98 MHz			3470.01 MHz			3529.98 MHz				
40 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.5			23.6	0.0	25.5	21.5				20.7	0.0	21.5	
			1	53	24.6			23.4	0.0	25.5	21.6				20.4	0.0	21.5	
			1	104	24.8			23.4	0.0	25.5	21.9				20.5	0.0	21.5	
			50	0	24.0			22.9	0.5	25.0	21.6				20.4	0.0	21.5	
			50	28	24.5			23.5	0.0	25.5	21.6				20.4	0.0	21.5	
			50	56	24.3			23.0	0.5	25.0	21.8				20.4	0.0	21.5	
			100	0	24.0			22.9	0.5	25.0	21.7				20.4	0.0	21.5	
		QPSK	1	1	24.5			23.7	0.0	25.5	21.6				20.8	0.0	21.5	
			1	53	24.6			23.5	0.0	25.5	21.6				20.5	0.0	21.5	
			1	104	24.9			23.5	0.0	25.5	22.0				20.5	0.0	21.5	
			50	0	23.5			22.4	1.0	24.5	21.6				20.3	0.0	21.5	
		16QAM	50	28	24.7			23.5	0.0	25.5	21.6				20.5	0.0	21.5	
			50	56	23.8			22.5	1.0	24.5	21.8				20.5	0.0	21.5	
			100	0	23.6			22.5	1.0	24.5	21.6				20.5	0.0	21.5	
			1	1	23.5			22.7	1.0	24.5	21.7				20.8	0.0	21.5	
		64QAM	1	53	24.2			22.9	1.0	24.5					0.0	0.0	21.5	
			1	104	23.7			22.9	1.0	24.5					0.0	0.0	21.5	
			1	1	22.3			20.7	2.5	23.0	21.7				20.7	0.0	21.5	
		256QAM	1	1	20.2			19.4	4.5	21.0	20.2				19.0	1.0	20.5	
	CP-OFDM	QPSK	1	1	23.1			22.2	1.5	24.0	21.6				20.7	0.0	21.5	
30 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.3			25.0			24.9	0.0	25.5	21.4	22.0	0.0	22.5	
			1	39	24.4			24.9			25.0	0.0	25.5	21.4	21.9	0.0	22.5	
			1	76	24.8			25.0			25.0	0.0	25.5	21.7	22.0	0.0	22.5	
			36	0	23.9			24.6			24.5	0.5	25.0	21.5	22.1	0.0	22.5	
			36	21	24.6			25.0			25.0	0.0	25.5	21.5	22.1	0.0	22.5	
			36	42	24.2			24.6			24.6	0.5	25.0	21.7	22.1	0.0	22.5	
			75	0	24.0			24.5			24.5	0.5	25.0	21.5	22.0	0.0	22.5	
		QPSK	1	1	24.4			25.0			25.0	0.0	25.5	21.5	22.0	0.0	22.5	
			1	39	24.6			25.0			25.0	0.0	25.5	21.5	21.9	0.0	22.5	
			1	76	24.8			24.9			24.9	0.0	25.5	21.7	22.0	0.0	22.5	
			36	0	23.5			24.0			23.9	1.0	24.5	21.5	22.1	0.0	22.5	
			36	21	24.5			25.0			25.0	0.0	25.5	21.5	22.1	0.0	22.5	
			36	42	23.7			24.0			24.1	1.0	24.5	21.7	22.1	0.0	22.5	
			75	0	23.5			24.1			24.0	1.0	24.5	21.5	22.0	0.0	22.5	
		16QAM	1	1	23.4			23.9			23.9	1.0	24.5	21.2	21.9	0.0	22.5	
			1	39	23.3			23.8			23.7	1.0	24.5			0.0	0.0	22.5
			1	76	23.2			23.6			23.6	1.0	24.5			0.0	0.0	22.5
			1	1	21.9			22.7			22.8	2.5	23.0	21.4	21.9	0.0	22.5	
		256QAM	1	1	20.5			20.5			20.5	4.5	21.0	19.4	20.7	0.0	21.0	
	CP-OFDM	QPSK	1	1	23.0			23.5			23.4	1.5	24.0	21.5	21.9	0.0	22.5	

**Note(s):**

The orange box is data measured for RF Test.

## NR Band n77-Lower Band- (Voice/Data/SRS0) 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
					630668	633334	636000			630668	633334	636000		
					3460.02 MHz	3500.01 MHz	3540 MHz			3460.02 MHz	3500.01 MHz	3540 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.4	25.0		24.7	0.0	25.5	21.4	22.0		21.9
			1	26	24.4	25.0		25.0	0.0	25.5	21.4	22.0		22.0
			1	49	24.5	25.0		25.0	0.0	25.5	21.5	22.0		21.0
			25	0	23.9	24.5		24.5	0.5	25.0	21.5	22.1		22.0
			25	13	24.5	24.9		26.0	0.0	25.5	21.4	22.0		22.0
			25	26	23.9	24.5		24.5	0.5	25.0	21.4	21.9		22.0
			50	0	24.0	24.6		24.5	0.5	25.0	21.5	22.1		22.0
		QPSK	1	1	24.5	25.1		24.9	0.0	25.5	21.7	22.1		22.0
			1	26	24.5	24.9		25.1	0.0	25.5	21.4	22.0		22.0
			1	49	24.6	24.9		25.0	0.0	25.5	21.5	22.1		22.0
			25	0	23.4	24.0		24.0	1.0	24.5	21.3	22.1		22.1
			25	13	24.5	25.0		25.1	0.0	25.5	21.4	22.0		22.0
			25	26	23.4	24.0		24.0	1.0	24.5	21.5	22.0		21.9
			50	0	23.4	24.0		24.1	1.0	24.5	21.5	22.0		22.1
	16QAM	1	1	23.4	24.0		23.8	1.0	24.5	21.4	22.1		22.0	0.0
		1	26	23.2	23.6		23.5	1.0	24.5					0.0
		1	49	23.4	23.7		23.5	1.0	24.5					0.0
		64QAM	1	1	22.3	22.9		22.3	2.5	23.0	21.5	22.0		21.7
		256QAM	1	1	20.4	20.9		20.7	4.5	21.0	20.3	20.6		20.5
	CP-OFDM	QPSK	1	1	23.1	23.6		23.3	1.5	24.0	21.3	21.9		21.9
15 MHz	DFT-s-OFDM	π/2 BPSK	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit		
			630500	633334	636166			630500	633334	636166				
			3457.5 MHz	3500.01 MHz	3542.49 MHz			3457.5 MHz	3500.01 MHz	3542.49 MHz				
			1	1	24.4	25.0		24.9	0.0	25.5	21.5	22.0		22.0
			1	19	24.4	24.9		25.0	0.0	25.5	21.4	21.9		22.0
			1	36	24.4	24.9		25.0	0.0	25.5	21.5	21.9		22.0
			18	0	24.0	24.5		24.5	0.5	25.0	21.4	22.0		22.0
		QPSK	18	10	24.3	25.0		25.0	0.0	25.5	21.4	22.0		22.1
			18	20	23.9	24.5		24.5	0.5	25.0	21.4	22.0		22.0
			36	0	23.9	24.4		24.5	0.5	25.0	21.4	22.0		22.1
			1	1	24.5	25.0		25.0	0.0	25.5	21.5	22.1		22.1
			1	19	24.4	25.0		25.0	0.0	25.5	21.4	22.0		22.1
			1	36	24.5	24.9		25.0	0.0	25.5	21.5	22.0		22.0
			18	0	23.4	24.0		24.0	1.0	24.5	21.4	22.0		22.0
		16QAM	18	10	24.4	25.0		25.1	0.0	25.5	21.4	22.0		22.1
			18	20	23.4	24.0		24.0	1.0	24.5	21.5	21.9		22.0
			36	0	23.4	24.0		24.1	1.0	24.5	21.4	22.0		22.1
			1	1	23.4	23.9		24.1	1.0	24.5	21.5	21.9		21.9
			1	19	23.3	23.6		23.5	1.0	24.5				0.0
		64QAM	1	36	23.1	23.4		23.7	1.0	24.5				0.0
			1	1	22.1	22.8		22.8	2.5	23.0	21.5	22.0		22.0
			1	1	20.4	20.9		20.9	4.5	21.0	20.1	20.8		20.7
			CP-OFDM	QPSK	1	1	22.9	23.4	1.5	24.0	21.5	22.0		22.1

**Note(s):**

The orange box is data measured for RF Test.

**NR Band n77-Lower Band- (Voice/Data/SRS0) 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		
					630334	633334	636332			630334	633334	636332				
					3445.01 MHz	3500.01 MHz	3544.98 MHz			3445.01 MHz	3500.01 MHz	3544.98 MHz				
10 MHz	DFT-s-OFDM	$\pi/2$ BPSK	1	1	25.4	25.0	25.0	0.0	25.5	22.5	22.0	22.0	22.1	0.0	22.5	
			1	12	25.4	25.0	25.0	0.0	25.5	22.5	22.0	22.0	22.0	0.0	22.5	
			1	22	25.3	25.0	25.0	0.0	25.5	22.4	22.1	22.0	22.0	0.0	22.5	
			12	0	24.9	24.5	24.6	0.5	25.0	22.5	22.0	22.0	22.0	0.0	22.5	
			12	6	25.4	25.0	25.0	0.0	25.5	22.5	22.0	22.0	22.0	0.0	22.5	
			12	12	25.0	24.5	24.5	0.5	25.0	22.4	22.0	22.0	22.0	0.0	22.5	
			24	0	24.9	24.5	24.5	0.5	25.0	22.4	22.0	22.0	22.0	0.0	22.5	
		QPSK	1	1	25.5	25.0	26.0	0.0	25.5	22.5	22.0	22.0	22.1	0.0	22.5	
			1	12	25.4	25.0	25.0	0.0	25.5	22.4	22.0	22.0	22.0	0.0	22.5	
			1	22	25.4	25.0	25.1	0.0	25.5	22.4	22.0	22.0	22.2	0.0	22.5	
			12	0	24.4	24.0	24.1	1.0	24.5	22.5	22.0	22.0	22.1	0.0	22.5	
	16QAM		12	6	25.4	25.0	25.0	0.0	25.5	22.5	22.1	22.0	22.0	0.0	22.5	
			12	12	24.4	24.0	24.1	1.0	24.5	22.4	22.0	22.0	22.0	0.0	22.5	
			24	0	24.5	24.0	24.0	1.0	24.5	22.5	21.9	22.0	22.0	0.0	22.5	
			1	1	24.4	24.0	23.9	1.0	24.5	22.5	22.0	22.0	22.1	0.0	22.5	
	64QAM		1	12	24.0	23.8	23.5	1.0	24.5	22.5	22.0	22.0	22.0	0.0	22.5	
			1	22	23.9	23.7	23.7	1.0	24.5	22.5	22.0	22.0	22.0	0.0	22.5	
	256QAM		1	1	22.9	23.0	22.5	2.5	23.0	22.2	22.2	22.2	22.1	0.0	22.5	
			1	1	21.0	20.5	20.6	4.5	21.0	20.9	20.3	20.3	20.6	1.5	21.0	
	CP-OFDM	QPSK	1	1	24.0	23.6	23.5	1.5	24.0	22.4	22.1	22.1	22.2	0.0	22.5	

**Note(s):**

The orange box is data measured for RF Test.

**NR Band n77-Lower Band- (SRS1/SRS2/SRS3) Measured Results**

BW (MHz)	Mode	Maximum Average Power (dBm) -SRS 1-					Maximum Average Power (dBm) -SRS 2-					Maximum Average Power (dBm) -SRS 3-					
		Measured Pwr (dBm)			Tune-up Limit	Measured Pwr (dBm)			Tune-up Limit	Measured Pwr (dBm)			Tune-up Limit	Measured Pwr (dBm)			
		633334	3500.01 MHz	3500.01 MHz		633334	3500.01 MHz	3500.01 MHz		633334	3500.01 MHz	3500.01 MHz		633334	3500.01 MHz	3500.01 MHz	
100 MHz	SRS/CW		21.5			22.0		21.9				23.0		20.4			22.0
BW (MHz)	Mode	Measured Pwr (dBm)					Measured Pwr (dBm)					Measured Pwr (dBm)					Tune-up Limit
		633334	3500.01 MHz	3500.01 MHz			633334	3500.01 MHz				633334	3500.01 MHz				
90 MHz	SRS/CW		21.2			22.0		21.0				23.0		19.6			22.0
BW (MHz)	Mode	Measured Pwr (dBm)					Measured Pwr (dBm)					Measured Pwr (dBm)					Tune-up Limit
		633334	3500.01 MHz	3500.01 MHz			633334	3500.01 MHz				633334	3500.01 MHz				
80 MHz	SRS/CW		21.2			22.0		21.0				23.0		19.6			22.0
BW (MHz)	Mode	Measured Pwr (dBm)					Measured Pwr (dBm)					Measured Pwr (dBm)					Tune-up Limit
		633334	3500.01 MHz	3500.01 MHz			633334	3500.01 MHz				633334	3500.01 MHz				
70 MHz	SRS/CW		21.2			22.0		21.0				23.0		19.7			22.0
BW (MHz)	Mode	Measured Pwr (dBm)					Measured Pwr (dBm)					Measured Pwr (dBm)					Tune-up Limit
		633334	3500.01 MHz	3500.01 MHz			633334	3500.01 MHz				633334	3500.01 MHz				
60 MHz	SRS/CW		21.0			22.0		21.0				23.0		19.7			22.0
BW (MHz)	Mode	Measured Pwr (dBm)					Measured Pwr (dBm)					Measured Pwr (dBm)					Tune-up Limit
		631668	3475.02 MHz	3525 MHz			631668	3475.02 MHz				631668	3475.02 MHz				
50 MHz	SRS/CW	20.9				20.9	22.0	21.4				20.7	23.0	20.1			19.5
BW (MHz)	Mode	Measured Pwr (dBm)					Measured Pwr (dBm)					Measured Pwr (dBm)					Tune-up Limit
		631334	3470.01 MHz	3529.98 MHz			631334	3470.01 MHz				631334	3470.01 MHz				
40 MHz	SRS/CW	21.1				20.7	22.0	21.5				20.8	23.0	20.2			19.5
BW (MHz)	Mode	Measured Pwr (dBm)					Measured Pwr (dBm)					Measured Pwr (dBm)					Tune-up Limit
		631000	3465 MHz	3534.99 MHz			631000	3465 MHz				631000	3465 MHz				
30 MHz	SRS/CW	21.1		20.5			20.6	22.0	21.5			20.9		20.8	23.0	20.3	19.5
BW (MHz)	Mode	Measured Pwr (dBm)					Measured Pwr (dBm)					Measured Pwr (dBm)					Tune-up Limit
		630668	3460.02 MHz	3500.01 MHz			630668	3460.02 MHz				630668	3460.02 MHz				
20 MHz	SRS/CW	21.2		20.6			20.7	22.0	21.6			20.9		21.0	23.0	20.4	19.6
BW (MHz)	Mode	Measured Pwr (dBm)					Measured Pwr (dBm)					Measured Pwr (dBm)					Tune-up Limit
		630500	3457.5 MHz	3500.01 MHz			630500	3457.5 MHz				630500	3457.5 MHz				
15 MHz	SRS/CW	21.2		20.5			20.5	22.0	21.7			20.9		20.9	23.0	20.4	19.6
BW (MHz)	Mode	Measured Pwr (dBm)					Measured Pwr (dBm)					Measured Pwr (dBm)					Tune-up Limit
		630334	3445.01 MHz	3500.01 MHz			630334	3445.01 MHz				630334	3445.01 MHz				
10 MHz	SRS/CW	21.2		20.5			20.6	22.0	21.8			20.9		21.0	23.0	20.4	19.6

**Note(s):**

SRS1, SRS2 and SRS3 were measured output power through FTM mode provided by manufacturer.

**NR Band n77-Upper Band- (Voice/Data/SRS0) Measured Results**

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) RCV sensor back-off										
					Measured Pwr (dBm)				MPR	Tune-up Limit	Measured Pwr (dBm)				MPR	Tune-up Limit				
					650000	655000	662000	3750 MHz			3750 MHz	3840 MHz	3930 MHz							
100 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.4			24.7		0.0	25.5	21.2			21.7		0.0	22.5		
			1	137	24.2			24.3		0.0	25.5	20.9			21.2		0.0	22.5		
			1	271	24.5			23.5		0.0	25.5	21.2			20.6		0.0	22.5		
			135	0	24.3			24.6		0.5	25.0	21.4			22.2		0.0	22.5		
			135	69	24.1			24.3		0.0	25.5	20.9			21.4		0.0	22.5		
			135	138	24.1			24.1		0.5	25.0	21.3			21.6		0.0	22.5		
			270	0	23.9			24.1		0.5	25.0	21.1			21.6		0.0	22.5		
	QPSK	1	1	24.5				24.9		0.0	25.5	21.3			21.8		0.0	22.5		
		1	137	24.2				24.3		0.0	25.5	20.8			21.3		0.0	22.5		
		1	271	24.5				23.6		0.0	25.5	21.2			20.6		0.0	22.5		
		135	0	23.8				24.2		1.0	24.5	21.6			22.2		0.0	22.5		
		135	69	24.2				24.5		0.0	25.5	20.9			21.4		0.0	22.5		
		135	138	23.5				23.6		1.0	24.5	21.3			21.6		0.0	22.5		
		270	0	23.4				23.6		1.0	24.5	21.1			21.6		0.0	22.5		
	16QAM	1	1	23.6				23.7		1.0	24.5	21.1			21.7		0.0	22.5		
	64QAM	1	1	22.0				22.2		2.5	23.0	21.5			21.9		0.0	22.5		
	256QAM	1	1	20.1				20.5		4.5	21.0	20.0			20.5		1.5	21.0		
	QPSK	1	1	22.7				23.3		1.5	24.0	21.2			21.8		0.0	22.5		
90 MHz	DFT-s-OFDM	π/2 BPSK	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit				
			649668		656000		662332			649668		656000		662332						
			3745.02 MHz		3840 MHz		3934.981 MHz			3745.02 MHz		3840 MHz		3934.981 MHz						
			1	1	24.4		24.3		25.1		0.0	25.5	21.2		21.0		21.9		0.0	22.5
			1	123	24.3		24.4		24.6		0.0	25.5	21.1		21.3		21.2		0.0	22.5
			1	243	24.7		25.2		24.9		0.0	25.5	21.4		22.0		21.5		0.0	22.5
			120	0	24.3		24.4		24.7		0.5	25.0	21.4		21.8		22.0		0.0	22.5
	QPSK	120	63	24.4		24.5		24.6		0.0	25.5	21.1		21.4		21.4		0.0	22.5	
		120	125	24.0		24.2		24.8		0.5	25.0	21.2		21.6		21.8		0.0	22.5	
		243	0	23.9		24.1		24.4		0.5	25.0	21.1		21.4		21.4		0.0	22.5	
		1	1	24.4		24.4		25.2		0.0	25.5	21.2		21.2		21.9		0.0	22.5	
		1	123	24.4		24.5		24.7		0.0	25.5	21.1		21.3		21.8		0.0	22.5	
		1	243	24.6		25.1		24.9		0.0	25.5	21.4		21.8		21.7		0.0	22.5	
		120	0	23.8		24.0		24.4		1.0	24.5	21.5		21.7		22.0		0.0	22.5	
		120	63	24.4		24.5		24.7		0.0	25.5	21.2		21.4		21.4		0.0	22.5	
		120	125	23.5		23.8		24.3		1.0	24.5	21.1		21.5		21.5		0.0	22.5	
		243	0	23.5		23.6		23.8		1.0	24.5	21.1		21.3		21.4		0.0	22.5	
	16QAM	1	1	23.2		23.3		24.2		1.0	24.5	21.2		21.0		22.0		0.0	22.5	
	64QAM	1	1	21.9		21.4		22.7		2.5	23.0	21.5		21.2		22.0		0.0	22.5	
	256QAM	1	1	19.9		19.8		20.5		4.5	21.0	19.6		19.9		20.4		1.5	21.0	
	QPSK	1	1	22.6		22.6		23.3		1.5	24.0	21.1		21.1		21.8		0.0	22.5	

