



FCC 47 CFR § 2.1093
IEEE Std 1528-2013

SAR EVALUATION REPORT

FOR

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

MODEL NUMBER: SM-A546U, SM-A546U1, SM-S546VL

FCC ID: A3LSMA546U

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Testing Laboratory

TL-637

Revision History

Rev.	Date	Revisions	Revised By
V1	1/20/2023	Initial Issue	--
V2	1/25/2023	Revised Pmax target of NR Band n77 SRS2 PC2 in Section.6.3 & 6.4. Revised RSI=3 Maximum tune-up limit of WCDMA Band II & IV in Sec.6.5 Revised WLAN Antenna in Sec.7 Revised RSI of LTE Band 41 (Power class 2) in Sec.9.3 Revised NR Band n41 (Power class 2) in Sec 10.25 Revised description of algorithm in Sec.12	Jeongyeon Won
V3	2/1/2023	Added DTS & UNII Duty Plot in Sec.9.5 and 9.6	Jeongyeon Won

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1. Attestation of Test Results

Applicant Name		SAMSUNG ELECTRONICS CO.,LTD.					
FCC ID		A3LSMA546U					
Model Number		SM-A546U, SM-A546U1, SM-S546VL					
Applicable Standards		FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures					
Exposure Category		SAR Limits (W/Kg)					
		Peak spatial-average (1g of tissue)			Product Specific 10g (10g of tissue)		
General population / Uncontrolled exposure		1.6			4.0		
RF Exposure Conditions		Equipment Class - The Highest <i>Reported</i> SAR (W/kg)					
		PCE	CBE	DTS	NII	DSS	DXX
Head		0.68	0.81	0.26	0.14	0.12	N/A
Body-worn		0.67	0.17	0.24	0.23	0.03	N/A
Hotspot		1.06	0.41	0.46	0.16	0.08	N/A
Product Specific 10g		2.60	N/A	N/A	1.39	N/A	0.03
Simultaneous TX	Head	1.28		1.28	1.12	1.12	N/A
	Body-worn	1.05		0.97	1.05	1.05	N/A
	Hotspot	1.44		1.44	1.14	1.14	N/A
	Product Specific 10g	2.60		N/A	2.60	N/A	2.60
Date Tested		12/1/2022 to 1/20/2023					
Test Results		Pass					
<p>UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.</p> <p>Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.</p>							
Approved & Released By:				Prepared By:			
							
Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory				Jeongyeon Won Laboratory Engineer UL Korea, Ltd. Suwon Laboratory			

1.1. The Highest Reported SAR Results

Equipment Class	Band	Antenna	The Highest Reported SAR (W/kg) of RF exposure conditions			
			1g of tissue			10g of tissue
			Head Exposure	Body-worn Exposure	Hotspot Exposure	Product Specific Exposure
PCE	GSM 850	Main.1 Ant	0.448	0.372	0.838	N/A
	GSM 1900	Main.2 Ant	0.211	0.375	0.912	N/A
	WCDMA Band II	Main.2 Ant	0.395	0.664	0.602	N/A
	WCDMA Band IV	Main.2 Ant	0.425	0.666	0.491	N/A
	WCDMA Band V	Main.1 Ant	0.338	0.338	0.673	N/A
	LTE Band 2	Sub.2 Ant	0.534	0.103	0.391	N/A
	LTE Band 7	Main.2 Ant	0.249	0.408	0.533	N/A
	LTE Band 12	Main.1 Ant	0.263	0.330	0.457	N/A
	LTE Band 13	Main.1 Ant	0.283	0.372	0.565	N/A
	LTE Band 14	Main.1 Ant	0.259	0.325	0.464	N/A
	LTE Band 25	Main.2 Ant	0.317	0.557	0.703	N/A
	LTE Band 26	Main.1 Ant	0.361	0.372	0.620	N/A
	LTE Band 30	Main.2 Ant	0.124	0.306	0.588	N/A
	LTE Band 38	Main.2 Ant	N/A	N/A	0.529	N/A
	LTE Band 40	Main.2 Ant	0.008	0.009	0.037	N/A
	LTE Band 41	Main.2 Ant	0.217	0.270	0.406	N/A
	LTE Band 66	Main.2 Ant	0.372	0.565	1.058	2.603
	LTE Band 66	Sub.2 Ant	0.680	0.200	0.504	N/A
	LTE Band 71	Main.1 Ant	0.282	0.349	0.407	N/A
	NR Band n5	Main.1 Ant	0.324	0.324	0.610	N/A
	NR Band n12	Main.1 Ant	0.217	0.275	0.394	N/A
	NR Band n25	Main.2 Ant	0.311	0.537	0.715	N/A
	NR Band n30	Main.2 Ant	0.160	0.263	0.717	N/A
	NR Band n41	Main.2 Ant	0.229	0.335	0.308	N/A
	NR Band n66	Main.2 Ant	0.281	0.560	0.858	1.897
	NR Band n71	Main.1 Ant	0.253	0.367	0.414	N/A
NR Band n77 (Voice/Data/SRS0)	Sub.3 Ant	0.545	0.123	0.436	N/A	
NR Band n77-SRS1	Main.2 Ant	0.005	0.023	0.134	N/A	
NR Band n77-SRS2	Sub.5 Ant	0.405	0.066	0.400	N/A	
NR Band n77-SRS3	Sub.8 Ant	0.269	<0.001	0.007	N/A	
CBE	LTE Band 48	Sub.3 Ant	0.811	0.170	0.413	N/A
	NR Band n48 (Voice/Data/SRS0)	Sub.3 Ant	0.441	0.049	0.206	N/A
	NR Band n48-SRS1	Main.2 Ant	0.004	0.051	0.151	N/A
	NR Band n48-SRS2	Sub.5 Ant	0.182	0.019	0.085	N/A
	NR Band n48-SRS3	Sub.8 Ant	0.182	0.078	0.136	N/A
DTS	2.4GHz WLAN	WiFi/BT Ant.	0.259	0.244	0.463	N/A
UNII	5GHz WLAN	WiFi/BT Ant.	0.137	0.225	0.163	1.387
DSS	Bluetooth	WiFi/BT Ant.	0.121	0.030	0.080	N/A
DXX	NFC	NFC Ant.	N/A	N/A	N/A	0.026

Note(s):

The Highest Reported SAR Results were listed for each RF exposure conditions for each supported bands based on SAR test results of Section.10.

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 D04 Interim General RF Exposure Guidance v01
- 648474 D04 Handset SAR v01r03
- 690783 D01 SAR Listings on Grants v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02
- 941225 D06 Hotspot Mode v02r01
- 941225 D07 UMPC Mini Tablet v01r02
- 971168 D01 Power Meas License Digital System v03r01

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

- [TCB workshop](#) October, 2014; RF Exposure Procedures Update (Overlapping LTE Bands)
- [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](#) 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, 2019; RF Exposure Procedures (Tissue Simulating Liquids (TSL))
- [TCB workshop](#) October, 2020; 5G RFX Policies (Intra-band and Inter-band NSA-EN-DC evaluation)
- [TCB workshop](#) April, 2022; RF Exposure Procedures (5G NR FR1 Measurement)

3. Facilities and Accreditation

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

Suwon	
SAR 1 Room	SAR 6 Room
SAR 2 Room	SAR 7 Room
SAR 3 Room	SAR 8 Room
SAR 4 Room	SAR 9 Room
SAR 5 Room	

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

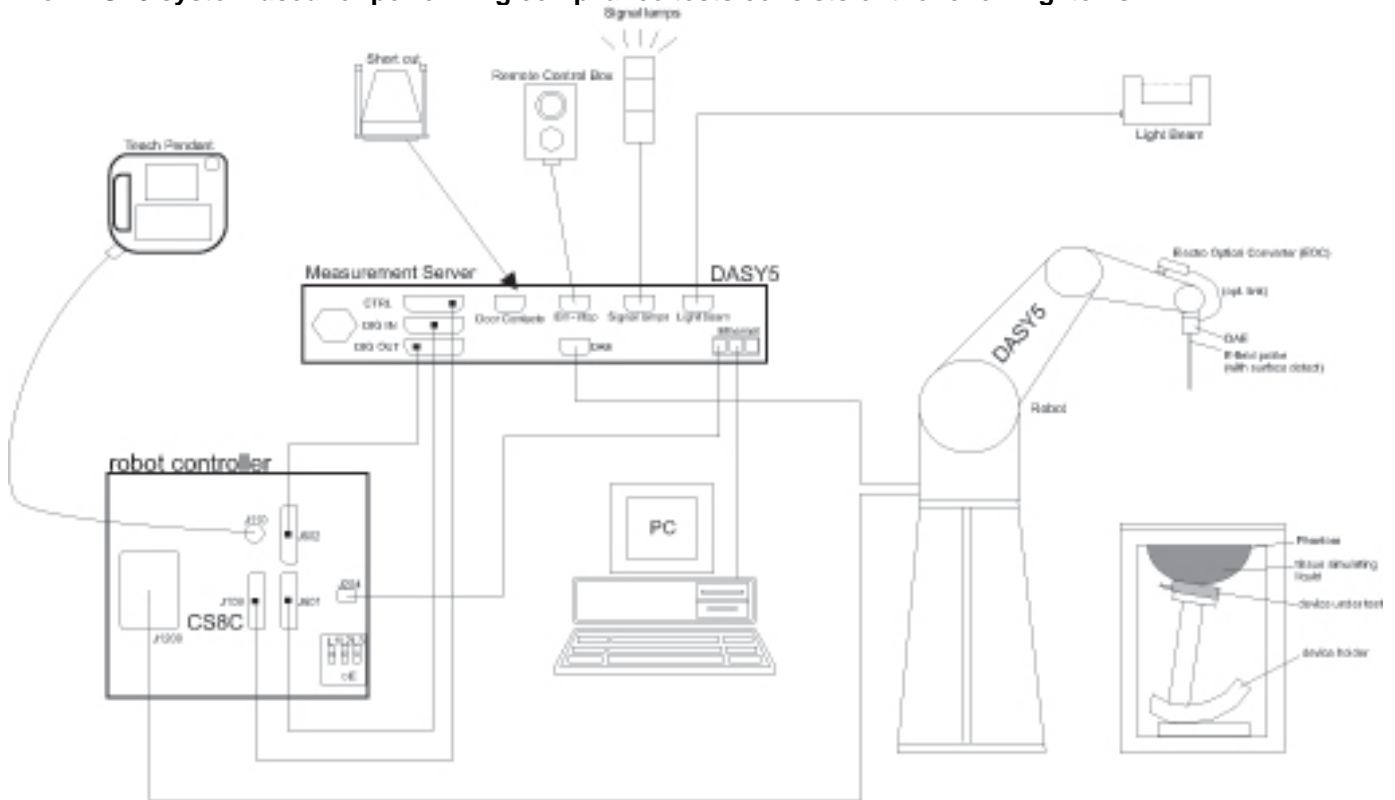
The full scope of accreditation can be viewed at;

<https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf>.

4. SAR Measurement System & Test Equipment

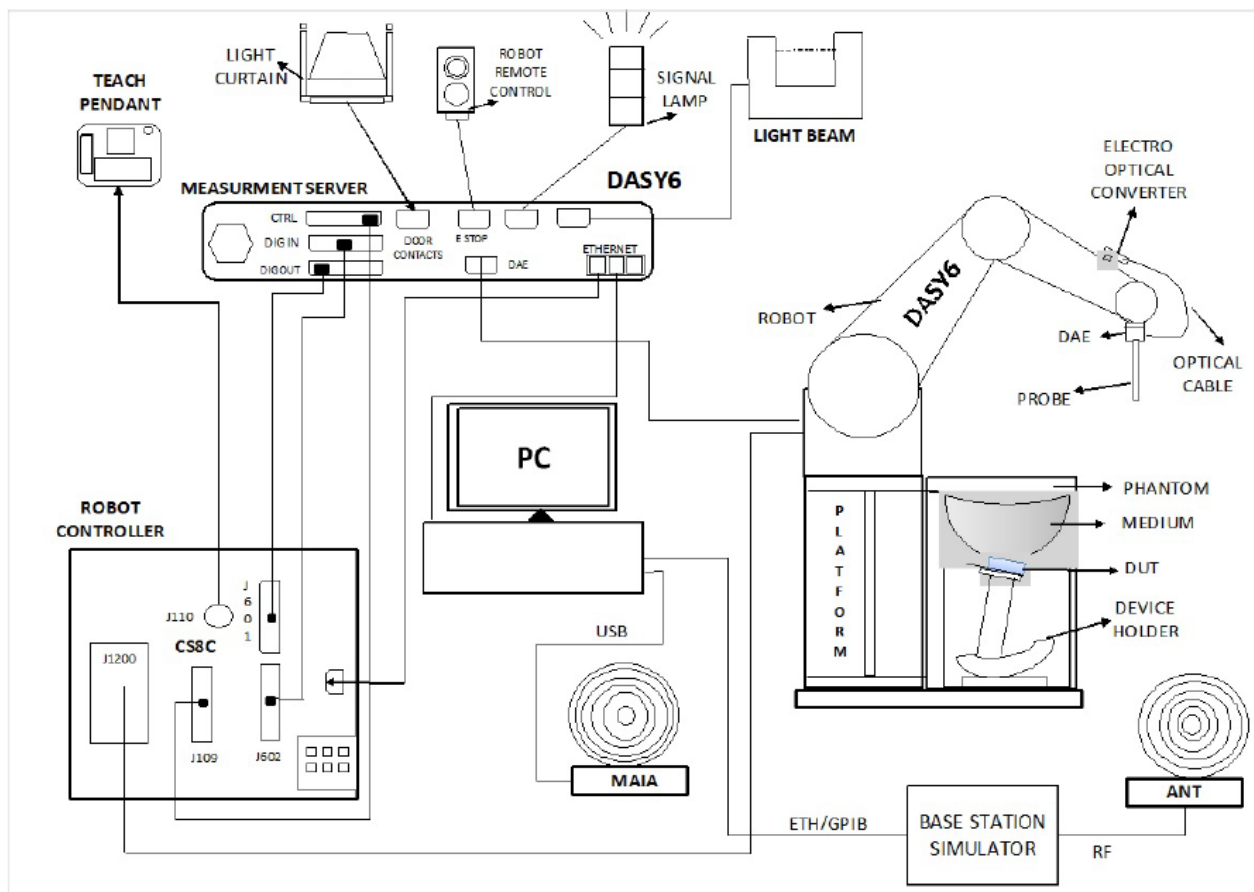
4.1. SAR Measurement System

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.

The DASY6 & 8 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 Win10 and the DASY6 or 8 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

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

Step 2: Area Scan

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

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

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

Step 3: Zoom Scan

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

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

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Step 4: Power drift measurement

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

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	8-5-2023
Network Analyzer	ROHDE & SCHWARZ	ZNB 20	102256	8-5-2023
Dielectric Assessment Kit	SPEAG	DAK-12	1158	11-17-2023
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	7-25-2023
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3851	8-3-2023
Thermometer	LKM	DTM3000	3862	8-3-2023

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8-4-2023
MXG Analog Signal Generator	Keysight	N5181B	MY59100587	8-4-2023
MXG Analog Signal Generator	Keysight	N5173B	MY59101083	8-4-2023
Power Sensor	Keysight	U2000A	MY60180020	8-3-2023
Power Sensor	Keysight	U2000A	MY60490008	8-3-2023
Power Sensor	Keysight	U2000A	MY61060004	8-3-2023
Power Sensor	Keysight	U2000A	MY61010010	8-3-2023
Power Amplifier	EXODUS	AMP2027	1410025-AMP2027-10003	11-2-2023
Power Amplifier	MINI-CIRCUITS	TVA-R5-13A+	2111006	2-15-2023
				1-6-2024
Power Amplifier	EXODUS	AMP2027ADB	10002	3-30-2023
				1-6-2024
Directional Coupler	Agilent	772D	MY52180193	8-3-2023
Directional Coupler	H.P	778D	16133	8-3-2023
Directional Coupler	NARDA	4216-10	02836	8-3-2023
Directional Coupler	MINI-CIRCUITS	ZMDC-30-1+	SF569102123	8-3-2023
Low Pass Filter	FILTRON	L14012FL	1410003S	8-3-2023
Low Pass Filter	MICROLAB	LA-60N	3942	8-3-2023
Low Pass Filter	MINI-CIRCUITS	VLF-6000+	S0142	8-2-2023
Low Pass Filter	MINI-CIRCUITS	VLF-3000+	S0143	8-2-2023
Low Pass Filter	MINI-CIRCUITS	NLP-1200	VUU19301915	8-2-2023
Attenuator	KEYSIGHT	8491B/003	MY39272276	8-3-2023
Attenuator	KEYSIGHT	8491B/010	MY39271981	8-3-2023
Attenuator	KEYSIGHT	8491B/010	MY39272011	8-2-2023
Attenuator	KEYSIGHT	8491B/020	MY39272301	8-3-2023
Attenuator	KEYSIGHT	8491B/020	MY39272302	8-2-2023
Attenuator	KEYSIGHT	8491B/003	MY39272275	8-2-2023

Test Equipment (Continued)

E-Field Probe	SPEAG	EX3DV4	7313	3-2-2023
E-Field Probe	SPEAG	EX3DV4	7330	1-28-2023
E-Field Probe	SPEAG	EX3DV4	7376	7-27-2023
E-Field Probe	SPEAG	EX3DV4	7314	5-31-2023
E-Field Probe	SPEAG	EX3DV4	7645	11-15-2023
E-Field Probe	SPEAG	EX3DV4	7651	5-30-2023
E-Field Probe	SPEAG	EX3DV4	7652	4-28-2023
E-Field Probe	SPEAG	EX3DV4	7646	3-29-2023
Data Acquisition Electronics	SPEAG	DAE4	1447	3-25-2023
Data Acquisition Electronics	SPEAG	DAE4	1468	8-18-2023
Data Acquisition Electronics	SPEAG	DAE4	1494	7-18-2023
Data Acquisition Electronics	SPEAG	DAE4	1670	6-7-2023
Data Acquisition Electronics	SPEAG	DAE4	1671	5-31-2023
Data Acquisition Electronics	SPEAG	DAE4	1667	4-27-2023
Data Acquisition Electronics	SPEAG	DAE4	1343	2023-0823
System Validation Dipole	SPEAG	D750V3	1205	4-27-2023
System Validation Dipole	SPEAG	D835V2	4d174	9-21-2023
System Validation Dipole	SPEAG	D1750V2	1125	11-30-2023
System Validation Dipole	SPEAG	D1750V2	1180	9-21-2023
System Validation Dipole	SPEAG	D1900V2	5d190	11-16-2023
System Validation Dipole	SPEAG	D1900V2	5d199	3-25-2023
System Validation Dipole	SPEAG	D2300V2	1115	4-23-2023
System Validation Dipole	SPEAG	D2450V2	960	3-24-2023
System Validation Dipole	SPEAG	D2600V2	1178	4-23-2023
System Validation Dipole	SPEAG	D2600V2	1097	9-29-2023
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	11-23-2023
System Validation Dipole	SPEAG	CLA-13	1015	8-23-2023
Thermometer	Lutron	MHB-382SD	AH.91463	8-4-2023 1-11-2024
Thermometer	Lutron	MHB-382SD	AH.50215	8-9-2023 1-9-2024
Thermometer	Lutron	MHB-382SD	AH.50213	8-4-2023 1-11-2024
Thermometer	Lutron	MHB-382SD	AH.45903	8-9-2023 1-9-2024
Thermometer	Lutron	MHB-382SD	AK.12123	8-9-2023 1-9-2024
Thermometer	Lutron	MHB-382SD	AK.18789	8-9-2023
Thermometer	Lutron	MHB-382SD	AK.12103	8-9-2023

Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	150313	8-2-2023
Base Station Simulator	R & S	CMW500	169801	1-5-2024
Base Station Simulator	R & S	CMW500	150314	8-2-2023
Base Station Simulator	R & S	CMW500	162790	8-2-2023
Base Station Simulator	R & S	CMW500	169803	5-27-2023 1-5-2024
Base Station Simulator	R & S	CMW500	169799	8-2-2023
Base Station Simulator	R & S	CMW500	169800	8-2-2023
Base Station Simulator	R & S	CMW500	169798	8-2-2023
UXM 5G Wireless Test Platform	Keysight	E7515B	MY59150850	12-13-2022 1-9-2024
UXM 5G Wireless Test Platform	Keysight	E7515B	MY58120110	1-7-2023 1-10-2024
UXM 5G Wireless Test Platform	Keysight	E7515B	MY57510596	8-5-2023
Radio Communication Test Station	Anritsu	MT8000A	6272466165	9-8-2023
Radio Communication Analyzer	Anritsu	MT8821C	6161094351	9-8-2023

Note(s):

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

3. All equipments were used until Cal.Due data.

5. Measurement Uncertainty

Measurement Uncertainty of 100MHz to 6GHz

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.

Measurement Uncertainty of 9MHz to 19MHz

Measurement uncertainty for 9 MHz to 19 MHz

(According to IEEE 62209-1528)

a	b	c		d	e f(d,k)	f	g	h = cx/f/e	l = cx/g/e	k
Uncertainty component	Reference	Tol. 1 g (±%)	Tol. 10 g (±%)	Prob. Dist.	Div.	ci (1 g)	ci (10 g)	1 g ui (± %)	10 g ui (± %)	vi
Measurement System Errors										
Probe Calibration	8.4.1.1	13.3		Normal	2	1	1	6.7	6.7	∞
Probe Calibration Drift	8.4.1.2	1.7		Rectangular	1.732	1	1	1.0	1.0	∞
Probe Linearity	8.4.1.3	4.7		Rectangular	1.732	1	1	2.7	2.7	∞
Broadband Signal	8.4.1.4	0.8		Rectangular	1.732	1	1	0.5	0.5	∞
Probe Isotropy	8.4.1.5	7.6		Rectangular	1.732	1	1	4.4	4.4	∞
Data Acquisition	8.4.1.6	0.3		Normal	1	1	1	0.3	0.3	∞
RF Ambient	8.4.1.7	1.8		Normal	1	1	1	1.8	1.8	∞
Probe Positioning	8.4.1.8	0.006		Normal	1	0.14	0.14	0.10	0.10	∞
Data Processing	8.4.1.9	1.2		Normal	1	1	1	1.2	1.2	∞
Phantom and Device Errors										
Conductivity (meas.)DAK	8.4.2.1	2.5		Normal	1	0.78	0.71	2.0	1.8	∞
Conductivity (temp.)BB	8.4.2.2	5.4		Rectangular	1.732	0.78	0.71	2.4	2.2	∞
Phantom Permittivity	8.4.2.3	14.0		Rectangular	1.732	0	0	0.0	0.0	∞
Distance DUT - TSL	8.4.2.4	2.0		Normal	1	2	2	4.0	4.0	∞
Device Positioning	8.4.2.5	0.5	0.6	Normal	1	1	1	0.5	0.6	40
Device Holder	8.4.2.6	3.6		Normal	1	1	1	3.6	3.6	∞
DUT Modulation	8.4.2.7	2.4		Rectangular	1.732	1	1	1.4	1.4	∞
Time-average SAR	8.4.2.8	1.7		Rectangular	1.732	1	1	1.0	1.0	∞
DUT drift	8.4.2.9	5.0		Normal	1	1	1	5.0	5.0	∞
Correction to the SAR results										
Deviation to Target	8.4.3.1	1.9		Normal	1	1	0.84	1.9	1.6	∞
Combined Standard Uncertainty U _c (y) =								RSS	12.13	12.02
Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence =								24.26	24.05	

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	No.	S/N	Notes	No.	S/N	Notes
	1	R3CTA0LSXSX	Main Conducted	13	653ca5bcfa357ece	SAR
	2	R3CTA0LSXEE	Main Conducted	14	R3CTB0F5XPA	SAR
	3	R3CTB0F5X3M	Main Conducted			
	4	R3CTB0F65VJ	Main Conducted			
	5	R3CTB0F585X	Main Conducted			
	6	R3CTA0LX0FT	Wi-Fi & BT Conducted			
	7	R3CTB0F5SYJ	Wi-Fi & BT Conducted			
	8	R3CTB0F5WLA	SAR			
	9	R3CTA0LT18W	SAR			
	10	R3CTA0LT0QW	SAR			
	11	R3CTA0LT0NE	SAR			
	12	R3CTA0LT1AZ	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	GSM Voice: 12.5% (E)GPRS: 1 Slot: 12.5% 2 Slots: 25% 3 Slots: 37.5% 4 Slots: 50%
	Does this device support DTM (Dual Transfer Mode)? <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 14) HSUPA (Category 6) DC-HSDPA (Category 14) HSPA+ (DL only)		100%
LTE	FDD Bands : 2, 4, 5, 7, 12, 13, 14, 25 26, 30, 66, 71 TDD Bands 38, 40, 41-PC3, 41-PC2, 48	QPSK 16QAM 64QAM 256QAM Rel. 16 Carrier Aggregation (2 Uplink and 4 Downlinks) <u>Uplink Carrier Aggregation(2CC)</u> CA_41C & CA_48C		100% (FDD) 63.3% (TDD) 43.3% (TDD)
	Does this device support SV-LTE (1xRTT-LTE)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5G NR (Sub 6)	FDD Bands : n2, n5, n12, n25, n30, n66, n71 TDD Bands n41-PC3, n41-PC2, n48 n77-PC3, n77-PC2	DFT-s-OFDM: ■ $\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: ■ QPSK, 16QAM, 64QAM, 256QAM		100%
Wi-Fi	2.4 GHz	802.11b, 802.11g, 802.11n (HT20), 802.11ax (HE20)		98.7% (802.11b)
	5 GHz	802.11a / 802.11n (HT20/40) 802.11ac (VHT20/40/80) 802.11ax (HE20/40/80)		96.0% (802.11a) 95.2% (802.11ac (VHT80))
	Does this device support bands 5.60 ~ 5.65 GHz? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Does this device support Band gap channel(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Bluetooth	2.4 GHz	Version 5.3 LE		77.1%
NFC	13.56 MHz	Type A/B/F		100%

Notes:

- The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle and was considered and used for SAR Testing.
- This device supports Power Class 2 (HPUE) and Power Class 3.
- This device supports UL CA Intra-band Continues.
- NR TDD Band n48 & n77 has support SRS (Sounding Reference Signal) 0/1/2/3 operates.

6.3. Time-Averaging feature

The equipment under test (EUT) contains the Samsung S.LSI chipset supporting 4G technologies and 5G NR bands (Sub.6 & mmW). these chipset is enabled with TAS (Time Average SAR) algorithm to control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is in compliance with the FCC requirement.

The TAS (Time Average SAR) algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR_{design_target}, below the predefined time-average power limit, for each characterized technology and band.

TAS (Time Average SAR) algorithm allows the device to transmit at higher power instantaneously as high as P_{max}, when needed, but enforces power limiting to maintain time-averaged transmit power to P_{Limit}. Below table shows P_{Limit} NV settings and maximum tune up output power P_{max} configured for this EUT for various transmit conditions (RSI=Radio SAR Index).

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

Exposure condition		Body-Worn	Product Specific 10-g Without triggering sensor	Product Specific 10-g With triggering sensor	Head (RCV)	Hotspot	Ear-jack	P _{max} (Maximum tune-up Power) (dBm)
Spatial-average		1g	10g	10g	1g	1g	10g	
Test distance (mm)		15	11/7/0/13	0	0	10	0	
RSI:		0	0	2	4	3	1	
RF Air Interface	Antenna	P _{limit} (all values are time averaged)						
GSM 850	Main.1	24.98	24.98	24.98	24.98	24.98	21.48	24.98
GSM 1900	Main.2	20.99	20.99	20.99	20.99	20.99	20.99	20.99
WCDMA Band II	Main.2	23.00	23.00	21.00	23.00	21.00	21.00	23.00
WCDMA Band IV	Main.1	23.00	23.00	20.50	23.00	20.50	20.50	23.00
WCDMA Band V	Main.1	24.00	24.00	24.00	24.00	24.00	24.00	24.00
LTE Band 2	Sub.2	21.00	21.00	21.00	20.00	21.00	21.00	21.00
LTE Band 5	Main.1	24.50	24.50	24.50	24.50	24.50	24.50	24.50
LTE Band 7	Main.2	23.00	23.00	20.00	23.00	20.00	20.00	23.00
LTE Band 12	Main.1	24.00	24.00	24.00	24.00	24.00	24.00	24.00
LTE Band 13	Main.1	24.00	24.00	24.00	24.00	24.00	24.00	24.00
LTE Band 14	Main.1	24.00	24.00	24.00	24.00	24.00	24.00	24.00
LTE Band 25(2)	Main.2	24.00	24.00	22.00	24.00	22.00	22.00	24.00
LTE Band 26	Main.1	24.50	24.50	24.50	24.50	24.50	24.50	24.50
LTE Band 30	Main.2	23.00	23.00	23.00	23.00	23.00	23.00	23.00
LTE Band 38	Main.2	21.00	21.00	21.00	21.00	21.00	21.00	21.00
LTE Band 40	Main.2	11.00	11.00	11.00	11.00	11.00	11.00	11.00
LTE Band 41-PC3	Main.2	21.00	21.00	19.00	21.00	19.00	19.00	21.00
LTE Band 41-PC2	Main.2	22.40	22.40	18.40	22.40	18.40	18.40	22.40
LTE Band 48	Sub.3	18.00	18.00	18.00	17.50	18.00	18.00	21.00
LTE Band 66(4)	Main.2	24.00	24.00	22.00	24.00	22.00	22.00	24.00
LTE Band 66	Sub.2	20.50	20.50	20.50	19.50	20.50	20.50	20.50
LTE Band 71	Main.1	24.50	24.50	24.50	24.50	24.50	24.50	24.50
NR Band n5	Main.1	24.50	24.50	24.50	24.50	24.50	24.50	24.50
NR Band n12	Main.1	24.00	24.00	24.00	24.00	24.00	24.00	24.00
NR Band n25(2)	Main.2	24.00	24.00	22.00	24.00	22.00	22.00	24.00
NR Band n30	Main.2	23.00	23.00	23.00	23.00	23.00	23.00	23.00
NR Band n66	Main.2	24.00	24.00	22.00	24.00	22.00	22.00	24.00
NR Band n71	Main.1	24.50	24.50	24.50	24.50	24.50	24.50	24.50
NR Band n41(PC3)	Main.2	17.00	17.00	16.00	17.00	16.00	16.00	23.00
NR Band n41(PC2)	Main.2	20.00	20.00	16.00	20.00	16.00	16.00	26.00
NR Band n48 -SRS 0-	Sub.3	14.00	14.00	14.00	13.00	14.00	14.00	23.00
NR Band n48 -SRS 1-	Main.2	14.50	14.50	14.50	13.50	14.50	14.50	23.00
NR Band n48 -SRS 2-	Sub.5	14.00	14.00	14.00	13.00	14.00	14.00	22.50
NR Band n48 -SRS 3-	Sub.8	14.00	14.00	14.00	12.00	14.00	14.00	22.00
NR Band n77 -SRS 0-PC3/PC2	Sub.3	15.00	15.00	15.00	15.00	15.00	15.00	22.20 / 27.00
NR Band n77 -SRS 1-PC3/PC2 (DoD)	Main.2	13.00	13.00	13.00	13.00	13.00	13.00	19.50
NR Band n77 -SRS 1-PC3/PC2	Main.2	15.00	15.00	15.00	15.00	15.00	15.00	19.50
NR Band n77 -SRS 2-PC3/PC2	Sub.5	15.00	15.00	15.00	15.00	15.00	15.00	21.00
NR Band n77 -SRS 3-PC3/PC2	Sub.8	15.00	15.00	15.00	15.00	15.00	15.00	18.50

Notes:

1. All P_{Limit} EFS and maximum tune up output P_{max} levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes (for e.g., GSM/LTE TDD). NR TDD's P_{max} was listed as burst power.
2. Maximum tune up output power P_{max} is used to configure EUT during RF tune up procedures. The maximum allowed output power is equal to maximum tune up output power + 1dB device design uncertainty.
3. Measurement Condition : All conducted power and SAR measurements in this SAR report were performed by setting static Power condition.
4. If P_{Limit} is higher than P_{max} for some modes / bands, The modes/bands will operate at a power level up to P_{max}.
5. The 2G/3G technologies are not controlled by the TAS algorithm. But SAR test were considered to determine which P_{Limit} satisfies SAR_{design_target} in each RSIs.

6.4. Maximum Allowed Output power

Maximum allowed output power means that Pmax or PLimit + 1dB device uncertainty for each RSI.

RF Air interface	Antenna	Mode	Time Slots	Maximum allowed output power (dBm)											
				Pmax		Plimit									
						RSI = 0 (Body-worn & Sensor Off)		RSI = 2 (Proximity sensor On)		RSI = 4 (Head-RCV On)		RSI = 3 (Hotspot)		RSI = 1 (Earjack)	
						Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM850	Main.1 Ant.	Voice	1	33.50	24.47	33.50	24.47	33.50	24.47	33.50	24.47	33.50	24.47	30.00	20.97
		GPRS	1	33.50	24.47	33.50	24.47	33.50	24.47	33.50	24.47	33.50	24.47	30.00	20.97
		GPRS	2	32.00	25.98	32.00	25.98	32.00	25.98	32.00	25.98	32.00	25.98	28.50	22.48
		GPRS	3	30.00	25.74	30.00	25.74	30.00	25.74	30.00	25.74	30.00	25.74	26.50	22.24
		GPRS	4	28.00	24.99	28.00	24.99	28.00	24.99	28.00	24.99	28.00	24.99	24.50	21.49
		EGPRS	1	27.50	18.47	27.50	18.47	27.50	18.47	27.50	18.47	27.50	18.47	27.00	17.97
		EGPRS	2	26.00	19.98	26.00	19.98	26.00	19.98	26.00	19.98	26.00	19.98	25.50	19.48
		EGPRS	3	24.00	19.74	24.00	19.74	24.00	19.74	24.00	19.74	24.00	19.74	23.50	19.24
		EGPRS	4	22.50	19.49	22.50	19.49	22.50	19.49	22.50	19.49	22.50	19.49	22.00	18.99
GSM1900	Main.2 Ant.	Voice	1	31.00	21.97	31.00	21.97	31.00	21.97	31.00	21.97	31.00	21.97	31.00	21.97
		GPRS	1	31.00	21.97	31.00	21.97	31.00	21.97	31.00	21.97	31.00	21.97	31.00	21.97
		GPRS	2	28.00	21.98	28.00	21.98	28.00	21.98	28.00	21.98	28.00	21.98	28.00	21.98
		GPRS	3	26.00	21.74	26.00	21.74	26.00	21.74	26.00	21.74	26.00	21.74	26.00	21.74
		GPRS	4	25.00	21.99	25.00	21.99	25.00	21.99	25.00	21.99	25.00	21.99	25.00	21.99
		EGPRS	1	27.00	17.97	27.00	17.97	27.00	17.97	27.00	17.97	27.00	17.97	27.00	17.97
		EGPRS	2	25.50	19.48	25.50	19.48	25.50	19.48	25.50	19.48	25.50	19.48	25.50	19.48
		EGPRS	3	23.00	18.74	23.00	18.74	23.00	18.74	23.00	18.74	23.00	18.74	23.00	18.74
		EGPRS	4	22.00	18.99	22.00	18.99	22.00	18.99	22.00	18.99	22.00	18.99	22.00	18.99

RF Air interface	Antenna	Mode	Maximum allowed output power (dBm)					
			Pmax	Plimit				
				RSI = 0 (Body-worn & Sensor Off)	RSI = 2 (Proximity sensor On)	RSI = 4 (Head-RCV On)	RSI = 3 (Hotspot)	RSI = 1 (Earjack)
W-CDMA Band II	Main.2 Ant.	R99	24.00	24.00	22.00	24.00	22.00	22.00
		HSDPA	23.50	23.50	22.00	23.50	22.00	22.00
		HSUPA	23.50	23.50	22.00	23.50	22.00	22.00
		DC-HSDPA	23.50	23.50	22.00	23.50	22.00	22.00
W-CDMA Band IV	Main.2 Ant.	R99	24.00	24.00	21.50	24.00	21.50	21.50
		HSDPA	23.50	23.50	21.50	23.50	21.50	21.50
		HSUPA	23.50	23.50	21.50	23.50	21.50	21.50
		DC-HSDPA	23.50	23.50	21.50	23.50	21.50	21.50
W-CDMA Band V	Main.1 Ant.	R99	25.00	25.00	25.00	25.00	25.00	25.00
		HSDPA	23.50	23.50	23.50	23.50	23.50	23.50
		HSUPA	23.50	23.50	23.50	23.50	23.50	23.50
		DC-HSDPA	23.00	23.00	23.00	23.00	23.00	23.00

Note(s):

1. Detail of RSI(Radio SAR Index) conditions, please refer to Sec.6.5.

RF Air interface	Antenna	Mode	Maximum allowed output power (dBm)					
			Pmax	Plimit				
				RSI = 0 (Body-worn & Sensor Off)	RSI = 2 (Proximity sensor On)	RSI = 4 (Head-RCV On)	RSI = 3 (Hotspot)	RSI = 1 (Earjack)
LTE Band 2	Main.2 Ant	QPSK	25.00	25.00	23.00	25.00	23.00	23.00
LTE Band 2	Sub.2 Ant	QPSK	22.00	22.00	22.00	21.00	22.00	22.00
LTE Band 4	Main.2 Ant	QPSK	25.00	25.00	23.00	25.00	23.00	23.00
LTE Band 5	Main.1 Ant	QPSK	25.50	25.50	25.50	25.50	25.50	25.50
LTE Band 7	Main.2 Ant	QPSK	24.00	24.00	21.00	24.00	21.00	21.00
LTE Band 12	Main.1 Ant	QPSK	25.00	25.00	25.00	25.00	25.00	25.00
LTE Band 13	Main.1 Ant	QPSK	25.00	25.00	25.00	25.00	25.00	25.00
LTE Band 14	Main.1 Ant	QPSK	25.00	25.00	25.00	25.00	25.00	25.00
LTE Band 25	Main.2 Ant	QPSK	25.00	25.00	23.00	25.00	23.00	23.00
LTE Band 26	Main.1 Ant	QPSK	25.50	25.50	25.50	25.50	25.50	25.50
LTE Band 30	Main.2 Ant	QPSK	24.00	24.00	24.00	24.00	24.00	24.00
LTE Band 38	Main.2 Ant	QPSK	24.00	24.00	24.00	24.00	24.00	24.00
LTE Band 40	Main.2 Ant	QPSK	14.00	14.00	14.00	14.00	14.00	14.00
LTE Band 41-PC3	Main.2 Ant	QPSK	24.00	24.00	22.00	24.00	22.00	22.00
LTE Band 41-PC2	Main.2 Ant	QPSK	27.00	27.00	23.00	27.00	23.00	23.00
LTE Band 48	Sub.3 Ant	QPSK	24.00	21.00	21.00	20.50	21.00	21.00
LTE Band 66	Main.2 Ant	QPSK	25.00	25.00	23.00	25.00	23.00	23.00
LTE Band 66	Sub.2 Ant	QPSK	21.50	21.50	21.50	20.50	21.50	21.50
LTE Band 71	Main.1 Ant	QPSK	25.50	25.50	25.50	25.50	25.50	25.50

Note(s):

1. Detail of RSI(Radio SAR Index) conditions, please refer to Sec.6.5.
2. LTE Band 41, 48 has support UL CA intra-band-continues mode with same target power in each standalone LTE bands. Details of configuration are refer to Appendix.H.

RF Air interface	Antenna	Mode	Maximum allowed output power (dBm)					
			Pmax	Plimit				
				RSI = 0 (Body-worn & Sensor Off)	RSI = 2 (Proximity sensor On)	RSI = 4 (Head-RCV On)	RSI = 3 (Hotspot)	RSI = 1 (Earjack)
NR Band n2	Main.2 Ant	DFT-s-OFDM	25.00	25.00	23.00	25.00	23.00	23.00
NR Band n5	Main.1 Ant	DFT-s-OFDM	25.50	25.50	25.50	25.50	25.50	25.50
NR Band n12	Main.1 Ant	DFT-s-OFDM	25.00	25.00	25.00	25.00	25.00	25.00
NR Band n25	Main.2 Ant	DFT-s-OFDM	25.00	25.00	23.00	25.00	23.00	23.00
NR Band n30	Main.2 Ant	DFT-s-OFDM	24.00	24.00	24.00	24.00	24.00	24.00
NR Band n41-PC3	Main.2 Ant	DFT-s-OFDM	24.00	18.00	17.00	18.00	17.00	17.00
NR Band n41-PC2	Main.2 Ant	DFT-s-OFDM	27.00	21.00	17.00	21.00	17.00	17.00
NR Band n48 (Voice/Data/SRS0)	Sub.3 Ant	DFT-s-OFDM	24.00	15.00	15.00	14.00	15.00	15.00
NR Band n48 (SRS1)	Main.2 Ant	SRS CW	24.00	15.50	15.50	14.50	15.50	15.50
NR Band n48 (SRS2)	Sub.5 Ant.	SRS CW	23.50	15.00	15.00	14.00	15.00	15.00
NR Band n48 (SRS3)	Sub.8 Ant	SRS CW	23.00	15.00	15.00	13.00	15.00	15.00
NR Band n66	Main.2 Ant	DFT-s-OFDM	25.00	25.00	23.00	25.00	23.00	23.00
NR Band n71	Main.1 Ant	DFT-s-OFDM	25.50	25.50	25.50	25.50	25.50	25.50
NR Band n77-PC3 (Voice/Data/SRS0)	Sub.3 Ant	DFT-s-OFDM	23.20	16.00	16.00	16.00	16.00	16.00
NR Band n77(DoD)-PC3 (SRS1)	Main.2 Ant	SRS CW	20.50	14.00	14.00	14.00	14.00	14.00
NR Band n77-PC3 (SRS1)	Main.2 Ant	SRS CW	20.50	16.00	16.00	16.00	16.00	16.00
NR Band n77-PC3 (SRS2)	Sub.5 Ant.	SRS CW	22.00	16.00	16.00	16.00	16.00	16.00
NR Band n77-PC3 (SRS3)	Sub.8 Ant	SRS CW	19.50	16.00	16.00	16.00	16.00	16.00
NR Band n77-PC2 (Voice/Data/SRS0)	Sub.3 Ant	DFT-s-OFDM	28.00	16.00	16.00	16.00	16.00	16.00
NR Band n77(DoD)-PC2 (SRS1)	Main.2 Ant	SRS CW	20.50	14.00	14.00	14.00	14.00	14.00
NR Band n77-PC2 (SRS1)	Main.2 Ant	SRS CW	20.50	16.00	16.00	16.00	16.00	16.00
NR Band n77-PC2 (SRS2)	Sub.5 Ant.	SRS CW	22.00	16.00	16.00	16.00	16.00	16.00
NR Band n77-PC2 (SRS3)	Sub.8 Ant	SRS CW	19.50	16.00	16.00	16.00	16.00	16.00

Note(s):

1. Detail of RSI(Radio SAR Index) conditions, please refer to Sec.6.5.
2. NR Bands support SA and NSA mode as same target power.

WLAN/BT output power

Max output power

RF Air interface	Band	Max. RF Output Power (dBm)											
		SISO(Ant 1/2)						MIMO (Ant1 + Ant2)					
		802.11 mode						802.11 mode					
		a	b	g	n	ac	ax	a	b	g	n	ac	ax
WiFi 2.4 GHz	DTS		19 1ch : 18.0 11ch : 18.0	16.5 1ch : 15.0 11ch : 15.0	16.5 1ch : 15.0 11ch : 15.0		16.5 1ch : 15.0 11ch : 15.0		22 1ch : 21.0 11ch : 21.0	19.5 1ch : 18.0 11ch : 18.0	19.5 1ch : 18.0 11ch : 18.0		19.5 1ch : 18.0 11ch : 18.0
WiFi 5 GHz (BW : 20MHz)	UNII-1 & 2A	17.5			17.5	17.5	17.0	20.5			20.5	20.5	20.0
	UNII-2C	64ch : 16.0 100ch : 16.0			64ch : 16.0 100ch : 16.0	64ch : 16.0 100ch : 16.0	64ch : 16.0 100ch : 16.0	64ch : 19.0 100ch : 19.0			64ch : 19.0 100ch : 19.0	64ch : 19.0 100ch : 19.0	64ch : 19.0 100ch : 19.0
	UNII-3	140ch : 11.5			140ch : 11.5	140ch : 11.5	140ch : 11.5	140ch : 14.5			140ch : 14.5	140ch : 14.5	140ch : 14.5
WiFi 5 GHz (BW : 40MHz)	UNII-1 & 2A				14.5	14.5	14.5				17.5	17.5	17.5
	UNII-2C				62ch : 13.5	62ch : 13.5	62ch : 13.5				62ch : 16.5	62ch : 16.5	62ch : 16.5
	UNII-3												
WiFi 5 GHz (BW : 80MHz)	UNII-1 & 2A												
	UNII-2C					12.5	12.5					15.5	15.5
	UNII-3												
RF Air interface		Max. RF Output Power (dBm)											
		BDR	EDR	LE									
Bluetooth		15.5	13.0	14.0									

Reduced output power

RF Air interface	Band	Reduced. RF Output Power (dBm)											
		SISO(Ant 1/2)						MIMO (Ant1 + Ant2)					
		802.11 mode						802.11 mode					
		a	b	g	n	ac	ax	a	b	g	n	ac	ax
WiFi 2.4 GHz	DTS		13	13	13		13		16	16	16		16
WiFi 5 GHz (BW : 20MHz)	UNII Bands	11.0			11.0	11.0	11.0	14.0			14.0	14.0	14.0
WiFi 5 GHz (BW : 40MHz)	UNII Bands				11.0	11.0	11.0				14.0	14.0	14.0
WiFi 5 GHz (BW : 80MHz)	UNII Bands					11.0	11.0					14.0	14.0
RF Air interface		Reduced. RF Output Power (dBm)											
		BDR	EDR	LE									
Bluetooth		12.0	13.0	9.0									

Note(s):

1. This device uses an independent fixed level power reduction mechanism for WLAN & BT mode operations during RCV operation. Detailed descriptions of the power reduction mechanism are included in the operational description.
2. For MIMO mode, each Antennas operated same target power.

6.5. RSI (Radio SAR Index) Scenarios

This device supports multiple RSI Scenarios and Each RSIs operate to each RF exposure Conditions.

Please below table;

RF exposure Conditions	Technologies Supported	RSI conditions	Description
Head	All WWAN bands	RSI = 4	Next to the ear exposure condition. Handset's Receiver(ear piece) is active during Voice or VoIP call.
Body-worn	All WWAN bands	RSI = 0	Handset are used with body-worn accessories
Hotspot	All WWAN bands	RSI = 3	SAR test requirements for Handset with wireless router or hotspot mode capabilities.
Product Specific 10-g	All WWAN bands	RSI = 0	Hand use conditions for Handset and proximity sensor is not active.
	All WWAN bands	RSI = 2	Hand use conditions for Handset and proximity sensor is active.
	All WWAN bands	RSI = 1	Connected ear-jack

Note(s):

RSI Scenarios priority: RSI=4 → RSI=3 → RSI=1 → RSI=2 → RSI=0

Product Specific 10g Adjusted SAR Calculation

Wireless technologies	Antenna	Worst RSI's Maximum tune-up limit (dBm)	RSI = 3 Maximum tune-up limit (dBm)	Power Factor	Reported SAR Limit (W/kg)
WCDMA Band II	Main.2	24.00	22.00	1.58	0.757
WCDMA Band IV	Main.2	24.00	21.50	1.78	0.675
LTE Band 25(2)	Main.2	25.00	23.00	1.58	0.757
LTE Band 66(4)	Main.2	25.00	23.00	1.58	0.757
LTE Band 7	Main.2	24.00	21.00	2.00	0.601
LTE Band 41-PC3	Main.2	24.00	22.00	1.58	0.757
LTE Band 41-PC2	Main.2	27.00	23.00	2.51	0.478
NR Band n25/n2	Main.2	25.00	23.00	1.58	0.757
NR Band n41-PC3	Main.2	18.00	17.00	1.26	0.953
NR Band n41-PC2	Main.2	21.00	17.00	2.51	0.478
NR Band n66	Main.2	25.00	23.00	1.58	0.757

Note(s):

- 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.
- LTE 50% RB is scaled up to the Max Tune-Up Limit with MPR included.
- 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 = $1.2 \text{ W/kg} / \text{Power factor}$, Power factor = $10^{((\text{Max tune-up limit} - \text{Reduced tune-up limit})/10)}$)

6.6. General LTE SAR Test and Reporting Considerations

Item	Description						
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 2	Frequency range: 1850 - 1910 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	18700/ 1860	18675/ 1857.5	18650/ 1855	18625/ 1852.5	18615/ 1851.5	18607/ 1850.7
	Mid	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880
	High	19100/ 1900	19125/ 1902.5	19150/ 1905	19175/ 1907.5	19185/ 1908.5	19193/ 1909.3
	Band 4	Frequency range: 1710 - 1755 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20050/ 1720	20025/ 1717.5	20000/ 1715	19975/ 1712.5	19965/ 1711.5	19957/ 1710.7
	Mid	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5
	High	20300/ 1745	20325/ 1747.5	20350/ 1750	20375/ 1752.5	20385/ 1753.5	20393/ 1754.3
	Band 5	Frequency range: 824 - 849 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			20450/ 829	20425/ 826.5	20415/ 825.5	20407/ 824.7
	Mid			20525/ 836.5	20525/ 836.5	20525/ 836.5	20525/ 836.5
	High			20600/ 844	20625/ 846.5	20635/ 847.5	20643/ 848.3
	Band 7	Frequency range: 2500 - 2570 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20850/ 2510	20825/ 2507.5	20800/ 2505	20775/ 2502.5		
	Mid	21100/ 2535	21100/ 2535	21100/ 2535	21100/ 2535		
	High	21350/ 2560	21375/ 2562.5	21400/ 2565	21425/ 2567.5		
	Band 12	Frequency range: 699 - 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			23060/ 704	23035/ 701.5	23025/ 700.5	23017/ 699.7
Mid			23095/ 707.5	23095/ 707.5	23095/ 707.5	23095/ 707.5	
High			23130/ 711	23155/ 713.5	23165/ 714.5	23173/ 715.3	
Band 13	Frequency range: 777 - 787 MHz						
	Channel Bandwidth						
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz	
Low				23205/ 779.5			
Mid			23230/ 782	23230/ 782			
High				23255/ 784.5			
Band 14	Frequency range: 788 - 798 MHz						
	Channel Bandwidth						
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz	
Low				23305/ 790.5			
Mid			23330/ 793	23330/ 793			
High				23355/ 795.5			
Band 25	Frequency range: 1850 - 1915 MHz						
	Channel Bandwidth						
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz	
Low	26140/ 1860	26115/ 1857.5	26090/ 1855	26065/ 1852.5	26055/ 1851.5	26047/ 1850.7	
Mid	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	
High	26590/ 1905	26615/ 1907.5	26640/ 1910	26665/ 1912.5	26675/ 1913.5	26683/ 1914.3	

General LTE SAR Test and Reporting Considerations (Continued)

Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 26	Frequency range: 814 - 849 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low		26765/ 821.5	26740/ 819	26715/ 816.5	26705/ 815.5	26697/ 814.7
	Mid		26865/ 831.5	26865/ 831.5	26865/ 831.5	26865/ 831.5	26865/ 831.5
	High		26965/ 841.5	26990/ 844	27015/ 846.5	27025/ 847.5	27033/ 848.3
	Band 30	Frequency range: 2305 - 2315 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low				27685/ 2307.5		
	Mid			27710/ 2310	27710/ 2310		
	High				27735/ 2312.5		
	Band 38	Frequency range: 2570 - 2620 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	37850/ 2580	37825/ 2577.5	37800/ 2575	37775/ 2572.5		
	Mid	38000/ 2595	38000/ 2595	38000/ 2595	38000/ 2595		
	High	38150/ 2610	38175/ 2612.5	38200/ 2615	38225/ 2617.5		
	Band 40 -Lower-	Frequency range: 2305 - 2315 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low				38725/ 2307.5		
	Mid			38750/ 2310	38750/ 2310		
	High				38775/ 2312.5		
	Band 40 -Upper-	Frequency range: 2350 - 2360 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low				39175/ 2352.5		
	Mid			39200/ 2355	39200/ 2355		
	High				39225/ 2357.5		
	Band 41	Frequency range: 2496 - 2690 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	39750 / 2506.0					
	Low-Mid	40185 / 2549.5					
	Mid	40620 / 2593.0					
	Mid-High	41055 / 2636.5					
	High	41490 / 2680.0					
	Band 48	Frequency range: 3550 - 3700 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	55340/ 3560	55315/ 3557.5	55290/ 3555	55265/ 3552.5		
	Mid	55990/ 3625	55990/ 3625	55990/ 3625	55990/ 3625		
	High	56640/ 3690	56665/ 3692.5	56690/ 3695	56715/ 3697.5		
	Band 66	Frequency range: 1710 - 1780 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	132072/ 1720	132047/ 1717.5	132022/ 1715	131997/ 1712.5	131987/ 1711.5	131979/ 1710.7
	Mid	132322/ 1745	132322/ 1745	132322/ 1745	132322/ 1745	132322/ 1745	132322/ 1745
	High	132572/ 1770	132597/ 1772.5	132622/ 1775	132647/ 1777.5	132657/ 1778.5	132665/ 1779.3
	Band 71	Frequency range: 663 - 698 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	133222/ 673	133197/ 670.5	133172/ 668	133147/ 665.5		
	Mid	133297/ 680.5	133297/ 680.5	133297/ 680.5	133297/ 680.5		
	High	133372/ 688	133397/ 690.5	133422/ 693	133447/ 695.5		

General LTE SAR Test and Reporting Considerations (Continued)

<p>LTE transmitter and antenna implementation</p>	<p>Refer to Appendix A.</p>																																																														
<p>Maximum power reduction (MPR)</p>	<p>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>1</td> </tr> <tr> <td>16 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>2</td> </tr> <tr> <td>64 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>2</td> </tr> <tr> <td>64 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>3</td> </tr> <tr> <td>256 QAM</td> <td></td> <td></td> <td></td> <td>≥ 1</td> <td></td> <td></td> <td>5</td> </tr> </tbody> </table> <p>MPR Built-in by design The manufacturer MPR values are always within the 3GPP maximum MPR allowance but may not follow the default MPR values. A-MPR (additional MPR) was disabled during SAR testing</p>	Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	3	256 QAM				≥ 1			5
Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)																																																								
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz																																																									
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1																																																								
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1																																																								
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	2																																																								
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	2																																																								
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	3																																																								
256 QAM				≥ 1			5																																																								
<p>Power reduction</p>	<p>Yes.</p>																																																														
<p>Spectrum plots for RB configurations</p>	<p>A properly configured base station simulator was used for the SAR and power measurements; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.</p>																																																														

Notes:

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

6.7. LTE (TDD) Considerations

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

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

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

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

Calculated Duty Cycle

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

Calculated Duty Cycle = Extended cyclic prefix in uplink x (T_s) x # of S + # of U

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

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

where

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

Note(s):

This device supports uplink-downlink configurations 0-6. The configuration with highest duty cycle was used for SAR Testing: configuration 0 at 63.3% duty cycle in power class 3. Power class 2 was used configuration 1 at 43.3% duty cycle for SAR testing.