**NR Band n77-Upper Band- (Voice/Data/SRS0) 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	
					649334 3740.01 MHz	656000 3840 MHz	662666 3939.99 MHz	662666 3840 MHz	656000 3939.99 MHz			649334 3740.01 MHz	656000 3840 MHz	662666 3939.99 MHz	656000 3939.99 MHz				
80 MHz	π/2 BPSK	1	1	24.4		24.2		24.5		0.0	25.5	21.1		21.2		21.4		0.0	22.5
		1	109	24.4		24.3		24.2		0.0	25.5	21.1		21.3		21.2		0.0	22.5
		1	215	24.8		24.8		23.6		0.0	25.5	21.5		21.9		20.5		0.0	22.5
		108	0	24.3		24.2		24.3		0.5	25.0	21.5		21.6		21.8		0.0	22.5
		108	55	24.5		24.3		24.2		0.0	25.5	21.2		21.4		21.3		0.0	22.5
		108	109	23.8		24.0		24.3		0.5	25.0	21.0		21.6		21.8		0.0	22.5
		216	0	24.1		23.9		23.8		0.5	25.0	21.2		21.4		21.3		0.0	22.5
	DFT-s-OFDM	1	1	24.4		24.2		24.6		0.0	25.5	21.2		21.2		21.6		0.0	22.5
		1	109	24.6		24.3		24.1		0.0	25.5	21.1		21.4		21.1		0.0	22.5
		1	215	24.9		24.9		23.6		0.0	25.5	21.4		21.8		20.6		0.0	22.5
		108	0	23.8		23.7		23.8		1.0	24.5	21.5		21.7		21.8		0.0	22.5
		108	55	24.5		24.4		24.2		0.0	25.5	21.2		21.3		21.3		0.0	22.5
		108	109	23.3		23.6		23.8		1.0	24.5	20.9		21.5		21.9		0.0	22.5
		216	0	23.5		23.4		23.3		1.0	24.5	21.1		21.4		21.3		0.0	22.5
	16QAM	1	1	23.5		23.3		23.5		1.0	24.5	21.1		21.2		21.6		0.0	22.5
	64QAM	1	1	22.0		21.6		22.1		2.5	23.0	21.1		21.4		21.7		0.0	22.5
	256QAM	1	1	19.9		19.7		20.1		4.5	21.0	19.6		19.7		20.3		1.5	21.0
	QPSK	1	1	22.7		22.5		23.1		1.5	24.0	21.3		21.1		21.7		0.0	22.5
70 MHz	π/2 BPSK	1	1	24.4	24.5			24.5	24.5	0.0	25.5	21.4	21.5			21.7	21.5	0.0	22.5
		1	95	24.2	24.4			24.8	24.7	0.0	25.5	21.1	21.4			21.9	21.3	0.0	22.5
		1	187	23.7	23.7			24.2	23.2	0.0	25.5	21.2	21.2			22.0	20.4	0.0	22.5
		90	0	23.9	24.0			24.2	24.5	0.5	25.0	21.5	21.6			21.9	21.6	0.0	22.5
		90	50	24.2	24.5			24.8	24.8	0.0	25.5	21.2	21.4			22.0	21.4	0.0	22.5
		90	99	23.4	24.0			24.6	24.8	0.5	25.0	20.9	21.4			22.2	21.9	0.0	22.5
		180	0	23.7	23.9			24.3	24.6	0.5	25.0	21.2	21.3			22.0	21.5	0.0	22.5
	DFT-s-OFDM	1	1	24.4	23.6			24.6	24.6	0.0	25.5	21.3	21.5			21.8	21.4	0.0	22.5
		1	95	24.1	24.5			24.8	24.8	0.0	25.5	21.1	21.4			22.0	21.3	0.0	22.5
		1	187	23.3	23.3			23.7	23.9	0.0	25.5	21.1	21.2			22.0	20.5	0.0	22.5
		90	0	23.5	23.6			23.7	24.0	1.0	24.5	21.5	21.5			21.9	21.6	0.0	22.5
		90	50	24.3	24.5			24.8	24.8	0.0	25.5	21.3	21.5			22.1	21.4	0.0	22.5
		90	99	23.0	23.6			24.2	24.3	1.0	24.5	20.9	21.4			22.3	21.8	0.0	22.5
		180	0	23.2	23.5			23.8	23.7	1.0	24.5	21.2	21.3			22.0	21.4	0.0	22.5
	16QAM	1	1	23.2	23.6			23.5	23.7	1.0	24.5	21.5	21.5			21.7	21.3	0.0	22.5
	64QAM	1	1	21.9	22.3			22.3	22.3	2.5	23.0	21.4	21.7			21.8	21.3	0.0	22.5
	256QAM	1	1	20.2	20.3			20.5	20.2	4.5	21.0	20.1	20.0			20.1	19.8	1.5	21.0
	QPSK	1	1	22.8	22.9			23.1	23.0	1.5	24.0	21.5	21.5			21.6	21.4	0.0	22.5

## **NR Band n77-Upper Band- (Voice/Data/SRS0) Measured Results (Continued)**

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)				MPR	Tune-up Limit	Measured Pwr (dBm)				MPR				
					648668 3730.02 MHz	653556 3803.34 MHz	658444 3949.98 MHz	663332 3949.98 MHz			648668 3730.02 MHz	653556 3803.34 MHz	658444 3949.98 MHz	663332 3949.98 MHz					
60 MHz	$\pi/2$ BPSK	1	1	24.3	24.8			24.7	24.0	0.0	25.5	21.3	21.7		21.7	21.1	0.0	22.5	
		1	81	24.2	24.5			25.1	24.5	0.0	25.5	21.2	21.5			22.1	21.5	0.0	22.5
		1	160	24.0	24.4			25.0	23.4	0.0	25.5	21.0	21.4			22.1	20.5	0.0	22.5
		81	0	24.0	24.3			24.5	23.9	0.5	25.0	21.5	21.8			22.0	21.4	0.0	22.5
		81	41	24.3	24.6			25.2	24.6	0.0	25.5	21.3	21.6			22.2	21.7	0.0	22.5
		81	81	23.5	24.3			24.8	24.4	0.5	25.0	21.1	21.7			22.3	21.8	0.0	22.5
		162	0	23.8	24.1			24.6	24.2	0.5	25.0	21.3	21.7			22.1	21.6	0.0	22.5
	DFT-s-OFDM	1	1	24.3	24.8			24.7	24.0	0.0	25.5	21.3	21.9			21.8	21.1	0.0	22.5
		1	81	24.2	24.5			25.0	24.5	0.0	25.5	21.2	21.7			22.2	21.0	0.0	22.5
		1	160	24.1	24.4			25.0	23.5	0.0	25.5	21.0	21.4			22.0	20.5	0.0	22.5
		81	0	23.5	23.8			24.1	23.5	1.0	24.5	21.6	21.9			22.0	21.4	0.0	22.5
		81	41	24.2	24.6			25.1	24.7	0.0	25.5	21.3	21.6			22.2	21.7	0.0	22.5
		81	81	23.1	23.7			24.3	24.0	1.0	24.5	21.1	21.8			22.3	21.8	0.0	22.5
		162	0	23.3	23.6			24.1	23.7	1.0	24.5	21.3	21.7			22.1	21.6	0.0	22.5
	16QAM	1	1	23.4	23.8			23.7	23.0	1.0	24.5	21.4	21.7			21.7	21.0	0.0	22.5
		1	1	21.7	22.5			22.4	21.5	2.5	23.0	21.7	21.7			21.8	21.1	0.0	22.5
		1	1	20.0	20.3			20.4	19.7	4.5	21.0	20.0	20.1			20.3	19.7	1.5	21.0
	QPSK	1	1	22.9	23.2			23.2	22.9	1.5	24.0	21.5	21.7			21.6	21.4	0.0	22.5
50 MHz	$\pi/2$ BPSK	1	1	24.7	24.6	24.9		25.1	24.5	0.0	25.5	21.8	21.6	21.9		22.1	21.6	0.0	22.5
		1	67	24.5	24.8	24.6		25.2	24.7	0.0	25.5	21.6	21.7	21.5		21.9	21.7	0.0	22.5
		1	131	24.4	24.6	24.8		24.9	24.5	0.0	25.5	21.4	21.6	21.8		21.9	21.5	0.0	22.5
		64	0	24.2	24.3	24.3		24.9	24.0	0.5	25.0	21.8	21.8	21.7		21.6	21.5	0.0	22.5
		64	35	24.7	24.9	24.6		25.2	24.8	0.0	25.5	21.6	21.9	21.7		22.4	21.7	0.0	22.5
		64	69	24.0	24.1	24.2		24.5	24.4	0.5	25.0	21.6	21.6	21.7		21.9	21.9	0.0	22.5
		128	0	24.1	24.4	24.1		24.8	24.2	0.5	25.0	21.6	21.9	21.6		22.1	21.7	0.0	22.5
	DFT-s-OFDM	1	1	24.7	24.6	25.0		25.3	24.6	0.0	25.5	21.9	21.6	22.0		22.1	21.5	0.0	22.5
		1	67	24.5	24.8	24.6		25.2	24.7	0.0	25.5	21.7	21.8	21.6		22.0	21.6	0.0	22.5
		1	131	24.4	24.6	24.8		24.9	24.5	0.0	25.5	21.5	21.7	21.9		21.6	21.4	0.0	22.5
		64	0	23.8	23.7	23.8		24.4	23.4	1.0	24.5	21.8	21.8	21.8		22.4	21.5	0.0	22.5
		64	35	24.6	24.9	24.6		25.0	24.7	0.0	25.5	21.6	21.8	21.6		22.1	21.8	0.0	22.5
		64	69	23.5	23.7	23.6		23.9	23.9	1.0	24.5	21.5	21.6	21.7		21.9	21.8	0.0	22.5
		128	0	23.7	23.9	23.6		24.1	23.7	1.0	24.5	21.7	21.8	21.6		22.1	21.8	0.0	22.5
	16QAM	1	1	23.7	23.8	24.0		24.1	23.6	1.0	24.5	21.8	21.7	22.0		22.2	21.5	0.0	22.5
		1	1	22.4	22.1	22.7		22.6	22.2	2.5	23.0	21.7	21.5	22.1		22.1	21.6	0.0	22.5
		1	1	19.8	19.8	20.3		20.6	20.3	4.5	21.0	19.7	19.8	20.3		20.7	20.4	1.5	21.0
	QPSK	1	1	22.9	22.9	23.3		23.8	23.2	1.5	24.0	21.3	21.2	21.7		22.2	21.6	0.0	22.5

**NR Band n77-Upper Band- (Voice/Data/SRS0) 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
					648000	651200	654400	657600	660800	664000			648000	651200	654400	657600	660800	664000		
					3720 MHz	3768 MHz	3816 MHz	3864 MHz	3912 MHz	3960 MHz			3720 MHz	3768 MHz	3816 MHz	3864 MHz	3912 MHz	3960 MHz		
40 MHz	π/2 BPSK	DFT-s-OFDM	1	1	24.6	24.2	24.3	24.7	25.3	24.8	0.0	25.5	21.7	21.2	21.4	21.8	22.5	21.7	0.0	22.5
			1	53	24.6	24.4	24.4	24.8	25.0	25.3	0.0	25.5	21.7	21.2	21.5	22.0	22.1	21.9	0.0	22.5
			1	104	24.5	24.3	24.2	25.0	24.5	24.8	0.0	25.5	21.5	21.3	21.3	22.1	21.6	21.6	0.0	22.5
			50	0	24.3	23.6	24.1	24.3	24.7	24.7	0.5	25.0	21.8	21.2	21.6	21.8	22.3	21.8	0.0	22.5
			50	28	24.7	24.4	24.6	24.9	25.0	25.2	0.0	25.5	21.7	21.2	21.5	22.0	21.9	22.0	0.0	22.5
			50	56	24.0	24.0	23.9	24.5	24.4	24.7	0.5	25.0	21.5	21.6	21.4	22.0	21.8	21.8	0.0	22.5
			100	0	24.1	23.8	24.1	24.4	24.6	24.9	0.5	25.0	21.8	21.3	21.6	21.9	22.1	22.0	0.0	22.5
		QPSK	1	1	24.7	24.3	24.3	24.6	25.3	24.8	0.0	25.5	21.7	21.3	21.4	21.8	22.5	21.4	0.0	22.5
			1	53	24.7	24.4	24.6	24.9	25.1	25.4	0.0	25.5	21.7	21.4	21.6	22.0	22.2	22.0	0.0	22.5
			1	104	24.4	24.4	24.4	25.1	24.6	24.8	0.0	25.5	21.4	21.4	21.2	22.1	21.7	21.5	0.0	22.5
	16QAM 64QAM 256QAM	16QAM	50	0	23.8	23.1	23.5	23.8	24.3	24.1	1.0	24.5	21.7	21.2	21.6	21.7	22.3	21.7	0.0	22.5
			50	28	24.7	24.4	24.6	24.9	25.1	25.4	0.0	25.5	21.7	21.3	21.5	22.0	22.1	22.0	0.0	22.5
			50	56	23.5	23.5	23.5	24.0	23.9	24.2	1.0	24.5	21.6	21.6	21.5	22.0	21.9	21.8	0.0	22.5
			100	0	23.7	23.2	23.6	24.0	24.2	24.5	1.0	24.5	21.7	21.3	21.6	21.9	21.2	22.0	0.0	22.5
		64QAM	1	1	23.5	23.4	23.5	23.7	24.5	23.8	1.0	24.5	21.6	21.4	21.5	21.8	22.4	22.0	0.0	22.5
			1	1	22.4	22.1	22.0	22.3	22.8	22.5	2.5	23.0	21.8	21.6	21.4	21.8	22.5	22.0	0.0	22.5
			1	1	20.2	19.8	20.3	20.0	21.0	20.1	4.5	21.0	20.2	19.8	20.1	20.0	20.0	19.9	1.5	21.0
			1	1	23.2	22.6	22.8	23.1	23.9	23.0	1.5	24.0	21.6	21.2	21.2	21.6	22.2	21.5	0.0	22.5
30 MHz	π/2 BPSK	DFT-s-OFDM	1	1	24.6	24.1	24.4	24.8	24.8	25.0	0.0	25.5	21.6	21.1	21.4	21.8	21.8	22.0	0.0	22.5
			1	39	24.8	24.2	24.6	24.9	24.5	25.1	0.0	25.5	21.7	21.2	21.5	21.9	21.6	22.1	0.0	22.5
			1	76	24.5	24.5	24.4	25.1	24.2	24.7	0.0	25.5	21.5	21.5	21.3	22.2	21.2	21.6	0.0	22.5
			36	0	24.3	23.6	24.1	24.3	24.2	24.8	0.5	25.0	21.8	21.3	21.6	21.8	21.8	22.3	0.0	22.5
			36	21	24.8	24.3	24.6	24.9	24.6	25.2	0.0	25.5	21.8	21.1	21.6	22.0	21.7	22.3	0.0	22.5
			36	42	24.1	23.8	24.0	24.4	23.9	24.7	0.5	25.0	21.6	21.3	21.5	21.9	21.4	22.0	0.0	22.5
			75	0	24.3	23.7	24.1	24.5	24.2	24.7	0.5	25.0	21.8	21.1	21.6	21.9	21.6	22.2	0.0	22.5
		QPSK	1	1	24.6	24.0	24.3	24.7	25.2	25.0	0.0	25.5	21.6	21.1	21.4	21.9	21.9	22.0	0.0	22.5
			1	39	24.8	24.3	24.6	24.8	24.9	25.2	0.0	25.5	21.7	21.2	21.6	22.0	21.6	22.2	0.0	22.5
			1	76	24.6	24.5	24.4	25.1	24.4	24.7	0.0	25.5	21.5	21.5	21.4	22.1	21.2	21.8	0.0	22.5
	16QAM 64QAM 256QAM	16QAM	36	0	23.8	23.2	23.5	23.8	23.8	24.3	1.0	24.5	21.8	21.1	21.6	21.8	21.8	22.3	0.0	22.5
			36	21	24.7	24.2	24.6	24.9	24.7	25.2	0.0	25.5	21.7	21.2	21.6	21.9	21.6	22.2	0.0	22.5
			36	42	23.5	23.3	23.5	23.9	23.4	24.0	1.0	24.5	21.7	21.4	21.5	22.0	21.4	22.0	0.0	22.5
			75	0	23.8	23.2	23.7	24.0	23.7	23.7	1.0	24.5	21.8	21.2	21.6	22.0	21.6	22.3	0.0	22.5
		64QAM	1	1	23.8	23.1	23.2	23.7	23.7	23.8	1.0	24.5	21.6	21.0	21.3	21.9	21.8	21.7	0.0	22.5
			1	1	22.1	21.8	21.9	22.5	22.4	22.4	2.5	23.0	21.6	21.3	21.5	22.0	22.1	21.9	0.0	22.5
			1	1	20.3	19.9	20.4	20.4	20.5	20.6	4.5	21.0	20.3	19.5	20.3	20.2	20.6	20.5	1.5	21.0
			1	1	22.8	22.8	22.9	22.9	23.3	23.5	1.5	24.0	21.3	21.3	21.2	21.4	21.8	22.0	0.0	22.5

**NR Band n77-Upper Band- (Voice/Data/SRS0) 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
					647334 3710.01 MHz	650800 3813.99 MHz	654266 3806.01 MHz	657734 3806.01 MHz	661200 3918 MHz	664666 3909.99 MHz			647334 3710.01 MHz	650800 3762 MHz	654266 3813.99 MHz	657734 3806.01 MHz	661200 3918 MHz	664666 3909.99 MHz		
20 MHz	π/2 BPSK	1	1	24.5	24.3	24.0	24.5	24.8	25.3	0.0	25.5	21.5	21.3	20.9	21.6	21.8	22.3	0.0	22.5	
		1	26	24.5	24.4	24.0	24.7	24.7	25.1	0.0	25.5	21.4	21.4	21.0	21.7	21.6	22.2	0.0	22.5	
		1	49	24.5	24.5	24.2	24.7	24.4	24.8	0.0	25.5	21.5	21.5	21.2	21.7	21.3	21.8	0.0	22.5	
		25	0	24.2	23.9	23.5	24.2	24.3	24.9	0.5	25.0	21.6	21.4	21.0	21.7	21.8	22.2	0.0	22.5	
		25	13	24.6	24.5	24.0	24.8	24.6	25.2	0.0	25.5	21.6	21.3	21.1	21.7	21.7	22.2	0.0	22.5	
		25	26	24.1	23.9	23.6	24.2	24.0	24.6	0.5	25.0	21.6	21.5	21.1	21.7	21.6	22.1	0.0	22.5	
		50	0	24.1	23.9	23.5	24.2	24.1	24.7	0.5	25.0	21.7	21.4	21.1	21.7	21.7	22.2	0.0	22.5	
	DFT-s-OFDM	1	1	24.5	24.3	24.1	24.6	24.9	25.3	0.0	25.5	21.5	21.4	21.0	21.6	21.9	22.4	0.0	22.5	
		1	26	24.6	24.4	24.1	24.7	24.7	25.1	0.0	25.5	21.6	21.4	21.1	21.6	21.7	22.2	0.0	22.5	
		1	49	24.5	24.5	24.2	24.7	24.5	24.9	0.0	25.5	21.5	21.6	21.2	21.7	21.4	21.9	0.0	22.5	
		25	0	23.7	23.3	23.1	23.7	23.8	24.4	1.0	24.5	21.7	21.4	21.0	21.7	21.8	22.3	0.0	22.5	
		25	13	24.6	24.4	24.1	24.7	24.7	25.2	0.0	25.5	21.6	21.5	21.1	21.7	21.7	22.2	0.0	22.5	
		25	26	23.7	23.5	23.1	23.7	23.5	24.1	1.0	24.5	21.6	21.4	21.1	21.6	21.5	22.1	0.0	22.5	
		50	0	23.6	23.5	23.0	23.7	23.6	24.2	1.0	24.5	21.6	21.4	21.1	21.7	21.7	22.2	0.0	22.5	
		16QAM	1	1	23.5	23.2	23.0	23.6	23.8	24.2	1.0	24.5	21.4	21.3	21.1	21.7	21.9	22.3	0.0	22.5
		64QAM	1	1	22.0	22.0	21.7	22.2	22.4	22.8	2.5	23.0	21.5	21.4	21.1	21.8	22.0	22.2	0.0	22.5
		256QAM	1	1	20.2	19.8	19.7	20.1	20.6	20.9	4.5	21.0	20.0	19.6	19.5	20.0	20.4	20.9	1.5	21.0
	UP-OFDM	QPSK	1	1	23.0	22.8	22.5	23.0	23.3	23.9	1.5	24.0	21.3	21.4	21.0	21.5	21.8	22.2	0.0	22.5
15 MHz	π/2 BPSK	1	1	24.6	24.0	24.5	24.7	24.8	24.9	0.0	25.5	21.5	21.1	21.5	21.8	21.8	21.8	0.0	22.5	
		1	19	24.7	24.0	24.6	24.7	24.6	24.7	0.0	25.5	21.7	21.0	21.6	21.7	21.6	21.8	0.0	22.5	
		1	36	24.5	24.1	24.4	24.7	24.4	24.5	0.0	25.5	21.6	21.1	21.4	21.8	21.5	21.6	0.0	22.5	
		18	0	24.0	23.5	24.0	24.2	24.3	24.4	0.5	25.0	21.6	21.1	21.6	21.8	21.7	21.8	0.0	22.5	
		18	10	24.7	24.1	24.6	24.8	24.7	24.7	0.0	25.5	21.7	21.1	21.5	21.8	21.7	21.8	0.0	22.5	
		18	20	24.2	23.6	24.0	24.2	24.2	24.0	0.5	25.0	21.6	21.1	21.5	21.7	21.5	21.5	0.0	22.5	
		36	0	24.2	23.5	24.1	24.2	24.2	24.3	0.5	25.0	21.7	21.0	21.6	21.8	21.7	21.8	0.0	22.5	
	DFT-s-OFDM	1	1	24.5	24.0	24.5	24.7	24.9	25.0	0.0	25.5	21.5	21.1	21.6	21.6	21.9	21.9	0.0	22.5	
		1	19	24.7	24.0	24.5	24.7	24.7	24.8	0.0	25.5	21.7	21.1	21.6	21.8	21.7	21.9	0.0	22.5	
		1	36	24.6	24.1	24.5	24.8	24.5	24.6	0.0	25.5	21.6	21.1	21.5	21.8	21.5	21.6	0.0	22.5	
		18	0	23.5	23.0	23.5	23.7	23.8	23.8	1.0	24.5	21.5	21.0	21.5	21.7	21.7	21.8	0.0	22.5	
		18	10	24.6	24.0	24.7	24.8	24.7	24.8	0.0	25.5	21.6	21.0	21.6	21.8	21.7	21.8	0.0	22.5	
		18	20	23.7	23.1	23.6	23.7	23.7	22.5	1.0	24.5	21.7	21.1	21.6	21.7	21.6	21.6	0.0	22.5	
		36	0	23.7	23.1	23.6	23.7	23.7	23.8	1.0	24.5	21.7	21.1	21.6	21.8	21.6	21.8	0.0	22.5	
		16QAM	1	1	23.5	22.9	23.5	23.8	23.8	23.7	1.0	24.5	21.7	21.2	21.6	21.6	21.7	21.8	0.0	22.5
		64QAM	1	1	22.2	21.5	22.3	22.3	22.3	22.5	2.5	23.0	21.8	21.2	21.9	21.8	21.8	21.9	0.0	22.5
		256QAM	1	1	20.1	19.7	20.2	20.4	20.6	20.6	4.5	21.0	20.0	19.5	20.2	20.1	20.5	20.4	1.5	21.0
	UP-OFDM	QPSK	1	1	23.0	22.5	23.0	23.1	23.3	23.4	1.5	24.0	21.6	20.9	21.5	21.6	21.8	21.8	0.0	22.5

**NR Band n77-Upper Band- (Voice/Data/SRS0) Measured Results (Continued)**

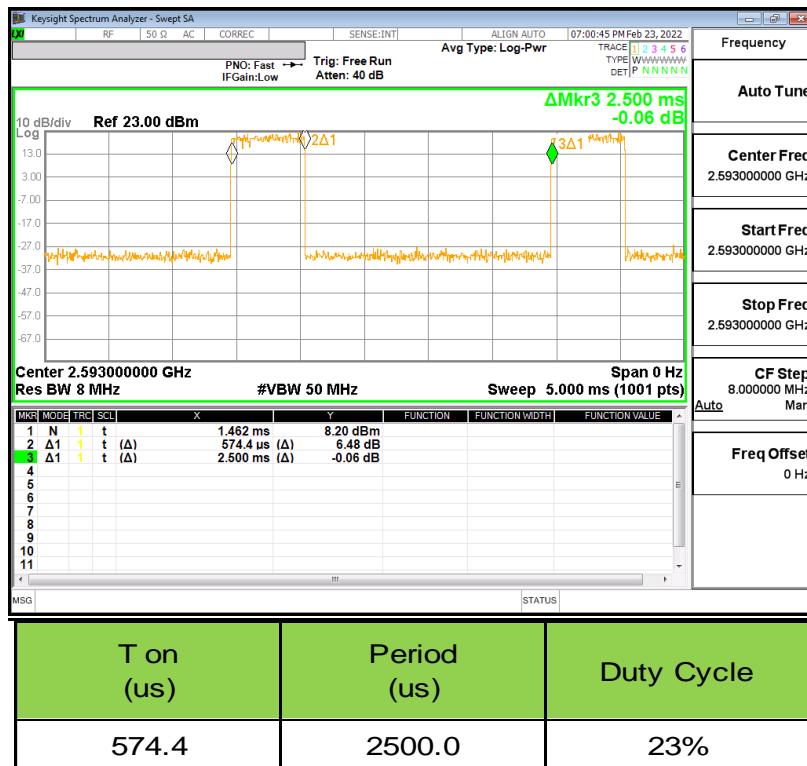
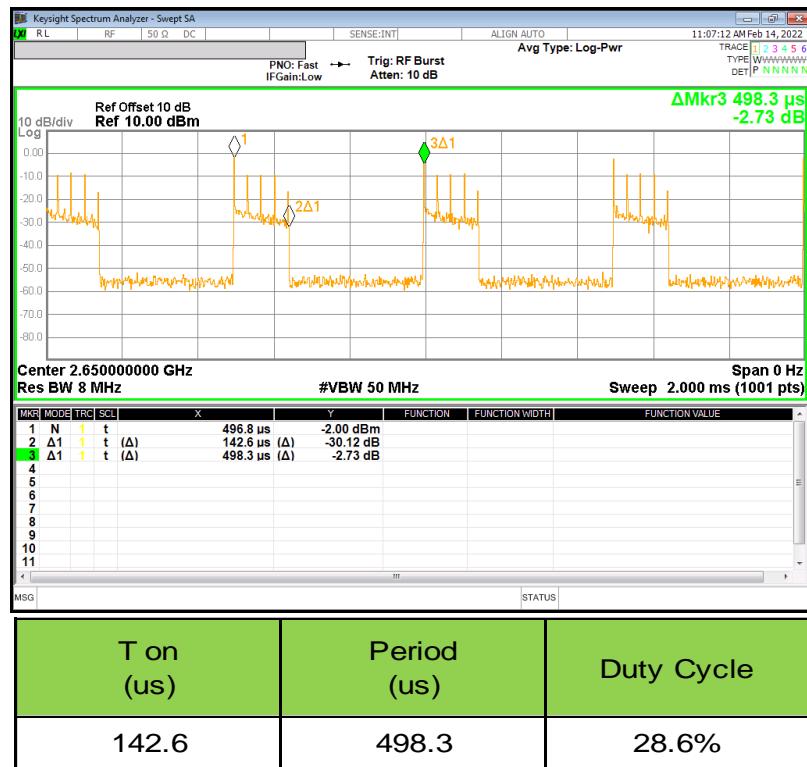
BW (MHz)	Modula- tion	Mode	RB Allocatio- n	RB offset	Measured Pwr (dBm)						MPR	Tune- up Limit	Measured Pwr (dBm)						MPR	Tune- up Limit	
					647000	650600	654200	657800	661400	665000			647000	650600	654200	657800	661400	665000			
					3705 MHz	3759 MHz	3813 MHz	3867 MHz	3921 MHz	3975 MHz			3705 MHz	3759 MHz	3813 MHz	3867 MHz	3921 MHz	3975 MHz			
10 MHz	π/2 BPSK	DFT-s-OFDM	1	1	24.2	24.0	24.5	24.7	24.7	25.1	0.0	25.5	21.2	20.9	21.5	21.8	21.8	22.2	0.0	22.5	
			1	12	24.4	23.9	24.6	24.6	24.6	25.0	0.0	25.5	21.4	21.0	21.5	21.8	21.6	21.9	0.0	22.5	
			1	22	24.4	24.0	24.5	24.7	24.4	24.9	0.0	25.5	21.3	21.0	21.6	21.8	21.5	22.1	0.0	22.5	
			12	0	23.6	23.5	24.0	24.2	24.2	24.7	0.5	25.0	21.2	20.9	21.5	21.8	21.7	22.2	0.0	22.5	
			12	6	24.4	24.0	24.5	24.6	24.5	24.9	0.0	25.5	21.5	21.0	21.6	21.7	21.6	21.9	0.0	22.5	
			12	12	23.9	23.5	24.0	24.3	24.1	24.5	0.5	25.0	21.4	20.9	21.6	21.7	21.6	22.0	0.0	22.5	
			24	0	23.9	23.5	24.1	24.2	24.1	24.5	0.5	25.0	21.3	20.9	21.6	21.8	21.6	22.0	0.0	22.5	
	QPSK	QPSK	1	1	24.6	23.9	24.5	24.8	24.7	25.2	0.0	25.5	21.6	21.0	21.6	21.9	21.8	22.3	0.0	22.5	
			1	12	24.7	23.9	24.6	24.7	24.6	25.1	0.0	25.5	21.7	21.0	21.6	21.8	21.7	21.9	0.0	22.5	
			1	22	24.6	24.0	24.5	24.8	24.5	25.0	0.0	25.5	21.6	21.0	21.5	21.9	21.5	22.0	0.0	22.5	
			12	0	23.5	22.9	23.5	23.7	23.7	24.2	1.0	24.5	21.6	21.0	21.5	21.8	21.7	22.2	0.0	22.5	
			12	6	24.7	23.9	24.6	24.7	24.6	25.0	0.0	25.5	21.7	21.0	21.6	21.8	21.6	21.9	0.0	22.5	
			12	12	23.7	23.0	23.6	23.7	23.5	24.0	1.0	24.5	21.7	21.0	21.5	21.8	21.5	21.0	0.0	22.5	
			24	0	23.7	22.9	23.6	23.7	23.7	24.0	1.0	24.5	21.7	20.9	21.6	21.8	21.6	21.9	0.0	22.5	
			16QAM	1	1	23.4	22.9	23.2	23.7	23.9	24.3	1.0	24.5	21.5	21.2	21.3	21.9	21.7	22.3	0.0	22.5
			64QAM	1	1	22.2	21.6	21.7	22.3	22.3	22.8	2.5	23.0	21.6	21.0	21.7	21.5	21.8	22.4	0.0	22.5
			256QAM	1	1	20.1	19.6	20.1	20.5	20.4	20.3	4.5	21.0	20.1	19.5	19.9	20.1	20.2	20.0	1.5	21.0
	U- OQPSK	QPSK	1	1	22.7	22.8	23.0	23.3	23.2	23.4	1.5	24.0	21.2	21.3	21.6	21.6	21.6	21.8	0.0	22.5	

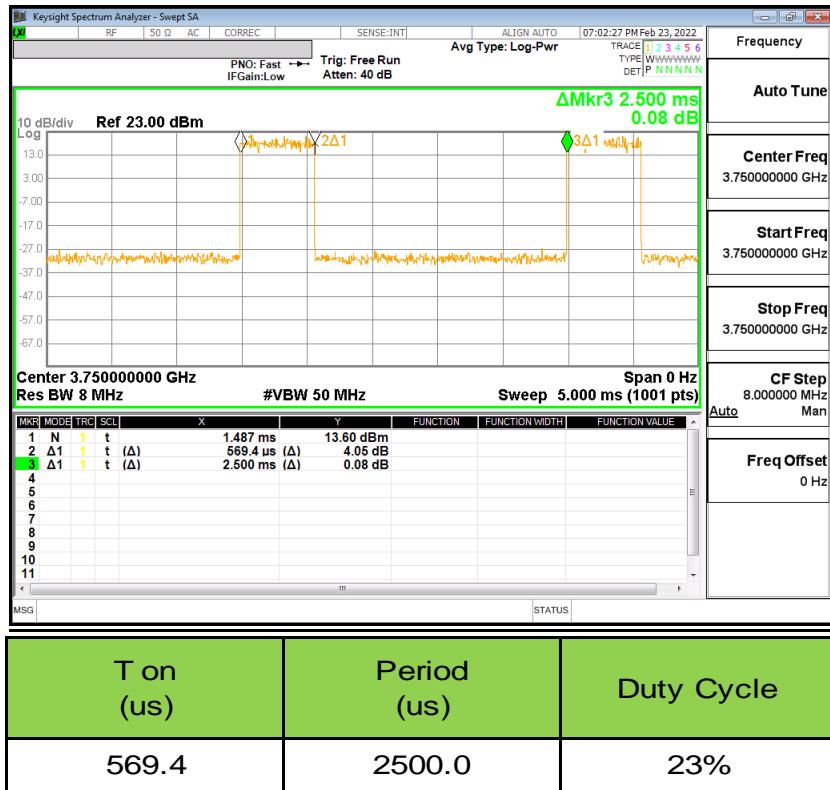
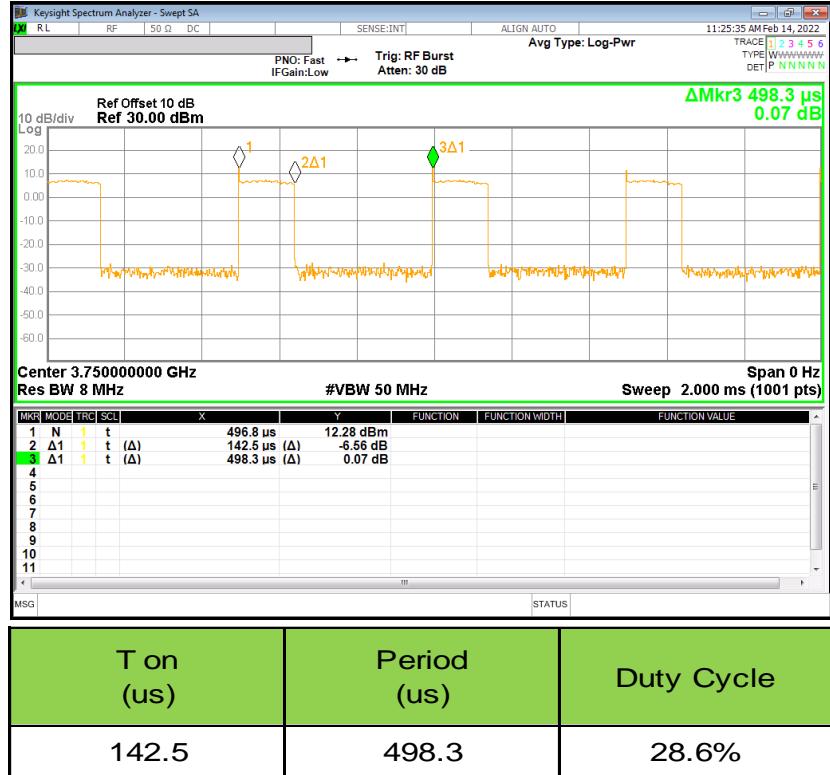
## **NR Band n77-Upper Band- (SRS1/SRS2/SRS3) Measured Results**

BW (MHz)	Mode	Maximum Average Power (dBm) -SRS 1-						Maximum Average Power (dBm) -SRS 2-						Maximum Average Power (dBm) -SRS 3-							
		Measured Pwr (dBm)				Tune-up Limit	Measured Pwr (dBm)				Tune-up Limit	Measured Pwr (dBm)				Tune-up Limit	Measured Pwr (dBm)				
		650000	3750 MHz	662000	3930 MHz		650000	3750 MHz	662000	3930 MHz		650000	3750 MHz	662000	3930 MHz		650000	3750 MHz	662000	3930 MHz	
100 MHz	SRS/CW	20.0		20.3		22.0	21.5		22.3		23.0	20.9		21.2		22.0					
BW (MHz)	Mode	Measured Pwr (dBm)						Measured Pwr (dBm)						Measured Pwr (dBm)						Tune-up Limit	
649668		656000	3840 MHz	662332	3934.981 MHz		649668		656000	3840 MHz		649668		656000	3840 MHz		649668		656000	3840 MHz	Tune-up Limit
3745.02 MHz							3745.02 MHz		3840 MHz			3745.02 MHz		3840 MHz			3745.02 MHz		3840 MHz		
90 MHz	SRS/CW	20.3		20.2		22.0	21.4		21.6		23.0	20.8		21.0		22.0					
BW (MHz)	Mode	Measured Pwr (dBm)						Measured Pwr (dBm)						Measured Pwr (dBm)						Tune-up Limit	
649334		656000	3840 MHz	662666	3939.99 MHz		649334		656000	3840 MHz		649334		656000	3840 MHz		649334		656000	3840 MHz	Tune-up Limit
3740.01 MHz							3740.01 MHz		3840 MHz			3740.01 MHz		3840 MHz			3740.01 MHz		3840 MHz		
80 MHz	SRS/CW	20.1		20.2		22.0	21.3		21.6		23.0	20.7		21.0		22.0					
BW (MHz)	Mode	Measured Pwr (dBm)						Measured Pwr (dBm)						Measured Pwr (dBm)						Tune-up Limit	
649000		653668	3804.99 MHz	658334	3875.01 MHz		649000		653668	3804.99 MHz		649000		653668	3804.99 MHz		649000		653668	3875.01 MHz	Tune-up Limit
3735 MHz							3735 MHz		3804.99 MHz			3735 MHz		3804.99 MHz			3735 MHz		3804.99 MHz		
70 MHz	SRS/CW	20.1	20.2			22.0	21.3	21.8		21.7	23.0	20.7	20.4		20.9		21.1			22.0	
BW (MHz)	Mode	Measured Pwr (dBm)						Measured Pwr (dBm)						Measured Pwr (dBm)						Tune-up Limit	
648668		653556	3803.34 MHz	658444	3876.66 MHz		648668		653556	3803.34 MHz		648668		653556	3803.34 MHz		648668		653556	3876.66 MHz	Tune-up Limit
3730.02 MHz							3730.02 MHz		3803.34 MHz			3730.02 MHz		3803.34 MHz			3730.02 MHz		3803.34 MHz		
60 MHz	SRS/CW	20.0	20.2			22.0	21.2	21.7		21.7	23.0	20.8	20.4		20.9		21.0			22.0	
BW (MHz)	Mode	Measured Pwr (dBm)						Measured Pwr (dBm)						Measured Pwr (dBm)						Tune-up Limit	
648334		652166	3782.49 MHz	656000	3840 MHz		648334		652166	3782.49 MHz		648334		652166	3782.49 MHz		648334		652166	3782.49 MHz	Tune-up Limit
3725.01 MHz							3725.01 MHz		3840 MHz			3725.01 MHz		3840 MHz			3725.01 MHz		3840 MHz		
50 MHz	SRS/CW	20.1	20.3	20.2		22.0	21.3	21.5	21.6		23.0	20.7	20.6	20.6		21.1		20.9		22.0	
BW (MHz)	Mode	Measured Pwr (dBm)						Measured Pwr (dBm)						Measured Pwr (dBm)						Tune-up Limit	
648000		651200	3786 MHz	654400	3816 MHz		648000		651200	3786 MHz		648000		651200	3786 MHz		648000		651200	3786 MHz	Tune-up Limit
3720 MHz							3720 MHz		3786 MHz			3720 MHz		3786 MHz			3720 MHz		3786 MHz		
40 MHz	SRS/CW	20.1	20.5	20.3	20.2	20.1	20.0	20.1	21.3	21.4	22.0	21.5	21.8	22.0	22.2	23.0	20.7	20.7	20.2	20.8	
BW (MHz)	Mode	Measured Pwr (dBm)						Measured Pwr (dBm)						Measured Pwr (dBm)						Tune-up Limit	
647668		651000	3762 MHz	654334	3815.01 MHz		647668		651000	3762 MHz		647668		651000	3762 MHz		647668		651000	3815.01 MHz	Tune-up Limit
3715.02 MHz							3715.02 MHz		3815.01 MHz			3715.02 MHz		3815.01 MHz			3715.02 MHz		3815.01 MHz		
30 MHz	SRS/CW	20.0	20.2	20.3	20.2	20.0	19.9	20.0	21.3	21.4	23.0	21.6	21.8	22.0	22.2	22.0	20.6	20.5	20.2	20.7	
BW (MHz)	Mode	Measured Pwr (dBm)						Measured Pwr (dBm)						Measured Pwr (dBm)						Tune-up Limit	
647334		650800	3762 MHz	654266	3813.99 MHz		647334		650800	3762 MHz		647334		650800	3762 MHz		647334		650800	3813.99 MHz	Tune-up Limit
3710.01 MHz							3710.01 MHz		3813.99 MHz			3710.01 MHz		3813.99 MHz			3710.01 MHz		3813.99 MHz		
20 MHz	SRS/CW	20.1	20.4	20.3	20.3	20.0	20.3	22.0	21.4	21.4	23.0	21.6	21.8	22.0	22.0	22.0	20.7	20.6	20.6	20.8	
BW (MHz)	Mode	Measured Pwr (dBm)						Measured Pwr (dBm)						Measured Pwr (dBm)						Tune-up Limit	
647168		650700	3762 MHz	654244	3813.51 MHz		647168		650700	3762 MHz		647168		650700	3762 MHz		647168		650700	3813.51 MHz	Tune-up Limit
3707.52 MHz							3707.52 MHz		3813.51 MHz			3707.52 MHz		3813.51 MHz			3707.52 MHz		3813.51 MHz		
15 MHz	SRS/CW	20.2	20.2	20.3	20.2	20.0	19.8	20.0	21.4	21.4	23.0	21.5	21.8	21.9	22.1	22.0	20.5	20.5	20.5	20.6	
BW (MHz)	Mode	Measured Pwr (dBm)						Measured Pwr (dBm)						Measured Pwr (dBm)						Tune-up Limit	
647000		650600	3759 MHz	654200	3813 MHz		647000		650600	3759 MHz		647000		650600	3759 MHz		647000		650600	3813 MHz	Tune-up Limit
3705 MHz							3705 MHz		3759 MHz			3705 MHz		3759 MHz			3705 MHz		3759 MHz		
10 MHz	SRS/CW	20.1	20.2	20.3	20.0	19.9	20.1	22.0	21.5	21.4	23.0	21.5	21.6	21.8	22.1	22.0	20.6	20.6	20.6	20.8	
BW (MHz)	Mode	Measured Pwr (dBm)						Measured Pwr (dBm)						Measured Pwr (dBm)						Tune-up Limit	
647000		650500	3759 MHz	654188	3812.51 MHz		647000		650500	3759 MHz		647000		650500	3759 MHz		647000		650500	3812.51 MHz	Tune-up Limit
3704.52 MHz							3704.52 MHz		3759 MHz			3704.52 MHz		3759 MHz			3704.52 MHz		3759 MHz		

**Note(s):**

SRS1, SRS2 and SRS3 were measured output power through FTM mode provided by manufacturer.