6.8. 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													
		100 MHz	90 MHz	80 MHz	70 MHz	60 MHz	50 MHz	40 MHz	30 MHz	25 MHz	20 MHz	15 MHz	10 MHz	5 MHz	
	Low							374000/1870	373000/1865	372500/1862.5	372000/1860	371500/1857.5	371000/1855	370500/1852.5	
	Mid							376000/1880	376000/1880	376000/1880	376000/1880	376000/1880	376000/1880	376000/1880	
	High							378000/1890	379000/1895	379500/1897.5	380000/1900	380500/1902.5	381000/1905	381500/1907.5	
	Band n5	Frequency range: 824 - 849 MHz													
		Channel Bandwidth													
	Low											166800/834	166300/831.5	165800/829	165300/826.5
	Mid											167300/836.5	167300/836.5	167300/836.5	167300/836.5
High											167800/839	168300/841.5	168800/844	169300/846.5	
Band n12	Frequency range: 699 - 716 MHz														
	Channel Bandwidth														
Low											141300/706.5	140800/704	140300/701.5		
Mid											141500/707.5	141500/707.5	141500/707.5		
High											141700/708.5	142200/711	142700/713.5		
Band n25	Frequency range: 1850 - 1915 MHz														
	Channel Bandwidth														
Low							37400/1870	373000/1865	372500/1862.5	372000/1860	371500/1857.5	371000/1855	370500/1852.5		
Mid							376500/1882.5	376500/1882.5	376500/1882.5	376500/1882.5	376500/1882.5	376500/1882.5	376500/1882.5		
High							379000/1895	380000/1900	380500/1902.5	381000/1905	381500/1907.5	382000/1910	382500/1912.5		
Band n30	Frequency range: 2305 - 2315 MHz														
	Channel Bandwidth														
Low														461500/2307.5	
Mid														462000/2310	462000/2310
High														462500/2312.5	
Band n66	Frequency range: 1710 - 1780 MHz														
	Channel Bandwidth														
Low							346000/1730	345000/1725	344500/1722.5	344000/1720	343500/1717.5	343000/1715	342500/1712.5		
Mid							349000/1745	349000/1745	349000/1745	349000/1745	349000/1745	349000/1745	349000/1745		
High							352000/1760	353000/1765	353500/1767.5	354000/1770	354500/1772.5	355000/1775	355500/1777.5		
Band n41	Frequency range: 2496 - 2690 MHz														
	Channel Bandwidth														
Low	509202/2546.01	508200/2541	507204/2536.02	506202/2531.01	505200/2526	504204/2512.02	503202/2516.01	552200/2511		501204/2506.02	500700/2503.5	500202/2501.01			
Low-Mid							516468/2567.34	510402/2552.01		509898/2549.49	509652/2548.26	509400/2547			
Mid	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	531000/2655	529998/2649.99	523734/2618.67	526800/2634		527298/2636.49	527550/2637.75	527802/2639.01				
High							534000/2670	534996/2674.98		535998/2679.99	536496/2682.48	537000/2685			

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

Frequency range, Channel Bandwidth, Numbers and Frequencies	Band n48	Frequency range: 3550 - 3700 MHz													
		Channel Bandwidth													
		100 MHz	90 MHz	80 MHz	70 MHz	60 MHz	50 MHz	40 MHz	30 MHz	25 MHz	20 MHz	15 MHz	10 MHz	5 MHz	
Low							638000/ 3570					637334/ 3560.01	637168/ 3557.52	637000/ 3555	
Low-Mid												640222/ 3603.33	640166/ 3602.49	640110/ 3601.65	
Mid							641666/ 3624.99								
Mid-High												643112/ 3646.68	643166/ 3647.49	643222/ 3648.33	
High							645332/ 3679.98					646000/ 3690	646166/ 3692.49	646332/ 3694.98	
		Frequency range: 663 - 698 MHz													
		Channel Bandwidth													
		100 MHz	90 MHz	80 MHz	70 MHz	60 MHz	50 MHz	40 MHz	30 MHz	25 MHz	20 MHz	15 MHz	10 MHz	5 MHz	
Low											134600/ 673	134100/ 670.5	133600/ 668	133147/ 665.5	
Mid											136100/ 680.5	136100/ 680.5	136100/ 680.5	136100/ 680.5	
High											137600/ 688	138100/ 690.5	138600/ 693	133447/ 695.5	
		Frequency range: 3450 - 3550 MHz													
		Channel Bandwidth													
		100 MHz	90 MHz	80 MHz	70 MHz	60 MHz	50 MHz	40 MHz	30 MHz	25 MHz	20 MHz	15 MHz	10 MHz	5 MHz	
Low							631668/ 3475.02	631334/ 3470.01	631000/ 3465	630866/ 3462.99	630668/ 3460.02	630500/ 3457.5	630334/ 3455.01		
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	633334 /3500.01	633334 /3500.01		
High							635000/ 3525	635332/ 3529.98	635666/ 3534.99	635800 3537	636000/ 3540	636166/ 3542.49	636332/ 3544.98		
		Frequency range: 3700 - 3980 MHz													
		Channel Bandwidth													
		100 MHz	90 MHz	80 MHz	70 MHz	60 MHz	50 MHz	40 MHz	30 MHz	25 MHz	20 MHz	15 MHz	10 MHz	5 MHz	
Low	650000 /3750	649668 /3745.02	649334 /3740.01	649000/ 3735	648668 /3730.02	648334 /3725.01	648000 /3720	647668/ 3715.02	647500/ 3712.5	647334 /3710.01	647168/ 3707.52	647000/ 3705			
Low-Mid				653666/ 3804.99	653556 /3803.34	652166 /3782.49	651200 /3768	651000/ 3765	650900/ 3763.5	650800 /3762	650700/ 3760.5	650600/ 3759			
Mid-A		656000 /3840	656000 /3840			656000 /3840	654400 /3816	654334/ 3815.01	654300/ 3814.5	654266 /3813.99	654234/ 3813.51	654200/ 3813			
Mid-B							657600 /3864	657666/ 3864.99	657700/ 3814.5	657734 /3866.01	657766/ 3866.49	657800/ 3867			
Mid-High	662000 /3930	662332 /3934.98	662666 /3939.99	658334/ 3875.01	658444 /3876.66	659834 /3897.51	660800 /3912	661000/ 3915	661100/ 3916.5	661200 /3918	661300/ 3919.5	661400/ 3921			
High				663000/ 3945	663332 /3949.98	663666 /3954.99	664000 /3960	664332/ 3964.98	664500/ 3967.5	664666 /3969.99	664832/ 3972.48	665000/ 3975			
SCS		NR FDD Bands : 15 kHz, NR TDD Bands : 30kHz													
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 5/12/13/14/48													
LTE Anchor Bands for NR Band n5		LTE Band 2/7/30/66													
LTE Anchor Bands for NR Band n12		LTE Band 2/66													
LTE Anchor Bands for NR Band n25		LTE Band 12													
LTE Anchor Bands for NR Band n30		LTE Band 5/12/14													
LTE Anchor Bands for NR Band n41		LTE Band 2/66													
LTE Anchor Bands for NR Band n48		LTE Band 2													
LTE Anchor Bands for NR Band n66		LTE Band 5/7/12/13/14/48													
LTE Anchor Bands for NR Band n71		LTE Band 2/7/48/66													
LTE Anchor Bands for NR Band n77		LTE Band 2/5/7/12/14/30/66													

Notes:

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

7. RF Exposure Conditions (Test Configurations)

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

WWAN

Wireless technologies	RF Exposure Conditions	Antenna	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	SAR Required	Note
WWAN	Head	All Main Antennas	0 mm	Left Touch	N/A	Yes	
				Left Tilt (15°)	N/A	Yes	
				Right Touch	N/A	Yes	
				Right Tilt (15°)	N/A	Yes	
	Body	All Main Antennas	15 mm	Rear	N/A	Yes	
				Front	N/A	Yes	
	Hotspot	Main 1 Ant.	10 mm	Rear	< 25 mm	Yes	✓
				Front	< 25 mm	Yes	✓
				Edge 1 (Top)	> 25 mm	No	1
				Edge 2 (Right)	< 25 mm	Yes	
				Edge 3 (Bottom)	< 25 mm	Yes	
				Edge 4 (Left)	> 25 mm	No	1
	Hotspot	Main 2 Ant.	10 mm	Rear	< 25 mm	Yes	✓
				Front	< 25 mm	Yes	✓
				Edge 1 (Top)	> 25 mm	No	1
				Edge 2 (Right)	> 25 mm	No	1
				Edge 3 (Bottom)	< 25 mm	Yes	
				Edge 4 (Left)	< 25 mm	Yes	
	Hotspot	Sub.2 Ant.	10 mm	Rear	< 25 mm	Yes	✓
				Front	< 25 mm	Yes	✓
				Edge 1 (Top)	< 25 mm	Yes	✓
				Edge 2 (Right)	> 25 mm	No	1
				Edge 3 (Bottom)	> 25 mm	No	1
				Edge 4 (Left)	< 25 mm	Yes	
	Hotspot	Sub.3 Ant.	10 mm	Rear	< 25 mm	Yes	✓
				Front	< 25 mm	Yes	✓
				Edge 1 (Top)	< 25 mm	Yes	✓
				Edge 2 (Right)	> 25 mm	No	1
				Edge 3 (Bottom)	> 25 mm	No	1
				Edge 4 (Left)	< 25 mm	Yes	
	Hotspot	Sub.5 Ant.	10 mm	Rear	< 25 mm	Yes	✓
				Front	< 25 mm	Yes	✓
				Edge 1 (Top)	< 25 mm	Yes	✓
				Edge 2 (Right)	> 25 mm	No	1
				Edge 3 (Bottom)	> 25 mm	No	1
				Edge 4 (Left)	< 25 mm	Yes	
	Hotspot	Sub.8 Ant.	10 mm	Rear	< 25 mm	Yes	✓
				Front	< 25 mm	Yes	✓
				Edge 1 (Top)	< 25 mm	Yes	✓
				Edge 2 (Right)	> 25 mm	No	1
Edge 3 (Bottom)				> 25 mm	No	1	
Edge 4 (Left)				< 25 mm	Yes		
Product Specific 10-g	All Main Antennas	0 mm	Rear	Refer to notes 2 & 3			
			Front				
			Edge 1 (Top)				
			Edge 2 (Right)				
			Edge 3 (Bottom)				
			Edge 4 (Left)				

Notes:

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

WLAN&BT

Wireless technologies	RF Exposure Conditions	Antenna	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	SAR Required	Note	
2.4GHz WLAN & BT & 5GHz WLAN	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		15 mm	Rear	N/A	Yes		
				Front	N/A	Yes		
	Hotspot		WiFi2.4G (Sub.2 & Sub.5) 5G (Sub.3 & Sub.9)	10 mm	Rear	< 25 mm	Yes	
					Front	< 25 mm	Yes	
		Edge 1 (Top)			< 25 mm	Yes		
		Edge 2 (Right)			> 25 mm	No	1	
		Edge 3 (Bottom)			> 25 mm	No	1	
	Product Specific 10-g	All Main Antennas	0 mm	Rear	Refer to notes 2 & 4			
				Front				
				Edge 1 (Top)				
				Edge 2 (Right)				
Edge 3 (Bottom)								
Edge 4 (Left)								

NFC

Wireless technologies	RF Exposure Conditions	Antenna	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	SAR Required	Note
NFC	Product Specific (Hand) 10-g	NFC Ant.	0 mm	Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Edge 1 (Top)	< 25 mm	Yes	
				Edge 2 (Right)	> 25 mm	No	1
				Edge 3 (Bottom)	> 25 mm	No	1
				Edge 4 (Left)	< 25 mm	Yes	

Notes:

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

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 Tissue Dielectric parameters (100MHz to 6GHz) 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.

For The Tissue Dielectric parameters (9MHz to 19MHz). The parameters must be measured before 24 hours.

1. Tissue Dielectric Parameters (100MHz to 6GHz)

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head	
	ϵ_r	σ (S/m)
150	52.3	0.76
300	45.3	0.87
450	43.5	0.87
835	41.5	0.90
900	41.5	0.97
915	41.5	0.98
1450	40.5	1.20
1610	40.3	1.29
1800 – 2000	40.0	1.40
2450	39.2	1.80
3000	38.5	2.40
5000	36.2	4.45
5100	36.1	4.55
5200	36.0	4.66
5300	35.9	4.76
5400	35.8	4.86
5500	35.6	4.96
5600	35.5	5.07
5700	35.4	5.17
5800	35.3	5.27
6000	35.1	5.48

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

2. Tissue Dielectric Parameters (9MHz to 19MHz)

Target Frequency (MHz)	Head	
	ϵ_r	σ (S/m)
9	55.0	0.75
13	55.0	0.75
19	55.0	0.75

IEC_IEEE Std 62209-1528 : 2020

Refer to Table 2 within the IEC_IEEE Std 62209-1528 : 2020.

**Dielectric Property Measurements Results:
SAR 1 Room**

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2022-12-05	Head 1750	e'	40.2900	Relative Permittivity (ε _r):	40.29	40.08	0.51	5
		e"	13.7100	Conductivity (σ):	1.33	1.37	-2.55	5
	Head 1710	e'	40.2500	Relative Permittivity (ε _r):	40.25	40.15	0.26	5
		e"	13.9000	Conductivity (σ):	1.32	1.35	-1.84	5
	Head 1755	e'	40.3100	Relative Permittivity (ε _r):	40.31	40.08	0.58	5
		e"	13.6800	Conductivity (σ):	1.33	1.37	-2.69	5
2022-12-05	Head 1900	e'	40.3100	Relative Permittivity (ε _r):	40.31	40.00	0.78	5
		e"	13.1200	Conductivity (σ):	1.39	1.40	-0.99	5
	Head 1850	e'	40.4100	Relative Permittivity (ε _r):	40.41	40.00	1.02	5
		e"	13.2100	Conductivity (σ):	1.36	1.40	-2.94	5
	Head 1910	e'	40.2900	Relative Permittivity (ε _r):	40.29	40.00	0.72	5
		e"	13.0800	Conductivity (σ):	1.39	1.40	-0.78	5
2022-12-09	Head 1750	e'	39.5600	Relative Permittivity (ε _r):	39.56	40.08	-1.31	5
		e"	13.5400	Conductivity (σ):	1.32	1.37	-3.76	5
	Head 1710	e'	39.5800	Relative Permittivity (ε _r):	39.58	40.15	-1.41	5
		e"	13.5600	Conductivity (σ):	1.29	1.35	-4.24	5
	Head 1755	e'	39.5500	Relative Permittivity (ε _r):	39.55	40.08	-1.31	5
		e"	13.5400	Conductivity (σ):	1.32	1.37	-3.68	5
2022-12-09	Head 1900	e'	39.3500	Relative Permittivity (ε _r):	39.35	40.00	-1.63	5
		e"	13.2000	Conductivity (σ):	1.39	1.40	-0.39	5
	Head 1850	e'	39.4000	Relative Permittivity (ε _r):	39.40	40.00	-1.50	5
		e"	13.4200	Conductivity (σ):	1.38	1.40	-1.40	5
	Head 1910	e'	39.3300	Relative Permittivity (ε _r):	39.33	40.00	-1.68	5
		e"	13.1600	Conductivity (σ):	1.40	1.40	-0.17	5
2022-12-13	Head 1900	e'	39.7900	Relative Permittivity (ε _r):	39.79	40.00	-0.53	5
		e"	13.4000	Conductivity (σ):	1.42	1.40	1.12	5
	Head 1850	e'	40.1200	Relative Permittivity (ε _r):	40.12	40.00	0.30	5
		e"	13.5300	Conductivity (σ):	1.39	1.40	-0.59	5
	Head 1910	e'	39.7200	Relative Permittivity (ε _r):	39.72	40.00	-0.70	5
		e"	13.3700	Conductivity (σ):	1.42	1.40	1.42	5
2022-12-19	Head 1750	e'	39.7900	Relative Permittivity (ε _r):	39.79	40.08	-0.73	5
		e"	13.7800	Conductivity (σ):	1.34	1.37	-2.05	5
	Head 1710	e'	39.8600	Relative Permittivity (ε _r):	39.86	40.15	-0.71	5
		e"	13.9500	Conductivity (σ):	1.33	1.35	-1.49	5
	Head 1755	e'	39.7800	Relative Permittivity (ε _r):	39.78	40.08	-0.74	5
		e"	13.7500	Conductivity (σ):	1.34	1.37	-2.19	5
2022-12-19	Head 1900	e'	39.6500	Relative Permittivity (ε _r):	39.65	40.00	-0.88	5
		e"	12.9800	Conductivity (σ):	1.37	1.40	-2.05	5
	Head 1850	e'	39.6600	Relative Permittivity (ε _r):	39.66	40.00	-0.85	5
		e"	13.2400	Conductivity (σ):	1.36	1.40	-2.72	5
	Head 1910	e'	39.6500	Relative Permittivity (ε _r):	39.65	40.00	-0.88	5
		e"	12.9400	Conductivity (σ):	1.37	1.40	-1.84	5
2023-01-02	Head 1750	e'	41.4100	Relative Permittivity (ε _r):	41.41	40.08	3.31	5
		e"	13.5700	Conductivity (σ):	1.32	1.37	-3.55	5
	Head 1710	e'	41.5000	Relative Permittivity (ε _r):	41.50	40.15	3.37	5
		e"	13.5800	Conductivity (σ):	1.29	1.35	-4.10	5
	Head 1755	e'	41.4000	Relative Permittivity (ε _r):	41.40	40.08	3.30	5
		e"	13.5700	Conductivity (σ):	1.32	1.37	-3.47	5
2023-01-02	Head 1900	e'	41.0000	Relative Permittivity (ε _r):	41.00	40.00	2.50	5
		e"	13.4000	Conductivity (σ):	1.42	1.40	1.12	5
	Head 1850	e'	41.1400	Relative Permittivity (ε _r):	41.14	40.00	2.85	5
		e"	13.4700	Conductivity (σ):	1.39	1.40	-1.03	5
	Head 1910	e'	40.9700	Relative Permittivity (ε _r):	40.97	40.00	2.43	5
		e"	13.3800	Conductivity (σ):	1.42	1.40	1.50	5

SAR 1 Room (Continued)

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2023-01-06	Head 1750	e'	41.8000	Relative Permittivity (ϵ_r):	41.80	40.08	4.28	5
		e"	13.6300	Conductivity (σ):	1.33	1.37	-3.12	5
	Head 1710	e'	41.9100	Relative Permittivity (ϵ_r):	41.91	40.15	4.39	5
		e"	13.7000	Conductivity (σ):	1.30	1.35	-3.25	5
	Head 1755	e'	41.7900	Relative Permittivity (ϵ_r):	41.79	40.08	4.27	5
		e"	13.6200	Conductivity (σ):	1.33	1.37	-3.11	5
2023-01-06	Head 1900	e'	41.5000	Relative Permittivity (ϵ_r):	41.50	40.00	3.75	5
		e"	13.5100	Conductivity (σ):	1.43	1.40	1.95	5
	Head 1850	e'	41.6400	Relative Permittivity (ϵ_r):	41.64	40.00	4.10	5
		e"	13.5900	Conductivity (σ):	1.40	1.40	-0.15	5
	Head 1910	e'	41.4700	Relative Permittivity (ϵ_r):	41.47	40.00	3.68	5
		e"	13.5000	Conductivity (σ):	1.43	1.40	2.41	5
2023-01-13	Head 3500	e'	37.8800	Relative Permittivity (ϵ_r):	37.88	37.93	-0.13	5
		e"	14.5600	Conductivity (σ):	2.83	2.91	-2.68	5
	Head 3600	e'	37.4300	Relative Permittivity (ϵ_r):	37.43	37.82	-1.02	5
		e"	14.7700	Conductivity (σ):	2.96	3.01	-1.90	5
	Head 3700	e'	37.0000	Relative Permittivity (ϵ_r):	37.00	37.70	-1.86	5
		e"	14.9000	Conductivity (σ):	3.07	3.12	-1.63	5
	Head 3800	e'	37.0400	Relative Permittivity (ϵ_r):	37.04	37.59	-1.46	5
		e"	15.0900	Conductivity (σ):	3.19	3.22	-0.94	5
	Head 3900	e'	37.0800	Relative Permittivity (ϵ_r):	37.08	37.47	-1.05	5
		e"	15.0100	Conductivity (σ):	3.25	3.32	-1.98	5
	Head 3950	e'	37.1400	Relative Permittivity (ϵ_r):	37.14	37.42	-0.74	5
		e"	15.0900	Conductivity (σ):	3.31	3.37	-1.71	5
2023-01-17	Head 3500	e'	37.5100	Relative Permittivity (ϵ_r):	37.51	37.93	-1.11	5
		e"	14.7200	Conductivity (σ):	2.86	2.91	-1.61	5
	Head 3600	e'	37.2200	Relative Permittivity (ϵ_r):	37.22	37.82	-1.57	5
		e"	14.8500	Conductivity (σ):	2.97	3.01	-1.37	5
	Head 3700	e'	36.9200	Relative Permittivity (ϵ_r):	36.92	37.70	-2.07	5
		e"	15.0000	Conductivity (σ):	3.09	3.12	-0.97	5
	Head 3800	e'	36.7000	Relative Permittivity (ϵ_r):	36.70	37.59	-2.36	5
		e"	15.1400	Conductivity (σ):	3.20	3.22	-0.61	5
	Head 3900	e'	36.5100	Relative Permittivity (ϵ_r):	36.51	37.47	-2.57	5
		e"	15.2300	Conductivity (σ):	3.30	3.32	-0.55	5
	Head 3950	e'	36.4100	Relative Permittivity (ϵ_r):	36.41	37.42	-2.69	5
		e"	15.3000	Conductivity (σ):	3.36	3.37	-0.35	5

SAR 2 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)		
2023-01-06	Head 3500	e'	39.1300	Relative Permittivity (ε _r):	39.13	37.93	3.16	5	
		e"	15.4100	Conductivity (σ):	3.00	2.91	3.00	5	
	Head 3600	e'	38.7800	Relative Permittivity (ε _r):	38.78	37.82	2.55	5	
		e"	15.1500	Conductivity (σ):	3.03	3.01	0.62	5	
	Head 3700	e'	38.6000	Relative Permittivity (ε _r):	38.60	37.70	2.38	5	
		e"	14.9700	Conductivity (σ):	3.08	3.12	-1.17	5	
	Head 3800	e'	38.0600	Relative Permittivity (ε _r):	38.06	37.59	1.26	5	
		e"	15.3000	Conductivity (σ):	3.23	3.22	0.44	5	
	Head 3900	e'	37.3200	Relative Permittivity (ε _r):	37.32	37.47	-0.41	5	
		e"	15.5900	Conductivity (σ):	3.38	3.32	1.80	5	
	Head 3950	e'	37.0000	Relative Permittivity (ε _r):	37.00	37.42	-1.11	5	
		e"	15.3800	Conductivity (σ):	3.38	3.37	0.18	5	
	2023-01-19	Head 1900	e'	39.9200	Relative Permittivity (ε _r):	39.92	40.00	-0.20	5
			e"	13.3300	Conductivity (σ):	1.41	1.40	0.59	5
Head 1850		e'	39.9700	Relative Permittivity (ε _r):	39.97	40.00	-0.08	5	
		e"	13.3400	Conductivity (σ):	1.37	1.40	-1.98	5	
Head 1910		e'	39.9100	Relative Permittivity (ε _r):	39.91	40.00	-0.23	5	
		e"	13.3200	Conductivity (σ):	1.41	1.40	1.04	5	

SAR 3 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2022-12-05	Head 1900	e'	38.7800	Relative Permittivity (ϵ_r):	38.78	40.00	-3.05	5
		e"	13.6600	Conductivity (σ):	1.44	1.40	3.08	5
	Head 1850	e'	38.7900	Relative Permittivity (ϵ_r):	38.79	40.00	-3.03	5
		e"	13.7300	Conductivity (σ):	1.41	1.40	0.88	5
	Head 1910	e'	38.7800	Relative Permittivity (ϵ_r):	38.78	40.00	-3.05	5
		e"	13.6600	Conductivity (σ):	1.45	1.40	3.62	5
2022-12-07	Head 2600	e'	40.4400	Relative Permittivity (ϵ_r):	40.44	39.01	3.66	5
		e"	13.3700	Conductivity (σ):	1.93	1.96	-1.49	5
	Head 2500	e'	40.5400	Relative Permittivity (ϵ_r):	40.54	39.14	3.59	5
		e"	13.4000	Conductivity (σ):	1.86	1.85	0.47	5
	Head 2700	e'	40.3300	Relative Permittivity (ϵ_r):	40.33	38.88	3.72	5
		e"	13.3800	Conductivity (σ):	2.01	2.07	-2.97	5
2022-12-12	Head 1900	e'	40.6300	Relative Permittivity (ϵ_r):	40.63	40.00	1.58	5
		e"	13.7600	Conductivity (σ):	1.45	1.40	3.83	5
	Head 1850	e'	40.5700	Relative Permittivity (ϵ_r):	40.57	40.00	1.43	5
		e"	13.9100	Conductivity (σ):	1.43	1.40	2.20	5
	Head 1910	e'	40.6300	Relative Permittivity (ϵ_r):	40.63	40.00	1.58	5
		e"	13.7000	Conductivity (σ):	1.45	1.40	3.93	5
2022-12-13	Head 1900	e'	41.3900	Relative Permittivity (ϵ_r):	41.39	40.00	3.48	5
		e"	13.2700	Conductivity (σ):	1.40	1.40	0.14	5
	Head 1850	e'	41.3900	Relative Permittivity (ϵ_r):	41.39	40.00	3.48	5
		e"	13.2400	Conductivity (σ):	1.36	1.40	-2.72	5
	Head 1910	e'	41.3800	Relative Permittivity (ϵ_r):	41.38	40.00	3.45	5
		e"	13.2900	Conductivity (σ):	1.41	1.40	0.82	5
2023-01-12	head 2250	e'	40.5200	Relative Permittivity (ϵ_r):	40.52	39.56	2.43	5
		e"	13.3100	Conductivity (σ):	1.67	1.62	2.80	5
	head 2300	e'	40.4200	Relative Permittivity (ϵ_r):	40.42	39.47	2.40	5
		e"	13.2700	Conductivity (σ):	1.70	1.66	2.00	5
	head 2350	e'	40.3400	Relative Permittivity (ϵ_r):	40.34	39.38	2.43	5
		e"	13.2500	Conductivity (σ):	1.73	1.71	1.38	5
2023-01-15	Head 3500	e'	38.0500	Relative Permittivity (ϵ_r):	38.05	37.93	0.32	5
		e"	15.0100	Conductivity (σ):	2.92	2.91	0.33	5
	Head 3600	e'	37.7600	Relative Permittivity (ϵ_r):	37.76	37.82	-0.15	5
		e"	15.1100	Conductivity (σ):	3.02	3.01	0.35	5
	Head 3700	e'	37.2900	Relative Permittivity (ϵ_r):	37.29	37.70	-1.09	5
		e"	15.3200	Conductivity (σ):	3.15	3.12	1.14	5
	Head 3800	e'	37.0300	Relative Permittivity (ϵ_r):	37.03	37.59	-1.48	5
		e"	15.4400	Conductivity (σ):	3.26	3.22	1.36	5
	Head 3900	e'	36.8400	Relative Permittivity (ϵ_r):	36.84	37.47	-1.69	5
		e"	15.5600	Conductivity (σ):	3.37	3.32	1.61	5
	Head 3950	e'	36.6800	Relative Permittivity (ϵ_r):	36.68	37.42	-1.97	5
		e"	15.6900	Conductivity (σ):	3.45	3.37	2.20	5
2023-01-18	head 2250	e'	40.5700	Relative Permittivity (ϵ_r):	40.57	39.56	2.55	5
		e"	13.2700	Conductivity (σ):	1.66	1.62	2.49	5
	head 2300	e'	40.9000	Relative Permittivity (ϵ_r):	40.90	39.47	3.62	5
		e"	13.5600	Conductivity (σ):	1.73	1.66	4.23	5
	head 2350	e'	41.0400	Relative Permittivity (ϵ_r):	41.04	39.38	4.20	5
		e"	13.6700	Conductivity (σ):	1.79	1.71	4.60	5

SAR 4 Room

Date	Freq. (MHz)		Liquid Parameters	Measured	Target	Delta (%)	Limit ±(%)	
2022-12-13	Head 1750	e'	41.6000	Relative Permittivity (ϵ_r):	41.60	40.08	3.78	5
		e"	13.9800	Conductivity (σ):	1.36	1.37	-0.63	5
	Head 1710	e'	41.6500	Relative Permittivity (ϵ_r):	41.65	40.15	3.75	5
		e"	14.0800	Conductivity (σ):	1.34	1.35	-0.57	5
	Head 1755	e'	41.6000	Relative Permittivity (ϵ_r):	41.60	40.08	3.80	5
		e"	13.9700	Conductivity (σ):	1.36	1.37	-0.62	5
2022-12-20	Head 2600	e'	38.8200	Relative Permittivity (ϵ_r):	38.82	39.01	-0.49	5
		e"	13.1900	Conductivity (σ):	1.91	1.96	-2.82	5
	Head 2500	e'	39.0100	Relative Permittivity (ϵ_r):	39.01	39.14	-0.32	5
		e"	13.1900	Conductivity (σ):	1.83	1.85	-1.11	5
	Head 2700	e'	38.7000	Relative Permittivity (ϵ_r):	38.70	38.88	-0.47	5
		e"	13.1800	Conductivity (σ):	1.98	2.07	-4.42	5
2022-12-22	Head 1750	e'	41.0700	Relative Permittivity (ϵ_r):	41.07	40.08	2.46	5
		e"	13.9500	Conductivity (σ):	1.36	1.37	-0.84	5
	Head 1710	e'	41.1611	Relative Permittivity (ϵ_r):	41.16	40.15	2.53	5
		e"	13.9900	Conductivity (σ):	1.33	1.35	-1.20	5
	Head 1755	e'	41.0589	Relative Permittivity (ϵ_r):	41.06	40.08	2.45	5
		e"	13.9500	Conductivity (σ):	1.36	1.37	-0.77	5
2022-12-22	Head 1900	e'	40.9300	Relative Permittivity (ϵ_r):	40.93	40.00	2.33	5
		e"	13.6100	Conductivity (σ):	1.44	1.40	2.70	5
	Head 1850	e'	40.9300	Relative Permittivity (ϵ_r):	40.93	40.00	2.33	5
		e"	13.6700	Conductivity (σ):	1.41	1.40	0.44	5
	Head 1910	e'	40.9300	Relative Permittivity (ϵ_r):	40.93	40.00	2.33	5
		e"	13.6000	Conductivity (σ):	1.44	1.40	3.17	5
2022-12-26	Head 1750	e'	41.7100	Relative Permittivity (ϵ_r):	41.71	40.08	4.05	5
		e"	13.6200	Conductivity (σ):	1.33	1.37	-3.19	5
	Head 1710	e'	41.7900	Relative Permittivity (ϵ_r):	41.79	40.15	4.09	5
		e"	13.7300	Conductivity (σ):	1.31	1.35	-3.04	5
	Head 1755	e'	41.6900	Relative Permittivity (ϵ_r):	41.69	40.08	4.02	5
		e"	13.6100	Conductivity (σ):	1.33	1.37	-3.18	5
2022-12-26	Head 1900	e'	41.5400	Relative Permittivity (ϵ_r):	41.54	40.00	3.85	5
		e"	13.3900	Conductivity (σ):	1.41	1.40	1.04	5
	Head 1850	e'	41.5600	Relative Permittivity (ϵ_r):	41.56	40.00	3.90	5
		e"	13.4400	Conductivity (σ):	1.38	1.40	-1.25	5
	Head 1910	e'	41.5300	Relative Permittivity (ϵ_r):	41.53	40.00	3.83	5
		e"	13.3900	Conductivity (σ):	1.42	1.40	1.57	5
2022-12-30	Head 2250	e'	39.9500	Relative Permittivity (ϵ_r):	39.95	39.56	0.98	5
		e"	12.8400	Conductivity (σ):	1.61	1.62	-0.83	5
	Head 2300	e'	39.9100	Relative Permittivity (ϵ_r):	39.91	39.47	1.11	5
		e"	12.9300	Conductivity (σ):	1.65	1.66	-0.61	5
	Head 2350	e'	39.8400	Relative Permittivity (ϵ_r):	39.84	39.38	1.16	5
		e"	13.0100	Conductivity (σ):	1.70	1.71	-0.45	5
2023-01-03	Head 2250	e'	39.4600	Relative Permittivity (ϵ_r):	39.46	39.56	-0.25	5
		e"	13.3000	Conductivity (σ):	1.66	1.62	2.73	5
	Head 2300	e'	39.4200	Relative Permittivity (ϵ_r):	39.42	39.47	-0.13	5
		e"	13.3300	Conductivity (σ):	1.70	1.66	2.46	5
	Head 2350	e'	39.3800	Relative Permittivity (ϵ_r):	39.38	39.38	-0.01	5
		e"	13.3500	Conductivity (σ):	1.74	1.71	2.15	5
2023-01-03	Head 2600	e'	39.8900	Relative Permittivity (ϵ_r):	39.89	39.01	2.25	5
		e"	13.5600	Conductivity (σ):	1.96	1.96	-0.09	5
	Head 2500	e'	39.0500	Relative Permittivity (ϵ_r):	39.05	39.14	-0.22	5
		e"	13.4100	Conductivity (σ):	1.86	1.85	0.54	5
	Head 2700	e'	38.7900	Relative Permittivity (ϵ_r):	38.79	38.88	-0.24	5
		e"	13.6600	Conductivity (σ):	2.05	2.07	-0.94	5

SAR 4 Room (Continued)

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2023-01-05	Head 2600	e'	40.4900	Relative Permittivity (ϵ_r):	40.49	39.01	3.79	5
		e"	13.1800	Conductivity (σ):	1.91	1.96	-2.89	5
	Head 2500	e'	40.6100	Relative Permittivity (ϵ_r):	40.61	39.14	3.76	5
		e"	13.0500	Conductivity (σ):	1.81	1.85	-2.16	5
	Head 2700	e'	40.3800	Relative Permittivity (ϵ_r):	40.38	38.88	3.85	5
		e"	13.2700	Conductivity (σ):	1.99	2.07	-3.77	5
2023-01-06	Head 2600	e'	37.6600	Relative Permittivity (ϵ_r):	37.66	39.01	-3.46	5
		e"	13.1400	Conductivity (σ):	1.90	1.96	-3.19	5
	Head 2500	e'	38.1300	Relative Permittivity (ϵ_r):	38.13	39.14	-2.57	5
		e"	13.0400	Conductivity (σ):	1.81	1.85	-2.23	5
	Head 2700	e'	37.1600	Relative Permittivity (ϵ_r):	37.16	38.88	-4.44	5
		e"	13.3700	Conductivity (σ):	2.01	2.07	-3.05	5
2023-01-10	Head 2600	e'	37.3100	Relative Permittivity (ϵ_r):	37.31	39.01	-4.36	5
		e"	13.7000	Conductivity (σ):	1.98	1.96	0.94	5
	Head 2500	e'	37.2700	Relative Permittivity (ϵ_r):	37.27	39.14	-4.77	5
		e"	13.5000	Conductivity (σ):	1.88	1.85	1.22	5
	Head 2700	e'	37.0200	Relative Permittivity (ϵ_r):	37.02	38.88	-4.80	5
		e"	13.6700	Conductivity (σ):	2.05	2.07	-0.87	5
2023-01-11	Head 2450	e'	38.4000	Relative Permittivity (ϵ_r):	38.40	39.20	-2.04	5
		e"	13.0400	Conductivity (σ):	1.78	1.80	-1.31	5
	Head 2400	e'	38.5600	Relative Permittivity (ϵ_r):	38.56	39.30	-1.87	5
		e"	12.9500	Conductivity (σ):	1.73	1.75	-1.34	5
	Head 2480	e'	38.3100	Relative Permittivity (ϵ_r):	38.31	39.16	-2.18	5
		e"	13.0800	Conductivity (σ):	1.80	1.83	-1.57	5
2023-01-16	Head 2600	e'	39.1900	Relative Permittivity (ϵ_r):	39.19	39.01	0.46	5
		e"	13.3100	Conductivity (σ):	1.92	1.96	-1.93	5
	Head 2500	e'	39.3200	Relative Permittivity (ϵ_r):	39.32	39.14	0.47	5
		e"	13.2100	Conductivity (σ):	1.84	1.85	-0.96	5
	Head 2700	e'	39.0800	Relative Permittivity (ϵ_r):	39.08	38.88	0.50	5
		e"	13.4000	Conductivity (σ):	2.01	2.07	-2.83	5
2023-01-20	Head 2600	e'	39.2900	Relative Permittivity (ϵ_r):	39.29	39.01	0.72	5
		e"	13.6500	Conductivity (σ):	1.97	1.96	0.57	5
	Head 2500	e'	39.4600	Relative Permittivity (ϵ_r):	39.46	39.14	0.83	5
		e"	13.5400	Conductivity (σ):	1.88	1.85	1.52	5
	Head 2700	e'	39.1500	Relative Permittivity (ϵ_r):	39.15	38.88	0.68	5
		e"	13.7200	Conductivity (σ):	2.06	2.07	-0.51	5

SAR 5 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2023-01-02	Head 750	e'	40.3600	Relative Permittivity (ϵ_r):	40.36	41.96	-3.82	5
		e''	21.8800	Conductivity (σ):	0.91	0.89	2.17	5
	Head 680	e'	40.5900	Relative Permittivity (ϵ_r):	40.59	42.32	-4.09	5
		e''	23.6700	Conductivity (σ):	0.89	0.89	0.82	5
	Head 790	e'	40.2400	Relative Permittivity (ϵ_r):	40.24	41.76	-3.63	5
		e''	21.0300	Conductivity (σ):	0.92	0.90	3.08	5
2023-01-02	Head 835	e'	40.1000	Relative Permittivity (ϵ_r):	40.10	41.50	-3.37	5
		e''	20.1200	Conductivity (σ):	0.93	0.90	3.79	5
	Head 820	e'	40.1500	Relative Permittivity (ϵ_r):	40.15	41.60	-3.49	5
		e''	20.4200	Conductivity (σ):	0.93	0.90	3.63	5
	Head 850	e'	40.0700	Relative Permittivity (ϵ_r):	40.07	41.50	-3.45	5
		e''	19.8300	Conductivity (σ):	0.94	0.92	2.43	5
2023-01-06	Head 750	e'	42.6100	Relative Permittivity (ϵ_r):	42.61	41.96	1.55	5
		e''	22.2600	Conductivity (σ):	0.93	0.89	3.94	5
	Head 700	e'	42.8300	Relative Permittivity (ϵ_r):	42.83	42.22	1.45	5
		e''	23.3400	Conductivity (σ):	0.91	0.89	2.16	5
	Head 790	e'	42.4800	Relative Permittivity (ϵ_r):	42.48	41.76	1.73	5
		e''	21.1700	Conductivity (σ):	0.93	0.90	3.77	5
2023-01-06	Head 835	e'	42.4200	Relative Permittivity (ϵ_r):	42.42	41.50	2.22	5
		e''	20.0400	Conductivity (σ):	0.93	0.90	3.38	5
	Head 820	e'	42.4300	Relative Permittivity (ϵ_r):	42.43	41.60	1.99	5
		e''	20.3600	Conductivity (σ):	0.93	0.90	3.32	5
	Head 850	e'	42.4200	Relative Permittivity (ϵ_r):	42.42	41.50	2.22	5
		e''	19.7900	Conductivity (σ):	0.94	0.92	2.22	5
2023-01-10	Head 750	e'	42.4200	Relative Permittivity (ϵ_r):	42.42	41.96	1.09	5
		e''	20.8900	Conductivity (σ):	0.87	0.89	-2.45	5
	Head 680	e'	42.5800	Relative Permittivity (ϵ_r):	42.58	42.32	0.61	5
		e''	23.3000	Conductivity (σ):	0.88	0.89	-0.76	5
	Head 790	e'	42.3500	Relative Permittivity (ϵ_r):	42.35	41.76	1.42	5
		e''	20.2100	Conductivity (σ):	0.89	0.90	-0.94	5
2023-01-10	Head 835	e'	42.4600	Relative Permittivity (ϵ_r):	42.46	41.50	2.31	5
		e''	19.7400	Conductivity (σ):	0.92	0.90	1.83	5
	Head 820	e'	42.4000	Relative Permittivity (ϵ_r):	42.40	41.60	1.92	5
		e''	19.9000	Conductivity (σ):	0.91	0.90	0.99	5
	Head 850	e'	42.5000	Relative Permittivity (ϵ_r):	42.50	41.50	2.41	5
		e''	19.5500	Conductivity (σ):	0.92	0.92	0.98	5
2023-01-17	Head 1750	e'	41.9400	Relative Permittivity (ϵ_r):	41.94	40.08	4.63	5
		e''	13.6300	Conductivity (σ):	1.33	1.37	-3.12	5
	Head 1710	e'	42.0100	Relative Permittivity (ϵ_r):	42.01	40.15	4.64	5
		e''	13.7500	Conductivity (σ):	1.31	1.35	-2.90	5
	Head 1755	e'	41.9300	Relative Permittivity (ϵ_r):	41.93	40.08	4.62	5
		e''	13.6200	Conductivity (σ):	1.33	1.37	-3.11	5

SAR 6 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2022-12-26	Head 2450	e'	40.3300	Relative Permittivity (ϵ_r):	40.33	39.20	2.88	5
		e''	13.0400	Conductivity (σ):	1.78	1.80	-1.31	5
	Head 2400	e'	40.0300	Relative Permittivity (ϵ_r):	40.03	39.30	1.87	5
		e''	13.0000	Conductivity (σ):	1.73	1.75	-0.96	5
	Head 2480	e'	40.4600	Relative Permittivity (ϵ_r):	40.46	39.16	3.31	5
		e''	13.0100	Conductivity (σ):	1.79	1.83	-2.10	5

SAR 7 Room

Date	Freq. (MHz)		Liquid Parameters	Measured	Target	Delta (%)	Limit ±(%)	
2022-12-14	Head 13	e'	54.4700	Relative Permittivity (ϵ_r):	54.47	55.00	-0.96	5
		e"	1020.0000	Conductivity (σ):	0.74	0.75	-1.69	5
	Head 12	e'	54.4700	Relative Permittivity (ϵ_r):	54.47	55.00	-0.96	5
		e"	1105.0000	Conductivity (σ):	0.74	0.75	-1.69	5
	Head 14	e'	54.3000	Relative Permittivity (ϵ_r):	54.30	55.00	-1.27	5
		e"	947.2000	Conductivity (σ):	0.74	0.75	-1.69	5
2022-12-22	Head 13	e'	55.2700	Relative Permittivity (ϵ_r):	55.27	55.00	0.49	5
		e"	1021.0000	Conductivity (σ):	0.74	0.75	-1.60	5
	Head 12	e'	55.3400	Relative Permittivity (ϵ_r):	55.34	55.00	0.62	5
		e"	1106.0000	Conductivity (σ):	0.74	0.75	-1.60	5
	Head 14	e'	55.2300	Relative Permittivity (ϵ_r):	55.23	55.00	0.42	5
		e"	948.5000	Conductivity (σ):	0.74	0.75	-1.55	5
2022-12-26	Head 5250	e'	34.6600	Relative Permittivity (ϵ_r):	34.66	35.93	-3.54	5
		e"	16.4600	Conductivity (σ):	4.80	4.70	2.19	5
	Head 5260	e'	34.6600	Relative Permittivity (ϵ_r):	34.66	35.92	-3.51	5
		e"	16.4500	Conductivity (σ):	4.81	4.71	2.10	5
	Head 5600	e'	34.7800	Relative Permittivity (ϵ_r):	34.78	35.53	-2.12	5
		e"	16.2100	Conductivity (σ):	5.05	5.06	-0.25	5
	Head 5800	e'	33.9900	Relative Permittivity (ϵ_r):	33.99	35.30	-3.71	5
		e"	16.1800	Conductivity (σ):	5.22	5.27	-0.99	5
	Head 5825	e'	33.9300	Relative Permittivity (ϵ_r):	33.93	35.30	-3.88	5
		e"	16.1900	Conductivity (σ):	5.24	5.27	-0.50	5
2023-01-02	Head 5250	e'	36.5600	Relative Permittivity (ϵ_r):	36.56	35.93	1.74	5
		e"	16.3200	Conductivity (σ):	4.76	4.70	1.32	5
	Head 5260	e'	36.4700	Relative Permittivity (ϵ_r):	36.47	35.92	1.53	5
		e"	16.2300	Conductivity (σ):	4.75	4.71	0.73	5
	Head 5600	e'	36.3700	Relative Permittivity (ϵ_r):	36.37	35.53	2.35	5
		e"	15.8800	Conductivity (σ):	4.94	5.06	-2.28	5
	Head 5800	e'	35.4000	Relative Permittivity (ϵ_r):	35.40	35.30	0.28	5
		e"	15.7200	Conductivity (σ):	5.07	5.27	-3.80	5
	Head 5825	e'	35.2600	Relative Permittivity (ϵ_r):	35.26	35.30	-0.11	5
		e"	15.9000	Conductivity (σ):	5.15	5.27	-2.28	5
2023-01-06	Head 3500	e'	39.1400	Relative Permittivity (ϵ_r):	39.14	37.93	3.19	5
		e"	14.9200	Conductivity (σ):	2.90	2.91	-0.27	5
	Head 3600	e'	39.0200	Relative Permittivity (ϵ_r):	39.02	37.82	3.19	5
		e"	14.7300	Conductivity (σ):	2.95	3.01	-2.17	5
	Head 3700	e'	38.3900	Relative Permittivity (ϵ_r):	38.39	37.70	1.83	5
		e"	14.8500	Conductivity (σ):	3.06	3.12	-1.96	5
	Head 3800	e'	37.9000	Relative Permittivity (ϵ_r):	37.90	37.59	0.83	5
		e"	15.0100	Conductivity (σ):	3.17	3.22	-1.46	5
	Head 3900	e'	37.3800	Relative Permittivity (ϵ_r):	37.38	37.47	-0.25	5
		e"	15.1400	Conductivity (σ):	3.28	3.32	-1.14	5
	Head 3950	e'	37.7400	Relative Permittivity (ϵ_r):	37.74	37.42	0.87	5
		e"	15.4200	Conductivity (σ):	3.39	3.37	0.44	5
2023-01-10	Head 3500	e'	38.9500	Relative Permittivity (ϵ_r):	38.95	37.93	2.69	5
		e"	14.8000	Conductivity (σ):	2.88	2.91	-1.08	5
	Head 3600	e'	38.7500	Relative Permittivity (ϵ_r):	38.75	37.82	2.47	5
		e"	14.9300	Conductivity (σ):	2.99	3.01	-0.84	5
	Head 3700	e'	38.5500	Relative Permittivity (ϵ_r):	38.55	37.70	2.25	5
		e"	15.0400	Conductivity (σ):	3.09	3.12	-0.71	5
	Head 3800	e'	38.3700	Relative Permittivity (ϵ_r):	38.37	37.59	2.08	5
		e"	15.1400	Conductivity (σ):	3.20	3.22	-0.61	5
	Head 3900	e'	38.2100	Relative Permittivity (ϵ_r):	38.21	37.47	1.97	5
		e"	15.1800	Conductivity (σ):	3.29	3.32	-0.87	5
	Head 3950	e'	38.1300	Relative Permittivity (ϵ_r):	38.13	37.42	1.91	5
		e"	15.2200	Conductivity (σ):	3.34	3.37	-0.87	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 of 100MHz to 6GHz frequency range 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. For The System verification of 9MHz to 19MHz frequency range, The System verification must be performed before 24 hours.

System Performance Check Measurement Conditions (100MHz to 6GHz):

- 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.