**NR TDD Bands Duty Cycle plots****NR TDD Band n41 (Voice/Data/SRS0)****NR TDD Band n41 (SRS1/ SRS2/SRS3)**

**NR TDD Bands Duty Cycle plots****NR TDD Band n77 (Voice/Data/SRS0)****NR TDD Band n77 (SRS1/ SRS2/SRS3)**

## 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:

- $\leq 0.8 \text{ W/kg}$  or  $2.0 \text{ W/kg}$ , for 1-g or 10-g respectively, when the transmission band is  $\leq 100 \text{ MHz}$
- $\leq 0.6 \text{ W/kg}$  or  $1.5 \text{ W/kg}$ , for 1-g or 10-g respectively, when the transmission band is between  $100 \text{ MHz}$  and  $200 \text{ MHz}$
- $\leq 0.4 \text{ W/kg}$  or  $1.0 \text{ W/kg}$ , for 1-g or 10-g respectively, when the transmission band is  $\geq 200 \text{ MHz}$

### 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  $> 1.2 \text{ W/kg}$ , 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  $> 15.0 \text{ cm}$  or an overall diagonal dimension  $> 16.0 \text{ cm}$ .

When hotspot mode does not apply, 10-g extremity SAR is required for all surfaces and edges with an antenna located at  $\leq 25\text{mm}$  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  $> 1.2 \text{ W/kg}$ ; 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  $1.2 \text{ W/kg}$  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  $< 1.2 \text{ W/kg}$ .

### 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  $\leq \frac{1}{4} \text{ dB}$  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  $\leq 1.2 \text{ W/kg}$ , 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  $> 0.8 \text{ W/kg}$ , 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  $> 0.8 \text{ W/kg}$ . Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation  $< 1.45 \text{ W/kg}$ .
- Testing for 16-QAM modulation is not required because the reported SAR for QPSK is  $< 1.45 \text{ W/Kg}$  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  $< 1.45 \text{ W/Kg}$  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. NR Band n25 (20MHz Bandwidth)

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	
Ant. A	Head	DFT-s-OFDM	QPSK	Off	0	Left Touch	381000	1905.0	1	53	24.0	23.8	0.068	0.071	1
						50			50	28	24.0	23.8	0.065	0.068	
						Left Tilt	381000	1905.0	1	53	24.0	23.8	0.019	0.020	
						50			50	28	24.0	23.8	0.014	0.015	
						Right Touch	381000	1905.0	1	53	24.0	23.8	0.038	0.039	
						50			50	28	24.0	23.8	0.042	0.043	
						Right Tilt	381000	1905.0	1	53	24.0	23.8	0.049	0.051	
						50			50	28	24.0	23.8	0.049	0.051	
						CP-OFDM	QPSK	Off	0	Left Touch	381000	1905.0	1	1	22.5
	Body-worn	DFT-s-OFDM	QPSK	Off	15	Rear	381000	1905.0	1	53	24.0	23.8	0.563	0.584	2
						50			50	28	24.0	23.8	0.549	0.572	
						Front	381000	1905.0	1	53	24.0	23.8	0.391	0.406	
						50			50	28	24.0	23.8	0.384	0.400	
						CP-OFDM	QPSK	Off	15	Rear	381000	1905.0	1	1	22.5
Ant. A	Hotspot	DFT-s-OFDM	QPSK	On	10	Rear	381000	1905.0	1	53	21.0	20.6	0.492	0.537	
						50			50	28	21.0	20.7	0.477	0.510	
						Front	381000	1905.0	1	53	21.0	20.6	0.365	0.398	
						50			50	28	21.0	20.7	0.360	0.385	
						Edge 2	381000	1905.0	1	53	21.0	20.6	0.065	0.071	
						50			50	28	21.0	20.7	0.063	0.068	
						372000	1860.0	1	53	21.0	20.2	0.921	1.102		
						50			50	28	21.0	20.2	0.912	1.090	
						376500	1882.5	1	53	21.0	20.3	1.010	1.181		
						50			50	28	21.0	20.3	0.996	1.182	
						381000	1905.0	1	53	21.0	20.6	1.090	1.190		
						50			50	28	21.0	20.7	1.120	1.197	3
						100			100	0	21.0	20.5	0.945	1.058	
						Edge 4	381000	1905.0	1	53	21.0	20.6	0.173	0.189	
						50			50	28	21.0	20.7	0.167	0.179	
						CP-OFDM	QPSK	On	10	Edge 3	381000	1905.0	1	1	21.0
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.
Ant. A	Product Specific 10-g	DFT-s-OFDM	QPSK	Off	13	Edge 3	381000	1905.0	1	53	24.0	23.8	0.751	0.779	
						50			50	28	24.0	23.8	0.739	0.769	
				On	0	Edge 3	381000	1905.0	1	53	21.0	20.5	1.330	1.502	4
						50			50	28	21.0	20.5	1.020	1.134	

**Note(s):**

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

## 10.2. NR Band n41 (100MHz Bandwidth)

### Ant. F Voice/Data/SRS 0

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	
Ant. F	Head	DFT-s-OFDM	QPSK	N/A	0	Left Touch	518598	2592.99	1	271	25.5	24.6	0.632	0.779	
						135			69		25.5	24.6	0.660	0.816	
						Left Tilt	518598	2593.00	1	271	25.5	24.6	0.864	1.065	
						135			69		25.5	24.6	0.893	1.103	5
						270			0		24.5	23.8	0.759	0.894	
						Right Touch	518598	2592.99	1	271	25.5	24.6	0.370	0.456	
	Body-w orn	CP-OFDM	QPSK	N/A	0	135			69		25.5	24.6	0.366	0.452	
						Right Tilt	518598	2592.99	1	271	25.5	24.6	0.471	0.581	
						135			69		25.5	24.6	0.467	0.577	
						Left Tilt	518598	2592.99	1	1	24.0	23.1	0.606	0.744	
Hotspot	Body-w orn	DFT-s-OFDM	QPSK	N/A	15	Rear	518598	2592.99	1	271	25.5	24.6	0.083	0.102	
						135			69		25.5	24.6	0.100	0.124	6
						Front	518598	2592.99	1	271	25.5	24.6	0.043	0.053	
						135			69		25.5	24.6	0.047	0.057	
						Rear	518598	2592.99	1	1	24.0	23.1	0.075	0.091	
	Hotspot	CP-OFDM	QPSK	N/A	10	Rear	518598	2592.99	1	271	25.5	24.6	0.225	0.277	
						135			69		25.5	24.6	0.228	0.282	
						Front	518598	2592.99	1	271	25.5	24.6	0.113	0.139	
						135			69		25.5	24.6	0.114	0.141	
						Edge 1	518598	2592.99	1	271	25.5	24.6	0.321	0.396	
						135			69		25.5	24.6	0.323	0.399	7
						Edge 2	518598	2592.99	1	271	25.5	24.6	0.038	0.046	
						135			69		25.5	24.6	0.037	0.045	
						CP-OFDM	QPSK	N/A	10	Edge 1	518598	2592.99	1	1	24.0

**Note(s):**

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

**Ant. B SRS 1**

Antenna	RF Exposure Conditions	Modulation	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Ant. B	Head	CW	N/A	0	Left Touch	518598	2592.99	22.5	22.0	0.027	0.030	8
					Left Tilt	518598	2592.99	22.5	22.0	0.021	0.024	
					Right Touch	518598	2592.99	22.5	22.0	0.008	0.009	
					Right Tilt	518598	2592.99	22.5	22.0	0.024	0.027	
	Body-w orn	CW	N/A	15	Rear	518598	2592.99	22.5	22.0	0.072	0.081	9
					Front	518598	2592.99	22.5	22.0	0.071	0.080	
	Hotspot	CW	N/A	10	Rear	518598	2592.99	22.5	22.0	0.138	0.156	
					Front	518598	2592.99	22.5	22.0	0.112	0.126	
					Edge 3	518598	2592.99	22.5	22.0	0.236	0.266	10
					Edge 4	518598	2592.99	22.5	22.0	0.126	0.142	

**Ant. E SRS 2**

Antenna	RF Exposure Conditions	Modulation	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Ant. E	Head	CW	N/A	0	Left Touch	518598	2592.99	22.5	21.9	0.148	0.171	
					Left Tilt	518598	2592.99	22.5	21.9	0.150	0.174	
					Right Touch	518598	2592.99	22.5	21.9	0.269	0.312	11
					Right Tilt	518598	2592.99	22.5	21.9	0.191	0.221	
	Body-w orn	CW	N/A	15	Rear	518598	2592.99	22.5	21.9	0.011	0.012	
					Front	518598	2592.99	22.5	21.9	0.023	0.027	12
	Hotspot	CW	N/A	10	Rear	518598	2592.99	22.5	21.9	0.022	0.025	
					Front	518598	2592.99	22.5	21.9	0.050	0.058	
					Edge 1	518598	2592.99	22.5	21.9	0.051	0.059	13
					Edge 4	518598	2592.99	22.5	21.9	0.013	0.014	

**Ant. D SRS 3**

Antenna	RF Exposure Conditions	Modulation	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Ant. D	Head	CW	N/A	0	Left Touch	518598	2592.99	20.5	19.8	0.006	0.007	
					Left Tilt	518598	2592.99	20.5	19.8	0.013	0.015	14
					Right Touch	518598	2592.99	20.5	19.8	<0.001	<0.001	
					Right Tilt	518598	2592.99	20.5	19.8	0.008	0.009	
	Body-w orn	CW	N/A	15	Rear	518598	2592.99	20.5	19.8	0.020	0.024	15
					Front	518598	2592.99	20.5	19.8	0.003	0.003	
	Hotspot	CW	N/A	10	Rear	518598	2592.99	20.5	19.8	0.043	0.050	16
					Front	518598	2592.99	20.5	19.8	0.006	0.008	
					Edge 2	518598	2592.99	20.5	19.8	0.005	0.006	
					Edge 3	518598	2592.99	20.5	19.8	0.010	0.012	
					Edge 4	518598	2592.99	20.5	19.8	<0.001	<0.001	

### 10.3. NR Band n77 (100MHz Bandwidth)

#### Ant. G Voice/Data/SRS 0

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)		Note	Plot No.	
											Tune-up limit	Meas.	Meas.	Scaled			
Ant. G	Head	DFT-s-OFDM	QPSK	On	0	Left Touch	662000	3930.0	1	1	22.5	21.8	0.221	0.259			
						Left Tilt	662000	3930.0	1	1	22.5	22.2	0.236	0.253			
						Right Touch	662000	3930.0	1	1	22.5	21.8	0.218	0.256			
						Right Tilt	662000	3930.0	135	0	22.5	22.2	0.316	0.339		17	
						QPSK	On	0	Right Touch	633334	3500.0	135	0	22.5	22.0	0.390	0.436
	Body-w orn	DFT-s-OFDM	QPSK	Off	15	Rear	662000	3930.0	1	1	25.5	24.9	0.100	0.116			
						Front	662000	3930.0	135	69	25.5	24.5	0.102	0.129		18	
						QPSK	Off	15	Rear	633334	3500.0	135	69	25.5	25.0	0.063	0.070
						CP-OFDM	QPSK	Off	Rear	662000	3930.0	1	1	24.0	23.3	0.084	0.098
						Hotspot	DFT-s-OFDM	QPSK	Off	10	Rear	662000	3930.0	1	1	25.5	24.9
						Front					135	69	25.5	24.5	0.245	0.284	
						Edge 1					1	1	25.5	24.9	0.239	0.302	
						Edge 4					135	69	25.5	24.5	0.142	0.165	
						QPSK	Off	10	Edge 4	633334	3500.0	135	69	25.5	24.5	0.142	0.180
						CP-OFDM	QPSK	Off	Edge 4	662000	3930.0	1	1	25.5	24.9	0.171	0.198
						Hotspot	DFT-s-OFDM	QPSK	Off	10	650000	3750.0	1	1	25.5	24.9	
						Edge 4					135	69	25.5	24.5	0.182	0.230	
						QPSK					270	0	24.5	23.6	0.473	0.600	
						CP-OFDM					662000	3930.0	135	69	25.5	24.5	
						Hotspot					633334	3500.0	1	1	24.0	23.3	

#### Note(s):

1. NR Band n77-Lower Band- are tested at worst configuration of NR Band n77-Upper band.
2. CP-OFDM mode were evaluated at worst configuration of DFT-s-OFDM in standalone exposure conditions.

**Ant. C SRS 1**

Antenna	RF Exposure Conditions	Modulation	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
								Tune-up limit	Meas.	Meas.	Scaled		
Ant. C	Head	CW	N/A	0	Left Touch	662000	3930.0	22.0	20.3	0.039	0.058		20
					Left Tilt	662000	3930.0	22.0	20.3	0.006	0.009		
					Right Touch	662000	3930.0	22.0	20.3	0.009	0.013		
					Right Tilt	662000	3930.0	22.0	20.3	0.010	0.015		
					Right Touch	633334	3500.0	22.0	21.5	0.011	0.012	1	
	Body-w orn	CW	N/A	15	Rear	662000	3930.0	22.0	20.3	0.021	0.032		
					Front	662000	3930.0	22.0	20.3	0.013	0.019		
					Rear	633334	3500.0	22.0	21.5	0.038	0.043	1	21
					Front	633334	3500.0	22.0	21.5	0.036	0.040	1	
	Hotspot	CW	N/A	10	Rear	662000	3930.0	22.0	20.3	0.062	0.092		
					Front	662000	3930.0	22.0	20.3	0.055	0.082		
					Edge 3	662000	3930.0	22.0	20.3	0.024	0.035		
					Edge 4	662000	3930.0	22.0	20.3	0.116	0.173		
					Rear	633334	3500.0	22.0	21.5	0.134	0.150	1	
					Front	633334	3500.0	22.0	21.5	0.117	0.131	1	
					Edge 3	633334	3500.0	22.0	21.5	0.048	0.054	1	
					Edge 4	633334	3500.0	22.0	21.5	0.183	0.205	1	22

**Ant. H SRS 2**

Antenna	RF Exposure Conditions	Modulation	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
								Tune-up limit	Meas.	Meas.	Scaled		
Ant. H	Head	CW	N/A	0	Left Touch	662000	3930.0	23.0	22.3	0.038	0.046		
					Left Tilt	662000	3930.0	23.0	22.3	0.044	0.052		
					Right Touch	662000	3930.0	23.0	22.3	0.048	0.057		23
					Right Tilt	662000	3930.0	23.0	22.3	0.040	0.048		
					Right Touch	633334	3500.0	23.0	21.9	<0.001	<0.001	1	
	Body-w orn	CW	N/A	15	Rear	662000	3930.0	23.0	22.3	0.120	0.142		24
					Front	662000	3930.0	23.0	22.3	<0.001	<0.001		
					Rear	633334	3500.0	23.0	21.9	0.060	0.078	1	
	Hotspot	CW	N/A	10	Rear	662000	3930.0	23.0	22.3	0.311	0.369		25
					Front	662000	3930.0	23.0	22.3	0.005	0.006		
					Edge 1	662000	3930.0	23.0	22.3	0.040	0.048		
					Edge 4	662000	3930.0	23.0	22.3	0.012	0.014		
					Rear	633334	3500.0	23.0	21.9	0.155	0.201	1	

**Ant. D SRS 3**

Antenna	RF Exposure Conditions	Modulation	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
								Tune-up limit	Meas.	Meas.	Scaled		
Ant. D	Head	CW	N/A	0	Left Touch	662000	3930.0	22.0	21.2	<0.001	<0.001		
					Left Tilt	662000	3930.0	22.0	21.2	<0.001	<0.001		
					Right Touch	662000	3930.0	22.0	21.2	<0.001	<0.001		
					Right Tilt	662000	3930.0	22.0	21.2	<0.001	<0.001		
					Left Tilt	633334	3500.0	22.0	20.4	<0.001	<0.001	1	
	Body-w orn	CW	N/A	15	Rear	662000	3930.0	22.0	21.2	0.202	0.243		26
					Front	662000	3930.0	22.0	21.2	<0.001	<0.001		
					Rear	633334	3500.0	22.0	20.4	0.161	0.231	1	
	Hotspot	CW	N/A	10	Rear	662000	3930.0	22.0	21.2	0.499	0.600		27
					Front	662000	3930.0	22.0	21.2	0.011	0.013		
					Edge 2	662000	3930.0	22.0	21.2	0.019	0.023		
					Edge 3	662000	3930.0	22.0	21.2	0.064	0.077		
					Edge 4	662000	3930.0	22.0	21.2	0.016	0.019		
					Rear	633334	3500.0	22.0	20.4	0.335	0.480	1	

## 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 ( $\sim 10\%$  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
1900	NR Band n25	Hotspot	Edge 3	Yes	1.120	1.1	1.02
2600	NR Band n41	Head	Left Tilt	Yes	0.893	0.886	1.01
3900	NR Band n77	Hotspot	Rear	No	0.499	N/A	N/A

### Peak spatial-average (10g of tissue)

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Repeated Measured SAR (W/kg)	Largest to Smallest SAR Ratio
1900	NR Band n25	Product Specific 10-g	Edge 3	No	1.330	N/A	N/A

### **Note(s):**

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

## 12. Simultaneous Transmission SAR Analysis

### Simultaneous Transmission Condition

RF Exposure Condition	Item	Capable Transmit Configurations							
Head & Body-w orn & Hotspot & Phablet-10g	1	WWAN (2G/3G/LTE/NR)	+	DTS Ant.1	or	DTS Ant.2	Non-RSDB Scenarios		
	2	WWAN (2G/3G/LTE/NR)	+	DTS MIMO					
	3	WWAN (2G/3G/LTE/NR)	+	UNII MIMO					
	4	WWAN (2G/3G/LTE/NR)	+	BT Ant.1	or	BT Ant.2			
	5	WWAN (2G/3G/LTE/NR)	+	BT MIMO					
	6	WWAN (2G/3G/LTE/NR)	+	UNII MIMO	+	BT Ant.1	or	BT Ant.2	
	7	WWAN (2G/3G/LTE/NR)	+	UNII MIMO	+	BT MIMO			
	8	WWAN (2G/3G/LTE/NR)	+	UNII MIMO	+	DTS Ant.1	or	DTS Ant.2	RSDB Scenarios
	9	WWAN (2G/3G/LTE/NR)	+	UNII MIMO	+	DTS MIMO			
	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	RSDB Scenarios
	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			
	19	WWAN (LTE ULCA(PCC+SCC))	+	DTS Ant.1	or	DTS Ant.2	Non-RSDB Scenarios		
	20	WWAN (LTE ULCA(PCC+SCC))	+	DTS MIMO					
	21	WWAN (LTE ULCA(PCC+SCC))	+	UNII MIMO					
	22	WWAN (LTE ULCA(PCC+SCC))	+	BT Ant.1	or	BT Ant.2			
	23	WWAN (LTE ULCA(PCC+SCC))	+	BT MIMO					
	24	WWAN (LTE ULCA(PCC+SCC))	+	UNII MIMO	+	BT Ant.1	or	BT Ant.2	RSDB Scenarios
	25	WWAN (LTE ULCA(PCC+SCC))	+	UNII MIMO	+	BT MIMO			
	26	WWAN (LTE ULCA(PCC+SCC))	+	UNII MIMO	+	DTS Ant.1	or	DTS Ant.2	RSDB Scenarios
	27	WWAN (LTE ULCA(PCC+SCC))	+	UNII MIMO	+	DTS MIMO			

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. GPRS, W-CDMA, LTE, NR supports Hotspot and VoIP
5. U-NII Radio can transmit simultaneously with Bluetooth Radio.
6. DTS Radio cannot transmit simultaneously with Bluetooth Radio.
7. DTS Radio can transmit simultaneously with U-NII Radio in only RSDB Scenarios.
8. NR Radio support to both SA and NSA (EN-DC) Radio.
9. BT tethering is considered about each RF exposure conditions.
10. LTE support UL CA interband configurations.

### Note(s):

For SRS mode of NR TDD Band, There are operates at very low duty cycle in online mode. So we expect SAR hotspot is located near Voice/data antennas during SRS mode operating of online mode. So Each SRS antennas consider about Simultaneous transmission with WLAN/BT Antenna, Simultaneous transmission with NR TDD Band (Voice/data) or LTE anchor of EN-DC were not considered.

## 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:

$$\text{SPLSR} = (\text{SAR}_1 + \text{SAR}_2)^{1.5}/R_i$$

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

**R<sub>i</sub>** 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:

$$(\text{SAR}_1 + \text{SAR}_2)^{1.5}/R_i \leq 0.04$$

When an individual antenna transmits at on two bands simultaneously, the sum of the highest *reported* SAR for the frequency bands should be used to determine **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 SPSLR calculations for these situations were performed by treating the unlicensed SAR values as a single transmitter. The most conservative distance between all the unlicensed hotspots to the licensed hotspot was used for the value of *d* in the SPSLR calculation.