System Performance Check Measurement Conditions (13MHz):

- 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
- The DASY system with an E-Field Probe was used for the measurements.
- The CLA(Confined Loop Antennas) was mounted on the small tripod so that the CLA feed point was positioned below the center marking of the flat phantom section and the CLA was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 0 mm separation distance from CLA center to the Phantom surface.
- The CLA input power (forward power) was 100 mW.
- The results are normalized to 1 W input power.

Reference Target SAR Values

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

System Dipole	Serial No.	Cal. Date	Cal. Due Date	Target SAR Values (W/kg)	
				1g/10g	Head
D750V3	1205	4-27-2021	4-27-2023	1g	8.66
				10g	5.65
D835V2	4d174	9-21-2022	9-21-2024	1g	9.63
				10g	6.29
D1750V2	1125	11-30-2022	11-30-2024	1g	35.60
				10g	18.90
D1750V2	1180	9-21-2022	9-21-2024	1g	37.40
				10g	19.70
D1900V2	5d190	11-16-2022	11-16-2024	1g	39.70
				10g	20.70
D1900V2	5d199	3-25-2022	3-25-2024	1g	39.40
				10g	20.50
D2300V2	1115	4-23-2021	4-23-2023	1g	49.30
				10g	23.60
D2450V2	960	3-24-2022	3-24-2024	1g	51.90
				10g	24.00
D2600V2	1097	9-29-2021	9-29-2023	1g	57.10
				10g	25.50
D2600V2	1178	4-23-2021	4-23-2023	1g	56.60
				10g	25.40
D3500V2	1121	4-21-2021	4-21-2023	1g	66.30
				10g	25.00
D3700V2	1036	5-21-2021	5-21-2023	1g	67.90
				10g	24.30
D3900V2	1069	4-21-2021	4-21-2023	1g	70.10
				10g	24.30
D5GHzV2 (5250)	1184	11-23-2022	11-23-2024	1g	79.00
				10g	22.90
D5GHzV2 (5600)				1g	81.60
				10g	23.10
D5GHzV2 (5750)				1g	80.80
				10g	23.00
CLA-13	1015	8-23-2022	8-23-2023	1g	0.55
				10g	0.34

Note(s):

1. For System Validation Dipole, Calibration interval applied every 2 years according to referencing KDB 865664 guidance.
2. For CLA, Calibration interval applied every year.
3. Refer to Appendix F that mentioned about justification

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				
2022-12-05	D1750V2	1180	Head	1g	3.29	32.9	35.60	-7.58	1
				10g	1.78	17.8	18.90	-5.82	
2022-12-05	D1900V2	5d199	Head	1g	4.00	40.0	39.40	1.52	
				10g	2.08	20.8	20.50	1.46	
2022-12-09	D1750V2	1180	Head	1g	3.31	33.1	35.60	-7.02	
				10g	1.80	18.0	18.90	-4.76	
2022-12-09	D1900V2	5d199	Head	1g	4.04	40.4	39.40	2.54	
				10g	2.09	20.9	20.50	1.95	
2022-12-13	D1900V2	5d199	Head	1g	3.96	39.6	39.40	0.51	
				10g	2.04	20.4	20.50	-0.49	
2022-12-19	D1750V2	1125	Head	1g	3.48	34.8	37.40	-6.95	2
				10g	1.85	18.5	19.70	-6.09	
2022-12-19	D1900V2	5d190	Head	1g	3.96	39.6	39.70	-0.25	
				10g	2.05	20.5	20.70	-0.97	
2023-01-02	D1750V2	1180	Head	1g	3.31	33.1	35.60	-7.02	
				10g	1.76	17.6	18.90	-6.88	
2023-01-02	D1900V2	5d199	Head	1g	3.72	37.2	39.40	-5.58	3
				10g	1.91	19.1	20.50	-6.83	
2023-01-06	D1750V2	1180	Head	1g	3.58	35.8	35.60	0.56	
				10g	1.93	19.3	18.90	2.12	
2023-01-06	D1900V2	5d190	Head	1g	4.02	40.2	39.70	1.26	
				10g	2.07	20.7	20.70	0.00	
2023-01-13	D3500V2	1121	Head	1g	6.39	63.9	66.30	-3.62	
				10g	2.50	25.0	25.00	0.00	
2023-01-13	D3700V2	1036	Head	1g	6.83	68.3	67.90	0.59	
				10g	2.58	25.8	24.30	6.17	
2023-01-13	D3900V2	1069	Head	1g	6.77	67.7	70.10	-3.42	
				10g	2.45	24.5	24.30	0.82	
2023-01-17	D3500V2	1121	Head	1g	6.23	62.3	66.30	-6.03	4
				10g	2.42	24.2	25.00	-3.20	
2023-01-17	D3700V2	1036	Head	1g	6.26	62.6	67.90	-7.81	5
				10g	2.36	23.6	24.30	-2.88	
2023-01-17	D3900V2	1069	Head	1g	6.43	64.3	70.10	-8.27	
				10g	2.33	23.3	24.30	-4.12	

SAR 2 Room

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
2023-01-06	D3500V2	1121	Head	1g	6.59	65.9	66.30	-0.60	
				10g	2.55	25.5	25.00	2.00	
2023-01-06	D3700V2	1036	Head	1g	6.80	68.0	67.90	0.15	
				10g	2.52	25.2	24.30	3.70	
2023-01-06	D3900V2	1069	Head	1g	7.02	70.2	70.10	0.14	
				10g	2.51	25.1	24.30	3.29	
2023-01-19	D1900V2	5d190	Head	1g	3.91	39.1	39.70	-1.51	6
				10g	2.03	20.3	20.70	-1.93	

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				
2022-12-05	D1900V2	5d199	Head	1g	3.79	37.9	39.40	-3.81	7
				10g	2.03	20.3	20.50	-0.98	
2022-12-07	D2600V2	1178	Head	1g	5.23	52.3	56.60	-7.60	
				10g	2.34	23.4	25.40	-7.87	
2022-12-12	D1900V2	5d190	Head	1g	3.84	38.4	39.70	-3.27	
				10g	2.03	20.3	20.70	-1.93	
2022-12-13	D1900V2	5d190	Head	1g	3.82	38.2	39.70	-3.78	
				10g	2.01	20.1	20.70	-2.90	
2023-01-12	D2300V2	1115	Head	1g	4.65	46.5	49.30	-5.68	
				10g	2.29	22.9	23.60	-2.97	
2023-01-15	D3500V2	1121	Head	1g	6.58	65.8	66.30	-0.75	
				10g	2.60	26.0	25.00	4.00	
2023-01-15	D3700V2	1036	Head	1g	6.73	67.3	67.90	-0.88	
				10g	2.56	25.6	24.30	5.35	
2023-01-15	D3900V2	1069	Head	1g	6.40	64.0	70.10	-8.70	8
				10g	2.34	23.4	24.30	-3.70	
2023-01-18	D2300V2	1115	Head	1g	4.73	47.3	49.30	-4.06	
				10g	2.25	22.5	23.60	-4.66	

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				
2022-12-13	D1750V2	1180	Head	1g	3.37	33.7	35.60	-5.34	9
				10g	1.83	18.3	18.90	-3.17	
2022-12-20	D2600V2	1178	Head	1g	5.32	53.2	56.60	-6.01	
				10g	2.38	23.8	25.40	-6.30	
2022-12-22	D1750V2	1125	Head	1g	3.52	35.2	37.40	-5.88	
				10g	1.87	18.7	19.70	-5.08	
2022-12-22	D1900V2	5d190	Head	1g	3.68	36.8	39.70	-7.30	
				10g	1.92	19.2	20.70	-7.25	
2022-12-26	D1750V2	1125	Head	1g	3.63	36.3	37.40	-2.94	
				10g	1.94	19.4	19.70	-1.52	
2022-12-26	D1900V2	5d190	Head	1g	3.80	38.0	39.70	-4.28	
				10g	1.96	19.6	20.70	-5.31	
2022-12-30	D2300V2	1115	Head	1g	4.70	47.0	49.30	-4.67	
				10g	2.22	22.2	23.60	-5.93	
2023-01-03	D2300V2	1115	Head	1g	4.52	45.2	49.30	-8.32	10
				10g	2.18	21.8	23.60	-7.63	
2023-01-03	D2600V2	1097	Head	1g	5.55	55.5	57.10	-2.80	
				10g	2.50	25.0	25.50	-1.96	
2023-01-05	D2600V2	1097	Head	1g	5.48	54.8	57.10	-4.03	
				10g	2.49	24.9	25.50	-2.35	
2023-01-06	D2600V2	1097	Head	1g	5.54	55.4	57.10	-2.98	
				10g	2.48	24.8	25.50	-2.75	
2023-01-10	D2600V2	1097	Head	1g	5.97	59.7	57.10	4.55	11
				10g	2.69	26.9	25.50	5.49	
2023-01-11	D2450V2	960	Head	1g	4.98	49.8	51.90	-4.05	
				10g	2.32	23.2	24.00	-3.33	
2023-01-16	D2600V2	1097	Head	1g	5.85	58.5	57.10	2.45	
				10g	2.63	26.3	25.50	3.14	
2023-01-20	D2600V2	1097	Head	1g	5.70	57.0	57.10	-0.18	
				10g	2.54	25.4	25.50	-0.39	

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				
2023-01-02	D750V3	1205	Head	1g	0.87	8.7	8.66	0.23	
				10g	0.60	6.0	5.65	5.66	
2023-01-02	D835V2	4d174	Head	1g	0.99	9.9	9.63	2.49	
				10g	0.67	6.7	6.29	7.15	
2023-01-06	D750V3	1205	Head	1g	0.89	8.9	8.66	2.77	
				10g	0.59	5.9	5.65	4.42	
2023-01-06	D835V2	4d174	Head	1g	1.03	10.3	9.63	6.96	
				10g	0.68	6.8	6.29	7.47	
2023-01-10	D750V3	1205	Head	1g	0.81	8.1	8.66	-6.93	12
				10g	0.54	5.4	5.65	-5.31	
2023-01-10	D835V2	4d174	Head	1g	0.89	8.9	9.63	-7.58	13
				10g	0.59	5.9	6.29	-7.00	
2023-01-17	D1750V2	1180	Head	1g	3.59	35.9	35.60	0.84	
				10g	1.92	19.2	18.90	1.59	

SAR 6 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				
2022-12-26	D2450V2	960	Head	1g	4.94	49.4	51.90	-4.82	14
				10g	2.31	23.1	24.00	-3.75	

SAR 7 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				
2022-12-14	CLA-13	1015	Head	1g	0.05	0.5	0.55	-1.46	15
				10g	0.03	0.3	0.34	-2.94	
2022-12-22	CLA-13	1015	Head	1g	0.05	0.5	0.55	-1.46	
				10g	0.03	0.3	0.34	-2.94	
2022-12-26	D5GHzV2	1184	Head	1g	7.39	73.9	79.00	-6.46	
				10g	2.10	21.0	22.90	-8.30	
2022-12-26	D5GHzV2	1184	Head	1g	8.50	85.0	81.60	4.17	
				10g	2.42	24.2	23.10	4.76	
2022-12-26	D5GHzV2 (5800)	1184	Head	1g	8.04	80.4	79.50	1.13	
				10g	2.28	22.8	22.60	0.88	
2023-01-02	D5GHzV2	1184	Head	1g	7.31	73.1	79.00	-7.47	16
				10g	2.09	20.9	22.90	-8.73	
2023-01-02	D5GHzV2	1184	Head	1g	8.55	85.5	81.60	4.78	
				10g	2.42	24.2	23.10	4.76	
2023-01-02	D5GHzV2 (5800)	1184	Head	1g	8.38	83.8	79.50	5.41	
				10g	2.40	24.0	22.60	6.19	
2023-01-06	D3500V2	1121	Head	1g	6.38	63.8	66.30	-3.77	
				10g	2.47	24.7	25.00	-1.20	
2023-01-06	D3700V2	1036	Head	1g	6.74	67.4	67.90	-0.74	
				10g	2.52	25.2	24.30	3.70	
2023-01-06	D3900V2	1069	Head	1g	7.04	70.4	70.10	0.43	
				10g	2.52	25.2	24.30	3.70	
2023-01-10	D3500V2	1121	Head	1g	6.28	62.8	66.30	-5.28	
				10g	2.44	24.4	25.00	-2.40	
2023-01-10	D3700V2	1036	Head	1g	6.94	69.4	67.90	2.21	
				10g	2.59	25.9	24.30	6.58	
2023-01-10	D3900V2	1069	Head	1g	7.33	73.3	70.10	4.56	
				10g	2.63	26.3	24.30	8.23	

9. Conducted Output Power Measurements

9.1. GSM

Per KDB 941225 D01 3G SAR Procedures:

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

GSM850 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Allowed Average Power (dBm)							
					RSI = 0, 2, 3, 4				RSI = 1			
					Measured		Tune-up Limit		Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	128	824.2	32.22	23.19	33.50	24.47	28.53	19.50	30.00	20.97
			190	836.6	32.32	23.29			28.50	19.47		
			251	848.8	32.31	23.28			28.30	19.27		
GPRS (GMSK)	CS1	1	128	824.2	32.40	23.37	33.50	24.47	28.53	19.50	30.00	20.97
			190	836.6	32.56	23.53			28.38	19.35		
			251	848.8	32.50	23.47			28.16	19.13		
		2	128	824.2	30.73	24.71	32.00	25.98	26.71	20.69	28.50	22.48
			190	836.6	30.44	24.42			26.60	20.58		
			251	848.8	30.29	24.27			26.37	20.35		
		3	128	824.2	28.96	24.70	30.00	25.74	24.91	20.65	26.50	22.24
			190	836.6	28.89	24.63			24.79	20.53		
			251	848.8	28.71	24.45			24.86	20.60		
		4	128	824.2	27.76	24.75	28.00	24.99	23.61	20.60	24.50	21.49
			190	836.6	27.43	24.42			23.48	20.47		
			251	848.8	27.24	24.23			23.23	20.22		
EGPRS (8PSK)	MCS5	1	128	824.2	26.69	17.66	27.50	18.47	26.47	17.44	27.00	17.97
			190	836.6	26.77	17.74			26.26	17.23		
			251	848.8	26.54	17.51			26.23	17.20		
		2	128	824.2	24.40	18.38	26.00	19.98	24.35	18.33	25.50	19.48
			190	836.6	24.73	18.71			24.40	18.38		
			251	848.8	24.49	18.47			24.38	18.36		
		3	128	824.2	23.26	19.00	24.00	19.74	23.14	18.88	23.50	19.24
			190	836.6	23.11	18.85			22.98	18.72		
			251	848.8	22.77	18.51			22.71	18.45		
		4	128	824.2	22.10	19.09	22.50	19.49	21.52	18.51	22.00	18.99
			190	836.6	21.71	18.70			21.35	18.34		
			251	848.8	21.70	18.69			21.32	18.31		

Notes:

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

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

GSM1900 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Allowed Average Power (dBm)			
					RSI = 0, 1, 2, 3, 4			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	512	1850.2	28.96	19.93	31.00	21.97
			661	1880.0	28.94	19.91		
			810	1909.8	28.97	19.94		
GPRS (GMSK)	CS1	1	512	1850.2	28.99	19.96	31.00	21.97
			661	1880.0	28.97	19.94		
			810	1909.8	28.94	19.91		
		2	512	1850.2	26.45	20.43	28.00	21.98
			661	1880.0	26.72	20.70		
			810	1909.8	26.59	20.57		
	3	512	1850.2	24.73	20.47	26.00	21.74	
		661	1880.0	24.79	20.53			
		810	1909.8	24.92	20.66			
	4	512	1850.2	23.32	20.31	25.00	21.99	
		661	1880.0	23.71	20.70			
		810	1909.8	23.63	20.62			
EGPRS (8PSK)	MCS5	1	512	1850.2	25.51	16.48	27.00	17.97
			661	1880.0	25.78	16.75		
			810	1909.8	25.66	16.63		
		2	512	1850.2	23.98	17.96	25.50	19.48
			661	1880.0	24.11	18.09		
			810	1909.8	24.09	18.07		
	3	512	1850.2	22.48	18.22	23.00	18.74	
		661	1880.0	22.63	18.37			
		810	1909.8	22.69	18.43			
	4	512	1850.2	20.91	17.90	22.00	18.99	
		661	1880.0	21.08	18.07			
		810	1909.8	21.14	18.13			

Notes:

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

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

9.2. W-CDMA

Release 99 Setup Procedures used to establish the test signals

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

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

HSDPA Setup Procedures used to establish the test signals

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

Mode	Subtest	HSDPA	HSDPA	HSDPA	HSDPA
		1	2	3	4
W-CDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set 1			
	Power Control Algorithm	Algorithm 2			
	β_c	2/15	11/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	11/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
MPR (dB)	0	0	0.5	0.5	
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	$A_{hs}=\beta_{hs}/\beta_c$	30/15			

HSPA (HSDPA & HSUPA) Setup Procedures used to establish the test signals

The following 5 Sub-tests were completed according to Release 6 procedures in table C,11.1.3 of 3GPP TS 34.121-1 v13. A summary of these settings are illustrated below:

	Mode	HSPA				
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2 kbps RMC				
	HSDPA FRC	H-Set 1				
	HSUPA Test	HSPA				
	Power Control Algorithm	Algorithm 2				Algorithm 1
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	0
	β_{ec}	209/225	12/15	30/15	2/15	5/15
	β_c/β_d	11/15	6/15	15/9	2/15	-
	β_{hs}	22/15	12/15	30/15	4/15	5/15
	β_{ed}	1309/225	94/75	47/15	56/75	47/15
CM (dB)	1	3	2	3	1	
MPR (dB)	0	2	1	2	0	
HSDPA Specific Settings	DACK	8				0
	DNAK	8				0
	DCQI	8				0
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	$A_{hs} = \beta_{hs}/\beta_c$	30/15				
HSUPA Specific Settings	E-DPDCH	6	8	8	5	0
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	12
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	67
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E-TFCIs	5	5	2	5	1
	Reference E-TFCI	11	11	11	11	67
	Reference E-TFCI PO	4	4	4	4	18
	Reference E-TFCI	67	67	92	67	67
	Reference E-TFCI PO	18	18	18	18	18
	Reference E-TFCI	71	71	71	71	71
	Reference E-TFCI PO	23	23	23	23	23
	Reference E-TFCI	75	75	75	75	75
	Reference E-TFCI PO	26	26	26	26	26
	Reference E-TFCI	81	81	81	81	81
Reference E-TFCI PO	27	27	27	27	27	
Maximum Channelization Codes	2xSF2				SF4	

DC-HSDPA Setup Procedures used to establish the test signals

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

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

Table E.5.0: Levels for HSDPA connection setup

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

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

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

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

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

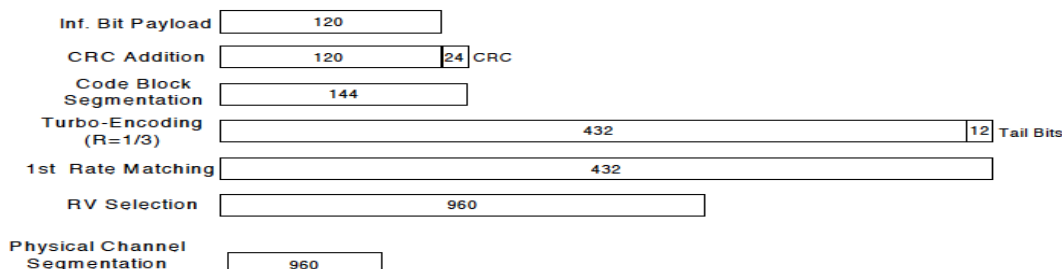


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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

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

HSPA+

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

W-CDMA Band II Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Allowed Average Power (dBm)								
				RSI = 0, 4			RSI = 3			RSI = 1, 2		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	23.12	N/A	24.0	21.22	N/A	22.0	21.32	N/A	22.0
		9400	1880.0	22.99			21.05			21.12		
		9538	1907.6	23.02			21.11			21.17		
HSDPA	Subtest 1	9262	1852.4	23.13	0	23.5	21.20	0	22.0	21.26	0	22.0
		9400	1880.0	23.06			21.06			21.11		
		9538	1907.6	22.65			21.16			21.21		
	Subtest 2	9262	1852.4	22.74	0	23.5	21.20	0	22.0	21.29	0	22.0
		9400	1880.0	22.62			21.08			21.12		
		9538	1907.6	22.27			21.14			21.23		
	Subtest 3	9262	1852.4	22.26	0.5	23.0	21.23	0.5	21.5	21.26	0.5	21.5
		9400	1880.0	22.13			21.07			21.12		
		9538	1907.6	22.20			21.17			21.23		
	Subtest 4	9262	1852.4	21.70	0.5	23.0	21.24	0.5	21.5	21.28	0.5	21.5
		9400	1880.0	21.59			21.08			21.14		
		9538	1907.6	21.73			21.16			21.20		
HSUPA	Subtest 1	9262	1852.4	22.21	0	23.5	20.18	0	22.0	20.22	0	22.0
		9400	1880.0	22.01			19.96			20.00		
		9538	1907.6	22.08			20.06			20.11		
	Subtest 2	9262	1852.4	19.63	2	21.5	19.71	2	20.0	19.75	2	20.0
		9400	1880.0	19.45			19.49			19.52		
		9538	1907.6	19.50			19.55			19.56		
	Subtest 3	9262	1852.4	22.19	1	22.5	20.14	1	21.0	20.18	1	21.0
		9400	1880.0	22.00			19.93			19.91		
		9538	1907.6	22.08			20.04			20.05		
	Subtest 4	9262	1852.4	20.09	2	21.5	19.81	0.5	21.5	19.82	0.5	21.5
		9400	1880.0	19.88			19.93			19.94		
		9538	1907.6	19.98			21.18			20.04		
	Subtest 5	9262	1852.4	22.72	0	23.5	21.41	0	22.0	21.41	0	22.0
		9400	1880.0	22.87			21.18			21.19		
		9538	1907.6	22.56			21.23			21.24		
DC-HSDPA	Subtest 1	9262	1852.4	22.76	0	23.5	21.19	0	22.0	21.15	0	22.0
		9400	1880.0	22.76			21.05			21.02		
		9538	1907.6	22.24			21.15			21.10		
	Subtest 2	9262	1852.4	22.65	0	23.5	21.20	0	22.0	21.14	0	22.0
		9400	1880.0	22.28			21.08			21.03		
		9538	1907.6	21.78			21.20			21.14		
	Subtest 3	9262	1852.4	21.77	0.5	23.0	21.20	0.5	21.5	21.18	0.5	21.5
		9400	1880.0	21.62			21.10			21.06		
		9538	1907.6	21.33			21.16			21.19		
	Subtest 4	9262	1852.4	21.75	0.5	23.0	21.18	0.5	21.5	21.20	0.5	21.5
		9400	1880.0	21.62			21.06			21.08		
		9538	1907.6	21.36			21.19			21.15		

W-CDMA Band IV Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Allowed Average Power (dBm)								
				RSI = 0, 4			RSI = 3			RSI = 1, 2		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	22.69	NA	24.0	20.49	NA	21.5	20.43	NA	21.5
		1413	1732.6	22.74			20.51			20.47		
		1513	1752.6	23.16			20.98			20.94		
HSDPA	Subtest 1	1312	1712.4	22.59	0	23.5	20.47	0	21.5	20.41	0	21.5
		1413	1732.6	22.66			20.54			20.50		
		1513	1752.6	23.10			20.96			20.94		
	Subtest 2	1312	1712.4	22.08	0	23.5	20.45	0	21.5	20.42	0	21.5
		1413	1732.6	22.17			20.52			20.49		
		1513	1752.6	22.66			20.99			20.95		
	Subtest 3	1312	1712.4	21.51	0.5	23.0	20.46	0.5	21.0	20.43	0.5	21.0
		1413	1732.6	21.58			20.51			20.49		
		1513	1752.6	22.11			20.99			20.95		
	Subtest 4	1312	1712.4	21.52	0.5	23.0	20.44	0.5	21.0	20.40	0.5	21.0
		1413	1732.6	21.58			20.51			20.47		
		1513	1752.6	22.12			20.97			20.93		
HSUPA	Subtest 1	1312	1712.4	21.50	0	23.5	19.45	0	21.5	19.44	0	21.5
		1413	1732.6	21.50			19.47			19.43		
		1513	1752.6	21.42			19.88			19.83		
	Subtest 2	1312	1712.4	19.01	2	21.5	18.98	2	19.5	18.94	2	19.5
		1413	1732.6	19.01			18.97			18.94		
		1513	1752.6	19.45			19.41			19.39		
	Subtest 3	1312	1712.4	21.47	1	22.5	19.43	1	20.5	19.42	1	20.5
		1413	1732.6	21.50			19.46			19.43		
		1513	1752.6	22.01			19.87			19.85		
	Subtest 4	1312	1712.4	19.30	2	21.5	19.26	2	19.5	19.24	2	19.5
		1413	1732.6	19.32			19.26			19.24		
		1513	1752.6	19.09			19.03			19.01		
	Subtest 5	1312	1712.4	22.72	0	23.5	20.65	0	21.5	20.62	0	21.5
		1413	1732.6	22.68			20.66			20.63		
		1513	1752.6	23.01			21.12			21.09		
DC-HSDPA	Subtest 1	1312	1712.4	22.58	0	23.5	20.51	0	21.5	20.48	0	21.5
		1413	1732.6	22.96			20.83			20.83		
		1513	1752.6	23.13			21.00			20.95		
	Subtest 2	1312	1712.4	22.07	0	23.5	20.47	0	21.5	20.42	0	21.5
		1413	1732.6	22.49			20.86			20.80		
		1513	1752.6	22.66			20.99			20.95		
	Subtest 3	1312	1712.4	21.01	0.5	23.0	20.46	0.5	21.0	20.42	0.5	21.0
		1413	1732.6	21.35			20.83			20.81		
		1513	1752.6	21.55			20.97			20.95		
	Subtest 4	1312	1712.4	21.47	0.5	23.0	20.45	0.5	21.0	20.42	0.5	21.0
		1413	1732.6	21.89			20.80			20.79		
		1513	1752.6	22.08			20.98			20.93		

W-CDMA Band V Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Allowed Average Power (dBm)		
				RSI = 0, 1, 2, 3, 4		
				Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	4132	826.4	23.74	NA	25.0
		4183	836.6	23.73		
		4233	846.6	23.67		
HSDPA	Subtest 1	4132	826.4	22.74	0	23.5
		4183	836.6	22.76		
		4233	846.6	22.70		
	Subtest 2	4132	826.4	22.28	0	23.5
		4183	836.6	22.29		
		4233	846.6	22.22		
	Subtest 3	4132	826.4	21.86	0.5	23.0
		4183	836.6	21.85		
		4233	846.6	21.76		
	Subtest 4	4132	826.4	21.30	0.5	23.0
		4183	836.6	21.32		
		4233	846.6	21.23		
HSUPA	Subtest 1	4132	826.4	21.80	0	23.5
		4183	836.6	21.74		
		4233	846.6	21.66		
	Subtest 2	4132	826.4	19.73	2	21.5
		4183	836.6	19.68		
		4233	846.6	19.58		
	Subtest 3	4132	826.4	20.72	1	22.5
		4183	836.6	20.65		
		4233	846.6	20.55		
	Subtest 4	4132	826.4	19.73	2	21.5
		4183	836.6	19.66		
		4233	846.6	19.55		
	Subtest 5	4132	826.4	22.85	0	23.5
		4183	836.6	22.81		
		4233	846.6	22.71		
DC-HSDPA	Subtest 1	4132	826.4	22.66	0	23.0
		4183	836.6	22.76		
		4233	846.6	22.59		
	Subtest 2	4132	826.4	22.28	0	23.0
		4183	836.6	22.28		
		4233	846.6	22.21		
	Subtest 3	4132	826.4	20.74	0.5	22.5
		4183	836.6	20.73		
		4233	846.6	20.65		
	Subtest 4	4132	826.4	21.21	0.5	22.5
		4183	836.6	21.27		
		4233	846.6	21.18		

9.3. LTE

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

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

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

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

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

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

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

Maximum Output Power (Tune-up Limit) for LTE

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

- a) The maximum output power, including tolerance, for the smaller band must be ≤ the larger band to qualify for the SAR test exclusion.
- b) The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.
 - LTE Band 2 (1850 – 1910 MHz) is covered by LTE Band 25 (1850 – 1915 MHz)
 - LTE Band 4 (1710 – 1755 MHz) is covered by LTE Band 66 (1710 – 1780 MHz)
 - LTE Band 5 (824 – 849 MHz) is covered by LTE Band 26 (814 – 849 MHz)

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

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

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

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

LTE Band 2 Sub.2 Ant Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit	
				18650	18900	19150			18650	18900	19150			
				1855 MHz	1880 MHz	1905 MHz			1855 MHz	1880 MHz	1905 MHz			
10 MHz	QPSK	1	0	21.24	20.95	21.31	0.0	22.0	20.23	19.96	19.90	0.0	21.0	
		1	25	21.25	20.87	21.27	0.0	22.0	20.41	19.95	19.81	0.0	21.0	
		1	49	21.18	20.84	21.32	0.0	22.0	20.38	19.95	19.89	0.0	21.0	
		25	0	21.16	21.35	21.30	0.0	22.0	20.21	20.28	20.08	0.0	21.0	
		25	12	21.19	21.38	21.27	0.0	22.0	20.13	20.25	20.09	0.0	21.0	
		25	25	21.14	21.38	21.25	0.0	22.0	20.18	20.28	20.08	0.0	21.0	
	16QAM	50	0	21.11	21.32	21.39	0.0	22.0	20.15	20.29	20.15	0.0	21.0	
		1	0	21.13	21.97	21.06	0.0	22.0	20.87	19.92	20.89	0.0	21.0	
		1	25	21.12	21.96	21.12	0.0	22.0	20.99	19.91	20.98	0.0	21.0	
		1	49	21.16	21.84	21.13	0.0	22.0	20.88	19.94	20.95	0.0	21.0	
		25	0	21.87	21.10	20.90	0.0	22.0	20.87	20.32	19.68	0.0	21.0	
		25	12	21.78	21.14	20.93	0.0	22.0	20.85	20.31	19.71	0.0	21.0	
	64QAM	25	25	21.69	21.18	20.85	0.0	22.0	20.86	20.36	19.65	0.0	21.0	
		50	0	21.80	21.19	20.86	0.0	22.0	20.88	20.28	20.00	0.0	21.0	
		1	0	20.72	21.60	20.43	0.0	22.0	19.36	20.45	19.03	0.0	21.0	
		1	25	20.68	21.58	20.46	0.0	22.0	19.41	20.47	19.24	0.0	21.0	
		1	49	20.65	21.63	20.42	0.0	22.0	19.38	20.42	19.31	0.0	21.0	
		25	0	19.31	20.75	19.55	1.0	21.0	19.48	20.69	19.84	0.0	21.0	
	256QAM	25	12	19.35	20.79	19.59	1.0	21.0	19.42	20.63	19.84	0.0	21.0	
		25	25	19.36	20.76	19.58	1.0	21.0	19.43	20.68	19.81	0.0	21.0	
		50	0	19.93	20.79	19.71	1.0	21.0	19.94	20.80	19.74	0.0	21.0	
		1	0	17.67	17.71	18.15	2.0	20.0	18.82	17.68	18.36	1.0	20.0	
		1	25	17.63	18.13	18.13	2.0	20.0	18.82	18.43	18.38	1.0	20.0	
		1	49	18.45	17.95	17.81	2.0	20.0	18.69	18.46	18.41	1.0	20.0	
5 MHz	QPSK	25	0	18.79	17.65	18.03	2.0	20.0	18.76	18.45	17.67	1.0	20.0	
		25	12	18.79	18.38	17.63	2.0	20.0	18.69	18.48	17.59	1.0	20.0	
		25	25	18.76	18.40	17.60	2.0	20.0	18.73	18.53	17.82	1.0	20.0	
		50	0	18.75	18.35	17.78	2.0	20.0	18.73	18.26	17.85	1.0	20.0	
		16QAM	1	0	19.83	19.61	20.02	0.0	22.0	18.78	18.57	19.13	0.0	21.0
			1	12	19.81	19.59	20.01	0.0	22.0	18.79	18.59	19.21	0.0	21.0
	1		24	19.84	19.56	20.05	0.0	22.0	19.75	18.56	19.18	0.0	21.0	
	12		0	20.83	20.87	21.06	0.0	22.0	19.83	19.85	20.15	0.0	21.0	
	12		7	20.81	20.91	21.09	0.0	22.0	19.81	19.81	20.14	0.0	21.0	
	12		13	20.84	20.86	21.11	0.0	22.0	19.82	19.82	20.18	0.0	21.0	
	64QAM	25	0	20.77	20.91	21.15	0.0	22.0	19.83	19.93	20.13	0.0	21.0	
		1	0	21.95	20.53	21.37	0.0	22.0	20.19	19.06	19.07	0.0	21.0	
		1	12	21.96	20.51	21.21	0.0	22.0	20.18	19.12	19.11	0.0	21.0	
		1	24	21.93	20.58	21.38	0.0	22.0	20.15	19.05	19.16	0.0	21.0	
		12	0	21.20	19.94	20.94	0.0	22.0	20.24	18.95	20.10	0.0	21.0	
		12	7	21.18	19.91	20.96	0.0	22.0	20.28	18.98	20.11	0.0	21.0	
	256QAM	12	13	21.21	19.96	20.97	0.0	22.0	20.25	18.92	20.07	0.0	21.0	
		25	0	21.28	20.81	20.98	0.0	22.0	19.57	19.84	20.09	0.0	21.0	
		1	0	20.71	20.53	21.77	0.0	22.0	20.51	19.94	20.19	0.0	21.0	
		1	12	20.75	20.51	21.75	0.0	22.0	20.52	20.12	20.18	0.0	21.0	
		1	24	20.79	20.52	21.69	0.0	22.0	20.58	20.00	20.21	0.0	21.0	
		12	0	19.99	19.15	19.89	1.0	21.0	20.05	19.14	19.88	0.0	21.0	
	5 MHz	16QAM	12	7	19.94	19.23	19.91	1.0	21.0	20.03	19.24	19.91	0.0	21.0
			12	13	19.96	19.36	19.91	1.0	21.0	20.09	19.28	19.92	0.0	21.0
25			0	19.87	19.26	19.45	1.0	21.0	19.89	19.29	19.91	0.0	21.0	
1			0	19.73	17.81	18.85	2.0	20.0	19.52	17.90	18.53	1.0	20.0	
1			12	19.38	17.94	18.63	2.0	20.0	19.48	17.75	18.58	1.0	20.0	
1			24	19.41	18.00	18.71	2.0	20.0	19.53	17.75	18.61	1.0	20.0	
256QAM		12	0	17.68	17.67	17.65	2.0	20.0	17.81	17.79	17.52	1.0	20.0	
		12	7	17.79	17.74	17.51	2.0	20.0	17.82	17.78	17.62	1.0	20.0	
		12	13	17.72	17.84	17.62	2.0	20.0	17.79	17.70	17.58	1.0	20.0	
		25	0	17.82	17.82	17.93	2.0	20.0	17.85	17.89	17.93	1.0	20.0	

LTE Band 2 Sub.2 Ant Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit	
				18615	18900	19185			18615	18900	19185			
				1851.5 MHz	1880 MHz	1908.5 MHz			1851.5 MHz	1880 MHz	1908.5 MHz			
3 MHz	QPSK	1	0	21.28	21.15	21.38	0.0	22.0	20.24	20.50	20.31	0.0	21.0	
		1	8	21.31	21.14	21.36	0.0	22.0	20.21	20.48	20.28	0.0	21.0	
		1	14	21.26	21.50	21.41	0.0	22.0	20.25	20.45	20.34	0.0	21.0	
		8	0	21.01	21.49	21.43	0.0	22.0	20.00	20.17	20.43	0.0	21.0	
		8	4	21.04	21.48	21.41	0.0	22.0	20.10	20.18	20.38	0.0	21.0	
		8	7	21.06	21.45	21.45	0.0	22.0	20.05	20.12	20.41	0.0	21.0	
	15	0	21.00	21.20	21.36	0.0	22.0	19.99	20.15	20.43	0.0	21.0		
	16QAM	1	0	20.83	21.13	21.54	0.0	22.0	19.76	20.40	20.36	0.0	21.0	
		1	8	20.91	21.14	21.49	0.0	22.0	19.75	20.41	20.39	0.0	21.0	
		1	14	20.86	21.18	21.47	0.0	22.0	19.82	20.45	20.41	0.0	21.0	
		8	0	20.87	21.31	21.37	0.0	22.0	19.82	20.30	20.48	0.0	21.0	
		8	4	20.81	21.32	21.38	0.0	22.0	19.81	20.37	20.51	0.0	21.0	
		8	7	20.94	21.36	21.39	0.0	22.0	19.97	20.32	20.52	0.0	21.0	
	15	0	20.72	21.05	21.39	0.0	22.0	19.69	20.04	20.46	0.0	21.0		
	64QAM	1	0	20.78	21.40	21.24	0.0	22.0	20.30	20.59	20.70	0.0	21.0	
		1	8	20.81	21.38	21.29	0.0	22.0	20.28	20.51	20.69	0.0	21.0	
		1	14	20.75	21.44	21.26	0.0	22.0	20.31	20.62	20.64	0.0	21.0	
		8	0	19.36	20.39	19.98	1.0	21.0	19.24	20.63	20.71	0.0	21.0	
		8	4	19.52	20.37	19.95	1.0	21.0	19.28	20.39	19.96	0.0	21.0	
		8	7	19.90	20.39	20.01	1.0	21.0	19.56	20.41	19.98	0.0	21.0	
	15	0	19.91	20.50	20.27	1.0	21.0	19.63	20.52	20.26	0.0	21.0		
	256QAM	1	0	18.91	18.27	17.98	2.0	20.0	18.77	17.85	17.68	1.0	20.0	
		1	8	18.82	18.26	17.85	2.0	20.0	18.82	17.82	17.71	1.0	20.0	
		1	14	18.86	18.25	17.86	2.0	20.0	18.83	17.86	17.81	1.0	20.0	
		8	0	17.73	17.91	18.51	2.0	20.0	17.74	17.84	18.43	1.0	20.0	
		8	4	17.79	17.92	18.62	2.0	20.0	17.71	17.82	18.38	1.0	20.0	
		8	7	17.76	17.86	18.36	2.0	20.0	17.74	17.85	18.51	1.0	20.0	
	15	0	18.24	17.81	18.82	2.0	20.0	18.21	17.94	18.49	1.0	20.0		
	1.4 MHz	QPSK	1	0	20.85	20.93	21.11	0.0	22.0	19.67	20.10	19.85	0.0	21.0
			1	3	20.91	20.89	21.18	0.0	22.0	19.72	20.14	19.82	0.0	21.0
1			5	21.14	20.92	21.14	0.0	22.0	19.78	20.08	19.86	0.0	21.0	
3			0	21.18	20.98	21.25	0.0	22.0	19.67	20.05	19.93	0.0	21.0	
3			1	21.15	20.95	21.24	0.0	22.0	19.75	20.11	19.90	0.0	21.0	
3			3	21.17	21.04	21.27	0.0	22.0	19.72	20.14	19.82	0.0	21.0	
6		0	21.11	21.05	21.27	0.0	22.0	19.74	20.08	19.85	0.0	21.0		
16QAM		1	0	21.07	21.23	20.92	0.0	22.0	20.04	19.70	20.35	0.0	21.0	
		1	3	21.05	21.24	20.91	0.0	22.0	20.06	19.96	20.31	0.0	21.0	
		1	5	21.16	21.18	21.14	0.0	22.0	20.15	20.12	20.38	0.0	21.0	
		3	0	20.42	21.23	20.13	0.0	22.0	19.45	20.32	19.83	0.0	21.0	
		3	1	20.91	21.25	21.15	0.0	22.0	19.51	20.31	19.82	0.0	21.0	
		3	3	20.85	21.29	21.15	0.0	22.0	19.62	19.95	19.87	0.0	21.0	
6		0	20.89	21.32	21.14	0.0	22.0	19.64	19.84	20.15	0.0	21.0		
64QAM		1	0	20.58	21.27	21.07	0.0	22.0	19.47	20.12	19.89	0.0	21.0	
		1	3	20.62	21.29	21.12	0.0	22.0	19.62	20.13	19.82	0.0	21.0	
		1	5	20.69	21.34	21.14	0.0	22.0	19.58	20.05	19.85	0.0	21.0	
		3	0	20.98	21.23	21.45	0.0	22.0	19.72	20.09	19.94	0.0	21.0	
		3	1	20.91	21.28	21.51	0.0	22.0	19.73	20.14	20.01	0.0	21.0	
		3	3	20.95	21.25	21.58	0.0	22.0	19.69	20.05	20.05	0.0	21.0	
6		0	19.65	20.14	21.53	0.0	22.0	19.64	20.08	20.04	0.0	21.0		
256QAM		1	0	18.05	17.77	17.96	2.0	20.0	18.22	17.89	17.96	1.0	20.0	
		1	3	18.12	17.79	18.12	2.0	20.0	18.14	17.92	17.92	1.0	20.0	
		1	5	18.16	17.74	17.82	2.0	20.0	18.00	17.85	17.85	1.0	20.0	
		3	0	17.56	17.59	18.01	2.0	20.0	17.92	18.16	17.67	1.0	20.0	
		3	1	17.82	17.60	18.12	2.0	20.0	17.96	18.11	17.72	1.0	20.0	
		3	3	17.79	17.69	17.92	2.0	20.0	17.94	18.14	17.78	1.0	20.0	
6		0	17.92	17.97	17.86	2.0	20.0	17.92	18.15	17.64	1.0	20.0		

LTE Band 12 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)				
				RSI = 0, 1, 2, 3, 4				
				Measured Pwr (dBm)			MPR	Tune-up Limit
707.5 MHz								
10 MHz	QPSK	1	0	24.22			0.0	25.0
		1	25	24.24			0.0	25.0
		1	49	24.15			0.0	25.0
		25	0	23.21			1.0	24.0
		25	12	23.16			1.0	24.0
		25	25	23.14			1.0	24.0
	16QAM	50	0	23.16			1.0	24.0
		1	0	23.70			1.0	24.0
		1	25	23.65			1.0	24.0
		1	49	23.55			1.0	24.0
		25	0	22.21			2.0	23.0
		25	12	22.16			2.0	23.0
	64QAM	25	25	22.14			2.0	23.0
		50	0	22.11			2.0	23.0
		1	0	22.30			2.0	23.0
		1	25	22.36			2.0	23.0
		1	49	22.26			2.0	23.0
		25	0	21.10			3.0	22.0
	256QAM	25	12	21.07			3.0	22.0
		25	25	21.03			3.0	22.0
50		0	21.00			3.0	22.0	
1		0	19.20			5.0	20.0	
1		25	19.12			5.0	20.0	
1		49	19.09			5.0	20.0	
5 MHz	QPSK	25	0	19.13			5.0	20.0
		25	12	19.11			5.0	20.0
		25	25	19.07			5.0	20.0
		50	0	19.06			5.0	20.0
		1	0	24.17	24.18	24.21	0.0	25.0
		1	12	24.21	24.21	24.32	0.0	25.0
16QAM	QPSK	1	24	24.19	24.20	24.26	0.0	25.0
		12	0	23.21	23.24	23.29	1.0	24.0
		12	7	23.19	23.23	23.29	1.0	24.0
		12	13	23.17	23.20	23.27	1.0	24.0
		25	0	23.21	23.21	23.29	1.0	24.0
	16QAM	1	0	23.40	23.57	23.55	1.0	24.0
		1	12	23.36	23.61	23.54	1.0	24.0
		1	24	23.31	23.56	23.46	1.0	24.0
		12	0	22.20	22.24	22.29	2.0	23.0
		12	7	22.16	22.22	22.27	2.0	23.0
64QAM	16QAM	12	13	22.16	22.21	22.25	2.0	23.0
		25	0	22.14	22.20	22.20	2.0	23.0
		1	0	22.22	22.11	22.07	2.0	23.0
		1	12	22.22	22.12	22.03	2.0	23.0
		1	24	22.23	22.11	22.10	2.0	23.0
	64QAM	12	0	21.15	21.24	21.29	3.0	22.0
		12	7	21.12	21.22	21.26	3.0	22.0
		12	13	21.08	21.23	21.27	3.0	22.0
		25	0	21.13	21.19	21.24	3.0	22.0
		256QAM	1	0	19.25	19.32	19.38	5.0
1	12		19.03	19.30	19.37	5.0	20.0	
1	24		19.14	19.31	19.32	5.0	20.0	
12	0		19.17	19.21	19.28	5.0	20.0	
12	7		19.16	19.22	19.25	5.0	20.0	
12	13		19.12	19.22	19.26	5.0	20.0	
5 MHz	256QAM	25	0	19.19	19.22	19.28	5.0	20.0
		25	0	19.19	19.22	19.28	5.0	20.0

LTE Band 12 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	
				23025	23095	23165			
				700.5 MHz	707.5 MHz	714.5 MHz			
3 MHz	QPSK	1	0	24.14	24.18	24.20	0.0	25.0	
		1	8	24.16	24.16	24.24	0.0	25.0	
		1	14	24.14	24.13	24.18	0.0	25.0	
		8	0	23.21	23.25	23.27	1.0	24.0	
		8	4	23.21	23.23	23.28	1.0	24.0	
		8	7	23.21	23.23	23.29	1.0	24.0	
	16QAM	15	0	23.21	23.22	23.26	1.0	24.0	
		1	0	23.43	23.53	23.53	1.0	24.0	
		1	8	23.42	23.53	23.52	1.0	24.0	
		1	14	23.45	23.52	23.51	1.0	24.0	
		8	0	22.30	22.30	22.34	2.0	23.0	
		8	4	22.26	22.31	22.31	2.0	23.0	
	64QAM	8	7	22.23	22.30	22.31	2.0	23.0	
		15	0	22.17	22.22	22.24	2.0	23.0	
		1	0	22.26	22.43	22.31	2.0	23.0	
		1	8	22.21	22.37	22.23	2.0	23.0	
		1	14	22.30	22.48	22.38	2.0	23.0	
		8	0	21.23	21.22	21.29	3.0	22.0	
	256QAM	8	4	21.17	21.14	21.24	3.0	22.0	
		8	7	21.17	21.19	21.27	3.0	22.0	
		15	0	21.10	21.11	21.16	3.0	22.0	
		1	0	19.45	19.42	19.53	5.0	20.0	
		1	8	19.31	19.34	19.45	5.0	20.0	
		1	14	19.39	19.43	19.46	5.0	20.0	
1.4 MHz	QPSK	8	0	19.27	19.23	19.27	5.0	20.0	
		8	4	19.25	19.22	19.26	5.0	20.0	
		8	7	19.25	19.21	19.27	5.0	20.0	
		15	0	19.13	19.18	19.21	5.0	20.0	
		16QAM	1	0	24.17	24.20	24.21	0.0	25.0
			1	3	24.30	23.90	24.30	0.0	25.0
	1		5	24.20	24.20	24.22	0.0	25.0	
	3		0	24.20	24.23	24.19	0.0	25.0	
	3		1	24.20	24.20	24.15	0.0	25.0	
	3		3	24.12	24.11	24.14	0.0	25.0	
	6		0	23.25	23.28	23.32	1.0	24.0	
	64QAM		1	0	23.27	23.52	23.22	1.0	24.0
			1	3	23.23	23.57	23.22	1.0	24.0
			1	5	23.30	23.53	23.26	1.0	24.0
			3	0	23.31	23.05	23.31	1.0	24.0
			3	1	23.26	23.08	23.26	1.0	24.0
		3	3	23.29	22.96	23.29	1.0	24.0	
	256QAM	6	0	22.29	22.24	22.33	2.0	23.0	
		1	0	22.33	22.21	22.34	2.0	23.0	
		1	3	22.32	22.07	22.34	2.0	23.0	
		1	5	22.28	22.15	22.29	2.0	23.0	
		3	0	22.17	22.31	22.15	2.0	23.0	
		3	1	22.10	22.24	22.11	2.0	23.0	
	256QAM	3	3	22.05	22.26	22.05	2.0	23.0	
6		0	21.16	21.25	21.16	3.0	22.0		
1		0	19.24	19.27	19.18	5.0	20.0		
1		3	19.40	19.27	19.34	5.0	20.0		
1		5	19.22	19.28	19.18	5.0	20.0		
3		0	19.20	19.22	19.25	5.0	20.0		
256QAM	3	1	19.12	19.23	19.15	5.0	20.0		
	3	3	19.05	19.20	19.11	5.0	20.0		
	6	0	19.19	19.23	19.21	5.0	20.0		

LTE Band 13 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)			
				RSI = 0, 1, 2, 3, 4			
				Measured Pwr (dBm)		MPR	Tune-up Limit
23230	782 MHz						
10 MHz	QPSK	1	0	23.93	0.0	25.0	
		1	25	23.70	0.0	25.0	
		1	49	23.86	0.0	25.0	
		25	0	22.91	1.0	24.0	
		25	12	22.87	1.0	24.0	
		25	25	22.85	1.0	24.0	
	16QAM	50	0	22.86	1.0	24.0	
		1	0	23.31	1.0	24.0	
		1	25	23.31	1.0	24.0	
		1	49	22.96	1.0	24.0	
		25	0	21.86	2.0	23.0	
		25	12	21.83	2.0	23.0	
	64QAM	25	25	21.86	2.0	23.0	
		50	0	21.80	2.0	23.0	
		1	0	21.67	2.0	23.0	
		1	25	21.52	2.0	23.0	
		1	49	21.70	2.0	23.0	
		25	0	20.82	3.0	22.0	
	256QAM	25	12	20.80	3.0	22.0	
		25	25	20.78	3.0	22.0	
50		0	20.76	3.0	22.0		
1		0	18.97	5.0	20.0		
1		25	19.02	5.0	20.0		
1		49	18.88	5.0	20.0		
25		0	18.79	5.0	20.0		
25		12	18.77	5.0	20.0		
5 MHz	QPSK	25	25	18.74	5.0	20.0	
		50	0	18.71	5.0	20.0	
		16QAM	1	0	23.83	0.0	25.0
			1	12	23.89	0.0	25.0
			1	24	23.84	0.0	25.0
			12	0	22.82	1.0	24.0
	12		7	22.82	1.0	24.0	
	12		13	22.78	1.0	24.0	
	64QAM	25	0	22.79	1.0	24.0	
		1	0	22.99	1.0	24.0	
		1	12	23.07	1.0	24.0	
		1	24	22.98	1.0	24.0	
		12	0	21.86	2.0	23.0	
		12	7	21.85	2.0	23.0	
	256QAM	12	13	21.86	2.0	23.0	
		25	0	21.77	2.0	23.0	
		1	0	21.77	2.0	23.0	
		1	12	21.73	2.0	23.0	
		1	24	21.80	2.0	23.0	
		12	0	20.69	3.0	22.0	
12		7	20.69	3.0	22.0		
12		13	20.67	3.0	22.0		
256QAM	25	0	20.75	3.0	22.0		
	1	0	18.91	5.0	20.0		
	1	12	18.93	5.0	20.0		
	1	24	18.90	5.0	20.0		
	12	0	18.80	5.0	20.0		
	12	7	18.77	5.0	20.0		
	12	13	18.75	5.0	20.0		
	25	0	18.73	5.0	20.0		