## 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.

## 12.1. Sum of the SAR for NR Band n25 & 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						WWAN+ DTS Ant.2						WWAN+ DTS Ant.1						WWAN+ DTS Ant.2					
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	BT MIMO (8GHz)	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	BT MIMO	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	BT MIMO	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	BT MIMO	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	BT MIMO
Head (1-g SAR)	Left Touch	0.071	0.107	0.406	0.451	0.241	0.040	0.150	0.089	0.019	0.278	0.477	0.522	0.312	0.111	0.221	0.160	0.352	0.462	0.401	0.090	0.130	0.240	0.179							
	Left Tilt	0.020	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	0.121	0.098	0.193	0.087	0.021	0.039	0.065	0.088	0.106	0.132	0.040	0.059	0.085								
	Right Touch	0.043	0.095	0.363	0.629	0.653	0.071	0.283	0.064	0.121	0.138	0.396	0.672	0.696	0.114	0.326	0.107	0.767	0.979	0.760	0.164	0.235	0.447	0.226							
	Right Tilt	0.051	0.080	0.086	0.238	0.117	0.048	0.057	0.046	0.017	0.131	0.137	0.289	0.168	0.099	0.108	0.097	0.216	0.225	0.214	0.068	0.116	0.125	0.114							
Body-Worn (1-g SAR)	Rear	0.584	0.157	0.187	0.155	0.156	0.140	0.030	0.144	0.741	0.771	0.739	1.112	0.740	0.724	0.614	1.268	1.252	1.142	0.728	0.884	0.868	0.758								
	Front	0.406	0.019	0.197	0.155	0.392	0.021	0.080	0.030	0.144	0.425	0.593	0.581	0.798	0.427	0.486	0.436	0.819	0.878	0.828	0.550	0.571	0.630	0.580							
	Edge 1	0.537	0.423	0.343	0.281	0.530	0.453	0.318	0.106	0.960	0.880	0.818	1.067	0.990	0.855	0.643	1.520	1.385	1.173												
	Edge 2	0.071																													
Hotspot (1-g SAR)	Edge 3	1.197																													
	Edge 4	0.189	0.423	0.426	0.331	0.152	0.003	0.311	0.102	0.612	0.615	0.520	0.341	0.192	0.500	0.291	0.344	0.652	0.443												
	Rear																														
	Front																														
Product Specific 10-g (10-g SAR)	Edge 1																														
	Edge 2																														
	Edge 3	1.502																													
	Edge 4																														

### RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)												Sum of SAR (W/kg)																		
		Non-RSDB scenarios						WWAN+ DTS Ant.1						WWAN+ DTS Ant.2						WWAN+ DTS Ant.1						WWAN+ DTS Ant.2						
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	BT MIMO (8GHz)	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	BT MIMO	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	BT MIMO	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	BT MIMO	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	BT MIMO	
Head (1-g SAR)	Left Touch	0.071	0.027	0.145	0.135	0.241	0.019	0.339	0.047	0.447	0.376	0.117	0.235	0.225	0.154																	
	Left Tilt	0.020	0.026	0.027	0.038	0.067	0.020	0.113	0.114	0.125	0.105	0.066	0.067	0.078	0.058																	
	Right Touch	0.043	0.066	0.211	0.223	0.653	0.071	0.762	0.907	0.919	0.876	0.230	0.375	0.387	0.344																	
	Right Tilt	0.051	0.056	0.057	0.063	0.117	0.017	0.224	0.225	0.231	0.180	0.124	0.125	0.131	0.080																	
Body-Worn (1-g SAR)	Rear	0.584	0.095	0.097	0.147	0.244	0.144	0.923	0.925	0.975	0.931	0.823	0.825	0.875	0.291																	
	Front	0.406	0.095	0.097	0.147	0.244	0.144	0.745	0.747	0.797	0.391	0.645	0.647	0.697	0.291																	
	Edge 1	0.537	0.247	0.210	0.315	0.214	0.098	0.998	0.961	1.068	0.529	0.620	0.635	0.698	0.335																	
	Edge 2	0.071																														
Hotspot (1-g SAR)	Edge 3	1.197																														
	Edge 4	0.189	0.423	0.426	0.331	0.152	0.003	0.311	0.102	0.612	0.615	0.520	0.341	0.192	0.500	0.291	0.344	0.652	0.443													
	Rear																															
	Front																															
Product Specific 10-g (10-g SAR)	Edge 1																															
	Edge 2																															
	Edge 3																															
	Edge 4																															

### Note(s):

1. Green value is estimated SAR value.

### **12.3. Sum of the SAR for NR Band n41 (Ant. B SRS 1) & Wi-Fi & BT**

## Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)														
		Non-RSDB scenarios								UNI MIMO scenarios														
		WWAN				BT				WWAN+BT				WWAN+BT				WWAN+BT						
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4			
Head (1-g SAR)	Left Touch	0.030	0.107	0.406	0.451	0.241	0.040	0.150	0.089	0.019	0.137	0.436	0.081	0.271	0.070	0.180	0.119	0.311	0.421	0.360	0.049	0.089	0.199	0.138
	Left Tilt	0.024	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	0.125	0.102	0.197	0.091	0.025	0.043	0.059	0.092	0.110	0.136	0.044	0.045	0.063	0.089
	Right Touch	0.009	0.095	0.353	0.629	0.653	0.071	0.283	0.064	0.121	0.104	0.362	0.638	0.662	0.080	0.292	0.073	0.733	0.945	0.726	0.130	0.201	0.413	0.194
	Right Tilt	0.027	0.080	0.086	0.238	0.117	0.048	0.057	0.046	0.017	0.107	0.113	0.265	0.144	0.075	0.084	0.073	0.192	0.201	0.190	0.044	0.092	0.101	0.090
Body-Worn (1-g SAR)	Rear	0.081	0.157	0.187	0.155	0.528	0.156	0.140	0.030	0.144	0.238	0.268	0.236	0.609	0.237	0.221	0.111	0.765	0.749	0.639	0.225	0.381	0.365	0.255
	Front	0.080	0.019	0.187	0.156	0.392	0.021	0.080	0.030	0.144	0.099	0.267	0.235	0.472	0.101	0.160	0.110	0.493	0.552	0.502	0.224	0.245	0.304	0.254
	Rear	0.156	0.423	0.343	0.281	0.530	0.453	0.318	0.106		0.579	0.499	0.437	0.686	0.809	0.474	0.262	1.139	1.004	0.792				
	Front	0.126	0.423	0.343	0.202	0.111	0.042	0.198	0.061		0.549	0.469	0.328	0.237	0.168	0.324	0.187	0.279	0.435	0.298				
Hotspot (1-g SAR)	Edge 1	0.044		0.053	0.077	0.026		0.017																
	Edge 2	0.266																						
	Edge 3	0.142	0.423	0.426	0.331	0.152	0.003	0.311	0.102		0.565	0.568	0.473	0.294	0.145	0.453	0.244	0.297	0.605	0.396				
	Edge 4	0.142	0.423	0.426	0.331	0.152	0.003	0.311	0.102		0.565	0.568	0.473	0.294	0.145	0.453	0.244	0.297	0.605	0.396				

## RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)									
		Non-RSBD scenarios					WWAN+ DTS Ant.1					WWAN+ DTS Ant.2					WWAN+ DTS MIMO+ UNIMIMO				
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO (5GHz)	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO
Head (1-g SAR)	Left Touch	0.030	0.027	0.145	0.135	0.241	0.019	0.298	0.416	0.406	0.376	0.076	0.194	0.184	0.154	0.030	0.027	0.145	0.135	0.241	0.019
	Left Tilt	0.024	0.026	0.027	0.038	0.067	0.020	0.117	0.118	0.129	0.105	0.070	0.071	0.062	0.058	0.024	0.026	0.027	0.038	0.067	0.020
	Right Tilt	0.009	0.066	0.211	0.223	0.653	0.121	0.728	0.873	0.885	0.876	0.196	0.341	0.353	0.344	0.009	0.066	0.211	0.223	0.653	0.121
	Right Tilt	0.027	0.056	0.057	0.063	0.117	0.017	0.200	0.201	0.207	0.180	0.100	0.101	0.107	0.080	0.027	0.056	0.057	0.063	0.117	0.017
Body-Worn (1-g SAR)	Rear	0.081	0.095	0.097	0.147	0.244	0.144	0.420	0.422	0.472	0.391	0.320	0.322	0.372	0.291	0.081	0.095	0.097	0.147	0.244	0.144
	Front	0.080	0.095	0.097	0.147	0.244	0.144	0.419	0.421	0.471	0.391	0.319	0.321	0.371	0.291	0.080	0.095	0.097	0.147	0.244	0.144
	Rear	0.156	0.247	0.210	0.315	0.214		0.617	0.580	0.685	0.529					0.156	0.247	0.210	0.315	0.214	
	Front	0.126	0.203	0.217	0.323	0.214		0.363	0.557	0.663	0.537					0.126	0.203	0.217	0.323	0.214	
	Edge 1	0.000	0.023	0.023	0.023	0.012						0.335				0.000	0.023	0.023	0.023	0.012	
Hotspot (1-g SAR)	Edge 2	0.266														0.266					
	Edge 3	0.266														0.266					
	Edge 4	0.142	0.002	0.217	0.323	0.214		0.358	0.573	0.679	0.537					0.142	0.002	0.217	0.323	0.214	
	Edge 5	0.142	0.002	0.217	0.323	0.214		0.358	0.573	0.679	0.537					0.142	0.002	0.217	0.323	0.214	

**Note(s):**

1. Green value is estimated SAR value.

#### 12.4. Sum of the SAR for NR Band n41 (Ant. E SRS 2) & Wi-Fi & BT

## Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)																									
		Non-SDS scenarios					SDS scenarios					Non-SDS scenarios					SDS scenarios																				
		WWAN		DTS Ant. 1	DTS Ant. 2	DTS MIMO	UNI MIMO (GHz)	BT Ant. 1	BT Ant. 2	BT MIMO	UNI MIMO (GHz)	WWAN		DTS Ant. 1	DTS Ant. 2	WWAN+	UNI MIMO	WWAN+	BT Ant. 1	WWAN+	BT MIMO	WWAN+	UNI MIMO (GHz)	BT Ant. 1	WWAN+	UNI MIMO (GHz)	WWAN+	UNI MIMO (GHz)	BT Ant. 1	WWAN+	UNI MIMO (GHz)	WWAN+	UNI MIMO (GHz)	BT Ant. 1			
Head (1-g SAR)	Left Touch	0.171	0.107	0.406	0.451	0.241	0.040	0.150	0.089	0.019	0.278	0.577	0.622	0.412	0.211	0.321	0.260	0.452	0.562	0.501	0.190	0.230	0.340	0.279	0.190	0.230	0.340	0.279	0.190	0.230	0.340	0.279					
	Left Tit	0.174	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	0.275	0.252	0.347	0.241	0.175	0.193	0.219	0.242	0.260	0.286	0.194	0.195	0.213	0.239	0.194	0.195	0.213	0.239	0.194	0.195	0.213	0.239					
	Right Touch	0.312	0.095	0.353	0.629	0.653	0.071	0.283	0.064	0.121	0.407	0.665	0.941	0.965	0.383	0.955	0.376	1.036	1.248	1.029	0.433	0.504	0.716	0.497	0.433	0.504	0.716	0.497	0.433	0.504	0.716	0.497					
	Right Tit	0.221	0.080	0.086	0.238	0.117	0.048	0.057	0.046	0.017	0.301	0.307	0.450	0.338	0.269	0.278	0.267	0.386	0.395	0.384	0.238	0.286	0.295	0.284	0.238	0.286	0.295	0.284	0.238	0.286	0.295	0.284					
Body-Worn (1-g SAR)	Rear	0.012	0.157	0.187	0.155	0.258	0.156	0.140	0.030	0.144	0.169	0.199	0.167	0.540	0.168	0.152	0.042	0.696	0.680	0.570	0.156	0.312	0.296	0.186	0.156	0.312	0.296	0.186	0.156	0.312	0.296	0.186					
	Front	0.027	0.019	0.187	0.155	0.392	0.021	0.080	0.030	0.144	0.046	0.214	0.182	0.419	0.048	0.107	0.057	0.440	0.499	0.449	0.171	0.192	0.251	0.201	0.171	0.192	0.251	0.201	0.171	0.192	0.251	0.201					
	Rear	0.025	0.423	0.343	0.281	0.530	0.453	0.318	0.106	0.048	0.368	0.306	0.555	0.478	0.343	0.131	1.008	0.873	0.661	0.025	0.423	0.343	0.281	0.530	0.453	0.318	0.106	0.048	0.368	0.306	0.555	0.478	0.343	0.131	1.008	0.873	0.661
	Front	0.058	0.423	0.343	0.202	0.111	0.042	0.198	0.061	0.048	0.401	0.260	0.169	0.100	0.256	0.119	0.211	0.367	0.230	0.153	0.058	0.423	0.343	0.202	0.111	0.042	0.198	0.061	0.048	0.401	0.260	0.169	0.100	0.256	0.119	0.211	0.367
Hotspot (1-g SAR)	Edge 1	0.059	0.044	0.053	0.077	0.026	0.017	0.010	0.103	0.012	0.136	0.085	0.076	0.162	0.153	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058				
	Edge 2	0.059	0.044	0.053	0.077	0.026	0.017	0.010	0.103	0.012	0.136	0.085	0.076	0.162	0.153	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058					
	Edge 3	0.059	0.044	0.053	0.077	0.026	0.017	0.010	0.103	0.012	0.136	0.085	0.076	0.162	0.153	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.058					
	Edge 4	0.014	0.423	0.426	0.331	0.152	0.003	0.311	0.102	0.043	0.440	0.345	0.166	0.017	0.325	0.116	0.169	0.477	0.268	0.268	0.014	0.423	0.426	0.331	0.152	0.003	0.311	0.102	0.043	0.440	0.345	0.166	0.017	0.325	0.116	0.169	0.477

## RSDB scenarios

**Note(s):**

1. Green value is estimated SAR value.

## 12.5. Sum of the SAR for NR Band n41 (Ant. D SRS 3) & Wi-Fi & BT

### Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)										Sum of SAR (W/kg)								
		Non-RSDB scenarios										Sum of SAR (W/kg)										Sum of SAR (W/kg)								
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNII MIMO (5GHz)	WWAN+	DTS Ant.1	WWAN+	DTS Ant.2	WWAN+	DTS MIMO	WWAN+	DTS Ant.1	WWAN+	DTS Ant.2	WWAN+	DTS MIMO	WWAN+	DTS Ant.1	WWAN+	DTS Ant.2	WWAN+	DTS MIMO		
Head (1-g SAR)	Left Touch	0.007	0.107	0.406	0.451	0.241	0.040	0.150	0.089	0.019	0.114	0.413	0.458	0.248	0.047	0.157	0.096	0.288	0.398	0.337	0.026	0.066	0.176	0.115	0.176	0.115	0.176	0.115		
Head (1-g SAR)	Left Tilt	0.015	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	0.116	0.093	0.198	0.082	0.016	0.034	0.060	0.083	0.101	0.127	0.035	0.036	0.054	0.080	0.127	0.035	0.127	0.080		
Head (1-g SAR)	Right Touch	0.001	0.095	0.353	0.629	0.853	0.071	0.283	0.064	0.121	0.096	0.354	0.630	0.654	0.072	0.284	0.065	0.275	0.397	0.718	0.122	0.193	0.405	0.186	0.718	0.193	0.718	0.186		
Head (1-g SAR)	Right Tilt	0.009	0.080	0.086	0.238	0.117	0.048	0.057	0.046	0.017	0.099	0.095	0.247	0.128	0.057	0.068	0.055	0.174	0.183	0.172	0.026	0.074	0.083	0.072	0.172	0.026	0.172	0.072		
Body-Worn (1-g SAR)	Back	0.024	0.157	0.157	0.155	0.528	0.156	0.140	0.030	0.144	0.181	0.211	0.179	0.552	0.190	0.164	0.054	0.208	0.692	0.592	0.168	0.324	0.309	0.198	0.592	0.168	0.592	0.198		
Body-Worn (1-g SAR)	Front	0.003	0.019	0.423	0.343	0.281	0.530	0.322	0.021	0.080	0.030	0.144	0.022	0.190	0.158	0.395	0.024	0.083	0.033	0.416	0.475	0.425	0.147	0.168	0.227	0.177	0.425	0.147	0.425	0.177
Hotspot (1-g SAR)	Resar	0.050	0.423	0.423	0.343	0.281	0.530	0.453	0.318	0.106	0.473	0.393	0.331	0.580	0.503	0.368	0.156	1.033	0.898	0.898	0.686	0.686	0.686	0.686	0.686	0.686	0.686	0.686		
Hotspot (1-g SAR)	Front	0.008	0.023	0.423	0.343	0.202	0.111	0.042	0.198	0.061	0.431	0.351	0.210	0.119	0.050	0.206	0.069	0.161	0.317	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180			
Hotspot (1-g SAR)	Edge 1	0.044				0.053	0.077	0.026		0.017																				
Hotspot (1-g SAR)	Edge 2	0.006																												
Hotspot (1-g SAR)	Edge 3	0.012																												
Hotspot (1-g SAR)	Edge 4	0.001	0.423	0.426	0.331	0.152	0.003	0.311	0.102		0.424	0.427	0.332	0.153	0.004	0.312	0.103	0.156	0.464	0.255										

### RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)										Sum of SAR (W/kg)							
		Non-RSDB scenarios										Sum of SAR (W/kg)										Sum of SAR (W/kg)							
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNII MIMO (5GHz)	WWAN+	DTS Ant.1+	WWAN+	DTS Ant.2+	WWAN+	DTS MIMO+	WWAN+	DTS Ant.1+	WWAN+	DTS Ant.2+	WWAN+	DTS MIMO+	WWAN+	DTS Ant.1+	WWAN+	DTS Ant.2+	WWAN+	DTS MIMO+	
Head (1-g SAR)	Left Touch	0.007	0.27	0.145	0.135	0.241	0.019	0.040	0.150	0.089	0.114	0.275	0.393	0.383	0.376	0.053	0.171	0.161	0.154	0.171	0.161	0.154	0.171	0.161	0.154	0.171	0.161	0.154	
Head (1-g SAR)	Left Tilt	0.015	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	0.116	0.109	0.120	0.105	0.061	0.062	0.073	0.058	0.105	0.120	0.117	0.058	0.105	0.120	0.117	0.058	0.105	0.117	
Head (1-g SAR)	Right Touch	0.001	0.095	0.363	0.629	0.853	0.071	0.283	0.064	0.121	0.058	0.865	0.877	0.876	0.188	0.333	0.345	0.344	0.188	0.189	0.180	0.082	0.083	0.089	0.080	0.188	0.189	0.180	
Head (1-g SAR)	Right Tilt	0.009	0.056	0.057	0.063	0.117	0.048	0.057	0.046	0.017	0.043	0.419	0.571	0.450	0.381	0.390	0.379	0.498	0.507	0.496	0.350	0.398	0.407	0.396	0.507	0.496	0.350		
Body-Worn (1-g SAR)	Rear	0.024	0.095	0.097	0.147	0.244	0.144	0.363	0.415	0.365	0.415	0.391	0.391	0.391	0.391	0.391	0.391	0.263	0.263	0.263	0.263	0.263	0.263	0.263	0.263	0.263	0.263		
Body-Worn (1-g SAR)	Front	0.003	0.095	0.097	0.147	0.244	0.144	0.363	0.414	0.364	0.394	0.394	0.394	0.394	0.394	0.394	0.263	0.263	0.263	0.263	0.263	0.263	0.263	0.263	0.263	0.263			
Body-Worn (1-g SAR)	Edge 1	0.050	0.247	0.210	0.155	0.528	0.156	0.140	0.030	0.144	0.286	0.311	0.284	0.857	0.285	0.285	0.286	0.286	0.286	0.286	0.286	0.286	0.286	0.286	0.286	0.286	0.286	0.286	
Body-Worn (1-g SAR)	Edge 2	0.008	0.023	0.217	0.323	0.214					0.245	0.439	0.545	0.537															
Body-Worn (1-g SAR)	Edge 3	0.012																											
Body-Worn (1-g SAR)	Edge 4	0.001	0.423	0.426	0.331	0.152	0.003	0.311	0.102		1.060	1.063	0.968	0.789	0.640	0.948	0.739	0.792	1.100	0.891									
Hotspot (1-g SAR)	Resar	0.339	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	0.116	0.109	0.120	0.105	0.061	0.062	0.073	0.058	0.105	0.120	0.117	0.035	0.036	0.040	0.080	0.127	0.035	0.127	0.080
Hotspot (1-g SAR)	Front	0.180	0.043	0.423	0.343	0.202	0.111	0.042	0.198	0.061	0.603	0.523	0.382	0.291	0.222	0.378	0.241	0.333	0.489	0.352									
Hotspot (1-g SAR)	Edge 1	0.230	0.044			0.053	0.077	0.026		0.017	0.274			0.283	0.307	0.256		0.247	0.333	0.324									
Hotspot (1-g SAR)	Edge 2	0.006																											
Hotspot (1-g SAR)	Edge 3	0.012																											
Hotspot (1-g SAR)	Edge 4	0.637	0.423	0.426	0.331	0.152	0.003	0.311	0.102		0.853	1.068	1.174	0.537															

### RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)										Sum of SAR (W/kg)						
		Non-RSDB scenarios										Sum of SAR (W/kg)										Sum of SAR (W/kg)						
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNII MIMO (5GHz)	WWAN+	DTS Ant.1+	WWAN+	DTS Ant.2+	WWAN+	DTS MIMO+	WWAN+	DTS Ant.1+	WWAN+	DTS Ant.2+	WWAN+	DTS MIMO+	WWAN+	DTS Ant.1+	WWAN+	DTS Ant.2+	WWAN+	DTS MIMO+
Head (1-g SAR)	Left Touch	0.007	0.27	0.145	0.135	0.241	0.019	0.040	0.150	0.089	0.114	0.275	0.393	0.383	0.376	0.053	0.171	0.161	0.154	0.171	0.161	0.154	0.171	0.161	0.154	0.171	0.161	0.154
Head (1-g SAR)	Left Tilt	0.015	0.101	0.078	0.173	0.067	0.001	0.																				

## 12.7. Sum of the SAR for NR Band n77 (Ant. C SRS 1) & Wi-Fi & BT

## Non-RSDB scenarios

## RSDB scenarios

**Note(s):**

1. Green value is estimated SAR value.

## 12.8. Sum of the SAR for NR Band n77 (Ant. H SRS 2) & Wi-Fi & BT

## Non-RSDB scenarios

## RSDB scenarios

**Note(s):**

1. Green value is estimated SAR value.

## 12.9. Sum of the SAR for NR Band n77 (Ant. D SRS 3) & Wi-Fi & BT

### Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)										WWAN+ BT MIMO															
		Non-RSDB scenarios										WWAN+ BT MIMO										WWAN+ BT MIMO															
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	BT Ant.1	BT Ant.2	MIMO	WWAN+	DTS Ant.1	WWAN+	DTS Ant.2	MIMO	WWAN+	DTS Ant.1	WWAN+	DTS Ant.2	MIMO	WWAN+	DTS Ant.1	WWAN+	DTS Ant.2	MIMO	WWAN+	DTS Ant.1	WWAN+	DTS Ant.2	MIMO	WWAN+	DTS Ant.1	WWAN+	DTS Ant.2	MIMO				
Head (1-g SAR)	Left Touch	0.001	0.107	0.406	0.451	0.241	0.040	0.150	0.059	0.019	0.108	0.407	0.452	0.242	0.041	0.151	0.059	0.282	0.392	0.331	0.020	0.060	0.170	0.109													
	Left Tilt	0.001	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	0.102	0.079	0.174	0.068	0.002	0.020	0.046	0.069	0.087	0.113	0.021	0.022	0.040	0.066													
	Right Touch	0.001	0.095	0.363	0.628	0.655	0.071	0.283	0.064	0.121	0.096	0.354	0.630	0.654	0.072	0.284	0.065	0.725	0.937	0.718	0.122	0.193	0.405	0.186													
	Right Tilt	0.001	0.080	0.086	0.238	0.117	0.048	0.057	0.046	0.017	0.081	0.087	0.239	0.118	0.049	0.058	0.047	0.166	0.175	0.164	0.018	0.066	0.075	0.064													
Body-Worn (1-g SAR)	Rear	0.243	0.157	0.167	0.155	0.528	0.156	0.140	0.030	0.144	0.400	0.430	0.398	0.771	0.399	0.383	0.273	0.911	0.801	0.387	0.543	0.527	0.417														
	Front	0.001	0.019	0.167	0.155	0.392	0.021	0.080	0.030	0.144	0.020	0.188	0.156	0.393	0.022	0.081	0.031	0.414	0.473	0.423	0.145	0.166	0.225	0.175													
	Rear	0.600	0.423	0.343	0.281	0.530	0.453	0.318	0.106	0.103	0.943	0.881	1.130	1.053	0.918	0.706	1.583	1.448	1.236																		
	Front	0.013	0.423	0.343	0.202	0.111	0.042	0.198	0.061	0.436	0.356	0.215	0.124	0.055	0.211	0.074	0.166	0.322	0.185																		
Hotspot (1-g SAR)	Edge 1	0.044	0.053	0.077	0.026	0.017																															
	Edge 2	0.023																																			
	Edge 3	0.077																																			
	Edge 4	0.019	0.423	0.426	0.331	0.152	0.003	0.311	0.102	0.442	0.445	0.350	0.171	0.022	0.330	0.121	0.174	0.482	0.273																		

### RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)										WWAN+ BT MIMO															
		Non-RSDB scenarios										WWAN+ BT MIMO										WWAN+ BT MIMO															
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	BT Ant.1	BT Ant.2	MIMO	WWAN+	DTS Ant.1*	WWAN+	DTS Ant.2*	MIMO	WWAN+	DTS Ant.1*	WWAN+	DTS Ant.2*	MIMO	WWAN+	DTS Ant.1*	WWAN+	DTS Ant.2*	MIMO	WWAN+	DTS Ant.1*	WWAN+	DTS Ant.2*	MIMO	WWAN+	DTS Ant.1*	WWAN+	DTS Ant.2*	MIMO				
Head (1-g SAR)	Left Touch	0.001	0.027	0.145	0.135	0.241	0.019	0.369	0.387	0.377	0.376	0.047	0.165	0.155	0.154																						
	Left Tilt	0.001	0.026	0.027	0.038	0.067	0.020	0.094	0.095	0.106	0.105	0.047	0.048	0.059	0.058																						
	Right Touch	0.001	0.066	0.211	0.223	0.663	0.121	0.720	0.865	0.877	0.876	0.188	0.333	0.345	0.344																						
	Right Tilt	0.001	0.056	0.057	0.063	0.117	0.017	0.174	0.175	0.181	0.180	0.074	0.075	0.081	0.080																						
Body-Worn (1-g SAR)	Rear	0.243	0.095	0.097	0.147	0.244	0.144	0.592	0.584	0.634	0.391	0.482	0.484	0.534	0.291																						
	Front	0.001	0.095	0.087	0.147	0.244	0.144	0.340	0.342	0.362	0.391	0.240	0.242	0.292	0.291																						
	Edge 1	0.023																																			
	Edge 2	0.023																																			
Hotspot (1-g SAR)	Edge 3	0.077																																			
	Edge 4	0.019	0.002	0.217	0.323	0.214	0.235	0.450	0.556	0.537	0.535	0.240	0.242	0.292	0.291																						

#### Note(s):

- Green value is estimated SAR value.

## 12.10. Sum of the SAR for ENDC(LTE B5 + NR Bn2) & Wi-Fi & BT

### Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)												Sum of SAR (W/kg)																
		Non-RSDB scenarios												Sum of SAR (W/kg)																
		WWAN		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNII MIMO (GHz)	WWAN+		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	WWAN+		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	WWAN+		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	
Head (1-g SAR)	Left Touch	0.238	0.071	0.107	0.406	0.451	0.241	0.040	0.150	0.089	0.019	0.416	0.715	0.776	0.550	0.349	0.459	0.398	0.590	0.700	0.639	0.328	0.368	0.478	0.417					
	Left Tilt	0.145	0.020	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	0.266	0.243	0.338	0.232	0.166	0.184	0.210	0.233	0.251	0.277	0.185	0.198	0.204	0.230					
	Right Touch	0.266	0.043	0.095	0.353	0.629	0.653	0.071	0.285	0.064	0.121	0.404	0.665	0.938	0.962	0.386	0.592	0.373	1.033	1.245	1.026	0.430	0.501	0.713	0.494					
	Right Tilt	0.134	0.051	0.080	0.086	0.238	0.117	0.004	0.057	0.048	0.017	0.265	0.271	0.423	0.302	0.233	0.241	0.350	0.359	0.348	0.202	0.250	0.259	0.248						
	Body-Worn (1-g SAR)	Rear	0.301	0.584	0.157	0.187	0.155	0.528	0.156	0.140	0.030	0.144	1.042	1.073	1.040	1.413	1.041	1.025	0.915	1.569	1.553	1.443	1.029	1.165	1.169	1.059				
	Front	0.291	0.406	0.018	0.187	0.155	0.362	0.021	0.080	0.030	0.144	0.716	0.884	0.852	1.089	0.718	0.777	0.727	1.110	1.169	1.119	0.841	0.862	0.921	0.871					
Hotspot (1-g SAR)	Rear	0.609	0.537	0.423	0.343	0.281	0.530	0.453	0.318	0.106	1.569	1.489	1.427	1.676	1.599	1.464	1.252	1.219	1.994	1.782										
	Front	0.344	0.398	0.423	0.343	0.202	0.111	0.042	0.198	0.061	1.165	1.085	0.944	0.853	0.784	0.940	0.895	1.051	0.914											
	Edge 1		0.044		0.053		0.077	0.026		0.017																				
	Edge 2		0.454		0.071																									
	Edge 3		0.255		0.197																									
	Edge 4		0.183		0.185		0.423	0.426	0.331	0.152	0.003	0.311	0.102	0.795	0.798	0.703	0.524	0.375	0.683	0.474	0.527	0.835	0.626							
Product Specific 10-g (10-g SAR)	Rear									2.286				0.304																
	Front									1.270				0.062																
	Edge 1									0.262				0.019																
	Edge 2																													
	Edge 3									1.502																				
	Edge 4									1.437				0.059																

SAR to Peak Location Separation Ratio (SPSR)

RF Exposure	Test Position	Standalone SAR (W/kg)												Sum of SAR (W/kg)																
		Non-RSDB scenarios												Sum of SAR (W/kg)																
		WWAN		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNII MIMO (GHz)	WWAN+		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	WWAN+		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	WWAN+		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO	
Hotspot (1-g SAR)	1a	1b	2	3	4	5	6	7	8	9	1a+1b+5+6	2.129																		
	Rear	0.609	0.537			0.530	0.453				1a+1b	1.146	22.3	0.06	Yes	0.933														
	1a+1b										5+6	0.983	18.8	0.05	Yes	0.717														
	Hybrid SPLSR Note.3	0.933									1a+1b+5+6	1.650	151.1	0.01	No															
	Edge 1										1a+1b+5+7	1.994																		
	Edge 2										1a+1b	1.146	22.3	0.06	Yes	0.933														
Hotspot (1-g SAR)	Hybrid SPLSR Note.3	0.933									5+7	0.848	34.5	0.02	No	0.622														
	Edge 1										1a+1b+6+7	1.782																		
	Edge 2										1a+1b	1.146	22.3	0.06	Yes	0.933														
	Edge 3										5+8	0.636	17.2	0.03	No	0.533														
	Edge 4										1a+1b+5+8	1.466	151.1	0.01	No															
	Hybrid SPLSR Note.4	0.933									0.533																			

## Note(s):

- Green value is estimated SAR value.
- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.21 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 & 1+6) are a subset of (1+5+6) scenario.
- For the Blue box, Enlarged zoom scan were evaluated for each LTE and NR by TCB workshop guide. Please refer to Section 12.20.
- WiFi/BT & Volume scan results were referred to Original report.
- NR Band n2 is subset of NR Band n25, So NR Band n25 was used to do Simultaneous transmission analysis.
- LTE Band 5 is subset of LTE Band 26, So LTE Band 26 was used to do Simultaneous transmission analysis.

## 12.11. Sum of the SAR for ENDC(LTE B12 + NR Bn25) & Wi-Fi & BT

### Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)												Sum of SAR (W/kg)														
		Non-RSDB scenarios												Sum of SAR (W/kg)														
		WWAN		DTS Ant.1		DTS Ant.2		DTS MIMO		UNI MIMO (5GHz)		BT MIMO		WWAN+		WWAN+		WWAN+		WWAN+		WWAN+		WWAN+		WWAN+		
Head (1-g SAR)	Left Touch	0.159	0.071	0.107	0.406	0.451	0.241	0.040	0.150	0.089	0.019	0.337	0.516	0.681	0.471	0.270	0.380	0.319	0.511	0.621	0.560	0.249	0.289	0.399	0.338	0.289		
	Left Tilt	0.100	0.020	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	0.221	0.198	0.293	0.187	0.121	0.139	0.165	0.188	0.206	0.232	0.140	0.141	0.159	0.185	0.140		
	Right Touch	0.171	0.043	0.095	0.353	0.629	0.653	0.071	0.238	0.064	0.121	0.309	0.567	0.843	0.867	0.285	0.497	0.278	0.938	1.150	0.931	0.335	0.408	0.618	0.399	0.335		
	Right Tilt	0.089	0.051	0.080	0.086	0.238	0.117	0.048	0.057	0.046	0.017	0.220	0.226	0.378	0.257	0.184	0.197	0.186	0.303	0.314	0.303	0.157	0.208	0.214	0.203	0.157		
	Body-Worn (1-g SAR)	Rear	0.308	0.584	0.157	0.187	0.155	0.528	0.156	0.140	0.030	0.144	1.048	1.079	1.047	1.420	1.048	1.032	0.922	1.576	1.560	1.450	1.036	1.192	1.176	1.066		
	Front	0.277	0.406	0.018	0.187	0.155	0.392	0.021	0.080	0.030	0.144	0.702	0.870	0.838	1.075	0.704	0.763	0.713	1.096	1.155	1.105	0.827	0.848	0.907	0.857			
Hotspot (1-g SAR)	Rear	0.418	0.537	0.423	0.343	0.281	0.530	0.453	0.318	0.106	1.378	1.298	1.236	1.485	1.408	1.273	1.061	1.938	1.803	1.591								
	Front	0.303	0.398	0.423	0.343	0.202	0.111	0.042	0.198	0.061	1.124	1.044	0.903	0.812	0.743	0.899	0.762	0.854	1.010	0.873								
	Edge 1		0.044		0.053		0.077	0.026		0.017																		
	Edge 2		0.298		0.071																							
	Edge 3		0.125		0.197																							
	Edge 4		0.248		0.185		0.423	0.426	0.331	0.152	0.003	0.311	0.102	0.860	0.863	0.768	0.589	0.440	0.748	0.539	0.592	0.900	0.691					
Product Specific 10-g (10-g SAR)	Rear																											
	Front																											
	Edge 1																											
	Edge 2																											
	Edge 3																											
	Edge 4																											
<b>Sum of Peak Location Separation Ratio (SPLSR)</b>		Standalone SAR (W/kg)												Sum of SAR (W/kg)														
Hotspot (1-g SAR)	Test Position	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO (5GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNI MIMO (5GHz)	Sum of SAR (W/kg)												Calculated Distance (mm)		1-g SPLSR (=>1g SAR / 10-g SPLSR =>10g SAR) Note(2)	Volume Scan SAR (W/kg) Note(2)	Volume Scan SAR (W/kg) Note(2)	Figure
	1a	1b	2	3	4	5	6	7	8	9	1a+1b+5+6	1.938															6	
	Rear	0.418	0.537								1a+1b	0.955	28.0	0.03	No	0.729												
	Front	0.418	0.537								5+6	0.983	18.8	0.05	Yes	0.717												
	Hybrid SPLSR Note.3	0.729									(1a+1b)+(5+6)	1.446	147.1	0.01	No													7
	Hotspot (1-g SAR)	Rear	0.418	0.537							1a+1b+5+7	1.803																
Hybrid SPLSR Note.3	Front	0.418	0.537								1a+1b	0.955	28.0	0.03	No	0.729												
	Edge 1										5+7	0.848	34.5	0.02	No	0.622												
	Edge 2		0.296	0.071							(1a+1b)+(5+7)	1.351	147.1	0.01	No													
	Edge 3		0.125	0.197																								
	Edge 4		0.248	0.189	0.002	0.217	0.323	0.214			0.653	0.868	0.974	0.537														

### Note(s):

- Green value is estimated SAR value.
- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.21 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.
- For the Blue box, Enlarged zoom scan were evaluated for each LTE and NR by TCB workshop guide. Please refer to Section 12.20.
- WiFi/BT & Volume scan results were referred to Original report.

## 12.12. Sum of the SAR for ENDC(LTE B13 + NR Bn25) & Wi-Fi & BT

## Non-RSDB scenarios

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

RF Exposure	Test Position	Standalone SAR (W/kg)									Calculated Distance (mm)	1-g SPLSR (m=0.10)	Vertical Scan (Yes or No)	Volume Scan SAR (W/kg)	Figure		
		WWAN	DTS Ant. 1	DTS Ant. 2	DTS MIMO (5GHz)	DTS MIMO (6GHz)	BT Ant. 1	BT Ant. 2	BT MIMO (5GHz)	BT MIMO (6GHz)							
		1a	1b	2	3	4	5	6	7	8	9						
Hotspot (1-g SAR)	Rear	0.657	0.537	0.423								1a+1b+2	1.617			8	
		0.657	0.537									1a+1b	1.194	18.3	0.07	Yes	
Hybrid SPLSR Note.3		0.853	0.423									(1a+1b)+2	1.276	140.0	0.01	No	9
		0.857	0.537			0.530	0.453					1a+1b+5+6	2.177				
Hotspot (1-g SAR)	Rear	0.657	0.537									1a+1b	1.194	18.3	0.07	Yes	9
		0.657	0.537									5+6	0.983	18.8	0.05	Yes	
Hybrid SPLSR Note.3		0.853				0.717						(1a+1b)+(5+6)	1.570	147.1	0.01	No	10
		0.857	0.537			0.530	0.318					1a+1b+5+7	2.042				
Hotspot (1-g SAR)	Rear	0.657	0.537			0.530	0.318					1a+1b	1.194	18.3	0.07	Yes	10
		0.657	0.537									5+7	0.848	34.5	0.02	No	
Hybrid SPLSR Note.3		0.853				0.622						(1a+1b)+(5+7)	1.475	147.1	0.01	No	11
		0.857	0.537			0.530		0.106				1a+1b+5+8	2.253				
Hotspot (1-g SAR)	Rear	0.857	0.537			0.530		0.106				1a+1b	1.194	18.3	0.07	Yes	11
		0.857	0.537									5+8	0.636	17.2	0.03	No	
Hybrid SPLSR Note.3		0.853				0.533						(1a+1b)+(5+8)	1.386	147.1	0.01	No	11

## RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)										Sum of SAR (W/kg)																																																																																																																																																	
		Non-RSDB scenarios										Sum of SAR (W/kg)										Sum of SAR (W/kg)																																																																																																																																																	
		WWAN		DTS Ant.1		DTS Ant.2		DTS MIMO		UNII MIMO (5GHz)		UNII MIMO (8GHz)		WWAN*		DTS Ant.1+		DTS UNII MIMO		WWAN*		DTS Ant.2+		DTS UNII MIMO		WWAN*		DTS Ant.1+		DTS UNII MIMO		WWAN*		DTS Ant.2+		DTS UNII MIMO																																																																																																																																			
Head (+1g SAR)	Left Touch	0.189	0.071	0.027	0.135	0.241	0.019	0.053	0.646	0.126	0.376	0.306	0.424	0.414	0.154	Head (+1g SAR)	Left Touch	0.105	0.020	0.026	0.027	0.038	0.067	0.020	0.218	0.219	0.230	0.105	0.171	0.172	0.183	0.058	Right Touch	0.204	0.043	0.066	0.211	0.223	0.053	0.121	0.966	1.111	1.123	0.876	0.434	0.579	0.591	0.344	Right Tilt	0.092	0.051	0.056	0.057	0.063	0.117	0.017	0.316	0.317	0.323	0.180	0.216	0.217	0.223	0.080	Rear	0.308	0.584	0.095	0.097	0.147	0.244	0.144	1.231	1.233	1.283	0.391	1.131	1.133	1.183	0.291	Front	0.265	0.406	0.095	0.097	0.147	0.244	0.144	1.010	1.012	1.062	0.391	0.910	0.912	0.962	0.291	Hotspot (+1g SAR)	Hotspot (+1g SAR)	Rear	0.657	0.537	0.247	0.210	0.315	0.214		1.655	1.618	1.723	0.529	Front	0.322	0.398	0.023	0.217	0.323	0.214		0.957	1.151	1.257	0.537	Edge 1	0.178	0.189	0.002	0.217	0.323	0.214		0.583	0.798	0.904	0.537	Edge 2	0.363	0.071									Edge 3	0.227	1.197									Edge 4	0.178	0.189								
	Left Touch	0.105	0.020	0.027	0.038	0.067	0.020	0.218	0.219	0.230	0.105	0.171	0.172	0.183	0.058		Right Touch	0.204	0.043	0.066	0.211	0.223	0.053	0.121	0.966	1.111	1.123	0.876	0.434	0.579	0.591	0.344	Right Tilt	0.092	0.051	0.056	0.057	0.063	0.117	0.017	0.316	0.317	0.323	0.180	0.216	0.217	0.223	0.080	Rear	0.308	0.584	0.095	0.097	0.147	0.244	0.144	1.231	1.233	1.283	0.391	1.131	1.133	1.183	0.291	Front	0.265	0.406	0.095	0.097	0.147	0.244	0.144	1.010	1.012	1.062	0.391	0.910	0.912	0.962	0.291	Hotspot (+1g SAR)	Rear	0.657	0.537	0.247	0.210	0.315	0.214		1.655	1.618	1.723	0.529	Front	0.322	0.398	0.023	0.217	0.323	0.214		0.957	1.151	1.257	0.537	Edge 1	0.178	0.189	0.002	0.217	0.323	0.214		0.583	0.798	0.904	0.537	Edge 2	0.363	0.071									Edge 3	0.227	1.197									Edge 4	0.178	0.189																									
	Left Touch	0.105	0.020	0.027	0.038	0.067	0.020	0.218	0.219	0.230	0.105	0.171	0.172	0.183	0.058		Right Touch	0.204	0.043	0.066	0.211	0.223	0.053	0.121	0.966	1.111	1.123	0.876	0.434	0.579	0.591	0.344	Right Tilt	0.092	0.051	0.056	0.057	0.063	0.117	0.017	0.316	0.317	0.323	0.180	0.216	0.217	0.223	0.080	Rear	0.308	0.584	0.095	0.097	0.147	0.244	0.144	1.231	1.233	1.283	0.391	1.131	1.133	1.183	0.291	Front	0.265	0.406	0.095	0.097	0.147	0.244	0.144	1.010	1.012	1.062	0.391	0.910	0.912	0.962	0.291	Hotspot (+1g SAR)	Rear	0.657	0.537	0.247	0.210	0.315	0.214		1.655	1.618	1.723	0.529	Front	0.322	0.398	0.023	0.217	0.323	0.214		0.957	1.151	1.257	0.537	Edge 1	0.178	0.189	0.002	0.217	0.323	0.214		0.583	0.798	0.904	0.537	Edge 2	0.363	0.071									Edge 3	0.227	1.197									Edge 4	0.178	0.189																									
	Left Touch	0.105	0.020	0.027	0.038	0.067	0.020	0.218	0.219	0.230	0.105	0.171	0.172	0.183	0.058		Right Touch	0.204	0.043	0.066	0.211	0.223	0.053	0.121	0.966	1.111	1.123	0.876	0.434	0.579	0.591	0.344	Right Tilt	0.092	0.051	0.056	0.057	0.063	0.117	0.017	0.316	0.317	0.323	0.180	0.216	0.217	0.223	0.080	Rear	0.308	0.584	0.095	0.097	0.147	0.244	0.144	1.231	1.233	1.283	0.391	1.131	1.133	1.183	0.291	Front	0.265	0.406	0.095	0.097	0.147	0.244	0.144	1.010	1.012	1.062	0.391	0.910	0.912	0.962	0.291	Hotspot (+1g SAR)	Rear	0.657	0.537	0.247	0.210	0.315	0.214		1.655	1.618	1.723	0.529	Front	0.322	0.398	0.023	0.217	0.323	0.214		0.957	1.151	1.257	0.537	Edge 1	0.178	0.189	0.002	0.217	0.323	0.214		0.583	0.798	0.904	0.537	Edge 2	0.363	0.071									Edge 3	0.227	1.197									Edge 4	0.178	0.189																									
	Left Touch	0.105	0.020	0.027	0.038	0.067	0.020	0.218	0.219	0.230	0.105	0.171	0.172	0.183	0.058		Right Touch	0.204	0.043	0.066	0.211	0.223	0.053	0.121	0.966	1.111	1.123	0.876	0.434	0.579	0.591	0.344	Right Tilt	0.092	0.051	0.056	0.057	0.063	0.117	0.017	0.316	0.317	0.323	0.180	0.216	0.217	0.223	0.080	Rear	0.308	0.584	0.095	0.097	0.147	0.244	0.144	1.231	1.233	1.283	0.391	1.131	1.133	1.183	0.291	Front	0.265	0.406	0.095	0.097	0.147	0.244	0.144	1.010	1.012	1.062	0.391	0.910	0.912	0.962	0.291	Hotspot (+1g SAR)	Rear	0.657	0.537	0.247	0.210	0.315	0.214		1.655	1.618	1.723	0.529	Front	0.322	0.398	0.023	0.217	0.323	0.214		0.957	1.151	1.257	0.537	Edge 1	0.178	0.189	0.002	0.217	0.323	0.214		0.583	0.798	0.904	0.537	Edge 2	0.363	0.071									Edge 3	0.227	1.197									Edge 4	0.178	0.189																									