LTE Band 14 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)			
				RSI = 0, 1, 2, 3, 4			
				Measured Pwr (dBm)		MPR	Tune-up Limit
23330	793 MHz						
10 MHz	QPSK	1	0	23.79	0.0	25.0	
		1	25	23.55	0.0	25.0	
		1	49	23.72	0.0	25.0	
		25	0	22.78	1.0	24.0	
		25	12	22.75	1.0	24.0	
		25	25	22.72	1.0	24.0	
	16QAM	50	0	22.75	1.0	24.0	
		1	0	23.13	1.0	24.0	
		1	25	23.00	1.0	24.0	
		1	49	23.00	1.0	24.0	
		25	0	21.75	2.0	23.0	
		25	12	21.72	2.0	23.0	
	64QAM	25	25	21.68	2.0	23.0	
		50	0	21.66	2.0	23.0	
		1	0	21.47	2.0	23.0	
		1	25	21.27	2.0	23.0	
		1	49	21.43	2.0	23.0	
		25	0	20.76	3.0	22.0	
	256QAM	25	12	20.72	3.0	22.0	
		25	25	20.70	3.0	22.0	
50		0	20.67	3.0	22.0		
1		0	18.78	5.0	20.0		
1		25	18.84	5.0	20.0		
1		49	18.66	5.0	20.0		
25		0	18.69	5.0	20.0		
25		12	18.64	5.0	20.0		
25	25	18.60	5.0	20.0			
50	0	18.63	5.0	20.0			
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)		MPR	Tune-up Limit
				23330	793 MHz		
5 MHz	QPSK	1	0	23.62	0.0	25.0	
		1	12	23.76	0.0	25.0	
		1	24	23.65	0.0	25.0	
		12	0	22.69	1.0	24.0	
		12	7	22.67	1.0	24.0	
		12	13	22.66	1.0	24.0	
	16QAM	25	0	22.66	1.0	24.0	
		1	0	22.91	1.0	24.0	
		1	12	22.97	1.0	24.0	
		1	24	22.84	1.0	24.0	
		12	0	21.71	2.0	23.0	
		12	7	21.66	2.0	23.0	
	64QAM	12	13	21.67	2.0	23.0	
		25	0	21.66	2.0	23.0	
		1	0	21.72	2.0	23.0	
		1	12	21.64	2.0	23.0	
		1	24	21.71	2.0	23.0	
		12	0	20.65	3.0	22.0	
	256QAM	12	7	20.64	3.0	22.0	
		12	13	20.63	3.0	22.0	
25		0	20.62	3.0	22.0		
1		0	18.96	5.0	20.0		
1		12	19.00	5.0	20.0		
1		24	18.89	5.0	20.0		
12		0	18.64	5.0	20.0		
12		7	18.60	5.0	20.0		
12	13	18.57	5.0	20.0			
25	0	18.58	5.0	20.0			

LTE Band 26 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)					
				RSI = 0, 1, 2, 3, 4					
				Measured Pwr (dBm)			MPR	Tune-up Limit	
				26740	26865	26990			
15 MHz	QPSK	1	0	24.49	24.48	24.42	0.0	25.5	
		1	37	24.48	24.48	24.42	0.0	25.5	
		1	74	24.42	24.42	24.42	0.0	25.5	
		36	0	23.54	23.54	23.40	1.0	24.5	
		36	20	23.51	23.51	23.40	1.0	24.5	
		36	39	23.49	23.49	23.40	1.0	24.5	
	16QAM	75	0	23.52	23.52	23.40	1.0	24.5	
		1	0	23.78	23.78	23.65	1.0	24.5	
		1	37	23.73	23.73	23.65	1.0	24.5	
		1	74	23.69	23.69	23.65	1.0	24.5	
		36	0	22.46	22.46	22.35	2.0	23.5	
		36	20	22.44	22.44	22.35	2.0	23.5	
	64QAM	36	39	22.42	22.42	22.35	2.0	23.5	
		75	0	22.46	22.46	22.35	2.0	23.5	
		1	0	22.32	22.32	22.25	2.0	23.5	
		1	37	22.30	22.30	22.25	2.0	23.5	
		1	74	22.21	22.21	22.25	2.0	23.5	
		36	0	21.48	21.48	21.40	3.0	22.5	
	256QAM	36	20	21.48	21.48	21.40	3.0	22.5	
		36	39	21.45	21.45	21.40	3.0	22.5	
		75	0	21.44	21.44	21.40	3.0	22.5	
		1	0	19.48	19.48	19.40	5.0	20.5	
		1	37	19.46	19.46	19.40	5.0	20.5	
		1	74	19.38	19.38	19.40	5.0	20.5	
	10 MHz	QPSK	36	0	19.44	19.44	19.40	5.0	20.5
			36	20	19.40	19.40	19.40	5.0	20.5
			36	39	19.38	19.38	19.40	5.0	20.5
			75	0	19.40	19.40	19.40	5.0	20.5
1			0	24.61	24.49	24.42	0.0	25.5	
1			25	24.67	24.40	24.34	0.0	25.5	
16QAM		1	49	24.53	24.47	24.43	0.0	25.5	
		25	0	23.59	23.48	23.40	1.0	24.5	
		25	12	23.56	23.44	23.36	1.0	24.5	
		25	25	23.55	23.41	23.33	1.0	24.5	
		50	0	23.55	23.44	23.35	1.0	24.5	
		1	0	23.79	23.75	23.65	1.0	24.5	
64QAM		1	25	23.89	23.56	23.75	1.0	24.5	
		1	49	23.79	23.62	23.47	1.0	24.5	
		25	0	22.59	22.47	22.40	2.0	23.5	
		25	12	22.57	22.44	22.35	2.0	23.5	
		25	25	22.57	22.41	22.32	2.0	23.5	
		50	0	22.52	22.40	22.34	2.0	23.5	
256QAM		1	0	22.68	22.76	22.34	2.0	23.5	
		1	25	22.82	22.67	22.25	2.0	23.5	
		1	49	22.63	22.70	22.29	2.0	23.5	
		25	0	21.69	21.59	21.48	3.0	22.5	
		25	12	21.67	21.54	21.44	3.0	22.5	
		25	25	21.65	21.53	21.42	3.0	22.5	
QPSK		50	0	21.62	21.51	21.40	3.0	22.5	
		1	0	19.84	19.78	19.41	5.0	20.5	
		1	25	19.83	19.86	19.49	5.0	20.5	
		1	49	19.79	19.66	19.34	5.0	20.5	
	25	0	19.73	19.58	19.41	5.0	20.5		
	25	12	19.68	19.53	19.38	5.0	20.5		
16QAM	25	25	19.66	19.50	19.35	5.0	20.5		
	50	0	19.60	19.50	19.37	5.0	20.5		

LTE Band 26 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26715	26865	27015		
				816.5 MHz	831.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	24.43	24.39	24.22	0.0	25.5
		1	12	24.53	24.50	24.29	0.0	25.5
		1	24	24.49	24.42	24.26	0.0	25.5
		12	0	23.52	23.42	23.29	1.0	24.5
		12	7	23.51	23.40	23.28	1.0	24.5
		12	13	23.49	23.38	23.25	1.0	24.5
	16QAM	25	0	23.50	23.39	23.23	1.0	24.5
		1	0	23.78	23.79	23.63	1.0	24.5
		1	12	23.92	23.73	23.61	1.0	24.5
		1	24	23.86	23.70	23.52	1.0	24.5
		12	0	22.48	22.40	22.32	2.0	23.5
		12	7	22.48	22.37	22.31	2.0	23.5
	64QAM	12	13	22.45	22.36	22.27	2.0	23.5
		25	0	22.48	22.34	22.21	2.0	23.5
		1	0	22.40	22.57	22.35	2.0	23.5
		1	12	22.33	22.60	22.34	2.0	23.5
		1	24	22.45	22.55	22.30	2.0	23.5
		12	0	21.68	21.51	21.45	3.0	22.5
	256QAM	12	7	21.66	21.49	21.40	3.0	22.5
		12	13	21.68	21.45	21.41	3.0	22.5
		25	0	21.61	21.49	21.38	3.0	22.5
		1	0	19.80	19.75	19.54	5.0	20.5
		1	12	19.87	19.62	19.55	5.0	20.5
		1	24	19.75	19.72	19.49	5.0	20.5
		12	0	19.66	19.49	19.40	5.0	20.5
12		7	19.65	19.48	19.39	5.0	20.5	
12	13	19.64	19.45	19.38	5.0	20.5		
25	0	19.63	19.50	19.38	5.0	20.5		
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26705	26865	27025		
				815.5 MHz	831.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	24.81	24.56	24.50	0.0	25.5
		1	8	24.46	24.67	24.57	0.0	25.5
		1	14	24.84	24.51	24.56	0.0	25.5
		8	0	23.79	23.61	23.48	1.0	24.5
		8	4	23.75	23.58	23.46	1.0	24.5
		8	7	23.70	23.57	23.51	1.0	24.5
	16QAM	15	0	23.72	23.57	23.41	1.0	24.5
		1	0	23.68	23.81	23.75	1.0	24.5
		1	8	23.73	23.81	23.80	1.0	24.5
		1	14	23.62	23.81	23.65	1.0	24.5
		8	0	22.70	22.64	22.47	2.0	23.5
		8	4	22.72	22.58	22.38	2.0	23.5
	64QAM	8	7	22.71	22.59	22.39	2.0	23.5
		15	0	22.64	22.53	22.42	2.0	23.5
		1	0	22.49	22.41	22.33	2.0	23.5
		1	8	22.59	22.31	22.38	2.0	23.5
		1	14	22.59	22.33	22.33	2.0	23.5
		8	0	21.46	21.25	21.26	3.0	22.5
	256QAM	8	4	21.43	21.23	21.21	3.0	22.5
		8	7	21.44	21.23	21.22	3.0	22.5
		15	0	21.53	21.30	21.15	3.0	22.5
		1	0	19.66	19.27	19.59	5.0	20.5
		1	8	19.56	19.30	19.50	5.0	20.5
		1	14	19.61	19.28	19.54	5.0	20.5
		8	0	19.58	19.34	19.31	5.0	20.5
8		4	19.55	19.33	19.32	5.0	20.5	
8	7	19.54	19.34	19.33	5.0	20.5		
15	0	19.51	19.32	19.18	5.0	20.5		

LTE Band 26 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26697	26865	27033		
				814.7 MHz	831.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	24.44	24.37	24.26	0.0	25.5
		1	3	24.59	24.22	24.16	0.0	25.5
		1	5	24.46	24.39	24.28	0.0	25.5
		3	0	24.45	24.40	24.24	0.0	25.5
		3	1	24.40	24.36	24.20	0.0	25.5
		3	3	24.38	24.26	24.21	0.0	25.5
	16QAM	6	0	23.47	23.41	23.28	1.0	24.5
		1	0	23.48	23.56	23.23	1.0	24.5
		1	3	23.46	23.68	23.36	1.0	24.5
		1	5	23.54	23.58	23.26	1.0	24.5
		3	0	23.45	23.28	23.31	1.0	24.5
		3	1	23.38	23.30	23.18	1.0	24.5
	64QAM	3	3	23.49	23.25	23.18	1.0	24.5
		6	0	22.49	22.30	22.26	2.0	23.5
		1	0	22.52	22.35	22.17	2.0	23.5
		1	3	22.57	22.21	22.32	2.0	23.5
		1	5	22.50	22.27	22.22	2.0	23.5
		3	0	22.36	22.48	22.19	2.0	23.5
	256QAM	3	1	22.33	22.39	22.19	2.0	23.5
		3	3	22.34	22.42	22.09	2.0	23.5
		6	0	21.44	21.35	21.21	3.0	22.5
		1	0	19.42	19.35	19.13	5.0	20.5
		1	3	19.51	19.57	19.14	5.0	20.5
		1	5	19.42	19.35	19.11	5.0	20.5
	3	0	19.42	19.31	19.21	5.0	20.5	
	3	1	19.33	19.36	19.19	5.0	20.5	
	3	3	19.34	19.33	19.10	5.0	20.5	
	6	0	19.51	19.37	19.19	5.0	20.5	

LTE Band 30 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)			
				RSI = 0, 1, 2, 3, 4			
				Measured Pwr (dBm)		MPR	Tune-up Limit
27710	2310 MHz						
10 MHz	QPSK	1	0	22.89	0.0	24.0	
		1	25	23.41	0.0	24.0	
		1	49	23.32	0.0	24.0	
		25	0	22.32	1.0	23.0	
		25	12	22.30	1.0	23.0	
		25	25	22.26	1.0	23.0	
	16QAM	50	0	22.29	1.0	23.0	
		1	0	21.47	1.0	23.0	
		1	25	22.42	1.0	23.0	
		1	49	22.39	1.0	23.0	
		25	0	21.34	2.0	22.0	
		25	12	21.29	2.0	22.0	
	64QAM	25	25	21.21	2.0	22.0	
		50	0	21.22	2.0	22.0	
		1	0	21.36	2.0	22.0	
		1	25	21.39	2.0	22.0	
		1	49	21.34	2.0	22.0	
		25	0	20.20	3.0	21.0	
	256QAM	25	12	20.16	3.0	21.0	
		25	25	20.09	3.0	21.0	
		50	0	20.13	3.0	21.0	
		1	0	18.24	5.0	19.0	
		1	25	18.16	5.0	19.0	
		1	49	17.99	5.0	19.0	
5 MHz	QPSK	25	0	18.13	5.0	19.0	
		25	12	18.12	5.0	19.0	
		25	25	18.05	5.0	19.0	
		50	0	18.05	5.0	19.0	
		1	0	23.48	0.0	24.0	
		1	12	23.53	0.0	24.0	
	16QAM	1	24	23.51	0.0	24.0	
		12	0	22.50	1.0	23.0	
		12	7	22.48	1.0	23.0	
		12	13	22.48	1.0	23.0	
		25	0	22.50	1.0	23.0	
		1	0	22.65	1.0	23.0	
	64QAM	1	12	22.72	1.0	23.0	
		1	24	22.51	1.0	23.0	
		12	0	21.52	2.0	22.0	
		12	7	21.48	2.0	22.0	
		12	13	21.47	2.0	22.0	
		25	0	21.42	2.0	22.0	
	256QAM	1	0	21.46	2.0	22.0	
		1	12	21.26	2.0	22.0	
		1	24	21.42	2.0	22.0	
		12	0	20.28	3.0	21.0	
		12	7	20.25	3.0	21.0	
		12	13	20.22	3.0	21.0	
QPSK	25	0	20.24	3.0	21.0		
	1	0	18.18	5.0	19.0		
	1	12	18.36	5.0	19.0		
	1	24	18.07	5.0	19.0		
	12	0	18.20	5.0	19.0		
	12	7	18.19	5.0	19.0		
16QAM	12	13	18.17	5.0	19.0		
	25	0	18.20	5.0	19.0		

LTE Band 38 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)				
				RSI = 0, 1, 2, 3, 4				
				Measured Pwr (dBm)			MPR	Tune-up Limit
38000	2595 MHz							
20 MHz	QPSK	1	0	22.35			0.0	24.0
		1	49	22.40			0.0	24.0
		1	99	22.33			0.0	24.0
		50	0	21.40			1.0	23.0
		50	24	21.36			1.0	23.0
		50	50	21.31			1.0	23.0
	16QAM	100	0	21.36			1.0	23.0
		1	0	21.57			1.0	23.0
		1	49	21.92			1.0	23.0
		1	99	21.63			1.0	23.0
		50	0	20.34			2.0	22.0
		50	24	20.31			2.0	22.0
	64QAM	50	50	20.22			2.0	22.0
		100	0	20.29			2.0	22.0
		1	0	20.46			2.0	22.0
		1	49	20.15			2.0	22.0
		1	99	20.46			2.0	22.0
		50	0	19.29			3.0	21.0
	256QAM	50	24	19.24			3.0	21.0
		50	50	19.22			3.0	21.0
		100	0	19.24			3.0	21.0
		1	0	17.34			5.0	19.0
		1	49	17.61			5.0	19.0
		1	99	17.03			5.0	19.0
15 MHz	QPSK	50	0	17.27			5.0	19.0
		50	24	17.28			5.0	19.0
		50	50	17.19			5.0	19.0
		100	0	17.24			5.0	19.0
		1	0	22.72	22.58	22.49	0.0	24.0
		1	37	22.82	22.81	22.59	0.0	24.0
	16QAM	1	74	22.67	22.58	22.35	0.0	24.0
		36	0	21.76	21.62	21.48	1.0	23.0
		36	20	21.73	21.60	21.48	1.0	23.0
		36	39	21.71	21.58	21.44	1.0	23.0
		75	0	21.72	21.60	21.45	1.0	23.0
		1	0	21.73	21.34	21.34	1.0	23.0
	64QAM	1	37	21.22	21.14	21.00	1.0	23.0
		1	74	21.53	21.40	21.17	1.0	23.0
		36	0	20.75	20.55	20.43	2.0	22.0
		36	20	20.72	20.52	20.35	2.0	22.0
		36	39	20.63	20.47	20.30	2.0	22.0
		75	0	20.65	20.47	20.39	2.0	22.0
	256QAM	1	0	20.83	20.68	20.51	2.0	22.0
		1	37	20.70	20.75	20.18	2.0	22.0
		1	74	20.18	20.56	20.16	2.0	22.0
		36	0	19.67	19.53	19.33	3.0	21.0
		36	20	19.62	19.50	19.32	3.0	21.0
		36	39	19.60	19.45	19.28	3.0	21.0
QPSK	75	0	19.63	19.44	19.32	3.0	21.0	
	1	0	17.81	17.63	17.39	5.0	19.0	
	1	37	17.77	17.59	17.58	5.0	19.0	
	1	74	17.60	17.47	17.39	5.0	19.0	
	36	0	17.55	17.48	17.28	5.0	19.0	
	36	20	17.56	17.48	17.27	5.0	19.0	
16QAM	36	39	17.50	17.42	17.22	5.0	19.0	
	75	0	17.56	17.44	17.26	5.0	19.0	

LTE Band 38 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				37800	38000	38200		
				2575 MHz	2595 MHz	2615 MHz		
10 MHz	QPSK	1	0	22.80	22.63	22.50	0.0	24.0
		1	25	22.65	22.64	22.52	0.0	24.0
		1	49	22.72	22.62	22.44	0.0	24.0
		25	0	21.76	21.62	21.43	1.0	23.0
		25	12	21.75	21.60	21.41	1.0	23.0
		25	25	21.70	21.57	21.38	1.0	23.0
	16QAM	50	0	21.74	21.59	21.40	1.0	23.0
		1	0	21.93	21.51	21.39	1.0	23.0
		1	25	22.16	21.71	21.64	1.0	23.0
		1	49	21.90	21.42	21.35	1.0	23.0
		25	0	20.72	20.59	20.38	2.0	22.0
		25	12	20.69	20.56	20.35	2.0	22.0
	64QAM	25	25	20.65	20.50	20.32	2.0	22.0
		50	0	20.69	20.50	20.36	2.0	22.0
		1	0	20.45	19.75	19.98	2.0	22.0
		1	25	20.55	19.88	20.07	2.0	22.0
		1	49	20.43	19.77	19.89	2.0	22.0
		25	0	19.62	19.06	18.93	3.0	21.0
	256QAM	25	12	19.58	19.01	18.90	3.0	21.0
		25	25	19.56	19.02	18.89	3.0	21.0
		50	0	19.61	19.06	18.89	3.0	21.0
1		0	17.69	17.19	16.91	5.0	19.0	
1		25	17.82	17.29	16.87	5.0	19.0	
1		49	17.61	17.09	16.86	5.0	19.0	
5 MHz	QPSK	25	0	17.62	17.06	16.92	5.0	19.0
		25	12	17.59	17.04	16.88	5.0	19.0
		25	25	17.56	17.01	16.87	5.0	19.0
		50	0	17.59	17.04	16.88	5.0	19.0
		1	0	22.10	22.00	22.53	0.0	24.0
		1	12	22.08	22.14	22.66	0.0	24.0
	16QAM	1	24	22.06	21.95	22.51	0.0	24.0
		12	0	21.07	20.96	21.52	1.0	23.0
		12	7	21.09	20.96	21.52	1.0	23.0
		12	13	21.07	20.94	21.49	1.0	23.0
		25	0	21.07	20.93	21.49	1.0	23.0
		1	0	20.89	21.05	21.50	1.0	23.0
	64QAM	1	12	20.78	21.23	21.45	1.0	23.0
		1	24	20.91	21.06	21.44	1.0	23.0
		12	0	20.02	19.92	20.48	2.0	22.0
		12	7	19.99	19.91	20.47	2.0	22.0
		12	13	19.97	19.88	20.42	2.0	22.0
		25	0	20.45	20.28	20.84	2.0	22.0
	256QAM	1	0	20.23	20.35	20.55	2.0	22.0
		1	12	20.09	20.32	20.64	2.0	22.0
		1	24	20.16	20.40	20.49	2.0	22.0
12		0	19.46	19.26	19.41	3.0	21.0	
12		7	19.45	19.24	19.40	3.0	21.0	
12		13	19.44	19.26	19.40	3.0	21.0	
256QAM	25	0	19.43	19.27	19.33	3.0	21.0	
	1	0	17.44	17.33	17.48	5.0	19.0	
	1	12	17.47	17.24	17.41	5.0	19.0	
	1	24	17.39	17.31	17.43	5.0	19.0	
	12	0	17.37	17.24	17.37	5.0	19.0	
	12	7	17.37	17.22	17.36	5.0	19.0	
256QAM	12	13	17.33	17.18	17.35	5.0	19.0	
	25	0	17.38	17.19	17.30	5.0	19.0	

LTE Band 40 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)						MPR	Tune-up Limit
				RSI = 0, 1, 2, 3, 4							
				Measured Pwr (dBm)							
				38750			39200				
				2310 MHz			2355 MHz				
10 MHz	QPSK	1	0	12.93				13.34		0.0	14.0
		1	25	12.93				13.44		0.0	14.0
		1	49	12.84				13.21		0.0	14.0
		25	0	12.96				13.30		0.0	14.0
		25	12	12.95				13.29		0.0	14.0
		25	25	12.93				13.25		0.0	14.0
	16QAM	50	0	12.95				13.27		0.0	14.0
		1	0	13.04				13.45		0.0	14.0
		1	25	13.23				13.55		0.0	14.0
		1	49	13.01				13.37		0.0	14.0
		25	0	13.00				13.29		0.0	14.0
		25	12	12.95				13.25		0.0	14.0
	64QAM	25	25	12.96				13.23		0.0	14.0
		50	0	12.99				13.30		0.0	14.0
		1	0	12.96				13.31		0.0	14.0
		1	25	12.99				13.39		0.0	14.0
		1	49	12.86				13.19		0.0	14.0
		25	0	12.99				13.32		0.0	14.0
	256QAM	25	12	12.95				13.27		0.0	14.0
		25	25	12.94				13.25		0.0	14.0
		50	0	12.95				13.24		0.0	14.0
		1	0	12.87				13.31		0.0	14.0
		1	25	13.04				13.38		0.0	14.0
		1	49	12.79				13.19		0.0	14.0
5 MHz	QPSK	25	0	13.01				13.29		0.0	14.0
		25	25	12.98				13.25		0.0	14.0
		50	0	12.98				13.29		0.0	14.0
		1	0	12.89				13.32		0.0	14.0
		1	12	13.08				13.37		0.0	14.0
		1	24	12.83				13.25		0.0	14.0
	16QAM	12	0	12.90				13.29		0.0	14.0
		12	7	12.89				13.27		0.0	14.0
		12	13	12.89				13.27		0.0	14.0
		25	0	12.90				13.29		0.0	14.0
		1	0	12.76				13.22		0.0	14.0
		1	12	12.74				13.25		0.0	14.0
	64QAM	1	24	12.77				13.14		0.0	14.0
		12	0	12.86				13.33		0.0	14.0
		12	7	12.86				13.31		0.0	14.0
		12	13	12.84				13.28		0.0	14.0
		25	0	12.92				13.25		0.0	14.0
		1	0	12.97				13.33		0.0	14.0
	256QAM	1	12	13.11				13.53		0.0	14.0
		1	24	12.88				13.24		0.0	14.0
		12	0	12.91				13.25		0.0	14.0
		12	7	12.90				13.25		0.0	14.0
		12	13	12.89				13.20		0.0	14.0
		25	0	12.92				13.29		0.0	14.0

LTE Band 48 Measured Results (Continued)

Table with columns: BW (MHz), Mode, RB Allocation, RB offset, Measured Pwr (dBm) (55290, 55757, 56223, 56690), MFR, Tune-up Limit, Measured Pwr (dBm) (55290, 55757, 56223, 56690), MFR, Tune-up Limit. It contains two main sections for 10 MHz and 5 MHz bandwidths, each with QPSK, 16QAM, 64QAM, and 256QAM modulation schemes.

LTE Band 71 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)			
				RSI = 0, 1, 2, 3, 4			
				Measured Pwr (dBm)		MPR	Tune-up Limit
133297	680.5 MHz						
20 MHz	QPSK	1	0	24.64	0.0	25.5	
		1	49	24.44	0.0	25.5	
		1	99	24.35	0.0	25.5	
		50	0	23.56	1.0	24.5	
		50	24	23.47	1.0	24.5	
		50	50	23.40	1.0	24.5	
	16QAM	100	0	23.47	1.0	24.5	
		1	0	23.78	1.0	24.5	
		1	49	23.85	1.0	24.5	
		1	99	23.51	1.0	24.5	
		50	0	22.51	2.0	23.5	
		50	24	22.44	2.0	23.5	
	64QAM	50	50	22.37	2.0	23.5	
		100	0	22.40	2.0	23.5	
		1	0	22.38	2.0	23.5	
		1	49	22.18	2.0	23.5	
		1	99	22.18	2.0	23.5	
		50	0	21.34	3.0	22.5	
	256QAM	50	24	21.29	3.0	22.5	
		50	50	21.21	3.0	22.5	
		100	0	21.26	3.0	22.5	
		1	0	19.52	5.0	20.5	
		1	49	19.43	5.0	20.5	
		1	99	19.24	5.0	20.5	
15 MHz	QPSK	50	0	19.33	5.0	20.5	
		50	24	19.26	5.0	20.5	
		50	50	19.19	5.0	20.5	
		100	0	19.28	5.0	20.5	
		1	0	24.66	0.0	25.5	
		1	37	24.42	0.0	25.5	
	16QAM	1	74	24.46	0.0	25.5	
		36	0	23.75	1.0	24.5	
		36	20	23.68	1.0	24.5	
		36	39	23.61	1.0	24.5	
		75	0	23.68	1.0	24.5	
		1	0	23.60	1.0	24.5	
	64QAM	1	37	23.40	1.0	24.5	
		1	74	23.46	1.0	24.5	
		36	0	22.45	2.0	23.5	
		36	20	22.38	2.0	23.5	
		36	39	22.33	2.0	23.5	
		75	0	22.44	2.0	23.5	
	256QAM	1	0	22.66	2.0	23.5	
		1	37	22.45	2.0	23.5	
		1	74	22.46	2.0	23.5	
		36	0	21.58	3.0	22.5	
		36	20	21.53	3.0	22.5	
		36	39	21.48	3.0	22.5	
QPSK	75	0	21.49	3.0	22.5		
	1	0	19.84	5.0	20.5		
	1	37	19.57	5.0	20.5		
	1	74	19.63	5.0	20.5		
	36	0	19.56	5.0	20.5		
	36	20	19.51	5.0	20.5		
16QAM	36	39	19.44	5.0	20.5		
	75	0	19.50	5.0	20.5		

LTE Band 71 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				133172	133297	133422		
				668 MHz	680.5 MHz	693 MHz		
10 MHz	QPSK	1	0	24.82	24.28	24.45	0.0	25.5
		1	25	24.65	24.20	24.27	0.0	25.5
		1	49	24.66	24.15	24.37	0.0	25.5
		25	0	23.79	23.23	23.45	1.0	24.5
		25	12	23.74	23.18	23.40	1.0	24.5
		25	25	23.67	23.16	23.36	1.0	24.5
	16QAM	50	0	23.71	23.21	23.38	1.0	24.5
		1	0	23.84	23.37	23.84	1.0	24.5
		1	25	23.89	23.41	23.74	1.0	24.5
		1	49	23.65	23.30	23.67	1.0	24.5
		25	0	22.69	22.26	22.43	2.0	23.5
		25	12	22.65	22.20	22.39	2.0	23.5
	64QAM	25	25	22.60	22.18	22.35	2.0	23.5
		50	0	22.67	22.18	22.31	2.0	23.5
		1	0	22.61	22.40	22.38	2.0	23.5
		1	25	22.60	22.43	22.24	2.0	23.5
		1	49	22.42	22.31	22.32	2.0	23.5
		25	0	21.73	21.23	21.39	3.0	22.5
	256QAM	25	12	21.68	21.22	21.37	3.0	22.5
		25	25	21.64	21.18	21.30	3.0	22.5
		50	0	21.65	21.18	21.31	3.0	22.5
		1	0	19.83	19.30	19.65	5.0	20.5
		1	25	19.78	19.24	19.42	5.0	20.5
		1	49	19.60	19.11	19.49	5.0	20.5
5 MHz	QPSK	25	0	19.78	19.31	19.38	5.0	20.5
		25	12	19.73	19.27	19.33	5.0	20.5
		25	25	19.67	19.21	19.29	5.0	20.5
		50	0	19.63	19.19	19.29	5.0	20.5
		1	0	24.19	23.94	23.80	0.0	25.5
		1	12	24.18	23.75	23.81	0.0	25.5
	16QAM	1	24	24.17	23.95	23.79	0.0	25.5
		12	0	23.20	22.97	22.84	1.0	24.5
		12	7	23.18	22.95	22.81	1.0	24.5
		12	13	23.17	22.94	22.80	1.0	24.5
		25	0	23.18	22.94	22.80	1.0	24.5
		1	0	23.32	23.37	23.18	1.0	24.5
	64QAM	1	12	23.27	23.24	23.19	1.0	24.5
		1	24	23.25	23.29	23.14	1.0	24.5
		12	0	22.17	22.03	21.82	2.0	23.5
		12	7	22.14	22.02	21.81	2.0	23.5
		12	13	22.14	21.99	21.78	2.0	23.5
		25	0	22.17	21.95	21.79	2.0	23.5
	256QAM	1	0	22.15	22.04	21.73	2.0	23.5
		1	12	22.17	21.90	21.59	2.0	23.5
		1	24	22.18	21.94	21.71	2.0	23.5
		12	0	21.08	20.89	20.78	3.0	22.5
		12	7	21.05	20.87	20.74	3.0	22.5
		12	13	21.02	20.84	20.72	3.0	22.5
256QAM	25	0	21.08	20.90	20.70	3.0	22.5	
	1	0	19.17	19.09	18.70	5.0	20.5	
	1	12	18.88	19.01	18.63	5.0	20.5	
	1	24	19.06	19.04	18.66	5.0	20.5	
	12	0	19.12	18.94	18.77	5.0	20.5	
	12	7	19.11	18.93	18.77	5.0	20.5	
256QAM	12	13	19.08	18.86	18.76	5.0	20.5	
	25	0	19.11	18.84	18.75	5.0	20.5	

9.4. NR (Sub 6GHz)

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

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

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power 3

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

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

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

The allowed A-MPR values specified below in Table 6.2.3.3.1-1 of 3GPP TS138.521-1 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of “NS_01”

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

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

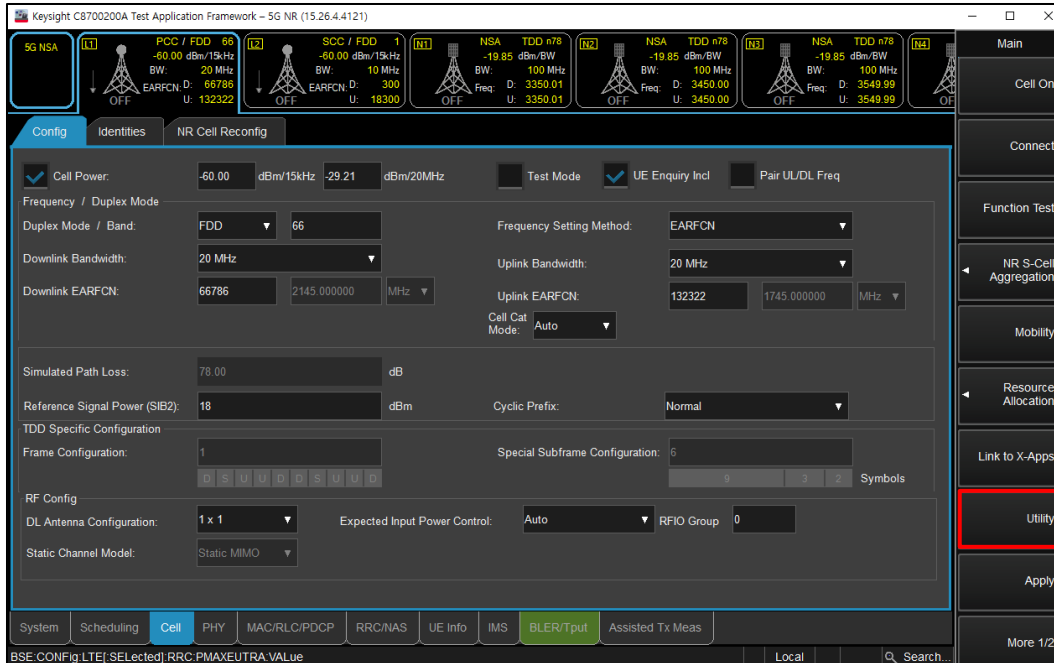
Uplink RB allocations were used to Table 6.1-1 of the 3GPP TS 138.521-1.

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

Procedures used to establish power measurement for NR Bands

Switching to NSA mode or SA mode

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



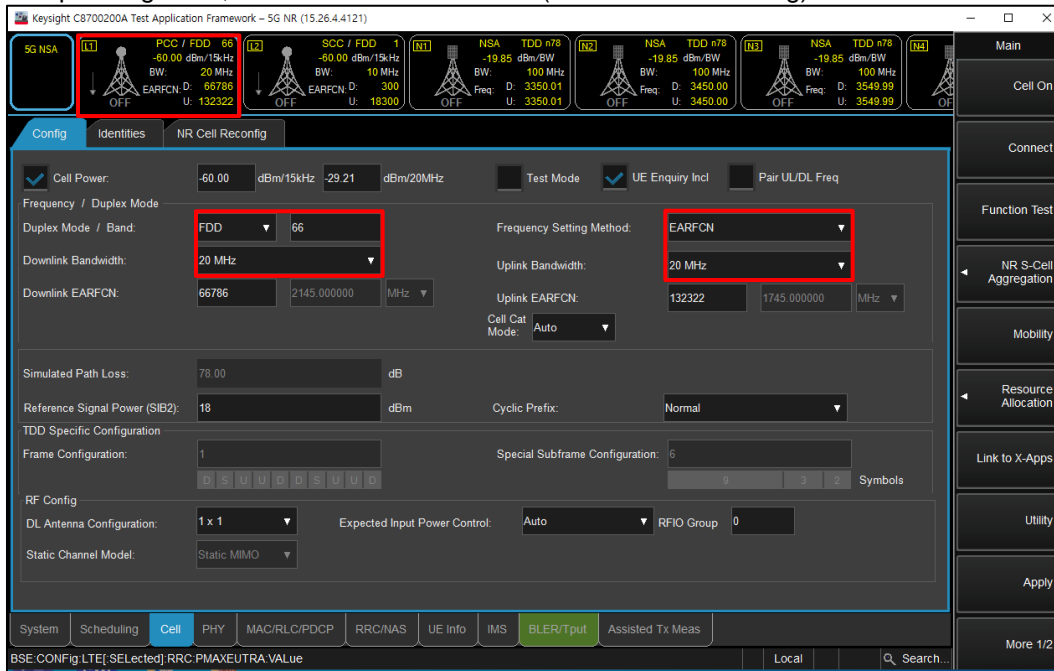
(Figure 1-1)



(Figure 1-2)

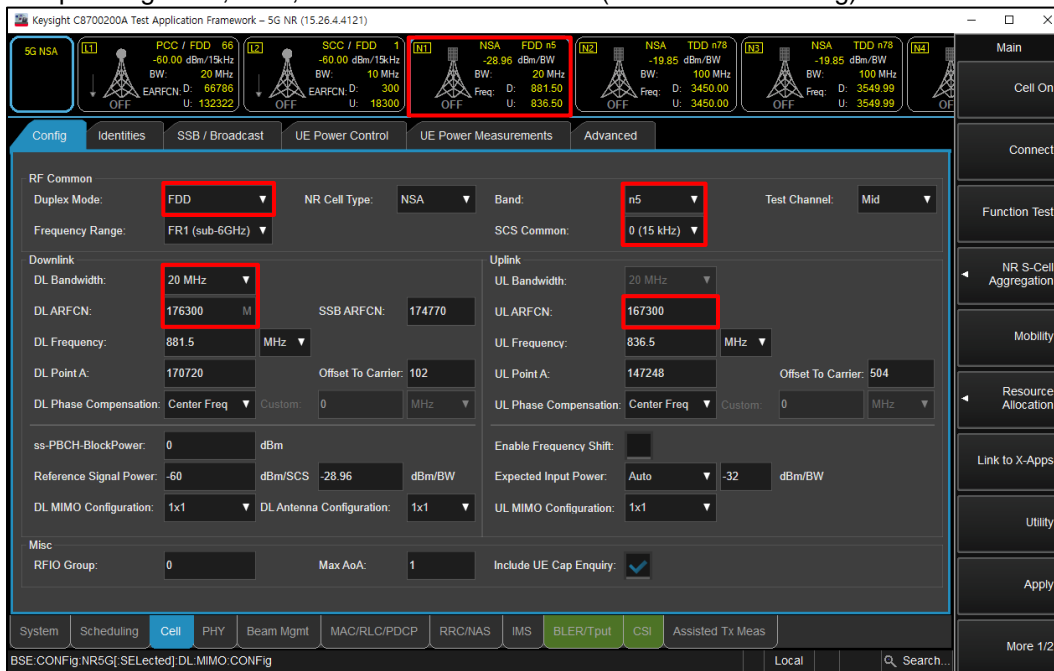
NSA Mode

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



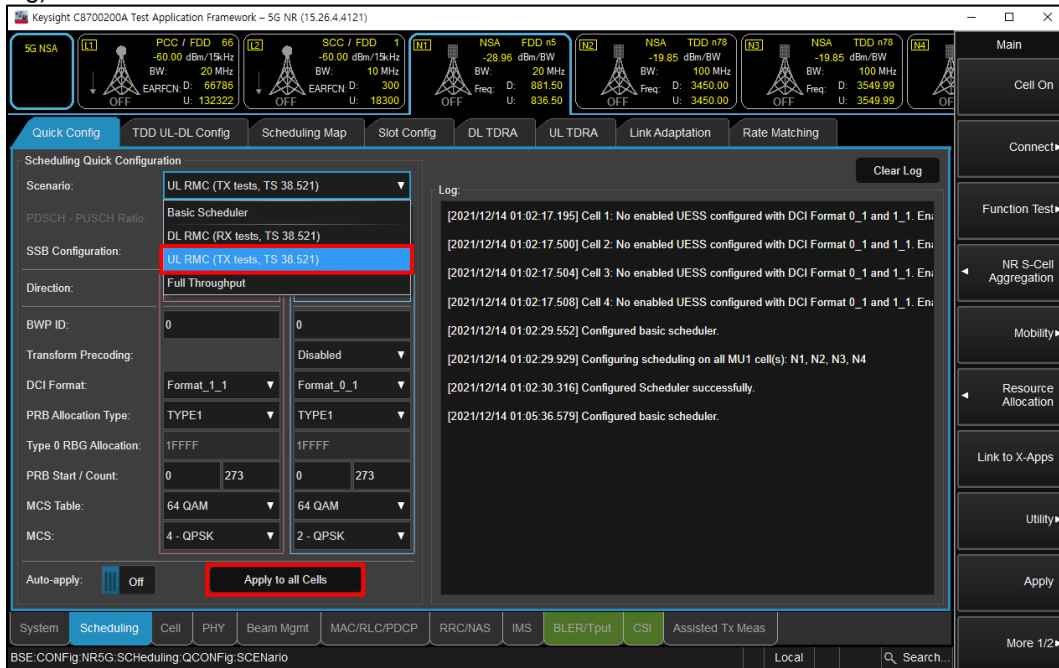
(Figure 2-1)

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



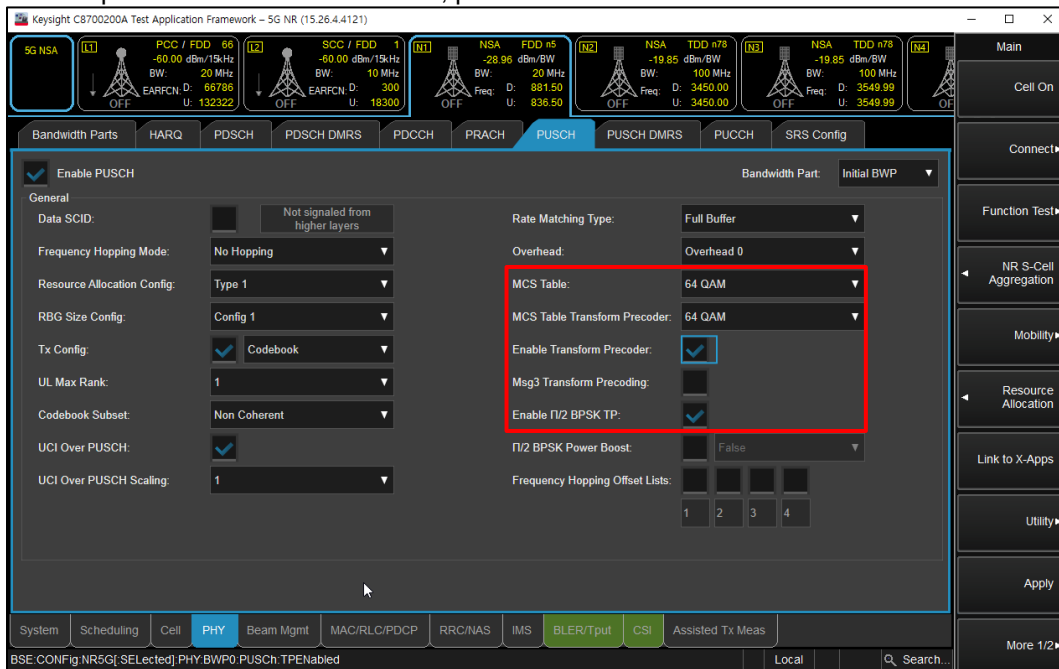
(Figure 2-2)

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



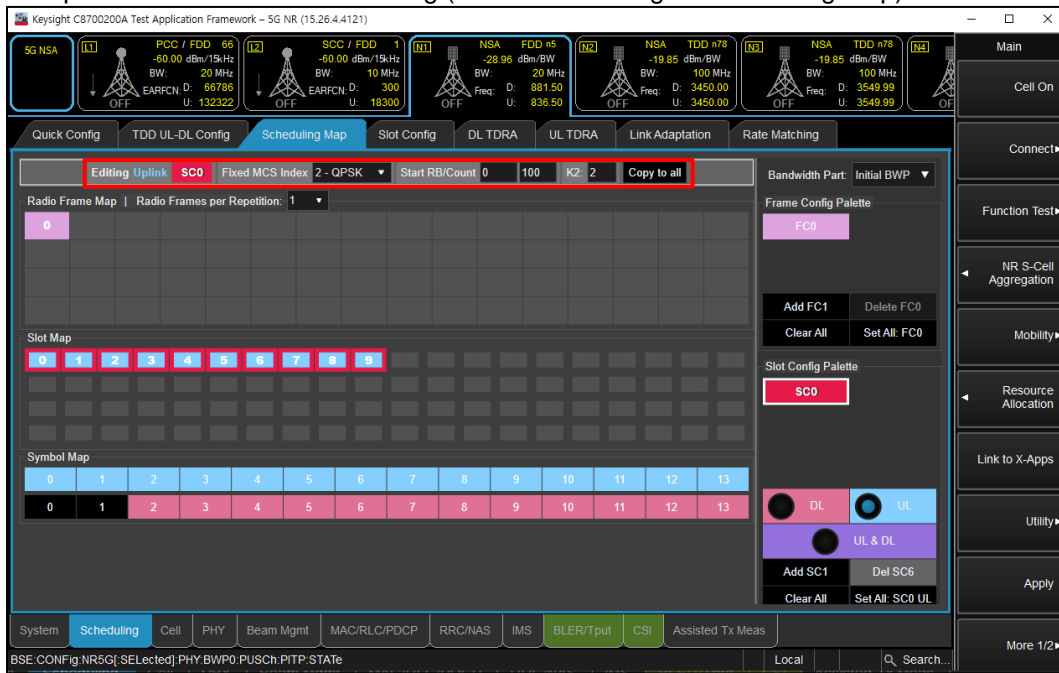
(Figure 2-3)

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



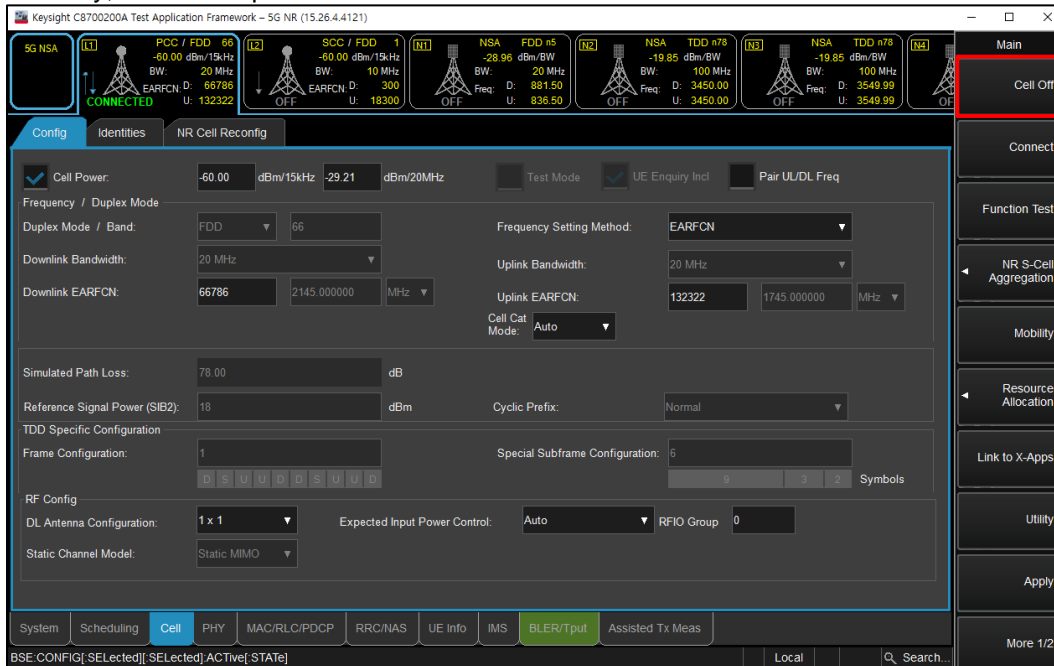
(Figure 2-4)

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



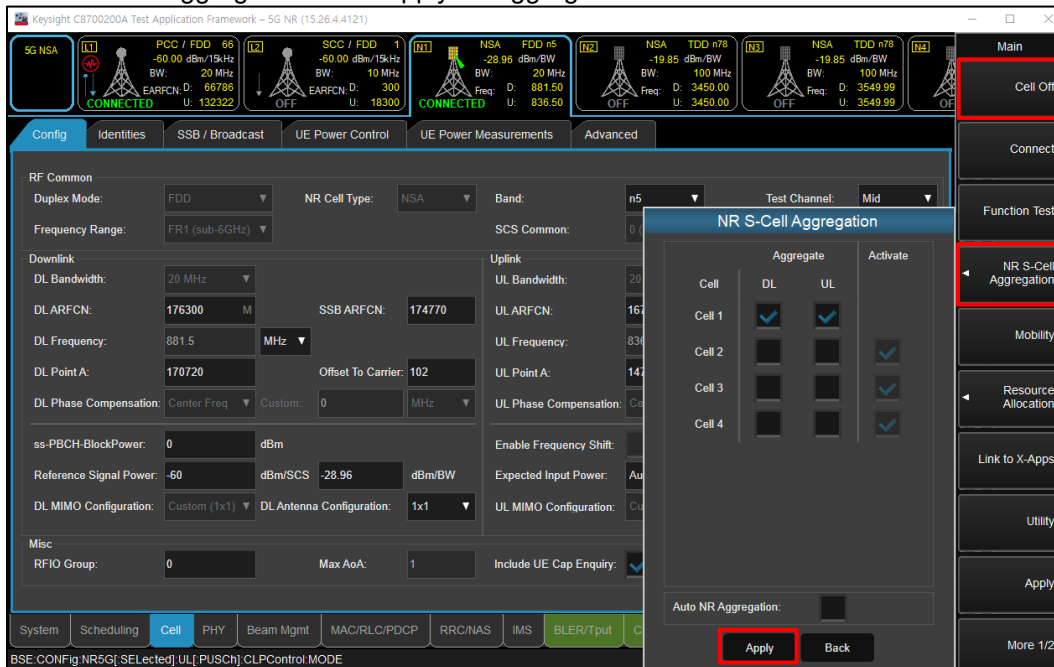
(Figure 2-5)

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



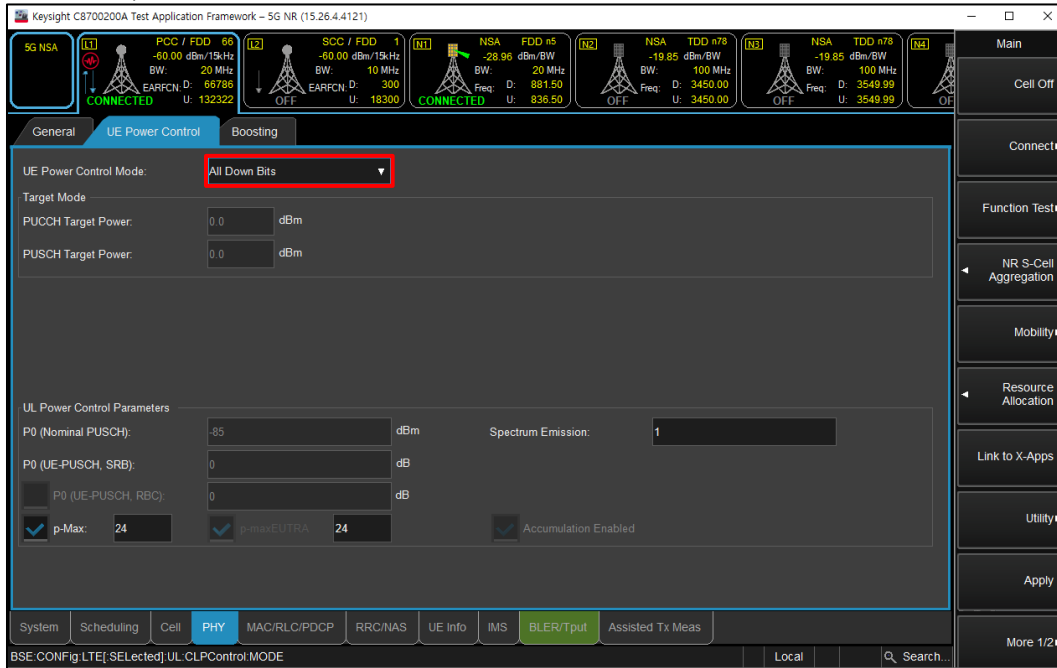
(Figure 2-6)