**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 (m) (=>0.6) or 10-g SPLSR (=>0.10)	1+g SPLSR (=>0.6) or 10-g SPLSR (=>0.10)	Volume Scan (Yes=No) Note_3	Volume Scan SAR (W/kg)	Figure	
		WWAN		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)							
		1a	1b	2	3	4	5	6						
Hotspot (1-g SAR)	Rear	0.657	0.537	0.247		0.214		1a+1b+2g	<b>1.655</b>					12
		0.657	0.537			0.247		1a+1b	1.194	18.3	<b>0.07</b>	Yes	0.853	
<b>Hybrid SPLSR Note_4</b>		0.853		0.335			(1a+1b)+(2g)		1.188	139.1	0.01	No		
Hotspot (1-g SAR)	Rear	0.657	0.537	0.210		0.214		1a+1b+3g	<b>1.618</b>					13
		0.657	0.537			0.210		1a+1b	1.194	18.3	<b>0.07</b>	Yes	0.853	
<b>Hybrid SPLSR Note_4</b>		0.853		0.302			(1a+1b)+(3g)		1.155	139.1	0.01	No		
Hotspot (1-g SAR)	Rear	0.657	0.537			0.315	0.214	1a+1b+4g	<b>1.723</b>					14
		0.657	0.537			0.315	0.214	1a+1b	1.194	18.3	<b>0.07</b>	Yes	0.853	
<b>Hybrid SPLSR Note_4</b>		0.853		0.441			(1a+1b)+(4g)		1.294	139.1	0.01	No		

**Note(s):**

1. Green value is estimated SAR value.
  2. SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.21 for detailed Volume Scan Result.
  3. 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.
  4. Simultaneous transmission scenarios (1+5 & 1+6) are a subset of (1+5+6) scenario.
  5. Simultaneous transmission scenarios (1+5 & 1+7) are a subset of (1+5+7) scenario.
  6. For the Blue box, Enlarged zoom scan were evaluated for each LTE and NR by TCB workshop guide. Please refer to Section 12.20.
  7. WiFi/BT & Volume scan results were referred to Original report.

### **12.13. Sum of the SAR for ENDC(LTE B12 + NR Bn41(Ant. F Voice/Data/SRS 0)) & Wi-Fi & BT**

## Non-RSDB scenarios

### SAR to Peak Location Separation Ratio (SPR)

RF Exposure	Test Position	Stationary										Sum of SAR (W/kg) (1-g or 10-g)	Calculated Distance (mm)	1-g or 10-g SAR (Note 1) or 10-g SPLSR (Note 10)	Scan (Yes/No) (Note 2)	Volume Scan SAR (W/kg)	Figure		
		WWAN		DTS Ant. 1		DTS Ant. 2		BT MIMO		UNI MIMO (SGH)									
		1a	1b	2	3	4	5	6	7	8	9								
Head (1-g SAR)	Left Touch	0.159	0.816									1a+1b	0.975	72.2	0.01	No		15	
Head (1-g SAR)	Left Tilt	0.100	1.103									1a+1b	1.203	39.2	0.03	No		16	
Hospital (1-g SAR)	Rear	0.418	0.282				0.530	0.453				1a+1b+5#6	1.683						
			0.282				0.530					1b+5	0.812	17.8	0.04	No	0.922	17	
Hybrid SPLSR												5#6	0.983	18.8	0.05	Yes			
Note 3		0.418		0.922								1a+(1b+5#6)	1.340	122.5	0.01	No			

## RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)							
		Non-RSBD scenarios								WMMO scenarios							
		WWAN		WWAN+		WWAN+		WWAN+		WWAN		WWAN+		WWAN		WWAN	
		DTS Ant.1	DTS Ant.2	DTS MIMO (Dual SIM)	UNII MIMO (Dual SIM)	DTS Ant.1	DTS Ant.2	DTS MIMO (Dual SIM)	UNII MIMO (Dual SIM)	DTS Ant.1	DTS Ant.2	DTS MIMO (Dual SIM)	UNII MIMO (Dual SIM)	DTS Ant.1	DTS Ant.2	DTS MIMO (Dual SIM)	UNII MIMO (Dual SIM)
		1a	1b	2	3	4	5	6	7	8a	8b	9a	9b	10a	10b	11a	11b
Head (1+g SAR)	Left Touch	0.159	0.816	0.027	0.145	0.135	0.241	0.019	1.243	1.361	1.351	0.376	1.021	1.139	1.129	0.154	
	Left Tilt	0.100	1.103	0.026	0.027	0.038	0.067	0.020	1.296	1.297	1.308	0.105	1.249	1.250	1.261	0.058	
	Right Touch	0.171	0.466	0.066	0.211	0.233	0.663	0.121	1.246	1.491	1.503	0.876	0.814	0.869	0.971	0.344	
	Right Tilt	0.089	0.581	0.056	0.057	0.063	0.117	0.017	0.843	0.844	0.850	0.160	0.743	0.744	0.750	0.080	
Body-Warm (1+g SAR)	Real	0.308	0.124	0.095	0.097	0.147	0.264	0.144	0.771	0.773	0.823	0.391	0.671	0.673	0.723	0.291	
	Front	0.277	0.057	0.095	0.007	0.167	0.264	0.164	0.673	0.675	0.725	0.391	0.573	0.575	0.625	0.291	
Hotspot (1+g SAR)	Rear	0.418	0.262	0.247	0.210	0.315	0.214		1.161	1.124	1.229		0.529				
	Front	0.303	0.141	0.023	0.217	0.323	0.214		0.681	0.875	0.981		0.537				
	Edge 1	0.399	0.023			0.323	0.012							0.335			
	Edge 2	0.296	0.046														
	Edge 3	0.125															
	Edge 4	0.248		0.002	0.217	0.323	0.214		0.464	0.679	0.785	0.537					

**Note(s):**

1. Green value is estimated SAR value.
  2. SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.21 for detailed Volume Scan Result.
  3. 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.
  4. WiFi/BT & Volume scan results were referred to Original report.

## 12.14. Sum of the SAR for ENDC(LTE B66 + NR Bn41(Ant. F Voice/Data/SRS 0)) & Wi-Fi & BT

### Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)														
		Non-RSDB scenarios										Sum of SAR (W/kg)														
		WWAN		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (nGHz)	UNII MIMO (GHz)	WWAN+	WWAN+	WWAN+	WWAN+	WWAN+	WWAN+	WWAN+	WWAN+	WWAN+	WWAN+	WWAN+	WWAN+	WWAN+					
Head (1-g SAR)	Left Touch	0.169	0.816	0.107	0.406	0.451	0.241	0.040	0.150	0.089	0.019	1.092	1.391	1.436	1.226	1.025	1.135	1.074	1.266	1.376	1.315	1.004	1.154	1.093		
	Left Tilt	0.068	1.103	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	1.272	1.249	1.344	1.238	1.172	1.190	1.216	1.239	1.257	1.283	1.191	1.192	1.210	1.236	
	Right Touch	0.097	0.456	0.095	0.363	0.629	0.653	0.071	0.286	0.064	0.121	0.648	0.906	1.182	1.206	0.624	0.836	0.617	1.277	1.489	1.270	0.674	0.745	0.957	0.738	
	Right Tilt	0.066	0.581	0.080	0.086	0.238	0.117	0.048	0.057	0.046	0.017	0.727	0.733	0.765	0.764	0.695	0.704	0.693	0.812	0.821	0.810	0.664	0.712	0.721	0.710	
	Body-Worn (1-g SAR)	Rear	0.751	0.124	0.157	0.187	0.155	0.528	0.156	0.140	0.030	0.144	1.032	1.063	1.030	1.403	1.031	1.015	0.905	1.559	1.543	1.433	1.019	1.175	1.159	1.049
	Front	0.450	0.057	0.019	0.187	0.155	0.392	0.021	0.980	0.030	0.144	0.526	0.694	0.662	0.889	0.528	0.587	0.537	0.920	0.979	0.929	0.651	0.672	0.731	0.681	
Hotspot (1-g SAR)	Rear	0.686	0.282	0.423	0.343	0.281	0.530	0.453	0.318	0.106	1.391	1.311	1.249	1.498	1.421	1.286	1.074	1.951	1.816	1.604						
	Front	0.418	0.141	0.423	0.343	0.202	0.111	0.042	0.198	0.061	0.982	0.902	0.761	0.670	0.601	0.757	0.620	0.712	0.868	0.731						
	Edge 1	0.399	0.044	0.053	0.077	0.026	0.017																			
	Edge 2	0.049	0.046																							
	Edge 3	1.087																								
	Edge 4	0.095																								
Product Specific 10-g (10-g SAR)	Rear	1.547																							1.851	
	Front																									
	Edge 1																									
	Edge 2																									
	Edge 3																									
	Edge 4																									
SAR to Peak Location Separation Ratio (SPLSR)		Standalone SAR (W/kg)										Sum of SAR (W/kg)														
RF Exposure	Test Position	WWAN		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (nGHz)	UNII MIMO (GHz)	BT Ant.1	BT Ant.2	BT MIMO	Calculated Distance (mm)	1-g SPLSR (1g or 10g SPLSR (n=0.10))	Volume Scan (Yes/No) Note_2	Volume Scan SAR (W/kg)	Volume (W/kg)	Figure									
		1a	1b	2	3	4	5	6	7	8	9	Sum of SAR (W/kg)		Calculated Distance (mm)		1-g SPLSR (1g or 10g SPLSR (n=0.10))		Volume Scan (Yes/No) Note_2		Volume SAR (W/kg)		Figure				
		Non-RSDB scenarios										1a+1b		92.1		0.01		No		18						
Head (1-g SAR)	Left Touch	0.169	0.816									1a+1b+6	1.951													
	Right Touch	0.686	0.282									1b+5	0.812	17.8	0.04	No	0.922									
	Right Tilt	0.282										1b+6	0.983	18.8	0.05	Yes										
	Left Tilt	0.686	0.282									1a+1b+5+6	1.608	147.5	0.01	No										
	Edge 1											1a+1b+5+7	1.816													
	Edge 2											1b+5	0.812	17.8	0.04	No										
Hotspot (1-g SAR)	Left Touch	0.686	0.282									5+7	0.848	34.5	0.02	No										
	Right Touch	0.282										1a+1b+5+8	1.503	151.4	0.01	No										
	Right Tilt	0.686	0.282									1b+5	0.812	17.8	0.04	No										
	Left Tilt	0.686	0.282									5+8	0.636	17.2	0.03	No	0.731									
	Edge 1											1a+1b+5+8	1.417	151.4	0.01	No										
	Edge 2											1a+1b+5+8	1.417	151.4	0.01	No										
Hybrid SPLSR Note_3		Standalone SAR (W/kg)										Sum of SAR (W/kg)														
RF Exposure	Test Position	WWAN		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (nGHz)	UNII MIMO (GHz)	BT Ant.1	BT Ant.2	BT MIMO	DTS Ant.1+1b		DTS Ant.2+1b		DTS MIMO+UNII MIMO		DTS Ant.1+1b		DTS Ant.2+1b		DTS MIMO+UNII MIMO		4x5		
		Non-RSDB scenarios		DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (nGHz)	UNII MIMO (GHz)	BT Ant.1	BT Ant.2	BT MIMO	1a+2.5		1a+3.5		4+5		1a+2.5		1a+3.5		4+5		4x6		
		1a	1b	2	3	4	5	6	7	8	9	1a+2.5		1a+3.5		4+5		1a+2.5		1a+3.5		4+5		4x6		
Head (1-g SAR)	Left Touch	0.169	0.816	0.027	0.145	0.135	0.241	0.019	1.253	1.371	1.361	0.376	1.031	1.149	1.139	0.154										
	Left Tilt	0.068	1.103	0.026	0.027	0.038	0.067	0.020	1.264	1.268	1.276	0.105	1.217	1.218	1.229	0.058										
	Right Touch	0.097	0.456	0.066	0.211	0.223	0.653	0.121	1.272	1.417	1.429	0.876	0.740	0.885	0.897	0.344										
	Right Tilt	0.066	0.581	0.056	0.057	0.063	0.117	0.017	0.820	0.821	0.817	0.180	0.720	0.721	0.727	0.080										
	Body-Worn (1-g SAR)	Rear	0.751	0.124	0.095	0.097	0.147	0.244	0.144	1.214	1.216	1.266	0.391	1.114	1.116	1.166	0.291									
	Front	0.450	0.057	0.095	0.097	0.147	0.244	0.144	0.846	0.848	0.898	0.391	0.746	0.748	0.798	0.291										
Hotspot (1-g SAR)	Rear	0.686	0.282	0.247	0.210	0.315	0.214	1.429	1.392	1.497	0.529															
	Front	0.418	0.141	0.023	0.217	0.323	0.214	1.796	0.990	1.096	0.537															
	Edge 1	0.399	0.023																							
	Edge 2	0.049	0.046																							
	Edge 3	1.087																								
	Edge 4	0.095		0.002	0.217	0.323	0.214	0.311	0.526	0.632	0.537															

### Note(s):

1. Green value is estimated SAR value.
2. SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.21 for detailed Volume Scan Result.
3. 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.
4. Simultaneous transmission scenarios (1+5 & 1+6) are a subset of (1+5+6) scenario.
5. Simultaneous transmission scenarios (1+5 & 1+7) are a subset of (1+5+7) scenario.
6. For the Blue box, Enlarged zoom scan were evaluated for each LTE and NR by TCB workshop guide. Please refer to Section 12.20.
7. WiFi/BT & Volume scan results were referred to Original report.

## 12.15. Sum of the SAR for ENDC(LTE B26(LTE B5) + NR Bn77(Ant. G Voice/Data/SRS 0)) & Wi-Fi & BT

### Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)												Sum of SAR (W/kg)																	
		Non-RSDB scenarios						WWAN+						WWAN+						WWAN+											
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)				
		1a	1b	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25				
Head (1-g SAR)	Left Touch	0.238	0.259	0.107	0.406	0.451	0.241	0.040	0.150	0.089	0.019	0.604	0.903	0.948	0.738	0.537	0.647	0.586	0.778	0.888	0.827	0.516	0.556	0.666	0.605						
	Left Tilt	0.145	0.339	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	0.586	0.562	0.551	0.486	0.503	0.529	0.552	0.570	0.596	0.501	0.505	0.523	0.549							
	Right Touch	0.266	0.473	0.095	0.353	0.629	0.653	0.071	0.283	0.064	0.121	0.834	1.092	1.368	0.810	1.022	0.803	1.463	1.675	1.456	0.860	0.931	1.143	0.924							
Body-Worn (1-g SAR)	Rear	0.301	0.129	0.157	0.187	0.155	0.156	0.140	0.030	0.144	0.587	0.617	0.585	0.958	0.586	0.570	0.460	1.114	1.098	0.988	0.574	0.730	0.714	0.604							
	Front	0.291	0.109	0.019	0.187	0.155	0.362	0.021	0.080	0.030	0.144	0.419	0.587	0.555	0.792	0.421	0.480	0.430	0.813	0.872	0.822	0.544	0.565	0.624	0.574						
Hotspot (1-g SAR)	Rear	0.609	0.302	0.423	0.343	0.281	0.530	0.453	0.318	0.106	1.334	1.254	1.392	1.441	1.364	1.229	1.017	1.894	1.759	1.547											
	Front	0.344	0.180	0.423	0.343	0.202	0.111	0.042	0.198	0.061	0.947	0.867	0.726	0.635	0.566	0.722	0.585	0.677	0.833	0.696											
	Edge 1	0.230	0.044	0.053	0.077	0.026	0.017																								
	Edge 2	0.454																													
	Edge 3	0.285																													
	Edge 4	0.183	0.637	0.423	0.426	0.331	0.152	0.003	0.311	0.102	1.243	1.246	1.151	0.972	0.823	1.131	0.922	0.975	1.283	1.074											
Product Specific 10-g (10-g SAR)	Rear																														
	Front																														
	Edge 1																														
	Edge 2																														
	Edge 3																														
	Edge 4																														
<b>SAR to Peak Location Separation Ratio (SPLSR)</b>																															
RF Exposure	Test Position	Standalone SAR (W/kg)												Sum of SAR (W/kg)												Figure					
		Non-RSDB scenarios						WWAN+						WWAN+						Calculated Distance (mm)						1-g SPLSR (=0.04) or 10-g SPLSR (=0.10)					
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)				
		1a	1b	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25				
Head (1-g SAR)	Right Touch	0.266	0.473															1a+1b+5+7	1.676										22		
	Right Touch	0.473																1b+5	1.126	23.8	0.05	Yes	0.944								
																		5+7	0.936	8.9	0.10	Yes									
Hybrid SPLSR Note.3		0.266																1a+1b+5+7	1.210	63.0	0.02	No									
Hotspot (1-g SAR)	Rear	0.609	0.302															1a+1b+5+6	1.894										23		
	Rear	0.302																1b+5	0.832	11.8	0.06	Yes	0.922								
																		5+6	0.983	18.8	0.05	Yes									
Hybrid SPLSR Note.3		0.609																1a+1b+5+6	1.420	133.1	0.01	No									
Hotspot (1-g SAR)	Rear	0.609	0.302															1a+1b+5+7	1.759										24		
	Rear	0.302																1b+5	0.832	11.8	0.06	Yes	0.817								
																		5+7	0.848	34.5	0.02	No									
Hybrid SPLSR Note.3		0.609																1a+1b+5+7	1.348	133.1	0.01	No									
<b>SAR to Peak Location Separation Ratio (SPLSR)</b>																															
RF Exposure	Test Position	Standalone SAR (W/kg)												Sum of SAR (W/kg)												Figure					
		Non-RSDB scenarios						WWAN+						WWAN+						Calculated Distance (mm)						1-g SPLSR (=0.04) or 10-g SPLSR (=0.10)					
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII MIMO (5GHz)	UNII MIMO (8GHz)				
		1a	1b	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25				
Head (1-g SAR)	Right Touch	0.266	0.473															1a+1b+3+5	1.603										25		
	Right Touch	0.473																1b+3	0.684	19.2	0.03	No	0.903								
																		3+5	0.864	4.6	0.17	Yes									
Hybrid SPLSR Note.4		0.266																1a+(1b+3+5)	1.169	63.0	0.02	No									
Head (1-g SAR)	Right Touch	0.266	0.473															1a+1b+4+5	1.615										26		
	Right Touch	0.473																1b+4	0.696	31.1	0.02	No	0.908								
																		4+5	0.767	9.1	0.09	Yes									
Hybrid SPLSR Note.4		0.266																1a+(1b+4+5)	1.174	63.0	0.02	No									

### Note(s):

- Green value is estimated SAR value.
- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.21 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 & 1+6) are a subset of (1+5+6) scenario.
- Simultaneous transmission scenarios (1+5 & 1+7) are a subset of (1+5+7) scenario.
- WiFi/BT & Volume scan results were referred to Original report.