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



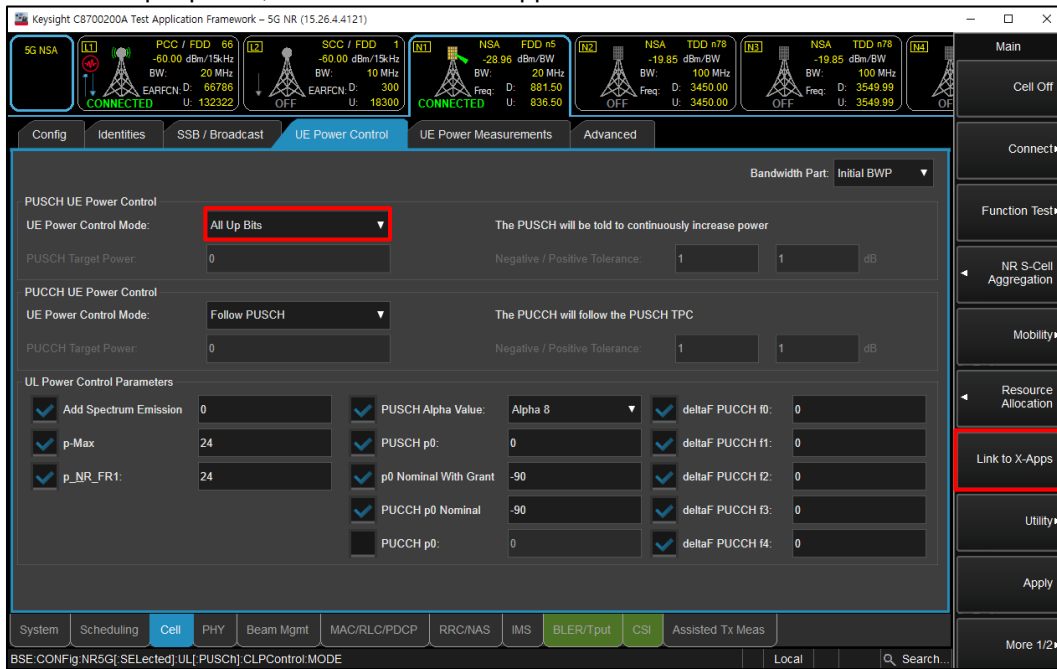
(Figure 2-7)

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



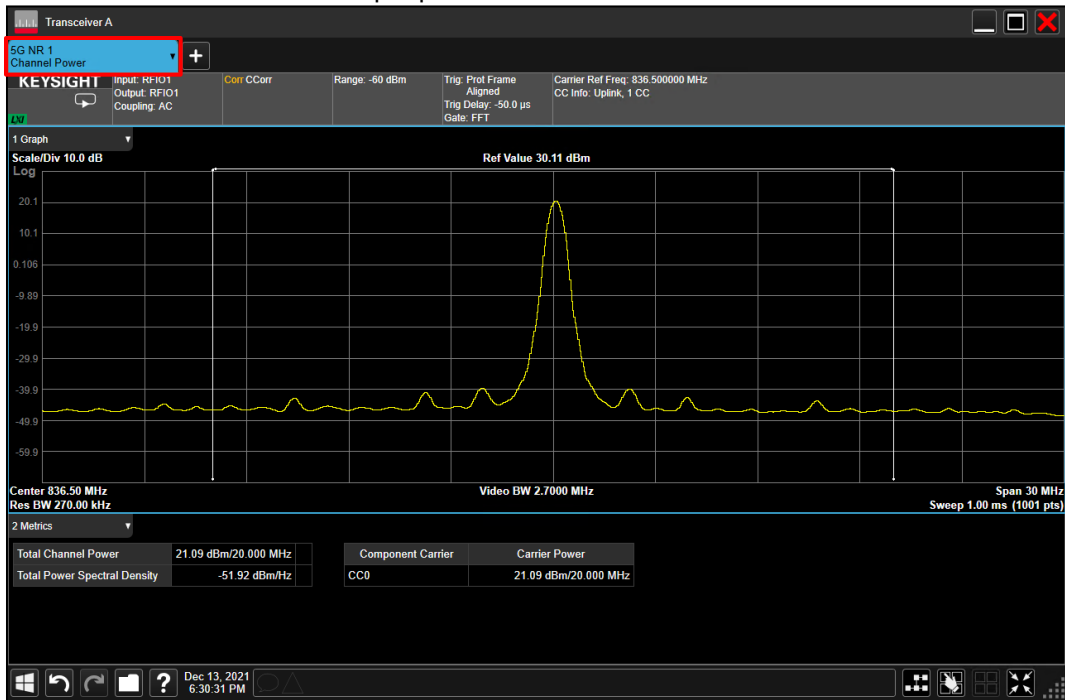
(Figure 2-8)

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



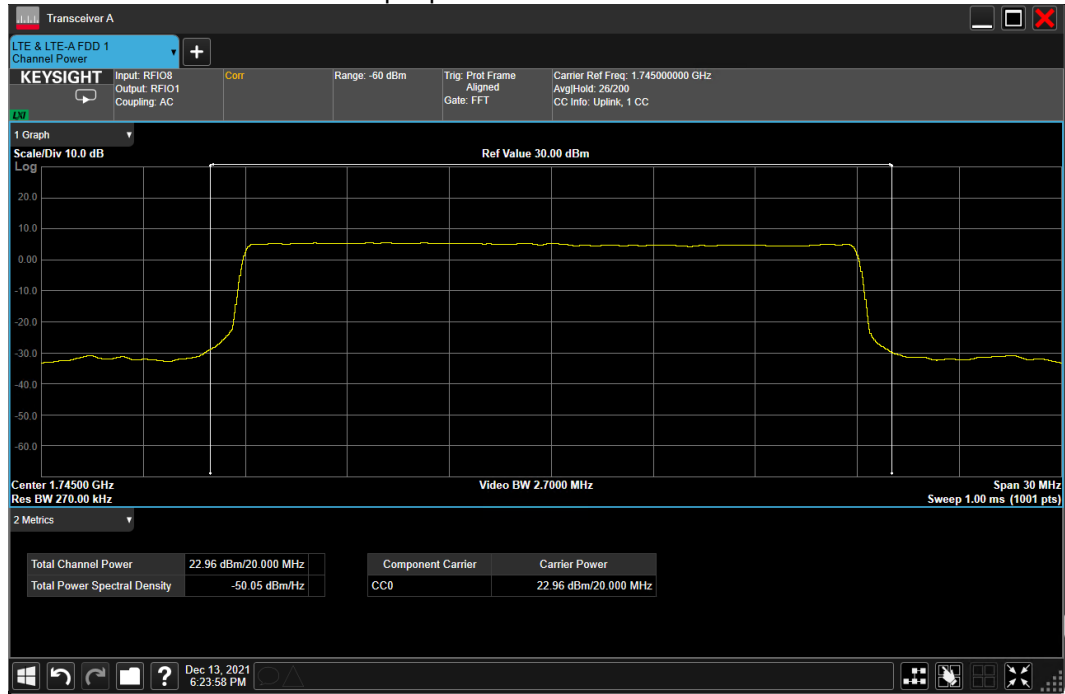
(Figure 2-9)

- Select "Channel Power" for NR output power



(Figure 2-10)

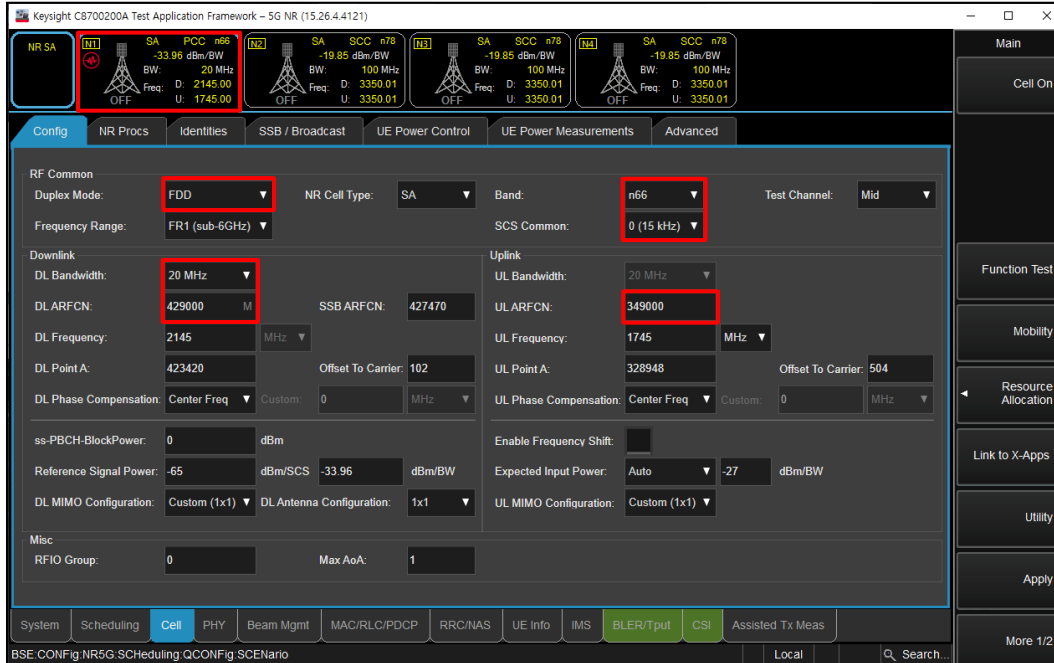
- Select "Channel Power" for LTE output power



(Figure 2-11)

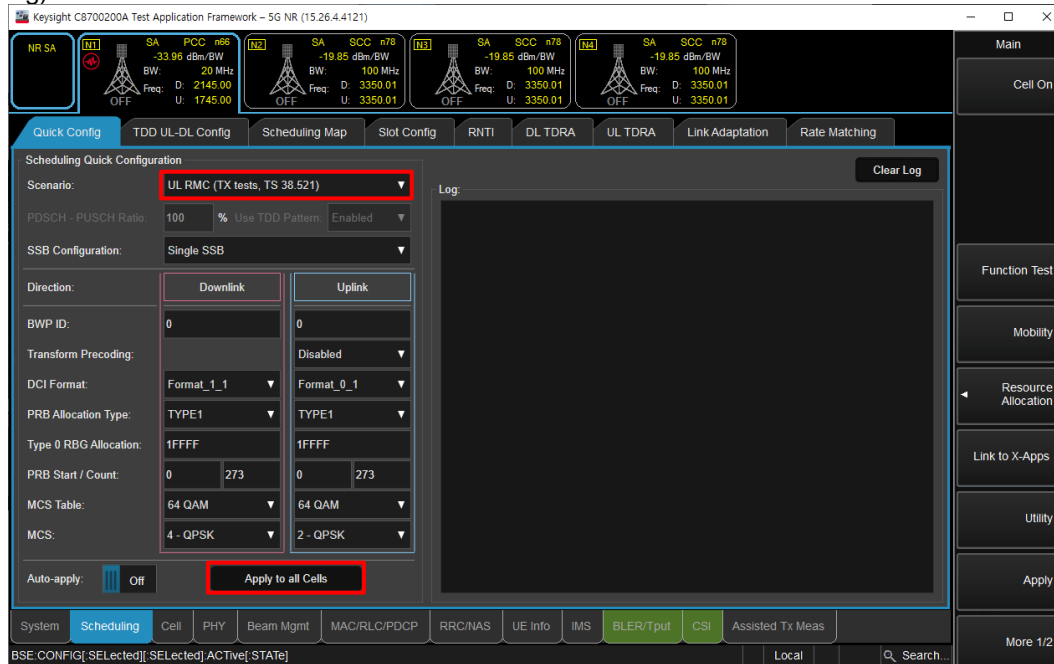
SA Mode

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



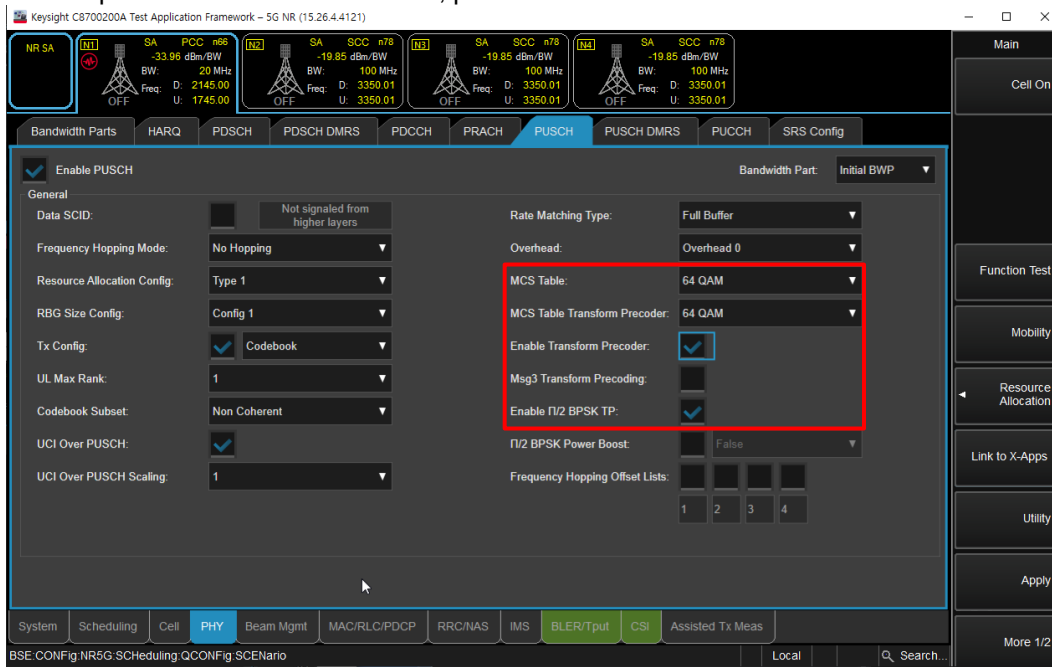
(Figure 3-1)

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



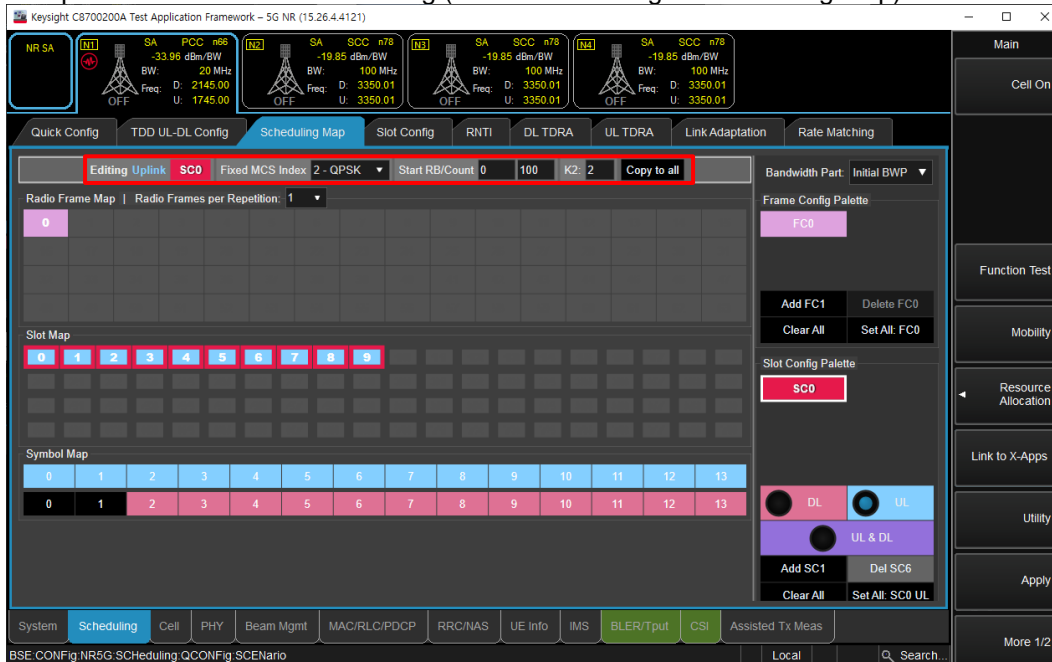
(Figure 3-2)

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



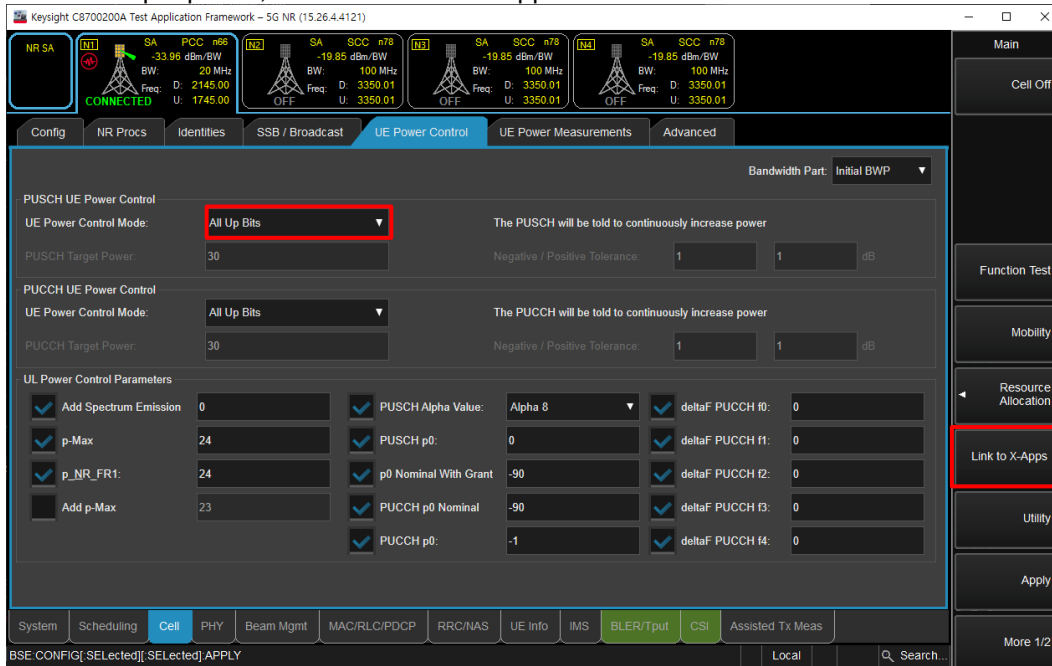
(Figure 3-3)

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



(Figure 3-4)

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



(Figure 3-5)

- Select “Channel Power”



(Figure 3-6)

NR Band n5 Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)			
					RSI = 0, 1, 2, 3, 4			
					Measured Pwr (dBm)		MPR	Tune-up Limit
167300	836.5 MHz							
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.40	0.0	25.5	
			1	53	24.34	0.0	25.5	
			1	104	24.13	0.0	25.5	
			50	0	23.44	0.5	25.0	
			50	28	24.34	0.0	25.5	
			50	56	23.27	0.5	25.0	
			100	0	23.37	0.5	25.0	
		QPSK	1	1	24.68	0.0	25.5	
			1	53	24.31	0.0	25.5	
			1	104	24.13	0.0	25.5	
			50	0	23.47	1.0	24.5	
			50	28	24.67	0.0	25.5	
			50	56	23.29	1.0	24.5	
			100	0	23.40	1.0	24.5	
	16QAM	1	1	23.46	1.0	24.5		
	64QAM	1	1	21.98	2.5	23.0		
256QAM	1	1	19.97	4.5	21.0			
CP-OFDM	QPSK	1	1	23.00	1.5	24.0		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.32	0.0	25.5	
			1	40	24.13	0.0	25.5	
			1	77	24.11	0.0	25.5	
			36	0	23.36	0.5	25.0	
			36	22	24.28	0.0	25.5	
			36	43	23.24	0.5	25.0	
			75	0	23.31	0.5	25.0	
		QPSK	1	1	24.40	0.0	25.5	
			1	40	24.18	0.0	25.5	
			1	77	24.17	0.0	25.5	
			36	0	23.43	1.0	24.5	
			36	22	24.34	0.0	25.5	
			36	43	23.29	1.0	24.5	
			75	0	23.36	1.0	24.5	
	16QAM	1	1	23.49	1.0	24.5		
	64QAM	1	1	21.99	2.5	23.0		
256QAM	1	1	19.97	4.5	21.0			
CP-OFDM	QPSK	1	1	22.99	1.5	24.0		

NR Band n5 Measured Results (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					167300	836.5 MHz			
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1		24.34		0.0	25.5
			1	26		24.31		0.0	25.5
			1	50		24.19		0.0	25.5
			25	0		23.37		0.5	25.0
			25	14		24.30		0.0	25.5
			25	27		23.30		0.5	25.0
		QPSK	50	0		23.33		0.5	25.0
			1	1		24.43		0.0	25.5
			1	26		24.39		0.0	25.5
			1	50		24.24		0.0	25.5
			25	0		23.40		1.0	24.5
			25	14		24.35		0.0	25.5
		16QAM	25	27		23.31		1.0	24.5
			50	0		23.38		1.0	24.5
			1	1		23.47		1.0	24.5
64QAM	1	1		21.94		2.5	23.0		
	1	1		19.87		4.5	21.0		
CP-OFDM	QPSK	1	1		22.98		1.5	24.0	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					165300	167300	169300		
					826.5 MHz	836.5 MHz	846.5 MHz		
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.32	24.21	23.02	0.0	25.5
			1	13	24.27	24.09	23.98	0.0	25.5
			1	23	24.34	24.19	24.10	0.0	25.5
			12	0	23.40	23.25	23.12	0.5	25.0
			12	7	24.38	24.24	24.13	0.0	25.5
			12	13	23.41	23.23	23.15	0.5	25.0
		QPSK	25	0	23.42	23.26	23.12	0.5	25.0
			1	1	24.40	24.35	24.12	0.0	25.5
			1	13	24.32	24.22	24.05	0.0	25.5
			1	23	24.36	24.27	24.11	0.0	25.5
			12	0	23.44	23.31	23.18	1.0	24.5
			12	7	24.44	24.28	24.17	0.0	25.5
		16QAM	12	13	23.44	23.28	23.17	1.0	24.5
			25	0	23.45	23.31	23.19	1.0	24.5
			1	1	23.35	23.34	23.26	1.0	24.5
		64QAM	1	1	22.17	21.89	21.65	2.5	23.0
			1	1	19.95	19.75	19.66	4.5	21.0
		CP-OFDM	QPSK	1	1	22.94	22.88	22.72	1.5

NR Band n12 Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)			
					RSI = 0, 1, 2, 3, 4			
					Measured Pwr (dBm)		MPR	Tune-up Limit
141500	707.5 MHz							
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.25	0.0	25.0	
			1	40	24.29	0.0	25.0	
			1	77	24.37	0.0	25.0	
			36	0	23.34	0.5	24.5	
			36	22	24.39	0.0	25.0	
			36	43	23.42	0.5	24.5	
			75	0	23.40	0.5	24.5	
		QPSK	1	1	24.33	0.0	25.0	
			1	40	24.29	0.0	25.0	
			1	77	24.41	0.0	25.0	
			36	0	23.41	1.0	24.0	
			36	22	24.42	0.0	25.0	
			36	43	23.44	1.0	24.0	
			75	0	23.43	1.0	24.0	
		16QAM	1	1	23.48	1.0	24.0	
			1	40	23.43	1.0	24.0	
			1	77	23.54	1.0	24.0	
		64QAM	1	1	21.96	2.5	22.5	
		256QAM	1	1	19.89	4.5	20.5	
		CP-OFDM	QPSK	1	1	22.95	1.5	23.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)		MPR	Tune-up Limit
					141500	707.5 MHz		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.35	0.0	25.0	
			1	26	24.42	0.0	25.0	
			1	50	24.43	0.0	25.0	
			25	0	23.42	0.5	24.5	
			25	14	24.43	0.0	25.0	
			25	27	23.45	0.5	24.5	
			50	0	23.44	0.5	24.5	
		QPSK	1	1	24.45	0.0	25.0	
			1	26	24.48	0.0	25.0	
			1	50	24.51	0.0	25.0	
			25	0	23.46	1.0	24.0	
			25	14	24.45	0.0	25.0	
			25	27	23.48	1.0	24.0	
			50	0	23.46	1.0	24.0	
		16QAM	1	1	23.43	1.0	24.0	
		64QAM	1	1	22.01	2.5	22.5	
		256QAM	1	1	19.92	4.5	20.5	
		CP-OFDM	QPSK	1	1	22.91	1.5	23.5

NR Band n12 Measured Results (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	
					140300	141500	142700			
					701.5 MHz	707.5 MHz	713.5 MHz			
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.36	24.44	24.40	0.0	25.0	
			1	13	24.32	24.39	24.33	0.0	25.0	
			1	23	24.42	24.49	24.41	0.0	25.0	
			12	0	23.40	23.46	23.42	0.5	24.5	
			12	7	24.38	24.46	24.40	0.0	25.0	
			12	13	23.41	23.46	23.43	0.5	24.5	
			25	0	23.42	23.48	23.43	0.5	24.5	
		QPSK	1	1	24.38	24.48	24.40	0.0	25.0	
			1	13	24.30	24.37	24.32	0.0	25.0	
			1	23	24.41	24.48	24.36	0.0	25.0	
			12	0	23.43	23.48	23.45	1.0	24.0	
			12	7	24.40	24.48	24.43	0.0	25.0	
			12	13	23.43	23.47	23.45	1.0	24.0	
			25	0	23.43	23.49	23.47	1.0	24.0	
		16QAM	1	1	23.39	23.43	23.58	1.0	24.0	
		64QAM	1	1	21.94	21.91	22.06	2.5	22.5	
		256QAM	1	1	19.83	19.84	19.86	4.5	20.5	
		CP-OFDM	QPSK	1	1	22.88	23.03	22.98	1.5	23.5

NR Band n25 Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)								
					RSI = 0, 4			RSI = 3			RSI = 1, 2		
					Measured Pwr (dBm)			Measured Pwr (dBm)			Measured Pwr (dBm)		
					376500 1882.5 MHz	MPR	Tune-up Limit	376500 1882.5 MHz	MPR	Tune-up Limit	376500 1882.5 MHz	MPR	Tune-up Limit
40 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.37	0.0	25.0	22.44	0.0	23.0	22.37	0.0	23.0
			1	108	24.39	0.0	25.0	22.39	0.0	23.0	22.32	0.0	23.0
			1	214	24.33	0.0	25.0	22.37	0.0	23.0	22.28	0.0	23.0
			108	0	23.51	0.5	24.5	22.52	0.0	23.0	22.45	0.0	23.0
			108	54	24.40	0.0	25.0	22.47	0.0	23.0	22.41	0.0	23.0
			108	108	23.46	0.5	24.5	22.48	0.0	23.0	22.42	0.0	23.0
			216	0	23.44	0.5	24.5	22.46	0.0	23.0	22.41	0.0	23.0
		QPSK	1	1	24.54	0.0	25.0	22.61	0.0	23.0	22.54	0.0	23.0
			1	108	24.39	0.0	25.0	22.49	0.0	23.0	22.46	0.0	23.0
			1	214	24.38	0.0	25.0	22.43	0.0	23.0	22.39	0.0	23.0
			108	0	23.57	1.0	24.0	22.56	0.0	23.0	22.51	0.0	23.0
			108	54	24.51	0.0	25.0	22.60	0.0	23.0	22.53	0.0	23.0
			108	108	23.52	1.0	24.0	22.50	0.0	23.0	22.45	0.0	23.0
			216	0	23.47	1.0	24.0	22.46	0.0	23.0	22.43	0.0	23.0
		16QAM	1	1	23.49	1.0	24.0	22.56	0.0	23.0	22.52	0.0	23.0
			1	108	23.52	1.0	24.0	22.62	0.0	23.0	22.58	0.0	23.0
			1	214	23.40	1.0	24.0	22.52	0.0	23.0	22.48	0.0	23.0
		64QAM	1	1	21.96	2.5	22.5	22.09	0.5	22.5	21.96	0.5	22.5
256QAM	1	1	19.93	4.5	20.5	20.02	2.5	20.5	19.99	2.5	20.5		
CP-OFDM	QPSK	1	1	23.02	1.5	23.5	22.56	0.0	23.0	22.49	0.0	23.0	
30 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.27	0.0	25.0	22.24	0.0	23.0	22.41	0.0	23.0
			1	80	24.25	0.0	25.0	22.25	0.0	23.0	22.35	0.0	23.0
			1	158	24.32	0.0	25.0	22.24	0.0	23.0	22.35	0.0	23.0
			80	0	23.44	0.5	24.5	22.34	0.0	23.0	22.49	0.0	23.0
			80	40	24.38	0.0	25.0	22.29	0.0	23.0	22.46	0.0	23.0
			80	80	23.44	0.5	24.5	22.33	0.0	23.0	22.48	0.0	23.0
			160	0	23.39	0.5	24.5	22.30	0.0	23.0	22.44	0.0	23.0
		QPSK	1	1	24.43	0.0	25.0	22.35	0.0	23.0	22.49	0.0	23.0
			1	80	24.45	0.0	25.0	22.32	0.0	23.0	22.46	0.0	23.0
			1	158	24.42	0.0	25.0	22.27	0.0	23.0	22.41	0.0	23.0
			80	0	23.52	1.0	24.0	22.39	0.0	23.0	22.51	0.0	23.0
			80	40	24.44	0.0	25.0	22.35	0.0	23.0	22.46	0.0	23.0
			80	80	23.50	1.0	24.0	22.38	0.0	23.0	22.50	0.0	23.0
			160	0	23.44	1.0	24.0	22.35	0.0	23.0	22.45	0.0	23.0
		16QAM	1	1	23.37	1.0	24.0	22.38	0.0	23.0	22.51	0.0	23.0
		64QAM	1	1	21.98	2.5	22.5	21.86	0.5	22.5	22.01	0.5	22.5
		256QAM	1	1	19.88	4.5	20.5	19.81	2.5	20.5	19.89	2.5	20.5
		CP-OFDM	QPSK	1	1	22.96	1.5	23.5	22.44	0.0	23.0	22.51	0.0

NR Band n25 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	Measured Pwr (dBm)				MPR	Tune-up Limit
					376500			1882.5 MHz			376500			1882.5 MHz			376500			1882.5 MHz		
					1860 MHz	1882.5 MHz	1905 MHz				1860 MHz	1882.5 MHz	1905 MHz				1860 MHz	1882.5 MHz	1905 MHz			
25 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.36	0.0	25.0	22.38	0.0	23.0	22.27	0.0	23.0	22.17	0.0	23.0	22.24	0.0	23.0			
			1	67	24.26	0.0	25.0	22.25	0.0	23.0	22.17	0.0	23.0	22.36	0.0	23.0	22.32	0.0	23.0			
			1	131	24.35	0.0	25.0	22.32	0.0	23.0	22.41	0.0	23.0	22.35	0.0	23.0	22.34	0.0	23.0			
			64	0	23.49	0.5	24.5	22.41	0.0	23.0	22.36	0.0	23.0	22.32	0.0	23.0	22.34	0.0	23.0			
			64	35	24.43	0.0	25.0	22.35	0.0	23.0	22.37	0.0	23.0	22.35	0.0	23.0	22.33	0.0	23.0			
			64	69	23.49	0.5	24.5	22.37	0.0	23.0	22.36	0.0	23.0	22.34	0.0	23.0	22.33	0.0	23.0			
		128	0	23.46	0.5	24.5	22.36	0.0	23.0	22.37	0.0	23.0	22.35	0.0	23.0	22.33	0.0	23.0				
		QPSK	1	1	24.50	0.0	25.0	22.37	0.0	23.0	22.39	0.0	23.0	22.25	0.0	23.0	22.27	0.0	23.0			
			1	67	24.38	0.0	25.0	22.23	0.0	23.0	22.25	0.0	23.0	22.27	0.0	23.0	22.41	0.0	23.0			
			1	131	24.42	0.0	25.0	22.31	0.0	23.0	22.45	0.0	23.0	22.39	0.0	23.0	22.38	0.0	23.0			
			64	0	23.58	1.0	24.0	22.45	0.0	23.0	22.30	0.0	23.0	22.36	0.0	23.0	22.36	0.0	23.0			
			64	35	24.49	0.0	25.0	22.39	0.0	23.0	22.16	0.5	22.5	21.96	0.5	22.5	22.38	0.0	23.0			
			64	69	23.55	1.0	24.0	22.40	0.0	23.0	22.30	0.0	23.0	22.36	0.0	23.0	22.38	0.0	23.0			
		128	0	23.52	1.0	24.0	22.38	0.0	23.0	22.30	0.0	23.0	22.36	0.0	23.0	22.38	0.0	23.0				
16QAM	1	1	23.58	1.0	24.0	22.30	0.0	23.0	22.16	0.5	22.5	21.96	0.5	22.5	22.38	0.0	23.0					
64QAM	1	1	22.09	2.5	22.5	22.16	0.0	23.0	19.97	2.5	20.5	19.87	2.5	20.5	22.44	0.0	23.0					
256QAM	1	1	20.04	4.5	20.5	19.97	0.0	23.0	22.47	0.0	23.0	22.44	0.0	23.0	22.44	0.0	23.0					
CP-OFDM	QPSK	1	1	23.09	1.5	23.5	22.47	0.0	23.0	22.44	0.0	23.0	22.44	0.0	23.0	22.44	0.0	23.0				
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	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					
					1860 MHz	1882.5 MHz	1905 MHz			1860 MHz	1882.5 MHz	1905 MHz			1860 MHz	1882.5 MHz	1905 MHz					
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.71	24.32	24.37	0.0	25.0	22.45	22.33	22.35	0.0	23.0	22.48	22.27	22.34	0.0	23.0			
			1	53	24.49	24.28	24.24	0.0	25.0	22.46	22.27	22.44	0.0	23.0	22.48	22.24	22.44	0.0	23.0			
			1	104	24.54	24.36	23.73	0.0	25.0	22.39	22.33	22.31	0.0	23.0	22.42	22.25	22.34	0.0	23.0			
			50	0	23.41	23.44	23.53	0.5	24.5	22.55	22.40	22.43	0.0	23.0	22.55	22.33	22.44	0.0	23.0			
			50	28	24.44	24.36	24.26	0.0	25.0	22.47	22.35	22.45	0.0	23.0	22.50	22.30	22.48	0.0	23.0			
			50	56	23.65	23.41	23.40	0.5	24.5	22.47	22.37	22.46	0.0	23.0	22.50	22.32	22.46	0.0	23.0			
		100	0	23.65	23.42	23.58	0.5	24.5	22.51	22.37	22.48	0.0	23.0	22.52	22.33	22.49	0.0	23.0				
		QPSK	1	1	23.36	24.46	24.42	0.0	25.0	22.53	22.43	22.44	0.0	23.0	22.57	22.36	22.43	0.0	23.0			
			1	53	24.23	24.36	23.89	0.0	25.0	22.53	22.39	22.54	0.0	23.0	22.54	22.32	22.46	0.0	23.0			
			1	104	24.45	24.33	23.44	0.0	25.0	22.41	22.33	22.39	0.0	23.0	22.47	22.29	22.34	0.0	23.0			
			50	0	23.20	23.50	23.59	1.0	24.0	22.59	22.42	22.49	0.0	23.0	22.61	22.39	22.49	0.0	23.0			
			50	28	24.28	24.42	24.03	0.0	25.0	22.53	22.37	22.52	0.0	23.0	22.56	22.34	22.51	0.0	23.0			
			50	56	23.68	23.48	23.22	1.0	24.0	22.51	22.39	22.49	0.0	23.0	22.53	22.38	22.50	0.0	23.0			
		100	0	23.65	23.45	23.61	1.0	24.0	22.54	22.40	22.52	0.0	23.0	22.56	22.36	22.53	0.0	23.0				
		16QAM	1	1	22.77	23.53	23.54	1.0	24.0	22.65	22.45	22.52	0.0	23.0	22.61	22.43	22.52	0.0	23.0			
			1	53	23.68	23.43	23.45	1.0	24.0	22.53	22.43	22.43	0.0	23.0	22.67	22.42	22.65	0.0	23.0			
			1	104	23.58	23.43	22.96	1.0	24.0	22.50	22.40	22.31	0.0	23.0	22.55	22.43	22.49	0.0	23.0			
		64QAM	1	1	21.71	22.11	22.13	2.5	22.5	22.09	21.94	22.02	0.5	22.5	22.19	21.86	21.95	0.5	22.5			
		256QAM	1	1	20.20	19.89	19.95	4.5	20.5	20.09	19.91	19.86	2.5	20.5	20.06	19.97	19.87	2.5	20.5			
CP-OFDM	QPSK	1	1	22.46	22.95	22.97	1.5	23.5	22.61	22.51	22.42	0.0	23.0	22.58	22.38	22.47	0.0	23.0				

NR Band n30 Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)				
					RSI = 0, 1, 2, 3, 4				
					Measured Pwr (dBm)			MPR	Tune-up Limit
461500	462000	462500							
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.74	23.10	23.46	0.0	24.0
			1	26	23.49	23.52	23.55	0.0	24.0
			1	50	23.55	23.58	23.59	0.0	24.0
			25	0	22.52	22.55	22.56	0.5	23.5
			25	14	23.56	23.59	23.59	0.0	24.0
			25	27	22.56	22.59	22.59	0.5	23.5
		QPSK	1	1	22.49	23.07	23.52	0.0	24.0
			1	26	23.52	23.55	23.58	0.0	24.0
			1	50	23.58	23.61	23.62	0.0	24.0
			25	0	22.58	22.61	22.62	1.0	23.0
			25	14	23.59	23.62	23.62	0.0	24.0
			25	27	22.62	22.65	22.65	1.0	23.0
		16QAM	1	1	21.91	22.49	22.94	1.0	23.0
			1	26	22.52	23.09	23.54	1.0	23.0
			1	50	22.59	23.16	23.61	1.0	23.0
		64QAM	1	1	21.00	21.57	22.02	2.5	21.5
			1	1	19.03	19.60	20.05	4.5	19.5
		CP-OFDM	QPSK	1	1	21.55	22.12	22.57	1.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					461500	462000	462500		
					2307.5 MHz	2310 MHz	2312.5 MHz		
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.22	23.48	22.73	0.0	24.0
			1	13	23.45	23.51	23.49	0.0	24.0
			1	23	23.56	23.58	23.54	0.0	24.0
			12	0	22.52	22.55	22.52	0.5	23.5
			12	7	23.54	23.56	23.56	0.0	24.0
			12	13	22.59	22.59	22.57	0.5	23.5
		QPSK	25	0	22.57	22.57	22.55	0.5	23.5
			1	1	22.79	23.28	22.48	0.0	24.0
			1	13	23.46	23.54	23.54	0.0	24.0
			1	23	23.62	23.63	23.60	0.0	24.0
			12	0	22.56	22.62	22.59	1.0	23.0
			12	7	23.46	23.62	23.60	0.0	24.0
		16QAM	12	13	22.65	22.63	22.61	1.0	23.0
			25	0	22.62	22.63	22.59	1.0	23.0
			1	1	22.26	22.70	21.94	1.0	23.0
		64QAM	1	1	21.16	21.16	21.02	2.5	21.5
			1	1	19.02	19.05	18.89	4.5	19.5
		CP-OFDM	QPSK	1	1	21.87	21.85	21.47	1.5

NR Band n41 (Power Class 3) Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)								
					RSI = 0, 4			RSI = 1, 2, 3					
					Measured Pwr (dBm)		MPR	Tune-up Limit	Measured Pwr (dBm)		MPR	Tune-up Limit	
					518598	2592.99 MHz			518598	2592.99 MHz			
100 MHz	DFT-s-OFDM	π/2 BPSK	1	1	16.57	0.0	18.0	15.39	0.0	17.0			
			1	137	16.55	0.0	18.0	15.42	0.0	17.0			
			1	271	16.52	0.0	18.0	15.43	0.0	17.0			
			135	0	16.57	0.0	18.0	15.45	0.5	16.5			
			135	69	16.39	0.0	18.0	15.32	0.0	17.0			
			135	138	16.47	0.0	18.0	15.40	0.0	17.0			
			270	0	16.44	0.0	18.0	15.28	0.0	17.0			
		QPSK	1	1	16.68	0.0	18.0	15.45	0.0	17.0			
			1	137	16.46	0.0	18.0	15.40	0.0	17.0			
			1	271	16.56	0.0	18.0	15.40	0.0	17.0			
			135	0	16.60	0.0	18.0	15.48	0.0	17.0			
			135	69	16.49	0.0	18.0	15.37	0.0	17.0			
			135	138	16.55	0.0	18.0	15.42	0.0	17.0			
			270	0	16.42	0.0	18.0	15.25	0.0	17.0			
		16QAM	1	1	16.72	0.0	18.0	15.35	0.0	17.0			
			1	137	16.54	0.0	18.0	15.38	0.0	17.0			
			1	271	16.57	0.0	18.0	15.35	0.0	17.0			
		64QAM	1	1	16.88	0.0	18.0	15.28	0.0	17.0			
			1	1	15.32	1.0	17.0	14.79	0.0	17.0			
		CP-OFDM	QPSK	1	1	16.45	0.0	18.0	15.31	0.0	17.0		
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)								
					508200		MPR	Tune-up Limit	508200		MPR	Tune-up Limit	
					2541 MHz	528996			2541 MHz	528996			
					2644.98 MHz	2644.98 MHz	2644.98 MHz	2644.98 MHz					
90 MHz	DFT-s-OFDM	π/2 BPSK	1	1	16.84	16.63	0.0	18.0	15.51	15.27	0.0	17.0	
			1	123	16.92	16.97	0.0	18.0	15.63	15.58	0.0	17.0	
			1	243	16.78	16.81	0.0	18.0	15.19	15.52	0.0	17.0	
			120	0	16.93	16.82	0.0	18.0	15.78	15.41	0.0	17.0	
			120	63	16.72	16.99	0.0	18.0	15.48	15.63	0.0	17.0	
			120	125	16.71	17.11	0.0	18.0	15.38	15.71	0.5	16.5	
			243	0	16.70	16.95	0.0	18.0	15.38	15.45	0.0	17.0	
		QPSK	1	1	16.85	16.61	0.0	18.0	15.37	15.08	0.0	17.0	
			1	123	16.76	16.85	0.0	18.0	15.58	15.55	0.0	17.0	
			1	243	16.81	16.82	0.0	18.0	15.09	15.38	0.0	17.0	
			120	0	16.88	16.68	0.0	18.0	15.88	15.33	0.0	17.0	
			120	63	16.63	16.94	0.0	18.0	15.49	15.47	0.0	17.0	
			120	125	16.57	17.00	0.0	18.0	15.48	15.67	0.0	17.0	
			243	0	16.63	17.01	0.0	18.0	15.51	15.43	0.0	17.0	
		16QAM	1	1	16.88	16.53	0.0	18.0	15.48	15.09	0.0	17.0	
			1	1	16.88	16.53	0.0	18.0	15.37	15.07	0.0	17.0	
			1	1	15.34	15.02	1.0	17.0	14.88	14.58	0.0	17.0	
		CP-OFDM	QPSK	1	1	16.87	16.55	0.0	18.0	15.41	15.09	0.0	17.0
		BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)						
							507204		MPR	Tune-up Limit	507204		MPR
2536.02 MHz	529998						2536.02 MHz	529998					
2649.99 MHz	2649.99 MHz						2649.99 MHz	2649.99 MHz					
80 MHz	DFT-s-OFDM	π/2 BPSK	1	1	16.72	16.62	0.0	18.0	15.63	15.32	0.0	17.0	
			1	109	16.71	17.01	0.0	18.0	15.63	15.68	0.0	17.0	
			1	215	16.81	16.85	0.0	18.0	15.23	15.43	0.0	17.0	
			108	0	16.69	16.67	0.0	18.0	15.95	15.38	0.0	17.0	
			108	55	16.62	16.62	0.0	18.0	15.60	15.69	0.0	17.0	
			108	109	16.58	16.67	0.0	18.0	15.55	15.70	0.0	17.0	
			216	0	16.60	16.95	0.0	18.0	15.54	15.69	0.0	17.0	
		QPSK	1	1	16.76	16.58	0.0	18.0	15.59	15.32	0.0	17.0	
			1	109	16.64	16.96	0.0	18.0	15.57	15.65	0.0	17.0	
			1	215	16.33	16.78	0.0	18.0	15.21	15.39	0.0	17.0	
			108	0	16.99	16.65	0.0	18.0	15.92	15.39	0.0	17.0	
			108	55	16.66	17.01	0.0	18.0	15.59	15.71	0.0	17.0	
			108	109	16.61	17.03	0.0	18.0	15.52	15.70	0.0	17.0	
			216	0	16.60	16.99	0.0	18.0	15.51	15.66	0.0	17.0	
		16QAM	1	1	16.84	16.60	0.0	18.0	15.70	15.38	0.0	17.0	
			1	1	16.80	16.54	0.0	18.0	15.52	15.34	0.0	17.0	
			1	1	15.30	15.08	1.0	17.0	15.08	14.83	0.0	17.0	
		CP-OFDM	QPSK	1	1	16.79	16.56	0.0	18.0	15.60	15.32	0.0	17.0

NR Band n41 (Power Class 3) 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
					506202		531000				506202		531000			
					2531.01 MHz	2655 MHz	2531.01 MHz	2655 MHz			2531.01 MHz	2655 MHz	2531.01 MHz	2655 MHz		
70 MHz	DFT-s-OFDM	π/2 BPSK	1	1	16.93		16.66	0.0	18.0	15.59		15.27	0.0	17.0		
			1	95	16.89		17.05	0.0	18.0	15.66		15.69	0.0	17.0		
			1	188	16.91		16.95	0.0	18.0	15.36		15.40	0.0	17.0		
			90	0	16.81		16.66	0.0	18.0	15.91		15.42	0.0	17.0		
			90	50	16.83		17.03	0.0	18.0	15.64		15.69	0.0	17.0		
			90	99	16.72		17.08	0.0	18.0	15.49		15.63	0.0	17.0		
		180	0	16.86		17.00	0.0	18.0	15.62		15.66	0.0	17.0			
		QPSK	1	1	16.89		16.61	0.0	18.0	15.59		15.23	0.0	17.0		
			1	95	16.85		17.01	0.0	18.0	15.61		15.64	0.0	17.0		
			1	188	16.69		16.71	0.0	18.0	15.35		15.34	0.0	17.0		
			90	0	16.84		16.63	0.0	18.0	15.90		15.38	0.0	17.0		
			90	50	16.89		17.04	0.0	18.0	15.64		15.69	0.0	17.0		
			90	99	16.67		17.07	0.0	18.0	15.48		15.61	0.0	17.0		
		180	0	16.86		17.00	0.0	18.0	15.60		15.64	0.0	17.0			
		16QAM	1	1	16.91		16.66	0.0	18.0	15.66		15.33	0.0	17.0		
		64QAM	1	1	16.85		16.59	0.0	18.0	15.66		15.26	0.0	17.0		
		256QAM	1	1	15.39		15.15	1.0	17.0	15.06		14.77	0.0	17.0		
		CP-OFDM	QPSK	1	1	16.90		16.61	0.0	18.0	15.60		15.22	0.0	17.0	
60 MHz	DFT-s-OFDM	π/2 BPSK	1	1	16.97	16.69	16.75	0.0	18.0	15.81	15.52	15.67	0.0	17.0		
			1	40	16.92	16.63	17.12	0.0	18.0	15.87	15.61	15.92	0.0	17.0		
			1	77	16.66	16.84	17.14	0.0	18.0	15.56	15.65	15.86	0.0	17.0		
			36	0	16.94	16.67	16.85	0.0	18.0	15.98	15.42	15.91	0.0	17.0		
			36	22	17.01	16.62	17.15	0.0	18.0	15.83	15.56	15.92	0.0	17.0		
			36	43	16.79	16.75	17.11	0.0	18.0	15.61	15.69	15.88	0.0	17.0		
		75	0	16.78	16.60	17.12	0.0	18.0	15.79	15.52	15.91	0.0	17.0			
		QPSK	1	1	16.95	16.64	16.68	0.0	18.0	15.82	15.52	15.44	0.0	17.0		
			1	40	17.01	16.60	17.07	0.0	18.0	15.88	15.55	15.93	0.0	17.0		
			1	77	16.64	16.61	17.03	0.0	18.0	15.56	15.63	15.67	0.0	17.0		
			36	0	16.91	16.71	16.77	0.0	18.0	15.88	15.38	15.70	0.0	17.0		
			36	22	17.11	16.68	17.04	0.0	18.0	15.81	15.53	15.91	0.0	17.0		
			36	43	16.80	16.74	17.15	0.0	18.0	15.55	15.68	15.88	0.0	17.0		
		75	0	17.10	16.59	17.06	0.0	18.0	15.74	15.49	15.91	0.0	17.0			
		16QAM	1	1	17.02	16.69	16.68	0.0	18.0	15.80	15.58	15.94	0.0	17.0		
		64QAM	1	1	16.97	16.60	16.65	0.0	18.0	15.79	15.59	15.50	0.0	17.0		
		256QAM	1	1	15.48	15.10	15.45	1.0	17.0	15.29	15.01	15.01	0.0	17.0		
		CP-OFDM	QPSK	1	1	17.03	16.61	16.75	0.0	18.0	15.77	15.49	15.40	0.0	17.0	
50 MHz	DFT-s-OFDM	π/2 BPSK	1	1	16.50	16.65	17.18	0.0	18.0	15.79	15.51	15.67	0.0	17.0		
			1	26	17.09	16.55	17.08	0.0	18.0	15.89	15.53	15.98	0.0	17.0		
			1	50	16.82	16.78	17.03	0.0	18.0	15.48	15.70	15.77	0.0	17.0		
			25	0	17.02	16.60	16.80	0.0	18.0	15.74	15.41	15.85	0.0	17.0		
			25	14	17.01	16.52	17.10	0.0	18.0	15.90	15.55	15.95	0.0	17.0		
			25	27	17.09	16.66	17.12	0.0	18.0	15.70	15.72	15.81	0.0	17.0		
		50	0	17.00	16.49	17.08	0.0	18.0	15.86	15.52	15.91	0.0	17.0			
		QPSK	1	1	16.39	16.57	17.15	0.0	18.0	15.76	15.51	15.66	0.0	17.0		
			1	26	17.03	16.54	17.09	0.0	18.0	15.87	15.55	15.95	0.0	17.0		
			1	50	16.76	16.71	16.99	0.0	18.0	15.46	15.68	15.70	0.0	17.0		
			25	0	17.01	16.72	16.80	0.0	18.0	15.74	15.39	15.81	0.0	17.0		
			25	14	17.01	16.50	17.07	0.0	18.0	15.89	15.57	15.94	0.0	17.0		
			25	27	17.09	16.63	17.14	0.0	18.0	15.69	15.70	15.85	0.0	17.0		
		50	0	16.98	16.45	17.09	0.0	18.0	15.84	15.54	15.89	0.0	17.0			
		16QAM	1	1	16.52	16.61	17.05	0.0	18.0	15.80	15.56	15.74	0.0	17.0		
		64QAM	1	1	16.19	16.51	17.13	0.0	18.0	15.76	15.53	15.27	0.0	17.0		
		256QAM	1	1	15.02	15.06	15.80	1.0	17.0	15.29	14.91	15.19	0.0	17.0		
		CP-OFDM	QPSK	1	1	16.01	16.53	17.17	0.0	18.0	15.77	15.48	15.64	0.0	17.0	

NR Band n41 (Power Class 2) Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)							
					RSI = 0, 4			RSI = 1, 2, 3				
					Measured Pwr (dBm)			Measured Pwr (dBm)				
					518598	518598	MPR	Tune-up Limit	518598	518598	MPR	Tune-up Limit
100 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.47	0.0	21.0	15.39	0.0	17.0		
			1	137	19.47	0.0	21.0	15.42	0.0	17.0		
			1	271	19.42	0.0	21.0	15.43	0.0	17.0		
			135	0	19.02	0.5	20.5	15.45	0.5	16.5		
			135	69	19.47	0.0	21.0	15.32	0.0	17.0		
			135	138	18.96	0.5	20.5	15.40	0.0	17.0		
			270	0	18.82	0.5	20.5	15.28	0.0	17.0		
		QPSK	1	1	19.50	0.0	21.0	15.45	0.0	17.0		
			1	137	19.43	0.0	21.0	15.40	0.0	17.0		
			1	271	19.48	0.0	21.0	15.40	0.0	17.0		
			135	0	18.61	1.0	20.0	15.48	0.0	17.0		
			135	69	19.52	0.0	21.0	15.37	0.0	17.0		
			135	138	18.47	1.0	20.0	15.42	0.0	17.0		
			270	0	18.44	1.0	20.0	15.25	0.0	17.0		
		16QAM	1	1	18.44	1.0	20.0	15.35	0.0	17.0		
			1	137	18.43	1.5	19.5	15.38	0.0	17.0		
			1	271	18.44	2.5	18.5	15.35	0.0	17.0		
		64QAM	1	1	16.81	2.5	18.5	15.28	0.0	17.0		
		256QAM	1	1	14.83	4.5	16.5	14.79	0.0	17.0		
		CP-OFDM	QPSK	1	1	17.86	1.5	19.5	15.31	0.0	17.0	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)							
					508200			508200				
					2541 MHz			2541 MHz				
					528996	528996	MPR	Tune-up Limit	528996	528996	MPR	Tune-up Limit
90 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.68	0.0	21.0	15.51	0.0	17.0		
			1	123	19.72	0.0	21.0	15.63	0.0	17.0		
			1	243	19.21	0.0	21.0	15.19	0.0	17.0		
			120	0	19.40	0.5	20.5	15.78	0.0	17.0		
			120	63	19.68	0.0	21.0	15.48	0.0	17.0		
			120	125	19.11	0.5	20.5	15.38	0.5	16.5		
			243	0	19.13	0.5	20.5	15.38	0.0	17.0		
		QPSK	1	1	19.69	0.0	21.0	15.37	0.0	17.0		
			1	123	19.71	0.0	21.0	15.58	0.0	17.0		
			1	243	19.20	0.0	21.0	15.09	0.0	17.0		
			120	0	18.99	1.0	20.0	15.88	0.0	17.0		
			120	63	19.68	0.0	21.0	15.49	0.0	17.0		
			120	125	18.58	1.0	20.0	15.48	0.0	17.0		
			243	0	18.62	1.0	20.0	15.51	0.0	17.0		
		16QAM	1	1	18.73	1.0	20.0	15.48	0.0	17.0		
			64QAM	1	1	17.22	2.5	18.5	15.37	0.0	17.0	
			256QAM	1	1	15.08	4.69	16.5	14.88	0.0	17.0	
		CP-OFDM	QPSK	1	1	18.13	1.77	1.5	19.5	15.41	0.0	17.0
		BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)					
							507204			507204		
2536.02 MHz							2536.02 MHz					
529998	529998						MPR	Tune-up Limit	529998	529998	MPR	Tune-up Limit
80 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.68	0.0	21.0	15.63	0.0	17.0		
			1	109	19.73	0.0	21.0	15.63	0.0	17.0		
			1	215	19.32	0.0	21.0	15.23	0.0	17.0		
			108	0	19.54	0.5	20.5	15.95	0.0	17.0		
			108	55	19.75	0.0	21.0	15.60	0.0	17.0		
			108	109	19.15	0.5	20.5	15.55	0.0	17.0		
			216	0	19.15	0.5	20.5	15.54	0.0	17.0		
		QPSK	1	1	19.74	0.0	21.0	15.59	0.0	17.0		
			1	109	19.76	0.0	21.0	15.57	0.0	17.0		
			1	215	19.34	0.0	21.0	15.21	0.0	17.0		
			108	0	19.06	1.0	20.0	15.92	0.0	17.0		
			108	55	19.74	0.0	21.0	15.59	0.0	17.0		
			108	109	18.65	1.0	20.0	15.52	0.0	17.0		
			216	0	18.66	1.0	20.0	15.51	0.0	17.0		
		16QAM	1	1	18.77	1.0	20.0	15.70	0.0	17.0		
			64QAM	1	1	17.28	2.5	18.5	15.52	0.0	17.0	
			256QAM	1	1	15.18	4.91	4.5	16.5	15.08	0.0	17.0
		CP-OFDM	QPSK	1	1	18.22	1.79	1.5	19.5	15.60	0.0	17.0

NR Band n41 (Power Class 2) Measured Results (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)						
					506202		531000		MPR			Tune-up Limit	506202		531000		MPR	Tune-up Limit
					2531.01 MHz		2655 MHz						2531.01 MHz		2655 MHz			
70 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.67			19.36	0.0	21.0	15.59			15.27	0.0	17.0		
			1	95	19.75			19.79	0.0	21.0	15.66			15.69	0.0	17.0		
			1	188	19.77			19.78	0.0	21.0	15.36			15.40	0.0	17.0		
			90	0	19.53			18.95	0.5	20.5	15.91			15.42	0.0	17.0		
			90	50	19.47			19.78	0.0	21.0	15.64			15.69	0.0	17.0		
			90	99	18.88			19.25	0.5	20.5	15.49			15.63	0.0	17.0		
			180	0	19.07			19.26	0.5	20.5	15.62			15.66	0.0	17.0		
			1	1	19.54			19.38	0.0	21.0	15.59			15.23	0.0	17.0		
			1	95	19.64			19.79	0.0	21.0	15.61			15.64	0.0	17.0		
		1	188	19.77			19.79	0.0	21.0	15.35			15.34	0.0	17.0			
		90	0	18.88			18.48	1.0	20.0	15.90			15.38	0.0	17.0			
		90	50	19.63			19.80	0.0	21.0	15.64			15.69	0.0	17.0			
		90	99	18.46			18.75	1.0	20.0	15.48			15.61	0.0	17.0			
		180	0	18.61			18.78	1.0	20.0	15.60			15.64	0.0	17.0			
		16QAM	1	1	18.65			18.42	1.0	20.0	15.66			15.33	0.0	17.0		
		64QAM	1	1	17.14			16.91	2.5	18.5	15.66			15.26	0.0	17.0		
		256QAM	1	1	15.02			14.77	4.5	16.5	15.06			14.77	0.0	17.0		
		CP-OFDM	QPSK	1	1	18.06			17.81	1.5	19.5	15.60			15.22	0.0	17.0	
60 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.92			19.56	0.0	21.0	15.81			15.67	0.0	17.0		
			1	40	19.98			19.62	0.0	21.0	15.87			15.92	0.0	17.0		
			1	77	19.66			19.64	0.0	21.0	15.56			15.86	0.0	17.0		
			36	0	19.69			19.02	0.5	20.5	15.98			15.91	0.0	17.0		
			36	22	19.03			19.66	0.0	21.0	15.83			15.92	0.0	17.0		
			36	43	19.28			18.20	0.5	20.5	15.61			15.89	0.0	17.0		
			75	0	19.44			19.00	0.5	20.5	15.79			15.91	0.0	17.0		
			1	1	19.96			19.55	0.0	21.0	15.82			15.52	0.0	17.0		
			1	40	19.06			19.52	0.0	21.0	15.88			15.55	0.0	17.0		
		1	77	19.67			19.63	0.0	21.0	15.56			15.63	0.0	17.0			
		36	0	19.15			18.48	1.0	20.0	15.88			15.38	0.0	17.0			
		36	22	19.98			19.52	0.0	21.0	15.81			15.53	0.0	17.0			
		36	43	18.78			18.63	1.0	20.0	15.55			15.68	0.0	17.0			
		75	0	18.93			18.48	1.0	20.0	15.74			15.49	0.0	17.0			
		16QAM	1	1	18.81			18.66	1.0	20.0	15.80			15.58	0.0	17.0		
		64QAM	1	1	17.24			17.09	2.5	18.5	15.79			15.59	0.0	17.0		
		256QAM	1	1	15.24			15.03	4.5	16.5	15.29			15.01	0.0	17.0		
		CP-OFDM	QPSK	1	1	18.23			18.08	1.5	19.5	15.77			15.49	0.0	17.0	
50 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.97			19.50	0.0	21.0	15.79			15.67	0.0	17.0		
			1	26	20.00			19.47	0.0	21.0	15.89			15.98	0.0	17.0		
			1	50	19.57			19.64	0.0	21.0	15.48			15.70	0.0	17.0		
			25	0	19.37			18.94	0.5	20.5	15.74			15.85	0.0	17.0		
			25	14	19.97			19.48	0.0	21.0	15.90			15.55	0.0	17.0		
			25	27	19.26			19.20	0.5	20.5	15.70			15.72	0.0	17.0		
			50	0	19.49			19.00	0.5	20.5	15.86			15.91	0.0	17.0		
			1	1	19.88			18.42	0.0	21.0	15.76			15.51	0.0	17.0		
			1	26	19.93			19.55	0.0	21.0	15.87			15.55	0.0	17.0		
		1	50	19.55			19.55	0.0	21.0	15.46			15.68	0.0	17.0			
		25	0	18.83			18.26	1.0	20.0	15.74			15.39	0.0	17.0			
		25	14	19.98			19.53	0.0	21.0	15.89			15.57	0.0	17.0			
		25	27	18.77			18.63	1.0	20.0	15.69			15.70	0.0	17.0			
		50	0	18.88			18.41	1.0	20.0	15.84			15.54	0.0	17.0			
		16QAM	1	1	18.85			18.36	1.0	20.0	15.80			15.56	0.0	17.0		
		64QAM	1	1	17.30			16.81	2.5	18.5	15.76			15.53	0.0	17.0		
		256QAM	1	1	15.30			14.81	4.5	16.5	15.29			14.91	0.0	17.0		
		CP-OFDM	QPSK	1	1	18.28			17.86	1.5	19.5	15.77			15.48	0.0	17.0	

NR Band n41 (Power Class 2) 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
					500700	509652	518598	527550	536496			500700	509652	518598	527550	536496		
					2503.5 MHz	2548.26 MHz	2592.99 MHz	2637.75 MHz	2682.48 MHz			2503.5 MHz	2548.26 MHz	2592.99 MHz	2637.75 MHz	2682.48 MHz		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.92	19.55	19.52	19.83	20.20	0.0	21.0	15.82	15.56	15.38	15.72	15.91	0.0	17.0
			1	19	20.11	19.64	19.69	20.03	20.27	0.0	21.0	15.84	15.64	15.55	15.92	15.93	0.0	17.0
			1	36	20.10	19.63	19.79	20.06	20.15	0.0	21.0	15.84	15.59	15.64	15.96	15.81	0.0	17.0
			18	0	19.51	19.12	19.11	19.42	19.75	0.5	20.5	15.88	15.56	15.45	15.77	15.90	0.0	17.0
			18	10	20.07	19.66	19.69	19.96	20.22	0.0	21.0	15.93	15.57	15.53	15.82	15.89	0.0	17.0
			18	20	19.61	19.16	19.23	19.53	19.69	0.5	20.5	15.90	15.58	15.57	15.89	15.87	0.0	17.0
		36	0	19.57	19.17	19.19	19.45	19.73	0.5	20.5	15.93	15.58	15.53	15.83	15.88	0.0	17.0	
		QPSK	1	1	20.03	19.64	19.58	19.87	20.25	0.0	21.0	15.87	15.54	15.42	15.73	15.91	0.0	17.0
			1	19	19.99	19.60	19.63	19.87	20.19	0.0	21.0	15.81	15.51	15.46	15.76	15.83	0.0	17.0
			1	36	20.12	19.66	19.79	20.04	20.18	0.0	21.0	15.96	15.55	15.61	15.92	15.78	0.0	17.0
			18	0	19.02	18.63	18.59	18.89	19.22	1.0	20.0	15.86	15.55	15.46	15.75	15.88	0.0	17.0
			18	10	20.07	19.65	19.69	19.94	20.22	0.0	21.0	15.92	15.58	15.52	15.82	15.88	0.0	17.0
			18	20	19.13	18.64	18.70	18.96	19.18	1.0	20.0	15.96	15.58	15.56	15.89	15.86	0.0	17.0
		36	0	19.06	18.65	18.66	18.92	19.22	1.0	20.0	15.92	15.58	15.51	15.81	15.90	0.0	17.0	
		16QAM	1	1	19.06	18.67	18.56	18.80	19.25	1.0	20.0	15.88	15.57	15.44	15.75	15.85	0.0	17.0
		64QAM	1	1	17.49	17.15	17.01	17.31	17.70	2.5	18.5	15.82	15.56	15.39	15.69	15.92	0.0	17.0
		256QAM	1	1	15.40	15.07	14.99	15.19	15.64	4.5	16.5	15.32	14.99	14.88	15.15	15.41	0.0	17.0
		CP-OFDM	QPSK	1	1	18.50	18.12	17.99	18.29	18.69	1.5	19.5	15.88	15.55	15.37	15.68	15.94	0.0
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
					500202	509400	518598	527802	537000			500202	509400	518598	527802	537000		
					2501.01 MHz	2547 MHz	2592.99 MHz	2639.01 MHz	2685 MHz			2501.01 MHz	2547 MHz	2592.99 MHz	2639.01 MHz	2685 MHz		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.82	19.68	19.56	19.86	20.10	0.0	21.0	15.88	15.62	15.42	15.81	15.89	0.0	17.0
			1	12	19.96	19.78	19.75	20.06	20.23	0.0	21.0	15.93	15.72	15.59	15.94	15.95	0.0	17.0
			1	22	20.02	19.75	19.75	20.04	20.16	0.0	21.0	15.96	15.65	15.60	15.94	15.88	0.0	17.0
			12	0	19.43	19.22	19.15	19.46	19.72	0.5	20.5	15.85	15.62	15.51	15.83	15.92	0.0	17.0
			12	6	19.96	19.77	19.72	19.99	20.22	0.0	21.0	15.88	15.64	15.55	15.85	15.89	0.0	17.0
			12	12	19.53	19.24	19.23	19.52	19.69	0.5	20.5	15.92	15.64	15.58	15.89	15.88	0.0	17.0
		24	0	19.47	19.26	19.23	19.47	19.71	0.5	20.5	15.86	15.63	15.56	15.85	15.91	0.0	17.0	
		QPSK	1	1	19.97	19.71	19.69	19.93	20.26	0.0	21.0	15.87	15.59	15.48	15.78	15.93	0.0	17.0
			1	12	19.99	19.68	19.72	19.97	20.19	0.0	21.0	15.87	15.63	15.56	15.84	15.85	0.0	17.0
			1	22	20.09	19.73	19.81	20.03	20.16	0.0	21.0	15.92	15.61	15.60	15.89	15.82	0.0	17.0
			12	0	18.98	18.74	18.70	18.94	19.22	1.0	20.0	15.86	15.61	15.52	15.79	15.91	0.0	17.0
			12	6	19.99	19.74	19.77	19.98	20.23	0.0	21.0	15.86	15.60	15.55	15.84	15.91	0.0	17.0
			12	12	19.03	18.74	18.77	19.01	19.15	1.0	20.0	15.90	15.61	15.58	15.86	15.88	0.0	17.0
		24	0	19.01	18.75	18.72	18.96	19.17	1.0	20.0	15.86	15.65	15.56	15.84	15.89	0.0	17.0	
		16QAM	1	1	19.01	18.68	18.72	18.93	19.18	1.0	20.0	15.95	15.57	15.51	15.74	15.94	0.0	17.0
		64QAM	1	1	17.49	17.21	17.11	17.45	17.83	2.5	18.5	15.88	15.68	15.50	15.85	15.96	0.0	17.0
		256QAM	1	1	15.38	15.10	15.01	15.31	15.51	4.5	16.5	15.34	14.99	14.90	15.23	15.38	0.0	17.0
		CP-OFDM	QPSK	1	1	18.43	18.16	18.06	18.34	18.63	1.5	19.5	15.88	15.59	15.47	15.74	15.91	0.0

NR Band n66 Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)														
					RSI = 0, 4				RSI = 3				RSI = 1, 2						
					Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					349000	1745 MHz				349000	1745 MHz				349000	1745 MHz			
40 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.81	0.0	25.0	21.83	0.0	23.0	21.60	0.0	23.0						
			1	108	24.38	0.0	25.0	22.34	0.0	23.0	22.12	0.0	23.0						
			1	214	24.45	0.0	25.0	22.40	0.0	23.0	22.55	0.0	23.0						
			108	0	23.23	0.5	24.5	22.15	0.0	23.0	21.97	0.0	23.0						
			108	54	24.42	0.0	25.0	22.38	0.0	23.0	22.21	0.0	23.0						
			108	108	23.56	0.5	24.5	22.47	0.0	23.0	22.32	0.0	23.0						
			216	0	23.41	0.5	24.5	22.36	0.0	23.0	22.22	0.0	23.0						
		QPSK	1	1	23.57	0.0	25.0	21.89	0.0	23.0	21.75	0.0	23.0						
			1	108	24.29	0.0	25.0	22.52	0.0	23.0	22.30	0.0	23.0						
			1	214	24.40	0.0	25.0	22.56	0.0	23.0	22.45	0.0	23.0						
			108	0	23.25	1.0	24.0	22.18	0.0	23.0	22.06	0.0	23.0						
			108	54	24.30	0.0	25.0	22.51	0.0	23.0	22.51	0.0	23.0						
			108	108	23.49	1.0	24.0	22.40	0.0	23.0	22.34	0.0	23.0						
			216	0	23.43	1.0	24.0	22.37	0.0	23.0	22.27	0.0	23.0						
		16QAM	1	1	22.93	1.0	24.0	21.90	0.0	23.0	21.78	0.0	23.0						
			1	108	23.54	1.0	24.0	22.44	0.0	23.0	22.36	0.0	23.0						
			1	214	23.56	1.0	24.0	22.50	0.0	23.0	22.41	0.0	23.0						
		64QAM	1	1	21.40	2.5	22.5	21.43	0.5	22.5	21.25	0.5	22.5						
256QAM	1	1	19.43	4.5	20.5	19.35	2.5	20.5	19.37	2.5	20.5								
CP-OFDM	QPSK	1	1	22.37	1.5	23.5	21.95	0.0	23.0	21.78	0.0	23.0							
30 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.89	0.0	25.0	21.97	0.0	23.0	22.00	0.0	23.0						
			1	80	24.34	0.0	25.0	22.35	0.0	23.0	22.39	0.0	23.0						
			1	158	24.50	0.0	25.0	22.51	0.0	23.0	22.57	0.0	23.0						
			80	0	23.26	0.5	24.5	22.26	0.0	23.0	22.30	0.0	23.0						
			80	40	24.39	0.0	25.0	22.42	0.0	23.0	22.47	0.0	23.0						
			80	80	23.54	0.5	24.5	22.55	0.0	23.0	22.59	0.0	23.0						
			160	0	23.41	0.5	24.5	22.41	0.0	23.0	22.45	0.0	23.0						
		QPSK	1	1	23.94	0.0	25.0	21.99	0.0	23.0	22.06	0.0	23.0						
			1	80	24.32	0.0	25.0	22.41	0.0	23.0	22.47	0.0	23.0						
			1	158	24.52	0.0	25.0	22.58	0.0	23.0	22.63	0.0	23.0						
			80	0	23.28	1.0	24.0	22.28	0.0	23.0	22.33	0.0	23.0						
			80	40	24.40	0.0	25.0	22.45	0.0	23.0	22.48	0.0	23.0						
			80	80	23.58	1.0	24.0	22.57	0.0	23.0	22.62	0.0	23.0						
			160	0	23.41	1.0	24.0	22.43	0.0	23.0	22.48	0.0	23.0						
		16QAM	1	1	22.79	1.0	24.0	22.10	0.0	23.0	22.04	0.0	23.0						
		64QAM	1	1	21.55	2.5	22.5	21.51	0.5	22.5	21.53	0.5	22.5						
		256QAM	1	1	19.36	4.5	20.5	19.40	2.5	20.5	19.63	2.5	20.5						
		CP-OFDM	QPSK	1	1	22.49	1.5	23.5	22.00	0.0	23.0	22.08	0.0	23.0					

NR Band n71 Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)			
					RSI = 0, 1, 2, 3, 4			
					Measured Pwr (dBm)		MPR	Tune-up Limit
136100	680.5 MHz							
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.29	0.0	25.5	
			1	53	24.58	0.0	25.5	
			1	104	24.42	0.0	25.5	
			50	0	23.42	0.5	25.0	
			50	28	24.47	0.0	25.5	
			50	56	23.49	0.5	25.0	
		100	0	23.49	0.5	25.0		
		QPSK	1	1	24.40	0.0	25.5	
			1	53	24.71	0.0	25.5	
			1	104	24.42	0.0	25.5	
			50	0	23.46	1.0	24.5	
			50	28	24.57	0.0	25.5	
			50	56	23.53	1.0	24.5	
		16QAM	100	0	23.53	1.0	24.5	
			1	1	23.36	1.0	24.5	
			1	53	23.65	1.0	24.5	
		64QAM	1	104	23.47	1.0	24.5	
			1	1	21.97	2.5	23.0	
		256QAM	1	1	19.80	4.5	21.0	
		CP-OFDM	QPSK	1	1	22.90	1.5	24.0
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	24.40	0.0	25.5	
			1	40	24.42	0.0	25.5	
			1	77	24.49	0.0	25.5	
			36	0	23.49	0.5	25.0	
			36	22	24.54	0.0	25.5	
			36	43	23.56	0.5	25.0	
		75	0	23.56	0.5	25.0		
		QPSK	1	1	24.49	0.0	25.5	
			1	40	24.49	0.0	25.5	
			1	77	24.54	0.0	25.5	
			36	0	23.52	1.0	24.5	
			36	22	24.57	0.0	25.5	
			36	43	23.58	1.0	24.5	
		75	0	23.59	1.0	24.5		
		16QAM	1	1	23.44	1.0	24.5	
		64QAM	1	1	22.05	2.5	23.0	
		256QAM	1	1	19.95	4.5	21.0	
		CP-OFDM	QPSK	1	1	22.99	1.5	24.0

NR Band n71 Measured Results (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	
					133600	136100	138600			
					668 MHz	680.5 MHz	693 MHz			
10 MHz	DFT-s-OFDM	$\pi/2$ BPSK	1	1	24.36	24.47	24.50	0.0	25.5	
			1	26	24.49	24.51	24.55	0.0	25.5	
			1	50	24.47	24.51	24.42	0.0	25.5	
			25	0	23.42	23.52	23.54	0.5	25.0	
			25	14	24.44	24.54	24.53	0.0	25.5	
			25	27	23.50	23.57	23.52	0.5	25.0	
			50	0	23.46	23.57	23.55	0.5	25.0	
		QPSK	1	1	24.40	24.46	24.54	0.0	25.5	
			1	26	24.50	24.57	24.62	0.0	25.5	
			1	50	24.52	24.57	24.48	0.0	25.5	
			25	0	23.45	23.54	23.57	1.0	24.5	
			25	14	24.49	24.56	24.56	0.0	25.5	
			25	27	23.52	23.59	23.54	1.0	24.5	
		16QAM	1	1	23.47	23.59	23.53	1.0	24.5	
			64QAM	1	1	21.90	22.00	22.14	2.5	23.0
256QAM	1		1	19.92	20.04	20.12	4.5	21.0		
CP-OFDM	QPSK	1	1	22.90	23.09	23.13	1.5	24.0		
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	
					133100	136100	139100			
					665.5 MHz	680.5 MHz	695.5 MHz			
5 MHz	DFT-s-OFDM	$\pi/2$ BPSK	1	1	24.40	24.49	24.53	0.0	25.5	
			1	13	24.32	24.44	24.41	0.0	25.5	
			1	23	24.45	24.52	24.48	0.0	25.5	
			12	0	23.44	23.54	23.58	0.5	25.0	
			12	7	24.44	24.54	24.53	0.0	25.5	
			12	13	23.46	23.57	23.54	0.5	25.0	
			25	0	23.46	23.56	23.55	0.5	25.0	
		QPSK	1	1	24.46	24.53	24.57	0.0	25.5	
			1	13	24.39	24.49	24.48	0.0	25.5	
			1	23	24.48	24.59	24.55	0.0	25.5	
			12	0	23.47	23.56	23.60	1.0	24.5	
			12	7	24.47	24.57	24.56	0.0	25.5	
			12	13	23.49	23.58	23.57	1.0	24.5	
		16QAM	1	1	23.43	23.66	23.57	1.0	24.5	
			64QAM	1	1	21.92	22.03	22.16	2.5	23.0
			256QAM	1	1	19.89	20.08	20.06	4.5	21.0
		CP-OFDM	QPSK	1	1	22.98	23.13	23.11	1.5	24.0

NR Band n48(SRS1) Measured Results

BW (MHz)	Mode	Maximum Allowed Average Power (dBm)				Maximum Allowed Average Power (dBm)					
		RSI = 0, 1, 2, 3				RSI = 4					
		SRS 1 Measured Pwr (dBm)			Tune-up Limit	SRS 2 Measured Pwr (dBm)				Tune-up Limit	
638000	641666	645332	638000	641666		645332					
		3570 MHz	3624.99 MHz	3679.98 MHz		3570 MHz	3624.99 MHz	3679.98 MHz			
40 MHz	SRS CW	14.19	14.92		14.91	15.5	13.11	13.71		13.69	14.5
BW (MHz)	Mode	Measured Pwr (dBm)				Tune-up Limit	Measured Pwr (dBm)				Tune-up Limit
		637334	640222	643112	646000		637334	640222	643112	646000	
		3560.01 MHz	3603.33 MHz	3646.68 MHz	3690 MHz	3560.01 MHz	3603.33 MHz	3646.68 MHz	3690 MHz		
20 MHz	SRS CW	14.11	14.84	14.87	13.86	15.5	13.15	13.78	13.88	13.53	14.5
BW (MHz)	Mode	Measured Pwr (dBm)				Tune-up Limit	Measured Pwr (dBm)				Tune-up Limit
		637168	640166	643166	646166		637168	640166	643166	646166	
		3557.52 MHz	3602.49 MHz	3647.49 MHz	3692.49 MHz	3557.52 MHz	3602.49 MHz	3647.49 MHz	3692.49 MHz		
15 MHz	SRS CW	14.20	14.82	14.86	14.82	15.5	13.15	13.81	13.84	12.87	14.5
BW (MHz)	Mode	Measured Pwr (dBm)				Tune-up Limit	Measured Pwr (dBm)				Tune-up Limit
		637000	640110	643222	646332		637000	640110	643222	646332	
		3555 MHz	3601.65 MHz	3648.33 MHz	3694.98 MHz	3555 MHz	3601.65 MHz	3648.33 MHz	3694.98 MHz		
10 MHz	SRS CW	14.28	14.81	14.82	13.61	15.5	13.30	13.77	13.91	12.93	14.5

Notes:

SRS1 were measured output power through FTM mode provided by manufacturer.

NR Band n48(SRS2) Measured Results

BW (MHz)	Mode	Maximum Allowed Average Power (dBm)				Maximum Allowed Average Power (dBm)					
		RSI = 0, 1, 2, 3				RSI = 4					
		SRS 1 Measured Pwr (dBm)			Tune-up Limit	SRS 2 Measured Pwr (dBm)				Tune-up Limit	
638000	641666	645332	638000	641666		645332					
		3570 MHz	3624.99 MHz	3679.98 MHz		3570 MHz	3624.99 MHz	3679.98 MHz			
40 MHz	SRS CW	13.74	13.92	14.32	15.0	12.56	12.79	13.07	14.0		
BW (MHz)	Mode	Measured Pwr (dBm)				Tune-up Limit	Measured Pwr (dBm)				Tune-up Limit
		637334	640222	643112	646000		637334	640222	643112	646000	
		3560.01 MHz	3603.33 MHz	3646.68 MHz	3690 MHz	3560.01 MHz	3603.33 MHz	3646.68 MHz	3690 MHz		
20 MHz	SRS CW	13.85	13.90	13.97	14.23	15.0	12.73	12.58	12.78	12.92	14.0
BW (MHz)	Mode	Measured Pwr (dBm)				Tune-up Limit	Measured Pwr (dBm)				Tune-up Limit
		637168	640166	643166	646166		637168	640166	643166	646166	
		3557.52 MHz	3602.49 MHz	3647.49 MHz	3692.49 MHz	3557.52 MHz	3602.49 MHz	3647.49 MHz	3692.49 MHz		
15 MHz	SRS CW	13.98	13.88	13.98	14.21	15.0	12.93	12.87	12.98	13.22	14.0
BW (MHz)	Mode	Measured Pwr (dBm)				Tune-up Limit	Measured Pwr (dBm)				Tune-up Limit
		637000	640110	643222	646332		637000	640110	643222	646332	
		3555 MHz	3601.65 MHz	3648.33 MHz	3694.98 MHz	3555 MHz	3601.65 MHz	3648.33 MHz	3694.98 MHz		
10 MHz	SRS CW	13.99	13.86	13.87	13.94	15.0	12.88	12.52	12.71	12.63	14.0

Notes:

SRS2 were measured output power through FTM mode provided by manufacturer.

NR Band n48(SRS3) Measured Results

BW (MHz)	Mode	Maximum Allowed Average Power (dBm)				Maximum Allowed Average Power (dBm)					
		RSI = 0, 1, 2, 3				RSI = 4					
		SRS 1 Measured Pwr (dBm)			Tune-up Limit	SRS 2 Measured Pwr (dBm)			Tune-up Limit		
		638000	641666	645332		638000	641666	645332			
3570 MHz	3624.99 MHz	3679.98 MHz	3570 MHz	3624.99 MHz	3679.98 MHz						
40 MHz	SRS CW	12.88	12.91	13.57	15.0	12.00	11.62	12.18	13.0		
BW (MHz)	Mode	Measured Pwr (dBm)				Tune-up Limit	Measured Pwr (dBm)				Tune-up Limit
		637334	640222	643112	646000		637334	640222	643112	646000	
		3560.01 MHz	3603.33 MHz	3646.68 MHz	3690 MHz		3560.01 MHz	3603.33 MHz	3646.68 MHz	3690 MHz	
20 MHz	SRS CW	13.11	13.03	12.98	13.56	15.0	12.01	11.95	11.93	12.46	13.0
BW (MHz)	Mode	Measured Pwr (dBm)				Tune-up Limit	Measured Pwr (dBm)				Tune-up Limit
		637168	640166	643166	646166		637168	640166	643166	646166	
		3557.52 MHz	3602.49 MHz	3647.49 MHz	3692.49 MHz		3557.52 MHz	3602.49 MHz	3647.49 MHz	3692.49 MHz	
15 MHz	SRS CW	13.10	13.04	12.97	13.56	15.0	12.08	12.03	11.97	12.62	13.0
BW (MHz)	Mode	Measured Pwr (dBm)				Tune-up Limit	Measured Pwr (dBm)				Tune-up Limit
		637000	640110	643222	646332		637000	640110	643222	646332	
		3555 MHz	3601.65 MHz	3648.33 MHz	3694.98 MHz		3555 MHz	3601.65 MHz	3648.33 MHz	3694.98 MHz	
10 MHz	SRS CW	13.24	13.03	12.98	13.35	15.0	12.37	12.01	11.89	12.27	13.0

Notes:

SRS3 were measured output power through FTM mode provided by manufacturer.

NR Band n77 DoD -Lower Band- (Voice/data/SRS0) Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)			
					RSI = 0, 1, 2, 3, 4			
					Measured Pwr (dBm)		MPR	Tune-up Limit
100 MHz	DFT-s-OFDM	π/2 BPSK	1	1	633334	3500.01 MHz		
			1	137	14.76			
			1	271	14.72			
			135	0	15.08			
			135	69	14.17			
			135	138	14.88			
			270	0	15.12			
			1	1	14.89			
			1	137	15.01			
			1	271	14.92			
		QPSK	1	0	15.23			
			135	69	14.21			
			135	138	14.92			
			135	138	14.93			
			270	0	14.91			
			270	0	14.91			
		16QAM	1	1	15.06			
			1	137	14.97			
			1	271	15.25			
			1	271	15.25			
64QAM	1	1	15.13					
256QAM	1	1	15.09					
CP-OFDM	QPSK	1	1	15.20				
90 MHz	DFT-s-OFDM	π/2 BPSK	1	1	633334	3500.01 MHz	0.0	16.0
			1	123	14.25			
			1	243	14.46			
			120	0	14.78			
			120	63	14.04			
			120	125	14.77			
			120	125	15.03			
			243	0	14.86			
			1	1	14.94			
			1	123	15.05			
		QPSK	1	243	15.32			
			120	0	14.33			
			120	63	15.01			
			120	125	15.24			
			120	125	15.24			
			243	0	14.98			
		16QAM	1	1	14.96			
			1	1	14.96			
			1	1	14.95			
			1	1	14.86			
256QAM	1	1	14.86					
CP-OFDM	QPSK	1	1	14.86				
80 MHz	DFT-s-OFDM	π/2 BPSK	1	1	633334	3500.01 MHz	0.0	16.0
			1	109	14.69			
			1	215	15.09			
			108	0	15.43			
			108	55	14.44			
			108	109	14.44			
			108	109	15.16			
			216	0	14.42			
			216	0	14.42			
			216	0	15.20			
		QPSK	1	1	14.83			
			1	109	15.20			
			1	215	15.47			
			108	0	14.49			
			108	55	15.20			
			108	109	15.43			
		16QAM	1	1	15.19			
			1	1	14.86			
			1	1	14.86			
			1	1	15.01			
256QAM	1	1	14.93					
CP-OFDM	QPSK	1	1	14.78				

Notes:

NR Band n77 were measured output power through FTM mode provided by manufacturer.

NR Band n77 DoD -Lower Band- (Voice/data/SRS0) Measured Results (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)		MPR	Tune-up Limit
					633334	3500.01 MHz		
70 MHz	DFT-s-OFDM	π/2 BPSK	1	1	14.11	0.0	16.0	
			1	95	14.71	0.0	16.0	
			1	188	15.06	0.0	16.0	
			90	0	14.15	0.0	16.0	
			90	50	14.87	0.0	16.0	
			90	99	15.09	0.0	16.0	
		QPSK	180	0	14.83	0.0	16.0	
			1	1	14.35	0.0	16.0	
			1	95	14.95	0.0	16.0	
			1	188	15.21	0.0	16.0	
			90	0	14.27	0.0	16.0	
			90	50	14.96	0.0	16.0	
			90	99	15.16	0.0	16.0	
			180	0	14.90	0.0	16.0	
16QAM	1	1	14.47	0.0	16.0			
64QAM	1	1	14.48	0.0	16.0			
256QAM	1	1	14.47	0.0	16.0			
CP-OFDM	QPSK	1	1	14.38	0.0	16.0		
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)		MPR	Tune-up Limit
					633334	3500.01 MHz		
60 MHz	DFT-s-OFDM	π/2 BPSK	1	1	14.21	0.0	16.0	
			1	81	15.03	0.0	16.0	
			1	160	15.23	0.0	16.0	
			81	0	14.44	0.0	16.0	
			81	41	14.99	0.0	16.0	
			81	81	15.19	0.0	16.0	
		QPSK	162	0	15.01	0.0	16.0	
			1	1	14.32	0.0	16.0	
			1	81	15.01	0.0	16.0	
			1	160	15.26	0.0	16.0	
			81	0	14.47	0.0	16.0	
			81	41	15.04	0.0	16.0	
			81	81	15.22	0.0	16.0	
			162	0	15.02	0.0	16.0	
16QAM	1	1	14.37	0.0	16.0			
64QAM	1	1	14.46	0.0	16.0			
256QAM	1	1	14.42	0.0	16.0			
CP-OFDM	QPSK	1	1	14.26	0.0	16.0		
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)		MPR	Tune-up Limit
					631668	635000		
50 MHz	DFT-s-OFDM	π/2 BPSK	1	1	14.87	15.02	0.0	16.0
			1	67	14.31	15.29	0.0	16.0
			1	131	14.99	15.25	0.0	16.0
			64	0	14.62	15.22	0.0	16.0
			64	35	14.37	15.34	0.0	16.0
			64	69	14.59	15.33	0.0	16.0
		QPSK	128	0	14.38	15.34	0.0	16.0
			1	1	14.97	15.07	0.0	16.0
			1	67	14.36	15.33	0.0	16.0
			1	131	15.03	15.26	0.0	16.0
			64	0	14.62	15.26	0.0	16.0
			64	35	14.38	15.34	0.0	16.0
			64	69	14.62	15.36	0.0	16.0
			128	0	14.39	15.36	0.0	16.0
16QAM	1	1	15.02	15.10	0.0	16.0		
64QAM	1	1	15.12	15.22	0.0	16.0		
256QAM	1	1	15.08	15.21	0.0	16.0		
CP-OFDM	QPSK	1	1	14.93	15.03	0.0	16.0	

Notes:

NR Band n77 were measured output power through FTM mode provided by manufacturer.

NR Band n77 DoD -Lower Band- (Voice/data/SRS0) Measured Results (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					631334		635332		
					3470.01 MHz		3529.98 MHz		
40 MHz	DFT-s-OFDM	π/2 BPSK	1	1	14.95		15.25	0.0	16.0
			1	53	14.45		15.38	0.0	16.0
			1	104	14.67		15.31	0.0	16.0
			50	0	14.76		15.36	0.0	16.0
			50	28	14.44		15.39	0.0	16.0
			50	56	14.39		15.37	0.0	16.0
		100	0	14.46		15.40	0.0	16.0	
		QPSK	1	1	15.10		15.27	0.0	16.0
			1	53	14.56		15.34	0.0	16.0
			1	104	14.79		15.30	0.0	16.0
			50	0	14.92		15.36	0.0	16.0
			50	28	14.56		15.41	0.0	16.0
			50	56	14.51		15.39	0.0	16.0
		100	0	14.57		15.37	0.0	16.0	
		16QAM	1	1	15.16		15.29	0.0	16.0
64QAM	1	1	15.24		15.35	0.0	16.0		
256QAM	1	1	15.14		15.29	0.0	16.0		
CP-OFDM	QPSK	1	1	15.05		15.20	0.0	16.0	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					631000	633334	635666		
					3465 MHz	3500.01 MHz	3534.99 MHz		
30 MHz	DFT-s-OFDM	π/2 BPSK	1	1	14.96	14.57	15.27	0.0	16.0
			1	39	14.62	15.16	15.37	0.0	16.0
			1	76	14.41	15.32	15.31	0.0	16.0
			36	0	14.88	14.85	15.35	0.0	16.0
			36	21	14.65	15.17	15.36	0.0	16.0
			36	42	14.47	15.26	15.39	0.0	16.0
		75	0	14.66	15.15	15.41	0.0	16.0	
		QPSK	1	1	15.07	14.64	15.36	0.0	16.0
			1	39	14.63	15.14	15.36	0.0	16.0
			1	76	14.45	15.31	15.34	0.0	16.0
			36	0	14.91	14.86	15.41	0.0	16.0
			36	21	14.65	15.17	15.42	0.0	16.0
			36	42	14.48	15.26	15.39	0.0	16.0
		75	0	14.68	15.15	15.42	0.0	16.0	
		16QAM	1	1	15.14	14.61	15.43	0.0	16.0
64QAM	1	1	15.15	14.76	15.52	0.0	16.0		
256QAM	1	1	15.17	14.72	15.43	0.0	16.0		
CP-OFDM	QPSK	1	1	15.02	14.60	15.34	0.0	16.0	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					630866	633334	635800		
					3462.99 MHz	3500.01 MHz	3537 MHz		
25 MHz	DFT-s-OFDM	π/2 BPSK	1	1	14.49	13.92	14.69	0.0	16.0
			1	32	14.09	14.48	14.83	0.0	16.0
			1	63	13.80	14.59	14.74	0.0	16.0
			32	0	14.23	14.20	14.76	0.0	16.0
			32	17	13.99	14.45	14.78	0.0	16.0
			32	33	13.80	14.54	14.79	0.0	16.0
		64	0	14.03	14.46	14.82	0.0	16.0	
		QPSK	1	1	14.38	13.99	14.75	0.0	16.0
			1	32	13.99	14.44	14.75	0.0	16.0
			1	63	13.73	14.63	14.74	0.0	16.0
			32	0	14.24	14.23	14.80	0.0	16.0
			32	17	14.00	14.48	14.82	0.0	16.0
			32	33	13.79	14.57	14.80	0.0	16.0
		64	0	14.01	14.47	14.84	0.0	16.0	
		16QAM	1	1	14.46	14.04	14.82	0.0	16.0
64QAM	1	1	14.40	13.94	14.65	0.0	16.0		
256QAM	1	1	14.31	13.95	14.65	0.0	16.0		
CP-OFDM	QPSK	1	1	14.37	14.01	14.69	0.0	16.0	

Notes:

NR Band n77 were measured output power through FTM mode provided by manufacturer.

NR Band n77 DoD -Lower Band- (Voice/data/SRS0) Measured Results (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					630668	633334	636000		
					3460.02 MHz	3500.01 MHz	3540 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	15.03	14.72	15.31	0.0	16.0
			1	26	14.77	15.10	15.34	0.0	16.0
			1	49	14.52	15.26	15.30	0.0	16.0
			25	0	14.95	14.95	15.38	0.0	16.0
			25	13	14.82	15.14	15.40	0.0	16.0
			25	26	14.66	15.22	15.37	0.0	16.0
		50	0	14.82	15.14	15.41	0.0	16.0	
		QPSK	1	1	15.07	14.83	15.39	0.0	16.0
			1	26	14.77	15.13	15.37	0.0	16.0
			1	49	14.53	15.26	15.31	0.0	16.0
			25	0	14.97	14.99	15.40	0.0	16.0
			25	13	14.83	15.17	15.41	0.0	16.0
			25	26	14.66	15.24	15.39	0.0	16.0
		50	0	14.82	15.17	15.41	0.0	16.0	
16QAM	1	1	15.12	14.88	15.45	0.0	16.0		
64QAM	1	1	15.16	14.97	15.58	0.0	16.0		
256QAM	1	1	15.09	14.86	15.43	0.0	16.0		
CP-OFDM	QPSK	1	1	15.04	14.76	15.36	0.0	16.0	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					630500	633334	636166		
					3457.5 MHz	3500.01 MHz	3542.49 MHz		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	15.03	14.76	15.34	0.0	16.0
			1	19	14.97	15.07	15.37	0.0	16.0
			1	36	14.77	15.21	15.36	0.0	16.0
			18	0	15.07	14.94	15.38	0.0	16.0
			18	10	14.97	15.07	15.40	0.0	16.0
			18	20	14.86	15.20	15.38	0.0	16.0
		36	0	15.00	15.07	15.41	0.0	16.0	
		QPSK	1	1	15.09	14.82	15.39	0.0	16.0
			1	19	14.96	15.10	15.38	0.0	16.0
			1	36	14.76	15.21	15.35	0.0	16.0
			18	0	15.08	14.96	15.40	0.0	16.0
			18	10	14.99	15.09	15.41	0.0	16.0
			18	20	14.86	15.19	15.39	0.0	16.0
		36	0	14.99	15.08	15.42	0.0	16.0	
16QAM	1	1	15.13	14.89	15.46	0.0	16.0		
64QAM	1	1	15.18	14.90	15.51	0.0	16.0		
256QAM	1	1	15.08	14.82	15.43	0.0	16.0		
CP-OFDM	QPSK	1	1	15.07	14.76	15.34	0.0	16.0	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					630334	633334	636332		
					3455.01 MHz	3500.01 MHz	3544.98 MHz		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	15.03	14.99	15.33	0.0	16.0
			1	12	14.96	15.13	15.34	0.0	16.0
			1	22	14.84	15.22	15.32	0.0	16.0
			12	0	15.02	15.08	15.36	0.0	16.0
			12	6	14.96	15.18	15.37	0.0	16.0
			12	12	14.91	15.22	15.37	0.0	16.0
		24	0	14.99	15.17	15.39	0.0	16.0	
		QPSK	1	1	15.10	15.02	15.38	0.0	16.0
			1	12	14.97	15.15	15.35	0.0	16.0
			1	22	14.86	15.23	15.36	0.0	16.0
			12	0	15.07	15.08	15.41	0.0	16.0
			12	6	14.97	15.19	15.37	0.0	16.0
			12	12	14.92	15.20	15.37	0.0	16.0
		24	0	14.98	15.18	15.38	0.0	16.0	
16QAM	1	1	15.14	15.04	15.47	0.0	16.0		
64QAM	1	1	15.27	15.16	15.46	0.0	16.0		
256QAM	1	1	15.16	15.07	15.44	0.0	16.0		
CP-OFDM	QPSK	1	1	15.05	14.98	15.32	0.0	16.0	

Notes:

NR Band n77 were measured output power through FTM mode provided by manufacturer.

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

BW (MHz)	Mode	SRS1 - Maximum Allowed Average Power (dBm)				SRS2 - Maximum Allowed Average Power (dBm)				SRS3 - Maximum Allowed Average Power (dBm)																	
		RSI = 0, 1, 2, 3, 4				RSI = 0, 1, 2, 3, 4				RSI = 0, 1, 2, 3, 4																	
		Measured Pwr (dBm)			Tune-up Limit	Measured Pwr (dBm)			Tune-up Limit	Measured Pwr (dBm)			Tune-up Limit														
100 MHz	SRS CW	633334	3500.01 MHz	12.86	14.0	633334	3500.01 MHz	15.24	16.0	633334	3500.01 MHz	14.13	16.0														
90 MHz	SRS CW	633334	3500.01 MHz	12.66	14.0	633334	3500.01 MHz	15.32	16.0	633334	3500.01 MHz	13.77	16.0														
80 MHz	SRS CW	633334	3500.01 MHz	12.62	14.0	633334	3500.01 MHz	15.37	16.0	633334	3500.01 MHz	13.77	16.0														
70 MHz	SRS CW	633334	3500.01 MHz	12.51	14.0	633334	3500.01 MHz	15.26	16.0	633334	3500.01 MHz	13.69	16.0														
60 MHz	SRS CW	633334	3500.01 MHz	12.42	14.0	633334	3500.01 MHz	15.31	16.0	633334	3500.01 MHz	13.85	16.0														
50 MHz	SRS CW	631668	3475.02 MHz	635000	3525 MHz	13.06	14.0	631668	3475.02 MHz	635000	3525 MHz	15.30	16.0	631668	3475.02 MHz	635000	3525 MHz	13.52	13.53	16.0							
40 MHz	SRS CW	631334	3470.01 MHz	635332	3529.98 MHz	13.26	14.0	631334	3470.01 MHz	635332	3529.98 MHz	15.28	16.0	631334	3470.01 MHz	635332	3529.98 MHz	13.53	13.59	16.0							
30 MHz	SRS CW	631000	3465 MHz	633334	3500.01 MHz	635666	3534.99 MHz	13.34	14.0	631000	3465 MHz	633334	3500.01 MHz	635666	3534.99 MHz	15.32	16.0	631000	633334	635666	3465 MHz	3500.01 MHz	3534.99 MHz	13.61	13.78	13.51	16.0
25 MHz	SRS CW	630866	3462.99 MHz	633334	3500.01 MHz	635800	3537 MHz	13.10	14.0	630866	3462.99 MHz	633334	3500.01 MHz	635800	3537 MHz	15.36	16.0	630866	633334	635800	3462.99 MHz	3500.01 MHz	3537 MHz	13.86	13.88	13.57	16.0
20 MHz	SRS CW	630668	3460.02 MHz	633334	3500.01 MHz	636000	3540 MHz	13.02	14.0	630668	3460.02 MHz	633334	3500.01 MHz	636000	3540 MHz	15.31	16.0	630668	633334	636000	3460.02 MHz	3500.01 MHz	3540 MHz	13.86	13.82	13.52	16.0
15 MHz	SRS CW	630500	3457.5 MHz	633334	3500.01 MHz	636166	3542.49 MHz	13.04	14.0	630500	3457.5 MHz	633334	3500.01 MHz	636166	3542.49 MHz	15.32	16.0	630500	633334	636166	3457.5 MHz	3500.01 MHz	3542.49 MHz	13.88	13.71	13.54	16.0
10 MHz	SRS CW	630334	3455.01 MHz	633334	3500.01 MHz	636332	3544.98 MHz	13.02	14.0	630334	3455.01 MHz	633334	3500.01 MHz	636332	3544.98 MHz	15.23	16.0	630334	633334	636332	3455.01 MHz	3500.01 MHz	3544.98 MHz	13.97	13.72	13.55	16.0

Notes:

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

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	
					649000	653666			658334			663000
					3735 MHz	3804.99 MHz			3875.01 MHz			3945 MHz
70 MHz	DFT-s-OFDM	π/2 BPSK	1	1	15.21	14.98			15.04	14.83	0.0	16.0
			1	95	15.06	15.17			15.01	14.66	0.0	16.0
			1	188	15.01	15.15			14.99	14.39	0.0	16.0
			90	0	15.25	15.03			15.02	14.90	0.0	16.0
			90	50	15.14	15.21			15.08	14.78	0.0	16.0
			90	99	14.92	15.20			15.02	14.56	0.0	16.0
		180	0	15.14	15.21			15.08	14.81	0.0	16.0	
		1	1	15.26	15.01			15.10	14.98	0.0	16.0	
		1	95	15.11	15.20			15.03	14.74	0.0	16.0	
		1	188	15.01	15.13			15.02	14.43	0.0	16.0	
		90	0	15.27	15.07			15.09	14.91	0.0	16.0	
		90	50	15.16	15.21			15.02	14.81	0.0	16.0	
		90	99	14.96	15.18			14.98	14.58	0.0	16.0	
		180	0	15.15	15.20			15.08	14.84	0.0	16.0	
		16QAM	1	1	15.26	15.05			15.12	15.00	0.0	16.0
64QAM	1	1	15.42	15.09			15.22	15.06	0.0	16.0		
256QAM	1	1	15.32	15.09			15.08	15.01	0.0	16.0		
CP-OFDM	QPSK	1	1	15.26	14.94			15.03	14.87	0.0	16.0	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	
					648668	653556			658444			663332
					3730.02 MHz	3803.34 MHz			3876.66 MHz			3949.98 MHz
60 MHz	DFT-s-OFDM	π/2 BPSK	1	1	15.17	14.95			15.00	14.76	0.0	16.0
			1	81	15.20	15.18			15.05	14.66	0.0	16.0
			1	160	14.89	15.11			15.01	14.39	0.0	16.0
			81	0	15.19	15.01			15.09	14.82	0.0	16.0
			81	41	15.11	15.17			15.04	14.69	0.0	16.0
			81	81	15.01	15.16			14.97	14.71	0.0	16.0
		162	0	15.12	15.18			15.02	14.76	0.0	16.0	
		1	1	15.19	14.93			15.04	14.94	0.0	16.0	
		1	81	15.13	15.18			15.03	14.70	0.0	16.0	
		1	160	14.91	15.09			14.95	14.41	0.0	16.0	
		81	0	15.18	15.02			15.08	14.86	0.0	16.0	
		81	41	15.17	15.18			15.10	14.70	0.0	16.0	
		81	81	14.96	15.16			15.06	14.57	0.0	16.0	
		162	0	15.17	15.18			15.04	14.73	0.0	16.0	
		16QAM	1	1	15.23	14.98			15.08	14.96	0.0	16.0
64QAM	1	1	15.34	15.07			15.21	15.06	0.0	16.0		
256QAM	1	1	15.28	14.98			15.13	14.95	0.0	16.0		
CP-OFDM	QPSK	1	1	15.17	14.89			15.02	14.82	0.0	16.0	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	
					648334	652166	656000		659834			663666
					3725.01 MHz	3782.49 MHz	3840 MHz		3897.51 MHz			3954.99 MHz
50 MHz	DFT-s-OFDM	π/2 BPSK	1	1	15.07	14.80	15.06		14.89	14.79	0.0	16.0
			1	67	15.14	14.94	15.02		14.91	14.55	0.0	16.0
			1	131	14.85	15.19	15.05		14.90	14.43	0.0	16.0
			64	0	15.15	14.93	15.11		14.95	14.82	0.0	16.0
			64	35	15.17	15.01	15.07		15.02	14.61	0.0	16.0
			64	69	15.01	15.11	15.05		14.97	14.54	0.0	16.0
		128	0	15.17	14.98	15.07		15.04	14.67	0.0	16.0	
		1	1	15.18	14.87	15.16		15.01	14.92	0.0	16.0	
		1	67	15.15	14.97	15.05		14.95	14.63	0.0	16.0	
		1	131	14.88	15.19	15.03		14.92	14.45	0.0	16.0	
		64	0	15.21	14.94	15.12		15.05	14.82	0.0	16.0	
		64	35	15.19	15.00	15.08		15.04	14.64	0.0	16.0	
		64	69	15.02	15.12	15.13		14.98	14.54	0.0	16.0	
		128	0	15.24	14.99	15.11		14.98	14.63	0.0	16.0	
		16QAM	1	1	15.23	14.91	15.16		15.08	14.86	0.0	16.0
64QAM	1	1	15.28	15.07	15.26		15.19	15.01	0.0	16.0		
256QAM	1	1	15.24	14.98	15.18		15.05	14.89	0.0	16.0		
CP-OFDM	QPSK	1	1	15.13	14.85	15.11		14.97	14.81	0.0	16.0	

Notes:

NR Band n77 were measured output power through FTM mode provided by manufacturer.