## 12.16. Sum of the SAR for ENDC(LTE B12 + NR Bn77(Ant. G Voice/Data/SRS 0)) & Wi-Fi & BT

### Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)													
		Non-RSDB scenarios					WWAN					WWAN+					WWAN+								
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO (GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNI MIMO (GHz)	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO			
Head (1-g SAR)	1a	1b	2	3	4	5	6	7	8	9	1a+2	1a+3	1a+4	1a+5	1a+6	1a+7	1a+8	1a+9	1a+10	1a+11	1a+12	1a+13			
	Left Touch	0.159	0.259	0.107	0.406	0.451	0.241	0.040	0.150	0.089	0.019	0.525	0.624	0.869	0.659	0.458	0.568	0.507	0.699	0.809	0.748	0.437	0.477	0.587	0.526
	Left Tit	0.100	0.339	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	0.540	0.517	0.612	0.506	0.440	0.458	0.484	0.507	0.525	0.551	0.459	0.460	0.478	0.504
	Right Touch	0.171	0.473	0.056	0.353	0.629	0.653	0.071	0.283	0.064	0.121	0.739	0.997	1.273	1.297	0.715	0.927	0.708	1.368	1.580	1.361	0.765	0.838	1.048	0.829
	Right Tit	0.089	0.333	0.080	0.088	0.238	0.117	0.048	0.057	0.046	0.017	0.508	0.508	0.660	0.539	0.470	0.477	0.468	0.587	0.596	0.595	0.439	0.487	0.496	0.485
	Body-Worn (1-g SAR)	Rear	0.308	0.129	0.157	0.187	0.155	0.156	0.140	0.030	0.144	0.594	0.624	0.592	0.965	0.594	0.577	0.467	1.121	1.105	0.995	0.581	0.737	0.721	0.611
Hotspot (1-g SAR)	Front	0.277	0.109	0.019	0.167	0.155	0.365	0.021	0.080	0.030	0.144	0.405	0.573	0.541	0.778	0.407	0.466	0.416	0.799	0.858	0.808	0.530	0.551	0.810	0.560
	Rear	0.418	0.302	0.423	0.343	0.281	0.530	0.453	0.318	0.106	1.143	1.063	1.001	1.250	1.173	1.038	0.826	1.703	1.568	1.356					
	Front	0.303	0.180	0.423	0.343	0.202	0.111	0.042	0.198	0.061	0.906	0.826	0.685	0.594	0.525	0.681	0.544	0.636	0.792	0.655					
	Edge 1	0.230	0.044		0.053		0.077	0.026		0.017															
	Edge 2	0.296																							
	Edge 3	0.125																							
Product Specific 10-g (10-g SAR)	Edge 4	0.248	0.637	0.423	0.426	0.331	0.152	0.003	0.311	0.102	1.308	1.311	1.216	1.037	0.888	1.196	0.987	1.040	1.348	1.139					
	Rear						2.286				1.304														
	Front						1.270				0.062														
	Edge 1						0.262				0.019														
	Edge 2						0.296				0.019														
	Edge 3						0.125				0.019														
	Edge 4						1.437				0.059														

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

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)												
		Non-RSDB scenarios					WWAN					WWAN+					WWAN+							
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO (GHz)	BT Ant.1	BT Ant.2	BT MIMO	UNI MIMO (GHz)	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO		
Hotspot (1-g SAR)	1a	1b	2	3	4	5	6	7	8	9	1a+2+5+6	1.703												
	Rear	0.418	0.302			0.530	0.453				1b+5	0.832	11.8	0.06	Yes		0.811							
Hybrid SPLSR Note.3		0.303				0.530	0.453				1b+6	0.863	18.8	0.05	Yes									
		0.418				0.811					1a+1b+5+6	1.229	126.5	0.01	No									

### Note(s):

- Green value is estimated SAR value.
- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.21 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 & 1+6) are a subset of (1+5+6) scenario.
- Simultaneous transmission scenarios (1+5 & 1+7) are a subset of (1+5+7) scenario.
- WiFi/BT & Volume scan results were referred to Original report.

## 12.17. Sum of the SAR for ENDC(LTE B13 + NR Bn77(Ant. G Voice/Data/SRS 0)) & Wi-Fi & BT

### Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)												Sum of SAR (W/kg)															
		Non-RSDB scenarios												1+g															
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO (S0H2)	BT Ant.1	BT Ant.2	BT MIMO	UNI MIMO (S0H2)	WWAN+	DTS Ant.1*	DTS MIMO*	UNI MIMO*	WWAN+	DTS Ant.1*	DTS MIMO*	UNI MIMO*	WWAN+	DTS MIMO*	UNI MIMO*	WWAN+	DTS MIMO*	UNI MIMO*	WWAN+	DTS MIMO*	UNI MIMO*		
Head (1-g SAR)	Left Touch	0.189	0.259	0.107	0.406	0.451	0.241	0.040	0.150	0.089	0.019	0.555	0.854	0.895	0.689	0.488	0.598	0.537	0.729	0.839	0.778	0.467	0.507	0.617	0.556	0.467	0.556		
	Left Tilt	0.105	0.339	0.101	0.078	0.173	0.067	0.001	0.019	0.045	0.020	0.545	0.522	0.617	0.511	0.445	0.463	0.489	0.512	0.530	0.556	0.464	0.465	0.483	0.509	0.464	0.483		
	Right Touch	0.204	0.473	0.098	0.363	0.629	0.653	0.071	0.283	0.064	0.121	0.772	1.038	1.330	0.748	0.969	0.741	1.401	1.613	1.394	0.798	0.869	1.081	0.862	0.490	0.499	0.488	0.499	
	Right Tilt	0.092	0.333	0.080	0.086	0.238	0.117	0.048	0.057	0.046	0.017	0.508	0.511	0.663	0.542	0.473	0.488	0.471	0.590	0.599	0.588	0.442	0.490	0.499	0.488	0.490	0.499		
	Body-Worn	Rear	0.308	0.129	0.157	0.187	0.155	0.528	0.156	0.140	0.030	0.144	0.594	0.624	0.592	0.965	0.593	0.577	0.467	1.121	1.105	0.995	0.581	0.737	0.721	0.611			
	Front	0.265	0.109	0.091	0.167	0.155	0.392	0.021	0.080	0.030	0.144	0.393	0.561	0.529	0.766	0.395	0.454	0.404	0.787	0.846	0.796	0.518	0.539	0.598	0.548				
Hotspot (1-g SAR)	Front	0.657	0.302	0.423	0.343	0.281	0.530	0.453	0.318	0.106	1.382	1.302	1.240	1.489	1.412	1.277	1.065	1.942	1.807	1.595									
	Front	0.322	0.180	0.423	0.343	0.202	0.111	0.042	0.198	0.061	0.925	0.845	0.704	0.613	0.544	0.700	0.563	0.655	0.811	0.674									
	Edge 1	0.230	0.044	0.053	0.077	0.026	0.017																						
	Edge 2	0.363																											
	Edge 3	0.227																											
	Edge 4	0.178	0.637	0.423	0.426	0.331	0.153	0.003	0.311	0.102	1.238	1.241	1.146	0.967	0.818	1.126	0.917	0.970	1.278	1.069									
Product Specific 10+g (10-g SAR)	Rear																												
	Front																												
	Edge 1																												
	Edge 2																												
	Edge 3																												
	Edge 4																												

RF Exposure	Test Position	Standalone SAR (W/kg)												Sum of SAR (W/kg)														
		Non-RSDB scenarios												1+g or 10g														
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO (S0H2)	BT Ant.1	BT Ant.2	BT MIMO	UNI MIMO (S0H2)	WWAN+	DTS Ant.1*	DTS MIMO*	UNI MIMO*	WWAN+	DTS Ant.1*	DTS MIMO*	UNI MIMO*	WWAN+	DTS MIMO*	UNI MIMO*	WWAN+	DTS MIMO*	UNI MIMO*	WWAN+	DTS MIMO*	UNI MIMO*	
Head (1-g SAR)	Right Touch	0.204	0.473			0.653	0.283				1+5+7	1.813																
	Right Tilt	0.473				0.653					5+7	0.938	8.9	0.10	Yes													
	Hybrid SPLSR Note.3	0.204				0.944					1+4+5	1.148	65.3	0.02	No													
	Hotspot (1-g SAR)	0.657	0.302			0.530	0.453				1+5+6	0.832	11.8	0.06	Yes													
	Hybrid SPLSR Note.5	0.657				0.811					5+6	0.983	18.8	0.05	No													
	Hotspot (1-g SAR)	0.657	0.302			0.530	0.318				1+5+6+8	1.468	137.6	0.01	No													
Hybrid SPLSR Note.3	Front	0.657	0.302			0.530					1+5+7	1.807																
	Front	0.302				0.530					5+7	0.832	11.8	0.06	Yes													
	Hybrid SPLSR Note.5	0.657				0.739					5+6	0.848	34.5	0.02	No													
	Hotspot (1-g SAR)	0.657	0.302			0.530					1+5+6+8	1.396	137.6	0.01	No													
	Hybrid SPLSR Note.3	0.657				0.645					1+5+6+8	1.302	137.6	0.01	No													
	Hybrid SPLSR Note.5	0.657				0.645					1+5+6+8	1.302	137.6	0.01	No													

### Note(s):

- Green value is estimated SAR value.
- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.21 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 & 1+6) are a subset of (1+5+6) scenario.
- Simultaneous transmission scenarios (1+5 & 1+7) are a subset of (1+5+7) scenario.
- WiFi/BT & Volume scan results were referred to Original report.

#### **12.18. Sum of the SAR for ENDC(LTE B25 + NR Bn77(Ant. G Voice/Data/SRS 0)) & Wi-Fi & BT**

## Non-RSDB scenarios

## RSDB scenarios

**Note(s):**

1. Green value is estimated SAR value.
  2. SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.21 for detailed Volume Scan Result.
  3. 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.
  4. Simultaneous transmission scenarios (1+5 & 1+6) are a subset of (1+5+6) scenario.
  5. Simultaneous transmission scenarios (1+5 & 1+7) are a subset of (1+5+7) scenario.
  6. WiFi/BT & Volume scan results were referred to Original report.

## 12.19. Sum of the SAR for ENDC(LTE B66 + NR Bn77(Ant. G Voice/Data/SRS 0)) & Wi-Fi & BT

### Non-RSDB scenarios

RF Exposure	Test Position	Standalone SAR (W/kg)										Sum of SAR (W/kg)														
		Non-RSDB scenarios										Sum of SAR (W/kg)														
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO (GHz)	BT MIMO (GHz)	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	WWAN+ BT Ant.1	WWAN+ BT Ant.2	WWAN+ BT MIMO	WWAN+ UNI MIMO	WWAN+ BT Ant.1	WWAN+ BT Ant.2	WWAN+ BT MIMO				
Head (1-g SAR)	Left Touch	0.169	0.259	0.107	0.406	0.451	0.241	0.040	0.150	0.089	0.019	0.535	0.834	0.875	0.669	0.468	0.578	0.517	0.709	0.819	0.758	0.447	0.487	0.597	0.536	
	Left Tilt	0.068	0.339	0.101	0.076	0.173	0.067	0.001	0.019	0.045	0.020	0.508	0.485	0.474	0.408	0.426	0.452	0.475	0.493	0.519	0.427	0.428	0.446	0.472		
	Right Touch	0.097	0.473	0.096	0.353	0.629	0.653	0.071	0.283	0.064	0.121	0.665	0.925	1.199	1.223	0.641	0.853	0.834	1.294	1.506	1.287	0.691	0.762	0.974	0.755	
	Right Tilt	0.066	0.333	0.080	0.086	0.238	0.117	0.048	0.057	0.046	0.017	0.479	0.485	0.637	0.516	0.447	0.456	0.445	0.564	0.573	0.562	0.416	0.464	0.473	0.462	
	Body-Worn (1-g SAR)	Rear	0.751	0.129	0.157	0.187	0.155	0.528	0.156	0.140	0.030	0.144	1.037	1.067	1.035	1.408	1.096	1.020	0.910	1.564	1.548	1.438	1.024	1.180	1.164	1.054
	Front	0.450	0.109	0.019	0.167	0.155	0.362	0.021	0.080	0.030	0.144	0.578	0.746	0.714	0.951	0.639	0.639	0.972	1.031	0.981	0.703	0.724	0.783	0.733		
Hotspot (1-g SAR)	Rear	0.686	0.302	0.423	0.349	0.281	0.530	0.453	0.318	0.106	1.411	1.331	1.269	1.518	1.441	1.306	1.094	1.971	1.636	1.624						
	Front	0.418	0.180	0.423	0.349	0.202	0.111	0.042	0.198	0.061	1.021	0.941	0.800	0.709	0.640	0.798	0.659	0.751	0.907	0.770						
	Edge 1	0.230	0.044			0.053	0.077	0.026	0.017																	
	Edge 2	0.049																								
	Edge 3	1.087																								
	Edge 4	0.095	0.637	0.423	0.426	0.331	0.152	0.003	0.311	0.102	1.155	1.158	1.063	0.884	0.735	1.043	0.934	0.887	1.195	0.986					1.851	
Product Specific 10-g (10-g SAR)	Rear	1.547					2.288			0.394					3.833											
	Front	1.547					1.270			0.092																
	Edge 1	1.262								0.019																
	Edge 2	1.262																								
	Edge 3	1.952																								
	Edge 4						1.437			0.059																
<b>SAR to Peak Location Separation Ratio (SPLSR)</b>		Standalone SAR (W/kg)										Sum of SAR (W/kg)														
RF Exposure	Test Position	WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNI MIMO (GHz)	BT MIMO (GHz)	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	WWAN+ BT Ant.1	WWAN+ BT Ant.2	WWAN+ BT MIMO	WWAN+ UNI MIMO	WWAN+ BT Ant.1	WWAN+ BT Ant.2	WWAN+ BT MIMO				
		1a	1b	2	3	4	5	6	7	8	9	1a+1b+5+6	1a+1b+5+7	1a+1b+5+8	1a+1b+5+9	1a+1b+5+10	1a+1b+5+11	1a+1b+5+12	1a+1b+5+13	1a+1b+5+14	1a+1b+5+15	1a+1b+5+16				
Hotspot (1-g SAR)	Rear	0.686	0.302			0.530	0.453					1a+1b+5+6	1.971												0.811	
	Front		0.302			0.530	0.453					1a+1b+5+6	0.832	11.8	0.06	Yes									34	
Hybrid SPLSR Note.3	Rear	0.686				0.811						1a+1b+5+6	1.497	151.4	0.01	No									35	
	Front	0.686	0.302			0.530	0.318					1a+1b+5+7	1.838												36	
Hotspot (1-g SAR)	Edge 1	0.302				0.530	0.318					1a+1b+5+7	0.832	11.8	0.06	Yes										
	Edge 2	0.302				0.530	0.318					1a+1b+5+7	0.845	34.5	0.02	No										
Hybrid SPLSR Note.3	Edge 3	0.686				0.739						1a+1b+5+7	1.425	151.4	0.01	No										
	Edge 4	0.686	0.302			0.530	0.106					1a+1b+5+8	1.331	151.4	0.01	No										
<b>Note(s):</b>																										
1. Green value is estimated SAR value.																										
2. SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.21 for detailed Volume Scan Result.																										
3. 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.																										
4. Simultaneous transmission scenarios (1+5 & 1+6) are a subset of (1+5+6) scenario.																										
5. Simultaneous transmission scenarios (1+5 & 1+7) are a subset of (1+5+7) scenario.																										
6. WiFi/BT & Volume scan results were referred to Original report.																										

## 12.20. Volume Scan Results

### Volume Scan Results

RF Exposure	Test Position	Configuration	Band	Original Measured SAR (W/kg)	Volume Scan Result	Plot No.	Multi-Band Combined factor	Multi-Band Combined Result	Plot No.
Head	Left Tilt	LTE Band 66 + NR Band n41	LTE Band 66	0.055	0.052	1	1.242	0.942	26
			NR Band n41	0.893	0.752	2	1.236		
	Right Touch	NR Band n77 + UNII MIMO + BT Ant 2	NR Band n77	0.440	0.442	3	1.074	0.944	27
			UNII MIMO	0.493	0.498	4	1.324		
			BT Ant 2	0.200	0.180	5	1.413		
	NR Band n77 + DTS Ant 2 RSDB + UNII MIMO	NR Band n77	0.440	0.442		1.074	0.903	28	
		DTS Ant 2 RSDB	0.180	0.176	6	1.172			
		UNII MIMO	0.493	0.498		1.324			
	NR Band n77 + DTS MIMO RSDB + UNII MIMO	NR Band n77	0.440	0.442		1.074	0.908	29	
		DTS MIMO RSDB	0.169	0.161	7	1.321			
		UNII MIMO	0.493	0.498		1.324			
Hotspot	Rear 10mm	LTE Band 26(LTE Band 5) + NR Band n25(NR Band n2)	LTE Band 26(LTE Band 5)	0.496	0.486	8	1.227	0.933	30
			NR Band n25(NR Band n2)	0.492	0.426	9	1.091		
		LTE Band 12 + NR Band n25	LTE Band 12	0.317	0.312	10	1.317	0.729	31
			NR Band n25	0.492	0.426		1.091		
		LTE Band 13 + NR Band n25	LTE Band 13	0.564	0.476	11	1.164	0.853	32
			NR Band n25	0.492	0.426		1.091		
		UNII MIMO + BT Ant 1 + NR Band n41	UNII MIMO	0.389	0.362	12	1.361	0.922	33
			BT Ant 1	0.258	0.257	13	1.754		
			NR Band n41	0.228	0.175	14	1.236		
		UNII MIMO + BT Ant 2 + NR Band n41	UNII MIMO	0.389	0.362		1.361	0.817	34
			BT Ant 2	0.183	0.170	15	1.737		
			NR Band n41	0.228	0.175		1.236		
		UNII MIMO + BT MIMO + NR Band n41	UNII MIMO	0.389	0.362		1.361	0.731	35
			BT MIMO	0.069	0.066	16	1.536		
			NR Band n41	0.228	0.175		1.236		
		DTS Ant 1 RSDB + UNII MIMO	DTS Ant 1 RSDB	0.199	0.158	17	1.241	0.335	36
			UNII MIMO RSDB	0.184	0.175	18	1.161		
			DTS MIMO RSDB	0.217	0.194	19	1.451	0.441	37
		DTS MIMO RSDB + UNII MIMO	UNII MIMO RSDB	0.184	0.175		1.161		
			DTS Ant 2 RSDB	0.187	0.194	20	1.122	0.302	38
			UNII MIMO RSDB	0.184	0.175		1.161		
		UNII MIMO + BT Ant 1 + NR Band n77	UNII MIMO	0.389	0.362		1.361	0.811	39
			BT Ant 1	0.258	0.257		1.754		
			NR Band n77	0.239	0.223	21	1.265		
		UNII MIMO + BT Ant 2 + NR Band n77	UNII MIMO	0.389	0.362		1.361	0.739	40
			BT Ant 2	0.183	0.170		1.737		
			NR Band n77	0.239	0.223		1.265		
		UNII MIMO + BT MIMO + NR Band n77	UNII MIMO	0.389	0.362		1.361	0.645	41
			BT MIMO	0.069	0.066		1.536		
			NR Band n77	0.239	0.223		1.265		
	Edge 3 10mm	LTE Band 26(LTE Band 5) + NR Band n25(NR Band n2)	LTE Band 26(LTE Band 5)	0.232	0.227	22	1.227	1.380	42
			NR Band n25(NR Band n2)	1.120	1.030	23	1.069		
		LTE Band 12 + NR Band n25	LTE Band 12	0.095	0.089	24	1.317	1.220	43
			NR Band n25	1.120	1.030		1.069		
		LTE Band 13 + NR Band n25	LTE Band 13	0.195	0.161	25	1.164	1.280	44
			NR Band n25	1.120	1.030		1.069		

#### Note(s):

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

#### 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)".

## Appendices

Refer to separated files for the following appendixes.

**4790264492-S1 FCC Report SAR\_App A\_Photos & Ant. Locations**

**4790264492-S1 FCC Report SAR\_App B\_Highest SAR Test Plots**

**4790264492-S1 FCC Report SAR\_App C\_System Check Plots**

**4790264492-S1 FCC Report SAR\_App D\_SAR Tissue Ingredients**

**4790264492-S1 FCC Report SAR\_App E\_Probe Cal. Certificates**

**4790264492-S1 FCC Report SAR\_App F\_Dipole Cal. Certificates**

**4790264492-S1 FCC Report SAR\_App G\_Proximity Sensor feature**

**4790264492-S1 FCC Report SAR\_App H\_SPLSR criteria plots**

**4790264492-S1 FCC Report SAR\_App I\_Volume Scan Results**

**END OF REPORT**