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
					648000	651200	654400	657600	660800	664000		
					3720 MHz	3768 MHz	3816 MHz	3864 MHz	3912 MHz	3960 MHz		
40 MHz	DFT-s-OFDM	π/2 BPSK	1	1	14.83	14.50	14.88	14.99	15.21	15.22	0.0	16.0
			1	53	14.95	14.69	15.07	15.11	15.35	15.15	0.0	16.0
			1	104	14.71	14.71	14.98	15.07	15.32	15.09	0.0	16.0
			50	0	14.86	14.58	14.99	15.00	15.29	15.18	0.0	16.0
			50	28	14.94	14.64	15.03	15.08	15.30	15.19	0.0	16.0
			50	56	14.74	14.64	15.05	15.11	15.31	15.16	0.0	16.0
		100	0	14.92	14.64	15.09	15.13	15.28	15.20	0.0	16.0	
		QPSK	1	1	14.82	14.47	14.82	15.16	15.25	15.32	0.0	16.0
			1	53	14.99	14.58	14.99	15.17	15.25	15.14	0.0	16.0
			1	104	14.72	14.67	15.04	15.23	15.37	15.10	0.0	16.0
			50	0	14.88	14.54	15.01	15.18	15.21	15.18	0.0	16.0
			50	28	14.89	14.64	15.08	15.23	15.23	15.15	0.0	16.0
			50	56	14.82	14.60	15.02	15.27	15.26	15.11	0.0	16.0
		CP-OFDM	16QAM	1	1	14.86	14.52	14.95	15.15	15.23	15.29	0.0
64QAM	1		1	14.77	14.45	14.83	15.11	15.15	15.25	0.0	16.0	
256QAM	1		1	14.80	14.47	14.86	15.12	15.18	15.28	0.0	16.0	
30 MHz	DFT-s-OFDM	π/2 BPSK	1	1	14.91	14.84	15.07	15.03	15.07	14.89	0.0	16.0
			1	39	15.14	14.94	15.16	15.12	15.06	14.92	0.0	16.0
			1	76	14.98	14.91	15.11	15.08	15.08	14.85	0.0	16.0
			36	0	15.04	14.81	15.00	15.01	15.04	14.88	0.0	16.0
			36	21	15.03	14.83	15.08	15.05	15.05	14.88	0.0	16.0
			36	42	15.05	14.88	15.08	15.06	15.03	14.89	0.0	16.0
			75	0	15.07	14.82	15.05	15.01	15.04	14.78	0.0	16.0
		QPSK	1	1	15.07	14.77	15.03	15.14	15.01	14.92	0.0	16.0
			1	39	15.09	14.78	15.10	15.12	15.05	14.93	0.0	16.0
			1	76	15.01	14.88	14.98	15.08	15.04	14.85	0.0	16.0
			36	0	15.08	14.78	15.01	15.06	14.96	14.94	0.0	16.0
			36	21	15.08	14.80	15.08	15.06	15.04	14.89	0.0	16.0
			36	42	15.08	14.85	15.05	15.07	15.04	14.82	0.0	16.0
			75	0	15.06	14.76	15.03	15.02	14.98	14.89	0.0	16.0
CP-OFDM	16QAM	1	1	15.03	14.82	14.99	14.98	15.01	14.92	0.0	16.0	
	64QAM	1	1	14.98	14.67	14.91	14.83	14.90	14.93	0.0	16.0	
	256QAM	1	1	14.00	14.74	14.93	14.82	14.93	14.85	0.0	16.0	
25 MHz	DFT-s-OFDM	π/2 BPSK	1	1	14.62	14.64	14.97	15.01	15.15	15.08	0.0	16.0
			1	32	14.76	14.72	15.09	15.14	15.22	15.04	0.0	16.0
			1	63	14.75	14.76	15.03	15.15	15.21	15.03	0.0	16.0
			32	0	14.78	14.67	15.08	15.09	15.18	15.09	0.0	16.0
			32	17	14.82	14.69	15.08	15.14	15.28	15.04	0.0	16.0
			32	33	14.84	14.70	15.07	15.17	15.30	15.05	0.0	16.0
			64	0	14.86	14.68	15.09	15.14	15.26	15.05	0.0	16.0
		QPSK	1	1	14.78	14.66	15.02	15.09	15.19	15.08	0.0	16.0
			1	32	14.79	14.63	15.03	15.10	15.21	15.01	0.0	16.0
			1	63	14.82	14.73	15.02	15.17	15.18	15.04	0.0	16.0
			32	0	14.87	14.69	15.07	15.12	15.19	15.10	0.0	16.0
			32	17	14.91	14.70	15.09	15.15	15.27	15.05	0.0	16.0
			32	33	14.91	14.73	15.06	15.22	15.31	15.06	0.0	16.0
			64	0	14.90	14.68	15.10	15.16	15.27	15.05	0.0	16.0
CP-OFDM	16QAM	1	1	14.92	14.76	15.06	15.20	15.22	15.18	0.0	16.0	
	64QAM	1	1	14.79	14.62	15.03	15.05	15.13	15.08	0.0	16.0	
	256QAM	1	1	14.81	14.59	15.02	15.07	15.17	15.07	0.0	16.0	

Notes:

NR Band n77 were measured output power through FTM mode provided by manufacturer.

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
					647334	650800	654266	657734	661200	664666		
					3710.01 MHz	3762 MHz	3813.99 MHz	3866.01 MHz	3918 MHz	3969.99 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	14.91	14.89	15.24	15.23	15.26	15.08	0.0	16.0
			1	26	14.96	14.95	15.32	15.27	15.30	15.07	0.0	16.0
			1	49	15.08	15.01	15.32	15.30	15.37	15.09	0.0	16.0
			25	0	15.04	14.97	15.34	15.29	15.33	15.14	0.0	16.0
			25	13	15.06	15.00	15.35	15.32	15.36	15.11	0.0	16.0
			25	26	15.08	15.04	15.36	15.35	15.37	15.10	0.0	16.0
		50	0	15.06	15.01	15.34	15.31	15.34	15.12	0.0	16.0	
		QPSK	1	1	15.26	14.89	15.20	15.27	15.32	15.14	0.0	16.0
			1	26	15.29	14.96	15.32	15.29	15.30	15.10	0.0	16.0
			1	49	15.37	15.03	15.33	15.30	15.34	15.09	0.0	16.0
			25	0	15.33	14.95	15.32	15.28	15.32	15.13	0.0	16.0
			25	13	15.34	14.99	15.33	15.31	15.33	15.10	0.0	16.0
			25	26	15.35	15.02	15.32	15.34	15.36	15.11	0.0	16.0
		50	0	15.31	14.98	15.31	15.31	15.34	15.12	0.0	16.0	
16QAM	1	1	15.27	14.96	15.29	15.23	15.38	15.20	0.0	16.0		
64QAM	1	1	15.44	15.05	15.32	15.26	15.45	15.32	0.0	16.0		
256QAM	1	1	15.28	14.97	15.32	15.24	15.36	15.18	0.0	16.0		
CP-OFDM	QPSK	1	1	15.24	14.87	15.26	15.23	15.25	15.08	0.0	16.0	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)						MPR	Tune-up Limit
					647168	650700	654234	657766	661300	664832		
					3707.52 MHz	3760.5 MHz	3813.51 MHz	3866.49 MHz	3919.5 MHz	3972.48 MHz		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	15.21	14.90	15.16	15.14	15.17	14.98	0.0	16.0
			1	19	15.24	14.97	15.32	15.23	15.27	15.02	0.0	16.0
			1	36	15.26	15.02	15.32	15.25	15.28	15.04	0.0	16.0
			18	0	15.24	14.98	15.29	15.20	15.26	15.06	0.0	16.0
			18	10	15.27	14.97	15.33	15.23	15.28	15.04	0.0	16.0
			18	20	15.28	15.00	15.32	15.26	15.26	15.05	0.0	16.0
		36	0	15.28	14.99	15.33	15.23	15.29	15.03	0.0	16.0	
		QPSK	1	1	15.18	14.94	15.27	15.21	15.27	15.07	0.0	16.0
			1	19	15.21	14.95	15.31	15.25	15.27	15.07	0.0	16.0
			1	36	15.27	15.00	15.32	15.26	15.28	15.06	0.0	16.0
			18	0	15.23	14.97	15.31	15.24	15.27	15.08	0.0	16.0
			18	10	15.24	14.98	15.35	15.23	15.29	15.06	0.0	16.0
			18	20	15.25	14.99	15.33	15.25	15.32	15.07	0.0	16.0
		36	0	15.25	14.97	15.31	15.26	15.28	15.06	0.0	16.0	
16QAM	1	1	15.25	15.01	15.29	15.27	15.31	15.10	0.0	16.0		
64QAM	1	1	15.36	15.04	15.46	15.39	15.43	15.18	0.0	16.0		
256QAM	1	1	15.28	14.92	15.35	15.29	15.29	15.15	0.0	16.0		
CP-OFDM	QPSK	1	1	15.23	14.92	15.28	15.15	15.22	15.03	0.0	16.0	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)						MPR	Tune-up Limit
					647000	650600	654200	657800	661400	665000		
					3705 MHz	3759 MHz	3813 MHz	3867 MHz	3921 MHz	3975 MHz		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	15.11	14.88	15.11	15.16	15.21	15.04	0.0	16.0
			1	12	15.21	14.94	15.22	15.27	15.29	15.11	0.0	16.0
			1	22	15.20	14.97	15.23	15.26	15.31	15.08	0.0	16.0
			12	0	15.21	14.92	15.23	15.22	15.25	15.07	0.0	16.0
			12	6	15.22	14.95	15.22	15.26	15.32	15.07	0.0	16.0
			12	12	15.23	14.97	15.24	15.27	15.30	15.04	0.0	16.0
		24	0	15.25	14.97	15.26	15.26	15.29	15.09	0.0	16.0	
		QPSK	1	1	15.21	14.89	15.19	15.22	15.27	15.08	0.0	16.0
			1	12	15.23	14.96	15.22	15.22	15.29	15.07	0.0	16.0
			1	22	15.24	14.95	15.25	15.26	15.31	15.06	0.0	16.0
			12	0	15.24	14.91	15.26	15.25	15.28	15.08	0.0	16.0
			12	6	15.25	14.94	15.24	15.24	15.28	15.08	0.0	16.0
			12	12	15.26	14.96	15.28	15.29	15.31	15.07	0.0	16.0
		24	0	15.24	14.94	15.27	15.27	15.28	15.09	0.0	16.0	
16QAM	1	1	15.26	14.92	15.24	15.28	15.32	15.10	0.0	16.0		
64QAM	1	1	15.31	14.96	15.28	15.44	15.39	15.17	0.0	16.0		
256QAM	1	1	15.28	14.97	15.34	15.32	15.31	15.16	0.0	16.0		
CP-OFDM	QPSK	1	1	15.17	14.86	15.22	15.18	15.25	15.01	0.0	16.0	

Notes:

NR Band n77 were measured output power through FTM mode provided by manufacturer.

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

BW (MHz)	Mode	SRS1 - Maximum Allowed Average Power (dBm)						SRS2 - Maximum Allowed Average Power (dBm)						SRS3 - Maximum Allowed Average Power (dBm)								
		RSI = 0, 1, 2, 3, 4						RSI = 0, 1, 2, 3, 4						RSI = 0, 1, 2, 3, 4								
		Measured Pwr (dBm)						Measured Pwr (dBm)						Measured Pwr (dBm)								
						Tune-up Limit						Tune-up Limit						Tune-up Limit				
100 MHz	SRS CW	14.62			15.88		16.0	14.78			13.84		16.0	14.55			14.06		16.0			
90 MHz	SRS CW	14.69		14.73		15.83	16.0	14.75		15.08		13.73	16.0	14.47		14.60		14.09	16.0			
80 MHz	SRS CW	14.83			14.73		15.83	16.0	14.86		13.62		16.0	14.52		14.55		14.21	16.0			
70 MHz	SRS CW	15.01	14.49			15.32	15.63	16.0	14.96	15.07		14.68	14.76	16.0	14.61	14.71		14.28	14.40	16.0		
60 MHz	SRS CW	15.27	14.46			15.30	15.62	16.0	15.06	15.12		14.60	14.72	16.0	14.59	14.77		14.08	14.38	16.0		
50 MHz	SRS CW	15.35	14.36	14.64		15.46	15.66	16.0	15.13	14.92	15.06		14.03	14.52	16.0	14.55	14.58	14.57	13.74	14.45	16.0	
40 MHz	SRS CW	15.32	14.40	14.62	15.10	15.74	15.84	16.0	15.11	14.85	15.19	14.92	13.95	14.34	16.0	14.63	14.54	14.81	14.51	13.73	13.97	16.0
30 MHz	SRS CW	15.35	14.48	14.49	15.08	15.84	15.87	16.0	15.08	14.78	15.15	14.92	13.86	14.16	16.0	14.44	14.54	14.82	14.55	13.70	13.82	16.0
25 MHz	SRS CW	15.42	14.63	14.94	15.07	14.79	15.22	16.0	15.04	14.70	15.03	14.76	13.78	14.07	16.0	14.62	14.68	14.98	14.79	13.93	14.04	16.0
20 MHz	SRS CW	15.34	14.41	14.52	15.06	15.90	15.70	16.0	15.02	14.75	15.18	14.93	13.88	14.04	16.0	14.49	14.49	14.77	14.62	13.79	13.92	16.0
15 MHz	SRS CW	15.34	14.35	14.58	15.13	15.86	15.64	16.0	15.05	14.73	15.18	14.92	13.87	14.01	16.0	14.44	14.46	14.81	14.57	13.81	14.03	16.0
10 MHz	SRS CW	15.41	14.39	14.53	15.08	15.87	15.88	16.0	15.06	14.79	15.20	14.97	13.89	14.04	16.0	14.42	14.53	14.83	14.57	13.81	14.01	16.0

Notes:

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

9.5. Wi-Fi 2.4 GHz (DTS Band)

WLAN SISO mode output power results

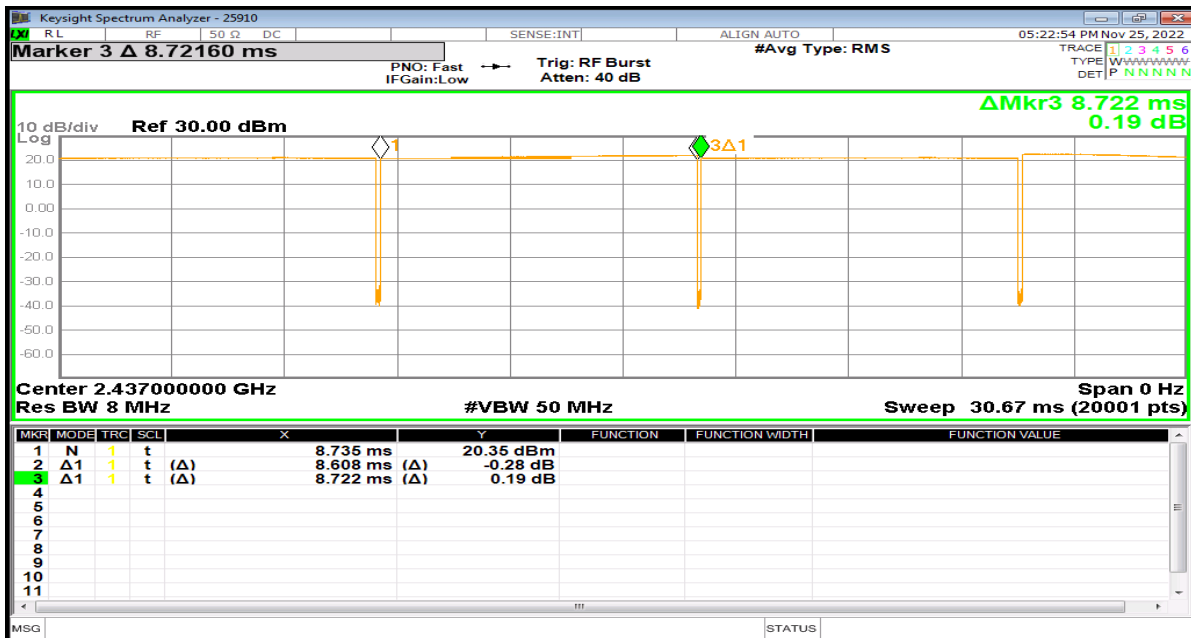
Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Max.Average Power (dBm)			Reduced.Average Power (dBm)		
					Meas. Avg Pwr	Max. Tune-up Limit	SAR Test (Yes/No)	Meas. Avg Pwr	Max. Tune-up Limit	SAR Test (Yes/No)
WiFi 2.4G SISO Ant.1	802.11b	1 Mbps	1	2412.0	17.26	18.0	Yes	11.66	13.0	Yes
			6	2437.0	18.57	19.0		12.21		
			11	2462.0	16.86	18.0		12.08		
	802.11g	6 Mbps	1 - 11	2412 - 2472	Not Required	16.5	No	Not Required	13.0	No
	802.11n	6.5 Mbps	1 - 11	2412 - 2472	Not Required	16.5	No	Not Required	13.0	No
802.11ax	7.3 Mbps	1 - 11	2412 - 2472	Not Required	16.5	No	Not Required	13.0	No	
WiFi 2.4G SISO Ant.2	802.11b	1 Mbps	1	2412.0	17.37	18.0	Yes	11.87	13.0	Yes
			6	2437.0	18.38	19.0		11.87		
			11	2462.0	16.80	18.0		11.69		
	802.11g	6 Mbps	1 - 11	2412 - 2472	Not Required	16.5	No	Not Required	13.0	No
	802.11n	6.5 Mbps	1 - 11	2412 - 2472	Not Required	16.5	No	Not Required	13.0	No
	802.11ax	7.3 Mbps	1 - 11	2412 - 2472	Not Required	16.5	No	Not Required	13.0	No

Note(s):

- SAR is not required for 802.11g/n modes when the adjusted SAR for 802.11b is < 1.2 W/kg.
- For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11n/g/ax mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.
- Additionally, SAR is not required for Channels 12 and 13 because the tune-up limit and the measured output power for these two channels are no greater than those for the default test channels. Refer to §6.3.

Duty Factor Measured Results

Mode	Data Rate	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
802.11b	1 Mbps	8.608	8.722	98.7%	1.01



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

WLAN SISO Ant.1 output power Results

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode power					
						Max. Average Power			Reduced Average Power		
						Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi 5GHz Ant.1	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	16.15	17.5	Yes	Not Required	11.0	No
				56	5280.0	16.71					
				60	5300.0	16.69					
				64	5320.0	15.15					
		802.11n (HT20)	6.5 Mbps	Not Required			17.5	No	Not Required	11.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			14.5	No	Not Required	11.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.5	No	Not Required	11.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			14.5	No	Not Required	11.0	No
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	12.5	No	10.29	11.0	Yes
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	11.0	No
	802.11ax (HE40)	14.6 Mbps	Not Required			14.5	No	Not Required	11.0	No	
	802.11ax (HE80)	36.0 Mbps	Not Required			12.5	No	Not Required	11.0	No	
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	15.04	17.5	Yes	Not Required	11.0	No
				120	5600.0	16.56					
				124	5620.0	16.18					
				144	5720.0	16.57					
		802.11n (HT20)	6.5 Mbps	Not Required			17.5	No	Not Required	11.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			14.5	No	Not Required	11.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.5	No	Not Required	11.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			14.5	No	Not Required	11.0	No
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	12.5	No	10.20	11.0	Yes
			122	5610.0	Not Required	9.95					
		138	5690.0	Not Required	9.79						
	802.11ax (HE20)	7.3 Mbps	Not Required			17.5	No	Not Required	11.0	No	
	802.11ax (HE40)	14.6 Mbps	Not Required			14.5	No	Not Required	11.0	No	
	802.11ax (HE80)	36.0 Mbps	Not Required			12.5	No	Not Required	11.0	No	
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	16.54	17.5	Yes	Not Required	11.0	No
				157	5785.0	16.77					
165				5825.0	16.71						
802.11n (HT20)		6.5 Mbps	Not Required			17.5	No	Not Required	11.0	No	
802.11n (HT40)		13.5 Mbps	Not Required			14.5	No	Not Required	11.0	No	
802.11ac (VHT20)		6.5 Mbps	Not Required			17.5	No	Not Required	11.0	No	
802.11ac (VHT40)		13.5 Mbps	Not Required			14.5	No	Not Required	11.0	No	
802.11ac (VHT80)		29.3 Mbps	155	5775.0	Not Required	12.5	No	10.09	11.0	Yes	
802.11ax (HE20)		7.3 Mbps	Not Required			17.5	No	Not Required	11.0	No	
802.11ax (HE40)		14.6 Mbps	Not Required			14.5	No	Not Required	11.0	No	
802.11ax (HE80)	36.0 Mbps	Not Required			12.5	No	Not Required	11.0	No		

Note(s):

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

WLAN SISO Ant.2 output power Results

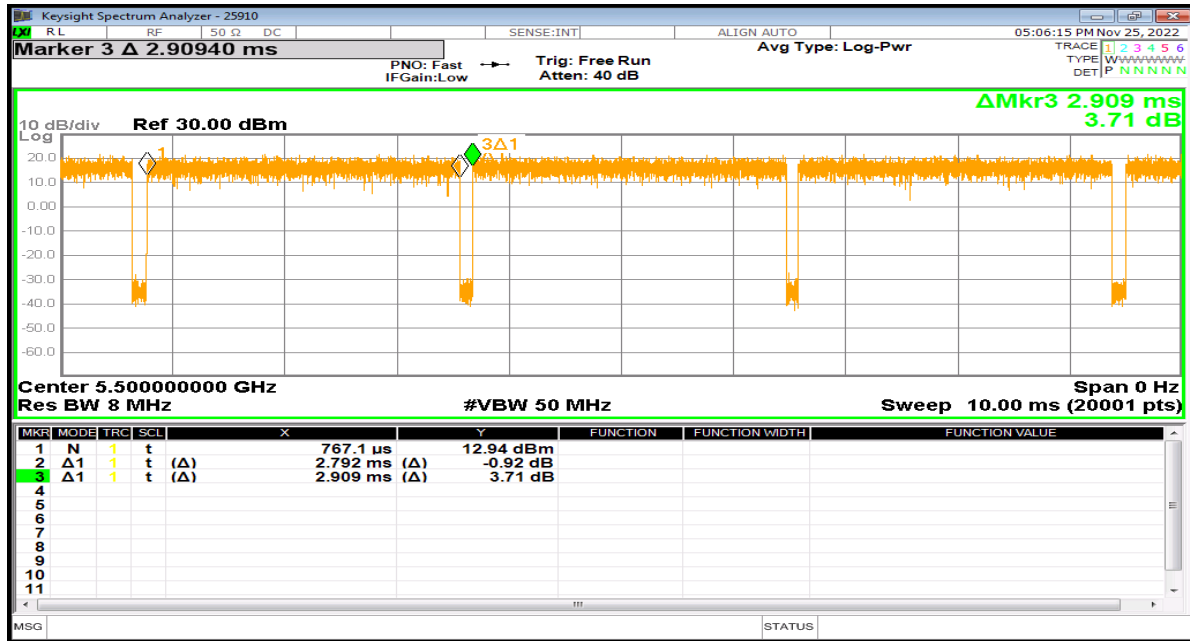
Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode power					
						Max. Average Power			Reduced Average Power		
						Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi 5GHz Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	16.07	17.5	Yes	Not Required	11.0	No
				56	5280.0	15.87					
				60	5300.0	16.13					
				64	5320.0	14.77					
		802.11n (HT20)	6.5 Mbps	Not Required			17.5	No	Not Required	11.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			14.5	No	Not Required	11.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.5	No	Not Required	11.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			14.5	No	Not Required	11.0	No
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	12.5	No	9.94	11.0	Yes
	802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	11.0	No	
	802.11ax (HE40)	14.6 Mbps	Not Required			14.5	No	Not Required	11.0	No	
	802.11ax (HE80)	36.0 Mbps	Not Required			12.5	No	Not Required	11.0	No	
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	15.17	17.5	Yes	Not Required	11.0	No
				120	5600.0	16.54					
				124	5620.0	16.31					
				144	5720.0	16.45					
		802.11n (HT20)	6.5 Mbps	Not Required			17.5	No	Not Required	11.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			14.5	No	Not Required	11.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.5	No	Not Required	11.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			14.5	No	Not Required	11.0	No
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	12.5	No	10.25	11.0	Yes
		122	5610.0	Not Required	10.03						
		138	5690.0	Not Required	10.39						
	802.11ax (HE20)	7.3 Mbps	Not Required			17.5	No	Not Required	11.0	No	
	802.11ax (HE40)	14.6 Mbps	Not Required			14.5	No	Not Required	11.0	No	
	802.11ax (HE80)	36.0 Mbps	Not Required			12.5	No	Not Required	11.0	No	
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	16.65	17.5	Yes	Not Required	11.0	No
				157	5785.0	16.78					
165				5825.0	16.28						
802.11n (HT20)		6.5 Mbps	Not Required			17.5	No	Not Required	11.0	No	
802.11n (HT40)		13.5 Mbps	Not Required			14.5	No	Not Required	11.0	No	
802.11ac (VHT20)		6.5 Mbps	Not Required			17.5	No	Not Required	11.0	No	
802.11ac (VHT40)		13.5 Mbps	Not Required			14.5	No	Not Required	11.0	No	
802.11ac (VHT80)		29.3 Mbps	155	5775.0	Not Required	12.5	No	10.59	11.0	Yes	
802.11ax (HE20)		7.3 Mbps	Not Required			17.5	No	Not Required	11.0	No	
802.11ax (HE40)	14.6 Mbps	Not Required			14.5	No	Not Required	11.0	No		
802.11ax (HE80)	36.0 Mbps	Not Required			12.5	No	Not Required	11.0	No		

Note(s):

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

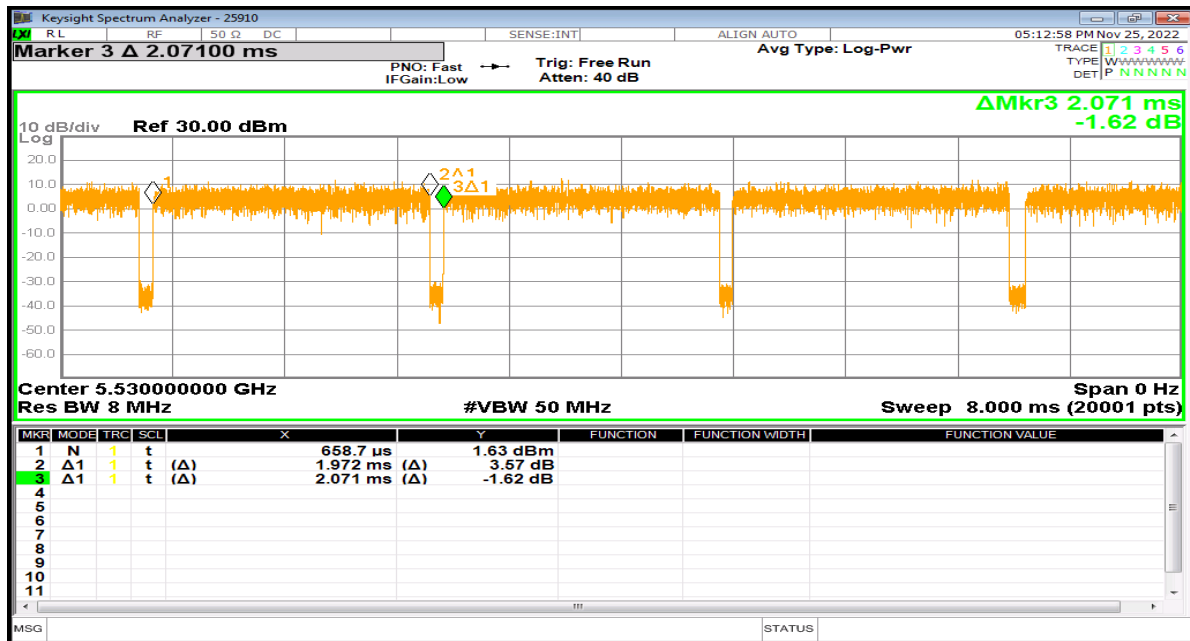
Duty Factor Measured Results

Mode	Data Rate	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
802.11a	6 Mbps	2.792	2.909	96.0%	1.04



Duty Factor Measured Results

Mode	Data Rate	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
802.11ac (VHT 80)	29.3 Mbps	1.972	2.071	95.2%	1.05



9.7. Bluetooth

Bluetooth output power Results

Band (GHz)	Antenna	Mode	Ch #	Freq. (MHz)	Max. Average Power (dBm)		Reduced. Average Power (dBm)	
					Meas Pwr	Tune-up Limit	Meas Pwr	Tune-up Limit
2.4	BT Ant.	GFSK (BDR)	0	2402	15.03	15.5	10.41	11.0
			39	2441	15.27		11.86	12.0
			78	2480	14.81		11.96	12.0
		EDR	0	2402	12.45	13.0	12.45	13.0
			39	2441	12.15		12.15	
			78	2480	11.43		11.43	
		LE	0	2402	13.64	14.0	8.45	9.0
			19	2440	13.71		8.35	
			39	2480	12.87		7.99	

Duty Factor Measured Results

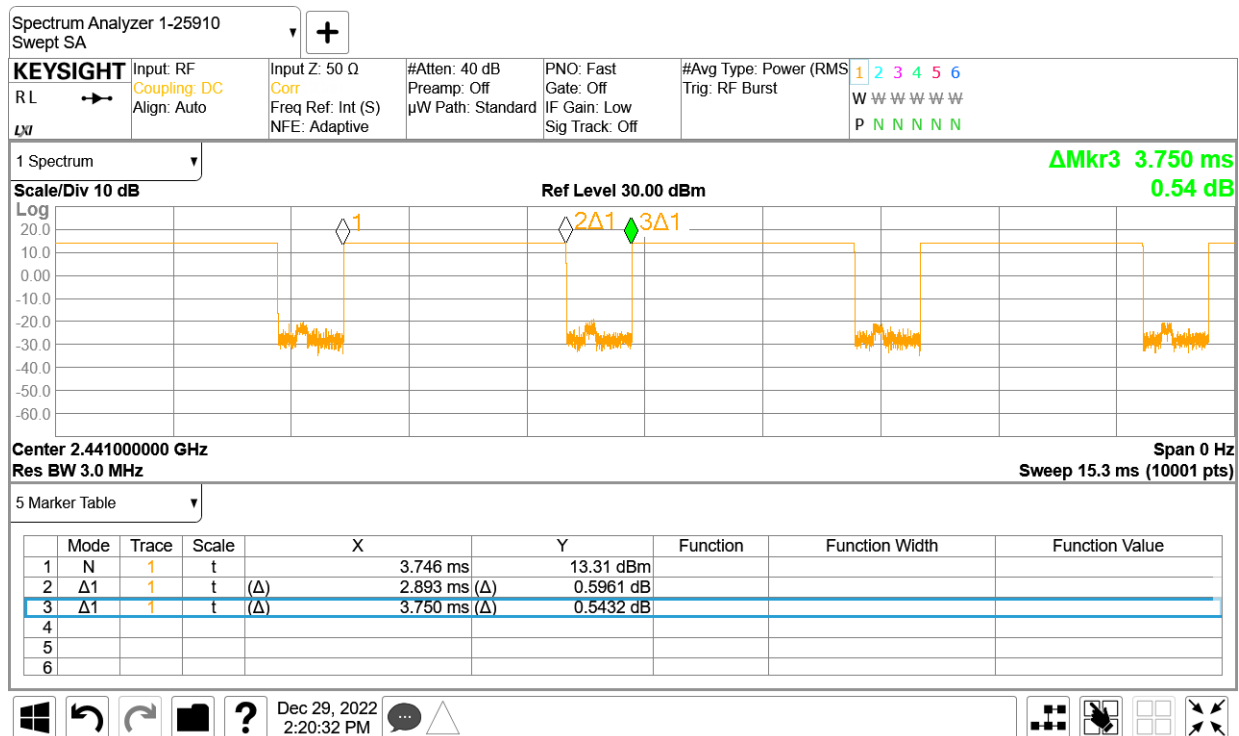
Mode	Type	T on (ms)	Period (ms)	Maximum Duty Cycle	Measured Duty Cycle	Crest Factor (maximum duty/ measured duty cycle)
GFSK	DH5	2.893	3.750	78.00%	77.10%	1.01

Note(s):

Maximum Duty Cycle is mentioned in Operational description. Detail of BT Duty Cycle refer to Operational description.

Duty Cycle plots

GFSK / EDR



10. Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

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

KDB 447498 D01 General RF Exposure Guidance:

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

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

KDB 648474 D04 Handset SAR:

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

KDB 648474 D04 Handset SAR (Phablet Only):

For smart phones, with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm.

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

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

KDB 941225 D01 SAR test for 3G devices:

When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

KDB 941225 D05 SAR for LTE Devices:

SAR test reduction is applied using the following criteria:

- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.
- When the reported SAR is > 0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.
- Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are > 0.8 W/kg. Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg.
- Testing for 16-QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of QPSK.
- Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.
- For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing; therefore, the requirement for H, M and L channels may not fully apply.

KDB 248227 D01 SAR meas for 802.11:

SAR test reduction for 802.11 Wi-Fi transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions. An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.

The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the initial test position(s) by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The initial test position(s) is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s). When the reported SAR for the initial test position is:

- ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.
- > 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions are tested.
 - For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
 - When it is unclear, all equivalent conditions must be tested.
- For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required test channels are considered.
 - The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction.
- When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.
- When the specified maximum output power is different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤ 1.2 W/kg, testing for the band with the lower specified output power is not required; otherwise test the remaining bands independently for SAR.

To determine the initial test position, Area Scans were performed to determine the position with the *Maximum Value of SAR (measured)*. The position that produced the highest *Maximum Value of SAR* is considered the worst case position; thus used as the initial test position.

10.1. GSM 850

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	GPRS 2 Slots	0	Left Touch	190	836.6	32.00	30.44	0.211	0.302	
				Left Tilt	190	836.6	32.00	30.44	0.111	0.159	
				Right Touch	190	836.6	32.00	30.44	0.313	0.448	1
				Right Tilt	190	836.6	32.00	30.44	0.140	0.201	
	Body-worn	GPRS 2 Slots	15	Rear	190	836.6	32.00	30.44	0.237	0.339	
				Front	190	836.6	32.00	30.44	0.260	0.372	2
	Hotspot	GPRS 2 Slots	10	Rear	128	824.4	32.00	30.73	0.403	0.540	
					190	836.6	32.00	30.44	0.585	0.838	3
					251	848.8	32.00	30.29	0.527	0.781	
				Front	190	836.6	32.00	30.44	0.300	0.430	
				Edge 2	190	836.6	32.00	30.44	0.322	0.461	
				Edge 3	190	836.6	32.00	30.44	0.381	0.546	

10.2. GSM 1900

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	GPRS 4 Slots	0	Left Touch	661	1880.0	25.00	23.71	0.132	0.178	
				Left Tilt	661	1880.0	25.00	23.71	0.092	0.124	
				Right Touch	661	1880.0	25.00	23.71	0.157	0.211	4
				Right Tilt	661	1880.0	25.00	23.71	0.078	0.105	
	Body-worn	GPRS 4 Slots	15	Rear	661	1880.0	25.00	23.71	0.279	0.375	5
				Front	661	1880.0	25.00	23.71	0.197	0.265	
	Hotspot	GPRS 4 Slots	10	Rear	661	1880.0	25.00	23.71	0.497	0.669	
					661	1880.0	25.00	23.71	0.328	0.441	
				Edge 3	512	1850.2	25.00	23.32	0.532	0.783	
					661	1880.0	25.00	23.71	0.603	0.812	
					810	1909.8	25.00	23.63	0.665	0.912	6
				Edge 4	661	1880.0	25.00	23.71	0.204	0.275	

10.3. WCDMA Band II

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	Rel 99 RMC	0	Left Touch	9400	1880.0	24.00	22.99	0.292	0.368	7
				Left Tilt	9400	1880.0	24.00	22.99	0.166	0.209	
				Right Touch	9400	1880.0	24.00	22.99	0.313	0.395	
				Rightt Tilt	9400	1880.0	24.00	22.99	0.156	0.197	
	Body-worn	Rel 99 RMC	15	Rear	9400	1880.0	24.00	22.99	0.526	0.664	8
				Front	9400	1880.0	24.00	22.99	0.472	0.596	
	Hotspot	Rel 99 RMC	10	Rear	9400	1880.0	22.00	21.05	0.441	0.549	
				Front	9400	1880.0	22.00	21.05	0.317	0.395	
				Edge 3	9400	1880.0	22.00	21.05	0.484	0.602	9
				Edge 4	9400	1880.0	22.00	21.05	0.196	0.244	

10.4. WCDMA Band IV

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	Rel 99 RMC	0	Left Touch	1413	1732.6	24.00	22.74	0.256	0.342	10
				Left Tilt	1413	1732.6	24.00	22.74	0.121	0.162	
				Right Touch	1413	1732.6	24.00	22.74	0.318	0.425	
				Rightt Tilt	1413	1732.6	24.00	22.74	0.123	0.164	
	Body-worn	Rel 99 RMC	15	Rear	1413	1732.6	24.00	22.74	0.498	0.666	11
				Front	1413	1732.6	24.00	22.74	0.469	0.627	
	Hotspot	Rel 99 RMC	10	Rear	1413	1732.6	21.50	20.51	0.391	0.491	12
				Front	1413	1732.6	21.50	20.51	0.351	0.441	
				Edge 3	1413	1732.6	21.50	20.51	0.251	0.315	
				Edge 4	1413	1732.6	21.50	20.51	0.105	0.132	

10.5. WCDMA Band V

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	Rel 99 RMC	0	Left Touch	4183	836.6	25.00	23.73	0.193	0.259	
				Left Tilt	4183	836.6	25.00	23.73	0.113	0.151	
				Right Touch	4183	836.6	25.00	23.73	0.252	0.338	13
				Right Tilt	4183	836.6	25.00	23.73	0.137	0.184	
	Body-worn	Rel 99 RMC	15	Rear	4183	836.6	25.00	23.73	0.235	0.315	
				Front	4183	836.6	25.00	23.73	0.252	0.338	14
	Hotspot	Rel 99 RMC	10	Rear	4183	836.6	25.00	23.73	0.502	0.673	15
				Front	4183	836.6	25.00	23.73	0.273	0.366	
				Edge 2	4183	836.6	25.00	23.73	0.346	0.464	
				Edge 3	4183	836.6	25.00	23.73	0.371	0.497	

10.6. LTE Band 2 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	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	
Sub 2 Ant.	Head	QPSK	0	Left Touch	18700	1860.0	1	99	21.00	20.93	0.258	0.262	
							50	50	21.00	20.94	0.256	0.260	
				Left Tilt	18700	1860.0	1	99	21.00	20.93	0.337	0.342	
							50	50	21.00	20.94	0.340	0.345	
				Right Touch	18700	1860.0	1	99	21.00	20.93	0.380	0.386	
							50	50	21.00	20.94	0.383	0.388	
				Right Tilt	18700	1860.0	1	99	21.00	20.93	0.513	0.521	
							50	50	21.00	20.94	0.527	0.534	16
	Body-worn	QPSK	15	Rear	18700	1860.0	1	99	22.00	21.72	0.092	0.098	
							50	50	22.00	21.73	0.097	0.103	17
				Front	18700	1860.0	1	99	22.00	21.72	0.042	0.045	
							50	50	22.00	21.73	0.051	0.054	
	Hotspot	QPSK	10	Rear	18700	1860.0	1	99	22.00	21.72	0.231	0.246	
							50	50	22.00	21.73	0.236	0.251	
				Front	18700	1860.0	1	99	22.00	21.72	0.083	0.089	
							50	50	22.00	21.73	0.085	0.090	
				Edge 1	18700	1860.0	1	99	22.00	21.72	0.366	0.390	
							50	50	22.00	21.73	0.367	0.391	18
Edge 4				18700	1860.0	1	99	22.00	21.72	0.056	0.060		
						50	50	22.00	21.73	0.057	0.060		

10.7. LTE Band 7 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	QPSK	0	Left Touch	20850	2510.0	1	0	24.00	23.50	0.222	0.249	19
							50	0	23.00	22.43	0.171	0.195	
				Left Tilt	20850	2510.0	1	0	24.00	23.50	0.062	0.070	
							50	0	23.00	22.43	0.047	0.054	
				Right Touch	20850	2510.0	1	0	24.00	23.50	0.152	0.171	
							50	0	23.00	22.43	0.122	0.139	
	Right Tilt	20850	2510.0	1	0	24.00	23.50	0.122	0.137				
				50	0	23.00	22.43	0.110	0.125				
	Body-w orn	QPSK	15	Rear	20850	2510.0	1	0	24.00	23.50	0.364	0.408	20
							50	0	23.00	22.43	0.335	0.382	
				Front	20850	2510.0	1	0	24.00	23.50	0.310	0.348	
							50	0	23.00	22.43	0.276	0.315	
	Hotspot	QPSK	10	Rear	20850	2510.0	1	0	21.00	20.21	0.444	0.533	21
							50	0	21.00	20.22	0.444	0.531	
				Front	20850	2510.0	1	0	21.00	20.21	0.267	0.320	
							50	0	21.00	20.22	0.284	0.340	
				Edge 3	20850	2510.0	1	0	21.00	20.21	0.398	0.477	
							50	0	21.00	20.22	0.398	0.476	
				Edge 4	20850	2510.0	1	0	21.00	20.21	0.115	0.138	
							50	0	21.00	20.22	0.107	0.128	

10.8. LTE Band 12 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	QPSK	0	Left Touch	23095	707.5	1	25	25.00	24.24	0.167	0.199	
							25	0	24.00	23.21	0.137	0.164	
				Left Tilt	23095	707.5	1	25	25.00	24.24	0.082	0.097	
							25	0	24.00	23.21	0.061	0.073	
				Right Touch	23095	707.5	1	25	25.00	24.24	0.221	0.263	22
							25	0	24.00	23.21	0.182	0.218	
	Right Tilt	23095	707.5	1	25	25.00	24.24	0.102	0.122				
				25	0	24.00	23.21	0.086	0.104				
	Body-worn	QPSK	15	Rear	23095	707.5	1	25	25.00	24.24	0.277	0.330	23
							25	0	24.00	23.21	0.216	0.259	
				Front	23095	707.5	1	25	25.00	24.24	0.235	0.280	
							25	0	24.00	23.21	0.189	0.227	
	Hotspot	QPSK	10	Rear	23095	707.5	1	25	25.00	24.24	0.384	0.457	24
							25	0	25.00	23.21	0.296	0.447	
				Front	23095	707.5	1	25	25.00	24.24	0.221	0.263	
							25	0	25.00	23.21	0.174	0.263	
				Edge 2	23095	707.5	1	25	25.00	24.24	0.227	0.270	
							25	0	25.00	23.21	0.188	0.284	
				Edge 3	23095	707.5	1	25	25.00	24.24	0.273	0.325	
							25	0	25.00	23.21	0.203	0.307	

10.9. LTE Band 13 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	QPSK	0	Left Touch	23230	782.0	1	0	25.00	23.93	0.176	0.225	
							25	0	24.00	22.91	0.133	0.171	
				Left Tilt	23230	782.0	1	0	25.00	23.93	0.094	0.120	
							25	0	24.00	22.91	0.075	0.097	
				Right Touch	23230	782.0	1	0	25.00	23.93	0.221	0.283	25
							25	0	24.00	22.91	0.174	0.224	
	Right Tilt	23230	782.0	1	0	25.00	23.93	0.111	0.142				
				25	0	24.00	22.91	0.085	0.109				
	Body-worn	QPSK	15	Rear	23230	782.0	1	0	25.00	23.93	0.291	0.372	26
							25	0	24.00	22.91	0.204	0.262	
				Front	23230	782.0	1	0	25.00	23.93	0.270	0.345	
							25	0	24.00	22.91	0.206	0.265	
	Hotspot	QPSK	10	Rear	23230	782.0	1	0	25.00	23.93	0.442	0.565	27
							25	0	24.00	22.91	0.316	0.406	
				Front	23230	782.0	1	0	25.00	23.93	0.235	0.301	
							25	0	24.00	22.91	0.175	0.225	
				Edge 2	23230	782.0	1	0	25.00	23.93	0.393	0.503	
							25	0	24.00	22.91	0.293	0.377	
				Edge 3	23230	782.0	1	0	25.00	23.93	0.306	0.391	
							25	0	24.00	22.91	0.224	0.288	

10.10. LTE Band 14 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	QPSK	0	Left Touch	23330	793.0	1	0	25.00	23.79	0.149	0.197	
							25	0	24.00	22.78	0.098	0.130	
				Left Tilt	23330	793.0	1	0	25.00	23.79	0.084	0.111	
							25	0	24.00	22.78	0.059	0.078	
				Right Touch	23330	793.0	1	0	25.00	23.79	0.196	0.259	28
							25	0	24.00	22.78	0.161	0.213	
	Right Tilt	23330	793.0	1	0	25.00	23.79	0.095	0.126				
				25	0	24.00	22.78	0.079	0.105				
	Body-w orn	QPSK	15	Rear	23330	793.0	1	0	25.00	23.79	0.246	0.325	29
							25	0	24.00	22.78	0.195	0.258	
				Front	23330	793.0	1	0	25.00	23.79	0.238	0.314	
							25	0	24.00	22.78	0.185	0.245	
	Hotspot	QPSK	10	Rear	23330	793.0	1	0	25.00	23.79	0.303	0.400	
							25	0	24.00	22.78	0.296	0.392	
				Front	23330	793.0	1	0	25.00	23.79	0.209	0.276	
							25	0	24.00	22.78	0.163	0.216	
				Edge 2	23330	793.0	1	0	25.00	23.79	0.351	0.464	30
							25	0	24.00	22.78	0.340	0.450	
Edge 3				23330	793.0	1	0	25.00	23.79	0.265	0.350		
						25	0	24.00	22.78	0.195	0.258		

10.11. LTE Band 25 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	QPSK	0	Left Touch	26140	1860.0	1	0	25.00	24.26	0.240	0.285	
							50	0	24.00	23.24	0.195	0.232	
				Left Tilt	26140	1860.0	1	0	25.00	24.26	0.169	0.200	
							50	0	24.00	23.24	0.141	0.168	
				Right Touch	26140	1860.0	1	0	25.00	24.26	0.267	0.317	31
							50	0	24.00	23.24	0.178	0.212	
	Right Tilt	26140	1860.0	1	0	25.00	24.26	0.137	0.162				
				50	0	24.00	23.24	0.128	0.152				
	Body-w orn	QPSK	15	Rear	26140	1860.0	1	0	25.00	24.26	0.470	0.557	32
							50	0	24.00	23.24	0.410	0.488	
				Front	26140	1860.0	1	0	25.00	24.26	0.296	0.351	
							50	0	24.00	23.24	0.340	0.405	
	Hotspot	QPSK	10	Rear	26140	1860.0	1	0	23.00	22.37	0.548	0.634	
							50	0	23.00	22.26	0.546	0.647	
				Front	26140	1860.0	1	0	23.00	22.37	0.439	0.508	
							50	0	23.00	22.26	0.418	0.496	
				Edge 3	26140	1860.0	1	0	23.00	22.37	0.608	0.703	33
							50	0	23.00	22.26	0.577	0.684	
Edge 4	26140	1860.0	1	0	23.00	22.37	0.239	0.276					
			50	0	23.00	22.26	0.246	0.292					

10.12. LTE Band 26 (15MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.		
									Tune-up limit	Meas.	Meas.	Scaled			
Main 1 Ant.	Head	QPSK	0	Left Touch	26865	831.5	1	0	25.50	24.49	0.238	0.300			
							36	0	24.50	23.54	0.188	0.235			
				Left Tilt	26865	831.5	1	0	25.50	24.49	0.125	0.158			
							36	0	24.50	23.54	0.098	0.122			
				Right Touch	26865	831.5	1	0	25.50	24.49	0.286	0.361	34		
							36	0	24.50	23.54	0.254	0.317			
			Right Tilt	26865	831.5	1	0	25.50	24.49	0.144	0.182				
						36	0	24.50	23.54	0.129	0.161				
			Body-w orn	QPSK	15	Rear	26865	831.5	1	0	25.50	24.49	0.295	0.372	35
									36	0	24.50	23.54	0.232	0.289	
						Front	26865	831.5	1	0	25.50	24.49	0.293	0.370	
									36	0	24.50	23.54	0.230	0.287	
	Hotspot	QPSK	10	Rear	26865	831.5	1	0	25.50	24.49	0.491	0.620	36		
							36	0	24.50	23.54	0.414	0.516			
				Front	26865	831.5	1	0	25.50	24.49	0.292	0.368			
							36	0	24.50	23.54	0.243	0.303			
				Edge 2	26865	831.5	1	0	25.50	24.49	0.332	0.419			
							36	0	24.50	23.54	0.264	0.329			
				Edge 3	26865	831.5	1	0	25.50	24.49	0.350	0.442			
							36	0	24.50	23.54	0.298	0.372			

10.13. LTE Band 30 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.		
									Tune-up limit	Meas.	Meas.	Scaled			
Main 2 Ant.	Head	QPSK	0	Left Touch	27710	2310.0	1	25	24.00	23.41	0.108	0.124	37		
							25	0	23.00	22.32	0.090	0.105			
				Left Tilt	27710	2310.0	1	25	24.00	23.41	0.057	0.065			
							25	0	23.00	22.32	0.039	0.046			
				Right Touch	27710	2310.0	1	25	24.00	23.41	0.090	0.104			
							25	0	23.00	22.32	0.068	0.079			
			Right Tilt	27710	2310.0	1	25	24.00	23.41	0.103	0.118				
						25	0	23.00	22.32	0.076	0.089				
			Body-w orn	QPSK	15	Rear	27710	2310.0	1	25	24.00	23.41	0.267	0.306	38
									25	0	23.00	22.32	0.214	0.250	
						Front	27710	2310.0	1	25	24.00	23.41	0.250	0.286	
									25	0	23.00	22.32	0.200	0.234	
	Hotspot	QPSK	10	Rear	27710	2310.0	1	25	24.00	23.41	0.464	0.532			
							25	0	23.00	22.32	0.374	0.437			
				Front	27710	2310.0	1	25	24.00	23.41	0.333	0.381			
							25	0	23.00	22.32	0.269	0.315			
				Edge 3	27710	2310.0	1	25	24.00	23.41	0.513	0.588	39		
							25	0	23.00	22.32	0.411	0.481			
				Edge 4	27710	2310.0	1	25	24.00	23.41	0.231	0.265			
							25	0	23.00	22.32	0.179	0.209			

10.14. LTE Band 38 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Hotspot	QPSK	10	Rear	38000	2595.0	1	49	24.00	22.40	0.366	0.529	40
							50	0	23.00	21.40	0.279	0.403	
				Front	38000	2595.0	1	49	24.00	22.40	0.215	0.311	
							50	0	23.00	21.40	0.164	0.237	
				Edge 3	38000	2595.0	1	49	24.00	22.40	0.353	0.510	
							50	0	23.00	21.40	0.279	0.403	
Edge 4	38000	2595.0	1	49	24.00	22.40	0.083	0.120					
			50	0	23.00	21.40	0.064	0.092					

Note(s):

In the case of Head & Body-worn exposure, it is covered by LTE Band 41.

10.15. LTE Band 40 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.			
									Tune-up limit	Meas.	Meas.	Scaled				
Main 2 Ant.	Head	QPSK	0	Left Touch	39200	2355.0	1	25	14.00	13.44	0.007	0.008	41			
							25	0	14.00	13.30	<0.001	<0.001				
				Left Tilt	39200	2355.0	1	25	14.00	13.44	<0.001	<0.001				
							25	0	14.00	13.30	<0.001	<0.001				
				Right Touch	39200	2355.0	1	25	14.00	13.44	<0.001	<0.001				
							25	0	14.00	13.30	<0.001	<0.001				
			Right Tilt	39200	2355.0	1	25	14.00	13.44	<0.001	<0.001					
						25	0	14.00	13.30	<0.001	<0.001					
			Body-worn	QPSK	15	Rear	39200	2355.0	1	25	14.00	13.44	0.005	0.005		
									25	0	14.00	13.30	0.005	0.006		
						Front	39200	2355.0	1	25	14.00	13.44	0.006	0.007		
									25	0	14.00	13.30	0.008	0.009	42	
	Hotspot	QPSK				10	Rear	39200	2355.0	1	25	14.00	13.44	0.023	0.026	
										25	0	14.00	13.30	0.024	0.028	
			Front	39200	2355.0		1	25	14.00	13.44	0.021	0.024				
							25	0	14.00	13.30	0.019	0.023				
			Edge 3	39200	2355.0		1	25	14.00	13.44	0.028	0.032				
							25	0	14.00	13.30	0.032	0.037	43			
			Edge 4	39200	2355.0		1	25	14.00	13.44	0.011	0.013				
							25	0	14.00	13.30	0.011	0.013				

10.16. LTE Band 41 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.			
									Tune-up limit	Meas.	Meas.	Scaled				
Main 2 Ant.	Head	QPSK	0	Left Touch	41055	2636.5	1	0	24.00	23.53	0.147	0.164				
							50	0	23.00	22.42	0.108	0.123				
				Left Tilt	41055	2636.5	1	0	24.00	23.53	0.049	0.055				
							50	0	23.00	22.42	0.021	0.024				
				Right Touch	41055	2636.5	1	0	24.00	23.53	0.097	0.108				
							50	0	23.00	22.42	0.059	0.067				
			Right Tilt	41055	2636.5	1	0	24.00	23.53	0.097	0.108					
						50	0	23.00	22.42	0.065	0.075					
			Body-worn	QPSK	15	Rear	41055	2636.5	1	0	24.00	23.53	0.242	0.270	44	
									50	0	23.00	22.42	0.180	0.206		
						Front	41055	2636.5	1	0	24.00	23.53	0.211	0.235		
									50	0	23.00	22.42	0.159	0.182		
	Hotspot	QPSK				10	Rear	41055	2636.5	1	0	22.00	21.67	0.376	0.406	45
										50	0	22.00	21.64	0.364	0.395	
			Front	41055	2636.5		1	0	22.00	21.67	0.270	0.291				
							50	0	22.00	21.64	0.261	0.284				
			Edge 3	41055	2636.5		1	0	22.00	21.67	0.302	0.326				
							50	0	22.00	21.64	0.294	0.319				
			Edge 4	41055	2636.5		1	0	22.00	21.67	0.092	0.099				
							50	0	22.00	21.64	0.088	0.095				

LTE Band 41 (20MHz Bandwidth) (Continued)**LTE Band 41 Power Class 2**

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	QPSK	0	Left touch	41055	2636.5	1	0	27.00	26.87	0.211	0.217	46
	Body-worn	QPSK	15	Rear	41055	2636.5	1	0	27.00	26.87	0.251	0.259	
	Hotspot	QPSK	10	Rear	41055	2636.5	1	0	23.00	21.60	0.265	0.366	

Note(s):

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

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

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

Reported SAR vs. Output power linearly scaled

Antenna	RF Exposure Conditions	Power Class 2				Power Class 3				PC2 linearly scaled Reported SAR (W/kg)	Linearly scaled (<10%)
		Duty Cycle (%)	Tune-up Power (dBm)	Fram Avg. Power (dBm)	Reported SAR (W/kg)	Duty Cycle	Tune-up Power (dBm)	Fram Avg. Power (dBm)	Reported SAR (W/kg)		
Main 2 Ant.	Head	43.3	27.0	217.0	0.217	63.3	24.0	159.0	0.164	0.224	-2.9
	Body-worn	43.3	27.0	217.0	0.259	63.3	24.0	159.0	0.270	0.369	-29.8
	Hotspot	43.3	23.0	86.4	0.366	63.3	22.0	100.3	0.406	0.350	4.6

UL CA 41C

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	PCC UL				SCC UL				Power (dBm)		1-g SAR (W/kg)		Plot No.
					Ch #.	Freq. (MHz)	RB Allocation	RB offset	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	QPSK	0	Left Touch	41055	2636.5	1	0	40857	2616.7	1	99	24.00	23.50	0.103	0.116	47
	Body-worn	QPSK	15	Rear	41055	2636.5	1	0	40857	2616.7	1	99	24.00	23.50	0.232	0.260	48
	Hotspot	QPSK	10	Rear	41055	2636.5	1	0	40857	2616.7	1	99	22.00	21.65	0.288	0.312	49

10.17. LTE Band 48 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	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	
Sub 3 Ant.	Head	QPSK	0	Left Touch	55773	3603.3	1	99	20.50	19.75	0.185	0.220	
							50	50	20.50	19.71	0.197	0.236	
				Left Tilt	55773	3603.3	1	99	20.50	19.75	0.156	0.185	
							50	50	20.50	19.71	0.154	0.185	
				Right Touch	55340	3560.0	1	99	20.50	19.57	0.601	0.745	
							50	50	20.50	19.59	0.607	0.748	
					55773	3603.3	1	99	20.50	19.75	0.666	0.792	
							50	50	20.50	19.71	0.676	0.811	50
					56207	3646.7	1	99	20.50	19.11	0.509	0.701	
							50	50	20.50	19.10	0.509	0.703	
				56640	3690.0	1	99	20.50	19.39	0.514	0.664		
						50	50	20.50	19.49	0.512	0.646		
	Right Tilt	55340	3603.3	1	99	20.50	19.75	0.449	0.534				
				50	50	20.50	19.71	0.454	0.545				
	Body-worn	QPSK	15	Rear	55773	3603.3	1	99	21.00	20.93	0.165	0.168	
							50	50	21.00	20.94	0.168	0.170	51
				Front	55773	3603.3	1	99	21.00	20.93	0.086	0.087	
							50	50	21.00	20.94	0.078	0.079	
	Hotspot	QPSK	10	Rear	55773	3603.3	1	99	21.00	20.93	0.324	0.329	
							50	50	21.00	20.94	0.324	0.329	
				Front	55773	3603.3	1	99	21.00	20.93	0.160	0.163	
							50	50	21.00	20.94	0.157	0.159	
				Edge 1	55773	3603.3	1	99	21.00	20.93	0.190	0.193	
							50	50	21.00	20.94	0.193	0.196	
Edge 4				55773	3603.3	1	99	21.00	20.93	0.406	0.413		
						50	50	21.00	20.94	0.402	0.408	52	

UL CA 48C

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	PCC UL				SCC UL				Power (dBm)		1-g SAR (W/kg)		Plot No.
					Ch #.	Freq. (MHz)	RB Allocation	RB offset	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Tune-up limit	Meas.	Meas.	Scaled	
Sub 3 Ant.	Head	QPSK	0	Right Touch	55773	3603.3	50	50	55971	3623.1	50	0	20.50	19.55	0.484	0.602	53
	Body-worn	QPSK	15	Rear	55773	3603.3	50	50	55971	3623.1	50	0	21.00	20.85	0.197	0.204	54
	Hotspot	QPSK	10	Edge 4	55773	3603.3	1	99	55971	3623.1	1	0	21.00	20.82	0.465	0.485	55

10.18. LTE Band 66 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.			
									Tune-up limit	Meas.	Meas.	Scaled				
Main 2 Ant.	Head	QPSK	0	Left Touch	132322	1745.0	1	49	25.00	24.22	0.224	0.268				
							50	0	24.00	22.84	0.202	0.264				
				Left Tilt	132322	1745.0	1	49	25.00	24.22	0.151	0.181				
							50	0	24.00	22.84	0.130	0.170				
				Right Touch	132322	1745.0	1	49	25.00	24.22	0.311	0.372	56			
							50	0	24.00	22.84	0.275	0.359				
			Right Tilt	132322	1745.0	1	49	25.00	24.22	0.106	0.127					
						50	0	24.00	22.84	0.096	0.125					
			Body-w orn	QPSK	15	Rear	132322	1745.0	1	49	25.00	24.22	0.472	0.565	57	
									50	0	24.00	22.84	0.421	0.550		
	Front	132322				1745.0	1	49	25.00	24.22	0.450	0.539				
							50	0	24.00	22.84	0.407	0.532				
	Hotspot	QPSK	10	Rear	132322	1745.0	1	49	23.00	21.76	0.519	0.691				
							50	0	23.00	21.75	0.537	0.716				
				Front	132322	1745.0	1	49	23.00	21.76	0.475	0.632				
							50	0	23.00	21.75	0.509	0.679				
				Edge 3	132072	1720.0	1	49	23.00	21.47	0.636	0.905				
							50	0	23.00	21.73	0.675	0.904				
					132322	1745.0	1	49	23.00	21.76	0.795	1.058	58			
							50	0	23.00	21.75	0.746	0.995				
					132572	1770.0	1	49	23.00	21.61	0.760	1.047				
							50	0	23.00	21.68	0.767	1.039				
				Edge 4	132322	1745.0	1	49	23.00	21.76	0.259	0.345				
							50	0	23.00	21.75	0.267	0.356				
Antenna				RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		10-g SAR (W/kg)		Plot No.
												tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Product Specific 10-g	QPSK	12	Edge 3	132322	1745.0	1	49	25.00	24.22	0.556	0.665				
							50	0	24.00	22.84	0.456	0.596				
			0	Edge 3	132072	1720.0	1	49	23.00	21.59	1.660	2.297				
							50	0	23.00	21.77	1.710	2.270				
					132322	1745.0	1	49	23.00	21.96	1.890	2.401				
							50	0	23.00	21.78	1.900	2.516				
					132572	1770.0	1	49	23.00	21.76	1.910	2.541				
							50	0	23.00	21.76	1.910	2.541				
			50	0	23.00	21.70	1.930	2.603	59							

10.19. LTE Band 66 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	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			
Sub 2 Ant.	Head	QPSK	0	Left Touch	132322	1745.0	1	99	20.50	20.09	0.343	0.377			
							50	24	20.50	20.29	0.353	0.370			
				Left Tilt	132322	1745.0	1	99	20.50	20.09	0.411	0.452			
							50	24	20.50	20.29	0.431	0.452			
				Right Touch	132322	1745.0	1	99	20.50	20.09	0.550	0.604			
							50	24	20.50	20.29	0.582	0.611			
			Right Tilt	132322	1745.0	1	99	20.50	20.09	0.615	0.676	60			
						50	24	20.50	20.29	0.648	0.680				
			Body-w orn	QPSK	15	Rear	132322	1745.0	1	99	21.50	21.15	0.179	0.194	61
									50	24	21.50	21.25	0.189	0.200	
	Front	132322				1745.0	1	99	21.50	21.15	0.081	0.087			
							50	24	21.50	21.25	0.084	0.089			
	Hotspot	QPSK	10	Rear	132322	1745.0	1	99	21.50	21.15	0.398	0.431			
							50	24	21.50	21.25	0.420	0.445			
				Front	132322	1745.0	1	99	21.50	21.15	0.138	0.150			
							50	24	21.50	21.25	0.145	0.154			
				Edge 1	132322	1745.0	1	99	21.50	21.15	0.464	0.503	62		
							50	24	21.50	21.25	0.476	0.504			
				Edge 4	132322	1745.0	1	99	21.50	21.15	0.065	0.070			
							50	24	21.50	21.25	0.064	0.068			

10.20. LTE Band 71 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.		
									Tune-up limit	Meas.	Meas.	Scaled			
Main 1 Ant.	Head	QPSK	0	Left Touch	133297	680.5	1	0	25.50	24.64	0.151	0.184			
							50	0	24.50	23.56	0.123	0.153			
				Left Tilt	133297	680.5	1	0	25.50	24.64	0.083	0.102			
							50	0	24.50	23.56	0.068	0.085			
				Right Touch	133297	680.5	1	0	25.50	24.64	0.231	0.282	63		
							50	0	24.50	23.56	0.177	0.220			
			Right Tilt	133297	680.5	1	0	25.50	24.64	0.114	0.139				
						50	0	24.50	23.56	0.085	0.106				
			Body-w orn	QPSK	15	Rear	133297	680.5	1	0	25.50	24.64	0.286	0.349	64
									50	0	24.50	23.56	0.234	0.291	
	Front	133297				680.5	1	0	25.50	24.64	0.232	0.283			
							50	0	24.50	23.56	0.186	0.231			
	Hotspot	QPSK	10	Rear	133297	680.5	1	0	25.50	24.64	0.327	0.399			
							50	0	24.50	23.56	0.245	0.304			
				Front	133297	680.5	1	0	25.50	24.64	0.284	0.346			
							50	0	24.50	23.56	0.220	0.273			
				Edge 2	133297	680.5	1	0	25.50	24.64	0.334	0.407	65		
							50	0	24.50	23.56	0.247	0.307			
				Edge 3	133297	680.5	1	0	25.50	24.64	0.213	0.260			
							50	0	24.50	23.56	0.180	0.223			

10.21. NR Band n5 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.		
										Tune-up limit	Meas.	Meas.	Scaled			
Main 1 Ant.	Head	DFT-s-OFDM	QPSK	0	Left Touch	167300	836.5	1	1	25.50	24.68	0.214	0.258	66		
								50	28	25.50	24.67	0.198	0.240			
					Left Tilt	167300	836.5	1	1	25.50	24.68	0.118	0.143		66	
								50	28	25.50	24.67	0.111	0.134			
					Right Touch	167300	836.5	1	1	25.50	24.68	0.268	0.324		66	
								50	28	25.50	24.67	0.262	0.317			
					Right Tilt	167300	836.5	1	1	25.50	24.68	0.142	0.172		66	
								50	28	25.50	24.67	0.135	0.163			
	CP-OFDM	QPSK	0	Right Touch	167300	836.5	1	1	24.00	23.19	0.178	0.214	66			
	Body-w orn	DFT-s-OFDM	QPSK	15	Rear	167300	836.5	1	1	25.50	24.68	0.268	0.324	67		
								50	28	25.50	24.67	0.228	0.276			
					Front	167300	836.5	1	1	25.50	24.68	0.262	0.316		67	
								50	28	25.50	24.67	0.241	0.292			
	CP-OFDM	QPSK	15	Rear	167300	836.5	1	1	24.00	23.19	0.170	0.205	67			
	Hotspot	DFT-s-OFDM	QPSK	10	Rear	167300	836.5	1	1	25.50	24.68	0.505	0.610	68		
								50	28	25.50	24.67	0.497	0.602			
					Front	167300	836.5	1	1	25.50	24.68	0.265	0.320	68		
								50	28	25.50	24.67	0.260	0.315			
					Edge 2	167300	836.5	1	1	25.50	24.68	0.344	0.415	68		
								50	28	25.50	24.67	0.292	0.353			
Edge 3					167300	836.5	1	1	25.50	24.68	0.363	0.438	68			
							50	28	25.50	24.67	0.362	0.438				
CP-OFDM					QPSK	10	Rear	167300	836.5	1	1	24.00	23.19	0.357	0.430	68

Note(s):

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

10.22. NR Band n12 (15MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.		
										Tune-up limit	Meas.	Meas.	Scaled			
Main 1 Ant.	Head	DFT-s-OFDM	QPSK	0	Left Touch	141500	707.5	1	77	25.00	24.41	0.150	0.172	69		
								36	22	25.00	24.42	0.138	0.158			
					Left Tilt	141500	707.5	1	77	25.00	24.41	0.082	0.094		69	
								36	22	25.00	24.42	0.072	0.083			
					Right Touch	141500	707.5	1	77	25.00	24.41	0.179	0.205		69	
								36	22	25.00	24.42	0.190	0.217			
					Right Tilt	141500	707.5	1	77	25.00	24.41	0.086	0.098		69	
								36	22	25.00	24.42	0.094	0.108			
	CP-OFDM	QPSK	0	Right Touch	141500	707.5	1	1	23.50	22.95	0.133	0.151	69			
	Body-w orn	DFT-s-OFDM	QPSK	15	Rear	141500	707.5	1	77	25.00	24.41	0.232	0.266	70		
								36	22	25.00	24.42	0.241	0.275			
					Front	141500	707.5	1	77	25.00	24.41	0.197	0.226		70	
								36	22	25.00	24.42	0.207	0.237			
	CP-OFDM	QPSK	15	Rear	141500	707.5	1	1	23.50	22.95	0.168	0.191	70			
	Hotspot	DFT-s-OFDM	QPSK	10	Rear	141500	707.5	1	77	25.00	24.41	0.341	0.391	71		
								36	22	25.00	24.42	0.345	0.394			
					Front	141500	707.5	1	77	25.00	24.41	0.206	0.236	71		
								36	22	25.00	24.42	0.213	0.243			
					Edge 2	141500	707.5	1	77	25.00	24.41	0.270	0.309	71		
								36	22	25.00	24.42	0.250	0.286			
Edge 3					141500	707.5	1	77	25.00	24.41	0.259	0.297	71			
							36	22	25.00	24.42	0.245	0.280				
CP-OFDM					QPSK	10	Rear	141500	707.5	1	1	23.50	22.95	0.244	0.277	71

Note(s):

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

10.23. NR Band n25 (40MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	DFT-s-OFDM	QPSK	0	Left Touch	376500	1882.5	1	1	25.00	24.54	0.246	0.273	
								108	54	25.00	24.51	0.228	0.255	
					Left Tilt	376500	1882.5	1	1	25.00	24.54	0.129	0.143	
								108	54	25.00	24.51	0.133	0.149	
		Right Touch	376500	1882.5	1	1	25.00	24.54	0.262	0.291				
					108	54	25.00	24.51	0.278	0.311	72			
		Right Tilt	376500	1882.5	1	1	25.00	24.54	0.147	0.163				
					108	54	25.00	24.51	0.176	0.197				
	CP-OFDM	QPSK	0	Right Touch	376500	1882.5	1	1	23.50	23.02	0.179	0.200		
	Body-w orn	DFT-s-OFDM	QPSK	15	Rear	376500	1882.5	1	1	25.00	24.54	0.431	0.479	
					108	54	25.00	24.51	0.480	0.537	73			
		Front	376500	1882.5	1	1	25.00	24.54	0.398	0.442				
					108	54	25.00	24.51	0.425	0.476				
	CP-OFDM	QPSK	15	Rear	376500	1882.5	1	1	23.50	23.02	0.304	0.340		
	Hotspot	DFT-s-OFDM	QPSK	10	Rear	376500	1882.5	1	1	23.00	22.61	0.595	0.651	
								108	54	23.00	22.60	0.652	0.715	74
					Front	376500	1882.5	1	1	23.00	22.61	0.477	0.522	
								108	54	23.00	22.60	0.520	0.570	
		Edge 3	376500	1882.5	1	1	23.00	22.61	0.524	0.573				
					108	54	23.00	22.60	0.555	0.609				
Edge 4		376500	1882.5	1	1	23.00	22.61	0.220	0.241					
				108	54	23.00	22.60	0.232	0.254					
CP-OFDM	QPSK	10	Rear	376500	1882.5	1	1	23.00	22.56	0.505	0.559			

Note(s):

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

10.24. NR Band n30 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	DFT-s-OFDM	QPSK	0	Left Touch	462000	2310.0	1	50	24.00	23.58	0.145	0.160	75
								25	14	24.00	23.59	0.143	0.157	
					Left Tilt	462000	2310.0	1	50	24.00	23.58	0.050	0.055	
								25	14	24.00	23.59	0.048	0.053	
		Right Touch	462000	2310.0	1	50	24.00	23.58	0.099	0.109				
					25	14	24.00	23.59	0.100	0.109				
		Right Tilt	462000	2310.0	1	50	24.00	23.58	0.095	0.104				
					25	14	24.00	23.59	0.094	0.103				
	CP-OFDM	QPSK	0	Left Touch	462000	2310.0	1	1	22.50	21.55	0.100	0.124		
	Body-w orn	DFT-s-OFDM	QPSK	15	Rear	462000	2310.0	1	50	24.00	23.58	0.230	0.253	
					25	14	24.00	23.59	0.239	0.263	76			
		Front	462000	2310.0	1	50	24.00	23.58	0.230	0.253				
					25	14	24.00	23.59	0.236	0.259				
	CP-OFDM	QPSK	15	Rear	462000	2310.0	1	1	22.50	21.55	0.158	0.197		
	Hotspot	DFT-s-OFDM	QPSK	10	Rear	462000	2310.0	1	50	24.00	23.58	0.517	0.569	
								25	14	24.00	23.59	0.526	0.578	
					Front	462000	2310.0	1	50	24.00	23.58	0.393	0.433	
								25	14	24.00	23.59	0.410	0.451	
		Edge 3	462000	2310.0	1	50	24.00	23.58	0.651	0.717	77			
					25	14	24.00	23.59	0.587	0.645				
Edge 4		462000	2310.0	1	50	24.00	23.58	0.236	0.260					
				25	14	24.00	23.59	0.235	0.258					
CP-OFDM	QPSK	10	Edge 3	462000	2310.0	1	1	22.50	21.55	0.412	0.513			

Note(s):

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

10.25. NR Band n41 (Power class 2) (100MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	DFT-s-OFDM	QPSK	0	Left Touch	518598	2593.0	1	1	21.00	19.50	0.105	0.148	
								135	69	21.00	19.52	0.163	0.229	78
					Left Tilt	518598	2593.0	1	1	21.00	19.50	0.036	0.050	
								135	69	21.00	19.52	0.032	0.044	
					Right Touch	518598	2593.0	1	1	21.00	19.50	0.078	0.110	
								135	69	21.00	19.52	0.086	0.121	
					Right Tilt	518598	2593.0	1	1	21.00	19.50	0.074	0.104	
								135	69	21.00	19.52	0.076	0.106	
	CP-OFDM	QPSK	0	Left Touch	518598	2593.0	1	1	19.50	17.86	0.049	0.071		
	Body-worn	DFT-s-OFDM	QPSK	15	Rear	518598	2593.0	1	1	21.00	19.50	0.222	0.314	
								135	69	21.00	19.52	0.238	0.335	79
					Front	518598	2593.0	1	1	21.00	19.50	0.177	0.250	
								135	69	21.00	19.52	0.194	0.273	
	CP-OFDM	QPSK	15	Rear	518598	2593.0	1	1	19.50	17.86	0.095	0.139		
	Hotspot	DFT-s-OFDM	QPSK	10	Rear	518598	2593.0	1	1	17.00	15.45	0.194	0.277	
								135	69	17.00	15.48	0.217	0.308	80
					Front	518598	2593.0	1	1	17.00	15.45	0.116	0.166	
								135	69	17.00	15.48	0.125	0.177	
					Edge 3	518598	2593.0	1	1	17.00	15.45	0.209	0.299	
								135	69	17.00	15.48	0.210	0.298	
Edge 4					518598	2593.0	1	1	17.00	15.45	0.061	0.088		
							135	69	17.00	15.48	0.058	0.082		
CP-OFDM	QPSK	10	Rear	518598	2592.99	1	1	17.00	15.31	0.193	0.285			

Note(s):

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

10.26. NR Band n48 (Voice/data/SRS0) (100MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	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	
Sub 3 Ant.	Head	DFT-s-OFDM	QPSK	0	Left Touch	641666	3625.0	1	53	14.00	12.78	0.074	0.099	
								50	28	14.00	12.78	0.076	0.101	
					Left Tilt	641666	3625.0	1	53	14.00	12.78	0.064	0.085	
								50	28	14.00	12.78	0.071	0.094	
		Right Touch	641666	3625.0	1	53	14.00	12.78	0.299	0.396				
					50	28	14.00	12.78	0.333	0.441	81			
	Right Tilt	641666	3625.0	1	53	14.00	12.78	0.167	0.221					
				50	28	14.00	12.78	0.189	0.250					
	CP-OFDM	QPSK	0	Right Touch	641666	3625.0	1	1	14.00	12.57	0.267	0.371		
	Body-worn	DFT-s-OFDM	QPSK	15	Rear	641666	3625.0	1	53	15.00	14.26	0.037	0.044	
								50	28	15.00	14.31	0.042	0.049	82
					Front	641666	3625.0	1	53	15.00	14.26	0.036	0.043	
		50	28	15.00				14.31	0.034	0.040				
	CP-OFDM	QPSK	15	Rear	641666	3625.0	1	1	15.00	14.02	0.037	0.046		
	Hotspot	DFT-s-OFDM	QPSK	10	Rear	641666	3625.0	1	53	15.00	14.26	0.066	0.078	
								50	28	15.00	14.31	0.065	0.076	
					Front	641666	3625.0	1	53	15.00	14.26	0.065	0.077	
								50	28	15.00	14.31	0.065	0.076	
Edge 1					641666	3625.0	1	53	15.00	14.26	0.060	0.071		
							50	28	15.00	14.31	0.116	0.136		
Edge 4		641666	3625.0	1	53	15.00	14.26	0.160	0.190					
				50	28	15.00	14.31	0.176	0.206	83				
CP-OFDM	QPSK	10	Edge 4	641666	3625	1	1	15.00	14.31	0.150	0.176			

Note(s):

1. CP-OFDM mode were evaluated at worst configuration of DFT-s-OFDM in standalone exposure conditions.
2. NR Band n48 tested using FTM mode.

10.27. NR Band n48 (SRS1/SRS2/SRS3) (100MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.	
								Tune-up limit	Meas.	Meas.	Scaled		
Main.2 Ant. (SRS 1)	Head	SRS CW	QPSK	0	Left Touch	641666	3625.0	14.50	13.71	0.003	0.004		
					Left Tilt	641666	3625.0	14.50	13.71	0.000	0.000		
					Right Touch	641666	3625.0	14.50	13.71	0.001	0.001		
					Right Tilt	641666	3625.0	14.50	13.71	0.000	0.000		
	Body-w orn	SRS CW	QPSK	15	Rear	641666	3625.0	15.50	14.92	0.045	0.051		
					Front	641666	3625.0	15.50	14.92	0.033	0.038		
	Hotspot	SRS CW	QPSK	10	Rear	641666	3625.0	15.50	14.92	0.097	0.111		
					Front	641666	3625.0	15.50	14.92	0.065	0.074		
					Edge 3	641666	3625.0	15.50	14.92	0.132	0.151	84	
					Edge 4	641666	3625.0	15.50	14.92	0.020	0.023		
	Sub.5 Ant. (SRS 2)	Head	SRS CW	QPSK	0	Left Touch	645332	3680.0	14.00	13.07	0.045	0.056	
						Left Tilt	645332	3680.0	14.00	13.07	0.005	0.007	
Right Touch						645332	3680.0	14.00	13.07	0.147	0.182		
Right Tilt						645332	3680.0	14.00	13.07	0.031	0.039		
Body-w orn		SRS CW	QPSK	15	Rear	645332	3680.0	15.00	14.32	0.016	0.019		
					Front	645332	3680.0	15.00	14.32	0.008	0.009		
Hotspot		SRS CW	QPSK	10	Rear	645332	3680.0	15.00	14.32	0.035	0.040		
					Front	645332	3680.0	15.00	14.32	0.025	0.029		
					Edge 1	645332	3680.0	15.00	14.32	0.006	0.007		
					Edge 4	645332	3680.0	15.00	14.32	0.073	0.085		
Sub.8 Ant. (SRS 3)		Head	SRS CW	QPSK	0	Left Touch	645332	3680.0	13.00	12.18	0.067	0.080	
						Left Tilt	645332	3680.0	13.00	12.18	0.086	0.104	
	Right Touch					645332	3680.0	13.00	12.18	0.127	0.153		
	Right Tilt					645332	3680.0	13.00	12.18	0.151	0.182	85	
	Body-w orn	SRS CW	QPSK	15	Rear	645332	3680.0	15.00	13.57	0.056	0.078	86	
					Front	645332	3680.0	15.00	13.57	0.019	0.027		
	Hotspot	SRS CW	QPSK	10	Rear	645332	3680.0	15.00	13.57	0.098	0.136		
					Front	645332	3680.0	15.00	13.57	0.032	0.045		
					Edge 1	645332	3680.0	15.00	13.57	0.075	0.105		
					Edge 4	645332	3680.0	15.00	13.57	0.021	0.029		

Note(s):

NR Band n48(SRS1/SRS2/SRS3) tested using FTM mode.

10.28. NR Band n66 (40MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	DFT-s-OFDM	QPSK	0	Left Touch	349000	1745.0	1	214	25.00	24.40	0.201	0.231	
								108	54	25.00	24.30	0.217	0.255	
					Left Tilt	349000	1745.0	1	214	25.00	24.40	0.122	0.140	
								108	54	25.00	24.30	0.134	0.157	
					Right Touch	349000	1745.0	1	214	25.00	24.40	0.217	0.249	
								108	54	25.00	24.30	0.239	0.281	87
	Right Tilt	349000	1745.0	1	214	25.00	24.40	0.107	0.123					
				108	54	25.00	24.30	0.109	0.128					
	CP-OFDM	QPSK	0	Right Touch	349000	1745.0	1	1	23.50	22.37	0.168	0.218		
	Body-worn	DFT-s-OFDM	QPSK	15	Rear	349000	1745.0	1	214	25.00	24.40	0.443	0.509	
								108	54	25.00	24.30	0.477	0.560	88
					Front	349000	1745.0	1	214	25.00	24.40	0.421	0.483	
								108	54	25.00	24.30	0.467	0.549	
	CP-OFDM	QPSK	15	Rear	349000	1745.0	1	1	23.50	22.37	0.351	0.455		
	Hotspot	DFT-s-OFDM	QPSK	10	Rear	349000	1745.0	1	214	23.00	22.56	0.560	0.620	
								108	54	23.00	22.51	0.560	0.627	
					Front	349000	1745.0	1	214	23.00	22.56	0.484	0.536	
								108	54	23.00	22.51	0.504	0.564	
					Edge 3	349000	1745.0	1	214	23.00	22.56	0.775	0.858	89
								108	54	23.00	22.51	0.723	0.809	
Edge 4					349000	1745.0	1	214	23.00	22.56	0.257	0.284		
							108	54	23.00	22.51	0.278	0.311		
CP-OFDM	QPSK	10	Edge 3	349000	1745	1	1	23.00	21.95	0.672	0.856			
Antenna	RF Exposure Conditions	Modulation	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		10-g SAR (W/kg)		Plot No.
Main 2 Ant.	Product specific 10-g SAR	DFT-s-OFDM	QPSK	13	Edge 3	349000	1745.0	1	214	25.00	24.40	0.486	0.558	
								108	54	25.00	24.30	0.467	0.549	
				0	Edge 3	349000	1745.0	1	214	23.00	22.55	1.710	1.897	90
								108	54	23.00	22.51	1.320	1.478	
CP-OFDM	QPSK	0	Edge 3	349000	1745.0	1	1	23.00	22.25	1.400	1.664			

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

10.29. NR Band n71 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	DFT-s-OFDM	QPSK	0	Left Touch	136100	680.5	1	53	25.50	24.71	0.181	0.217	
								50	28	25.50	24.57	0.178	0.221	
					Left Tilt	136100	680.5	1	53	25.50	24.71	0.104	0.125	
								50	28	25.50	24.57	0.101	0.125	
					Right Touch	136100	680.5	1	53	25.50	24.71	0.197	0.236	
								50	28	25.50	24.57	0.204	0.253	91
	Right Tilt	136100	680.5	1	53	25.50	24.71	0.126	0.151					
				50	28	25.50	24.57	0.107	0.133					
	CP-OFDM	QPSK	0	Right Touch	136100	680.5	1	1	24.00	22.90	0.097	0.125		
	Body-worn	DFT-s-OFDM	QPSK	15	Rear	136100	680.5	1	53	25.50	24.71	0.301	0.361	
								50	28	25.50	24.57	0.296	0.367	92
					Front	136100	680.5	1	53	25.50	24.71	0.248	0.297	
								50	28	25.50	24.57	0.241	0.299	
	CP-OFDM	QPSK	15	Rear	136100	680.5	1	1	24.00	22.90	0.156	0.201		
	Hotspot	DFT-s-OFDM	QPSK	10	Rear	136100	680.5	1	53	25.50	24.71	0.290	0.348	
								50	28	25.50	24.57	0.283	0.351	
					Front	136100	680.5	1	53	25.50	24.71	0.258	0.309	
								50	28	25.50	24.57	0.250	0.310	
Edge 2					136100	680.5	1	53	25.50	24.71	0.345	0.414	93	
							50	28	25.50	24.57	0.323	0.400		
Edge 3					136100	680.5	1	53	25.50	24.71	0.222	0.266		
							50	28	25.50	24.57	0.183	0.227		
CP-OFDM	QPSK	10	Edge 2	136100	680.5	1	1	24.00	22.90	0.235	0.303			

Note(s):

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

10.30. NR Band n77 (Voice/data/SRS0) (100MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	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		
Sub 3 Ant.	Head	DFT-s-OFDM	QPSK	0	Left Touch	633334	3500.0	1	271	16.00	15.23	0.142	0.170		
								135	138	16.00	14.93	0.145	0.186		
					Left Tilt	633334	3500.0	1	271	16.00	15.23	0.136	0.162		
								135	138	16.00	14.93	0.141	0.180		
					Right Touch	633334	3500.0	1	271	16.00	15.23	0.403	0.481		
								135	138	16.00	14.93	0.426	0.545	94	
		Right Tilt	662000	3930.0	1	271	16.00	15.83	0.292	0.304					
					135	138	16.00	15.84	0.267	0.277					
			633334	3500.0	1	271	16.00	15.23	0.257	0.307					
					135	138	16.00	14.93	0.253	0.324					
			CP-OFDM	QPSK	0	Right Touch	633334	3500.0	1	1	16.00	15.20	0.431	0.518	
		Body-worn	DFT-s-OFDM	QPSK	15	Rear	633334	3500.0	1	271	16.00	15.23	0.089	0.106	
								135	138	16.00	14.93	0.096	0.123	95	
	662000					3930.0	1	271	16.00	15.83	0.093	0.097			
				135	138	16.00	15.84	0.093	0.096						
	Front		633334	3500.0	1	271	16.00	15.23	0.063	0.075					
					135	138	16.00	14.93	0.062	0.079					
		CP-OFDM	QPSK	15	Rear	633334	3500.0	1	1	16.00	15.20	0.098	0.118		
	Hotspot	DFT-s-OFDM	QPSK	10	Rear	633334	3500.0	1	271	16.00	15.23	0.160	0.191		
								135	138	16.00	14.93	0.160	0.205		
					Front	633334	3500.0	1	271	16.00	15.23	0.125	0.149		
								135	138	16.00	14.93	0.112	0.143		
					Edge 1	633334	3500.0	1	271	16.00	15.23	0.105	0.125		
								135	138	16.00	14.93	0.120	0.154		
Edge 4		633334	3500.0	1	271	16.00	15.23	0.357	0.426						
				135	138	16.00	14.93	0.341	0.436	96					
		662000	3930.0	1	271	16.00	15.83	0.313	0.325						
				135	138	16.00	15.84	0.302	0.313						
	CP-OFDM	QPSK	10	Edge 4	633334	3500	1	1	16.00	15.20	0.314	0.378			

Note(s):

3. NR Band n77-DoD are tested at worst configuration of NR Band n77 band.
4. CP-OFDM mode were evaluated at worst configuration of DFT-s-OFDM in standalone exposure conditions.
5. NR Band n77 tested using FTM mode.

10.31. NR Band n77 (SRS1/SRS2/SRS3) (100MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main.2 Ant. (SRS 1)	Head	SRS CW	QPSK	0	Left Touch	662000	3930.0	16.00	15.88	<0.001	<0.001	
					Left Tilt	662000	3930.0	16.00	15.88	<0.001	<0.001	
					Right Touch	633334	3500.0	14.00	12.86	<0.001	<0.001	
						662000	3930.0	16.00	15.88	0.005	0.005	
	Right Tilt	662000	3930.0	16.00	15.88	0.001	0.001					
	Body-worn	SRS CW	QPSK	15	Rear	633334	3500.0	14.00	12.86	0.005	0.007	
						662000	3930.0	16.00	15.88	0.023	0.023	
					Front	662000	3930.0	16.00	15.88	0.021	0.021	
	Hotspot	SRS CW	QPSK	10	Rear	662000	3930.0	16.00	15.88	0.022	0.023	
					Front	662000	3930.0	16.00	15.88	0.046	0.047	
					Edge 3	633334	3500.0	14.00	12.86	0.020	0.026	
						662000	3930.0	16.00	15.88	0.130	0.134	
Edge 4					662000	3930.0	16.00	15.88	0.056	0.058		
Sub.5 Ant. (SRS 2)	Head	SRS CW	QPSK	0	Left Touch	633334	3500.0	16.00	15.24	0.173	0.206	
					Left Tilt	633334	3500.0	16.00	15.24	0.050	0.060	
					Right Touch	633334	3500.0	16.00	15.24	0.340	0.405	97
						650000	3750.0	16.00	14.78	0.103	0.136	
	Right Tilt	633334	3500.0	16.00	15.24	0.076	0.091					
	Body-worn	SRS CW	QPSK	15	Rear	633334	3500.0	16.00	15.24	0.055	0.066	98
						650000	3750.0	16.00	14.78	0.017	0.023	
					Front	633334	3500.0	16.00	15.24	0.035	0.042	
	Hotspot	SRS CW	QPSK	10	Rear	633334	3500.0	16.00	15.24	0.136	0.162	
					Front	633334	3500.0	16.00	15.24	0.057	0.068	
					Edge 1	633334	3500.0	16.00	15.24	0.004	0.005	
						633334	3500.0	16.00	15.24	0.336	0.400	99
Edge 4					650000	3750.0	16.00	14.78	0.032	0.042		
Sub.8 Ant. (SRS 3)	Head	SRS CW	QPSK	0	Left Touch	650000	3750.0	16.00	14.55	0.094	0.131	
					Left Tilt	650000	3750.0	16.00	14.55	0.103	0.144	
					Right Touch	650000	3750.0	16.00	14.55	0.172	0.240	
					Right Tilt	633334	3500.0	16.00	14.13	0.078	0.120	
	650000	3750.0	16.00	14.55		0.193	0.269					
	Body-worn	SRS CW	QPSK	15	Rear	633334	3500.0	16.00	14.13	<0.001	<0.001	
						650000	3750.0	16.00	14.55	<0.001	<0.001	
					Front	650000	3750.0	16.00	14.55	<0.001	<0.001	
	Hotspot	SRS CW	QPSK	10	Rear	633334	3500.0	16.00	14.13	<0.001	<0.001	
						650000	3750.0	16.00	14.55	0.005	0.007	
					Front	650000	3750.0	16.00	14.55	<0.001	<0.001	
					Edge 1	650000	3750.0	16.00	14.55	0.004	0.006	
Edge 4					650000	3750.0	16.00	14.55	<0.001	<0.001		

Note(s):

1. NR Band n77-DoD are tested at worst configuration of NR Band n77 band.
2. NR Band n77(SRS1/SRS2/SRS3) tested using FTM mode.

10.32. Wi-Fi (DTS Band)

DTS SISO SAR results

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.			
											Tune-up limit	Meas.	Meas.	Scaled					
SISO Ant.1	2.4GHz	802.11b 1 Mbps	Head	On	0	Left Touch	6	2437.0	0.056	98.7%	13.00	12.21							
						Left Tilt	6	2437.0	0.047	98.7%	13.00	12.21							
						Right Touch	6	2437.0	0.300	98.7%	13.00	12.21	0.213	0.259	1	100			
						Right Tilt	6	2437.0	0.104	98.7%	13.00	12.21							
			Body-worn	Off	15	Rear	6	2437.0	0.243	98.7%	19.00	18.57	0.218	0.244	1	101			
						Front	6	2437.0	0.127	98.7%	19.00	18.57							
			Hotspot	Off	10	Rear	6	2437.0	0.527	98.7%	19.00	18.57	0.414	0.463		102			
						Front	6	2437.0	0.253	98.7%	19.00	18.57							
						Edge 1	6	2437.0	0.090	98.7%	19.00	18.57							
						Edge 4	6	2437.0	0.426	98.7%	19.00	18.57	0.345	0.386	2				
			SISO Ant.2	2.4GHz	802.11b 1 Mbps	Head	On	0	Left Touch	6	2437.0	0.028	98.7%	13.00	11.87				
									Left Tilt	6	2437.0	0.031	98.7%	13.00	11.87				
Right Touch	6	2437.0							0.191	98.7%	13.00	11.87	0.158	0.208	1				
Right Tilt	6	2437.0							0.056	98.7%	13.00	11.87							
Body-worn	Off	15				Rear	6	2437.0	0.063	98.7%	19.00	18.38	0.052	0.061	1				
						Front	6	2437.0	0.033	98.7%	19.00	18.38							
Hotspot	Off	10				Rear	6	2437.0	0.144	98.7%	19.00	18.38	0.116	0.136	1				
						Front	6	2437.0	0.067	98.7%	19.00	18.38							
						Edge 1	6	2437.0	0.133	98.7%	19.00	18.38							
						Edge 4	6	2437.0	0.028	98.7%	19.00	18.38							

Note(s):

1. When the Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
2. Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.
3. Testing for a second channel was required because the reported SAR for this test position was > 0.8 or 2.0 W/kg (1-g or 10-g respectively).
4. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
5. SAR testing is not required for OFDM mode(s) when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

10.33. Wi-Fi (U-NII Bands)

U-NII 2A Results

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Note	Plot No.			
											Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled					
SISO Ant.1	5.3 GHz U-NII 2A	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	58	5290.0	0.033	95.2%	11.00	10.29									
						Left Tilt	58	5290.0	0.080	95.2%	11.00	10.29									
						Right Touch	58	5290.0	0.151	95.2%	11.00	10.29	0.111	0.137					1	103	
						Right Tilt	58	5290.0	0.064	95.2%	11.00	10.29									
		802.11a 6 Mbps	Body-worn	Off	15	Rear	56	5280.0	0.236	96.0%	17.50	16.71	0.180	0.225					1	104	
						Front	56	5280.0	0.148	96.0%	17.50	16.71									
			Product Specific 10-g	Off	0	Rear	56	5280.0	2.220	96.0%	17.50	16.71			0.450	0.562			2		
						Front	56	5280.0	1.630	96.0%	17.50	16.71									
	802.11a 6 Mbps	Product Specific 10-g	Off	0	Edge 1	56	5280.0	0.620	96.0%	17.50	16.71										
					Edge 4	56	5280.0	6.920	96.0%	17.50	16.71					1.110	1.387			105	
SISO Ant.2	5.3 GHz U-NII 2A	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	58	5290.0	0.009	95.2%	11.00	9.94									
						Left Tilt	58	5290.0	0.016	95.2%	11.00	9.94									
						Right Touch	58	5290.0	0.017	95.2%	11.00	9.94	0.005	0.007					1		
						Right Tilt	58	5290.0	0.011	95.2%	11.00	9.94									
		802.11a 6 Mbps	Body-worn	Off	15	Rear	60	5300.0	0.134	96.0%	17.50	16.13	0.093	0.133					1		
						Front	60	5300.0	0.004	96.0%	17.50	16.13									
			Product Specific 10-g	Off	0	Rear	60	5300.0	1.700	96.0%	17.50	16.13					0.317	0.453	1		
						Front	60	5300.0	0.444	96.0%	17.50	16.13									
	802.11a 6 Mbps	Product Specific 10-g	Off	0	Edge 1	60	5300.0	0.414	96.0%	17.50	16.13										
					Edge 4	60	5300.0	0.060	96.0%	17.50	16.13										

Note(s):

1. When the Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
2. Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.
3. Testing for a second channel was required because the reported SAR for this test position was > 0.8 or 2.0 W/kg (1-g or 10-g respectively).
4. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

U-NII 2C Results

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Note	Plot No.			
											Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled					
SISO Ant.1	5.5 GHz U-NII 2C	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	106	5530.0	0.010	95.2%	11.00	10.20									
						Left Tilt	106	5530.0	0.021	95.2%	11.00	10.20									
						Right Touch	106	5530.0	0.096	95.2%	11.00	10.20	0.057	0.072					1	106	
						Right Tilt	106	5530.0	0.043	95.2%	11.00	10.20									
		802.11a 6 Mbps	Body-worn	Off	15	Rear	144	5720.0	0.041	96.0%	17.50	16.57	0.027	0.035					1		
						Front	144	5720.0	0.030	96.0%	17.50	16.57									
			Product Specific 10-g	Off	0	Rear	144	5720.0	0.904	96.0%	17.50	16.57				0.143	0.185		2		
						Front	144	5720.0	1.050	96.0%	17.50	16.57									
	SISO Ant.2	5.5 GHz U-NII 2C	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	138	5690.0	0.025	95.2%	11.00	10.39								
							Left Tilt	138	5690.0	0.016	95.2%	11.00	10.39								
							Right Touch	138	5690.0	0.044	95.2%	11.00	10.39								
							Right Tilt	138	5690.0	0.060	95.2%	11.00	10.39	0.038	0.046					1	
802.11a 6 Mbps		Body-worn	Off	15	Rear	120	5600.0	0.124	96.0%	17.50	16.54	0.095	0.123					1	107		
					Front	120	5600.0	0.032	96.0%	17.50	16.54										
		Product Specific 10-g	Off	0	Rear	120	5600.0	2.690	96.0%	17.50	16.54				0.613	0.797		1	108		
					Front	120	5600.0	0.382	96.0%	17.50	16.54										
						Edge 1	120	5600.0	0.917	96.0%	17.50	16.54									
						Edge 4	120	5600.0	0.197	96.0%	17.50	16.54									

Note(s):

1. When the Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
2. Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.
3. Testing for a second channel was required because the reported SAR for this test position was > 0.8 or 2.0 W/kg (1-g or 10-g respectively).
4. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

U-NII 3 Results

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.	
											Tune-up limit	Meas.	Meas.	Scaled			
SISO Ant.1	5.8 GHz U-NII 3	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	155	5775.0	0.018	95.2%	11.00	10.09					
						Left Tilt	155	5775.0	0.018	95.2%	11.00	10.09					
						Right Touch	155	5775.0	0.116	95.2%	11.00	10.09	0.081	0.105	1	109	
						Right Tilt	155	5775.0	0.052	95.2%	11.00	10.09					
		802.11a 6 Mbps	Body-worn	Off	15	Rear	157	5785.0	0.045	96.0%	17.50	16.77	0.023	0.028	1		
						Front	157	5785.0	0.032	96.0%	17.50	16.77					
			Hotspot	Off	10	Rear	149	5745.0	0.057	96.0%	17.50	16.54	0.044	0.057	4		
						Front	149	5745.0	0.044	96.0%	17.50	16.54					
							Edge 1	149	5745.0	0.029	96.0%	17.50	16.54				
							Edge 4	149	5745.0	0.160	96.0%	17.50	16.54	0.099	0.129	1	
	SISO Ant.2	5.8 GHz U-NII 3	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	155	5775.0	0.021	94.9%	11.00	10.59				
Left Tilt							155	5775.0	0.027	94.9%	11.00	10.59					
Right Touch							155	5775.0	0.059	94.9%	11.00	10.59					
Right Tilt							155	5775.0	0.066	94.9%	11.00	10.59	0.039	0.045	1		
802.11a 6 Mbps			Body-worn	Off	15	Rear	157	5785.0	0.091	96.0%	17.50	16.78	0.055	0.068	1	110	
						Front	157	5785.0	0.021	96.0%	17.50	16.78					
			Hotspot	Off	10	Rear	149	5745.0	0.166	96.0%	17.50	16.65	0.129	0.163	1	111	
						Front	149	5745.0	0.035	96.0%	17.50	16.65					
							Edge 1	149	5745.0	0.097	96.0%	17.50	16.65				
							Edge 4	149	5745.0	0.020	96.0%	17.50	16.65				

Note(s):

1. When the Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
2. Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.
3. Testing for a second channel was required because the reported SAR for this test position was > 0.8 or 2.0 W/kg (1-g or 10-g respectively).
4. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

10.34. Bluetooth

Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
2.4GHz	EDR	Head	On	0	Left Touch	0	2402.0	77.1%	13.00	12.45	0.019	0.022	
					Left Tilt	0	2402.0	77.1%	13.00	12.45	0.014	0.016	
					Right Touch	0	2402.0	77.1%	13.00	12.45	0.105	0.121	112
					Right Tilt	0	2402.0	77.1%	13.00	12.45	0.055	0.063	
	GFSK (BDR)	Body-worn	Off	15	Rear	39	2441.0	77.1%	15.50	15.27	0.028	0.030	113
					Front	39	2441.0	77.1%	15.50	15.27	0.018	0.019	
		Hotspot	Off	10	Rear	39	2441.0	77.1%	15.50	15.27	0.075	0.080	114
					Front	39	2441.0	77.1%	15.50	15.27	0.039	0.041	
					Edge 1	39	2441.0	77.1%	15.50	15.27	0.014	0.015	
					Edge 4	39	2441.0	77.1%	15.50	15.27	0.075	0.080	115

10.35. NFC

Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Test setup		Freq. (MHz)	10-g SAR (W/kg)	Plot No.
				Type	Bitrate		Meas.	
PBRS	Product Specific 10-g	0	Rear	A	106	13.6	0.023	
				B	106	13.6	0.018	
				F	212	13.6	0.026	116
				F	424	13.6	0.018	
			Front	F	212	13.6	0.000	
			Edge 1	F	212	13.6	0.000	
			Edge 4	F	212	13.6	0.000	

Note(s):

NFC SAR tested using worst configuration in all test positions.

11. SAR Measurement Variability

In accordance with published RF Exposure KDB 865664 D01 SAR measurement 100 MHz to 6 GHz. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

- 1) Repeated measurement is not required when the original highest measured SAR is <0.8 or 2 W/kg (1-g or 10-g respectively); steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.8 or 2 W/kg (1-g or 10-g respectively), repeat that measurement once.
- 3) Perform a second repeated measurement only if the **ratio of largest to smallest SAR** for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 or 3.6 W/kg ($\sim 10\%$ 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 ≥ 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 .

All measured SAR results are below 0.8 W/kg. So Repeated SAR test is not required.

12. Simultaneous Transmission SAR Analysis

Simultaneous Transmission Condition

RF Exposure Condition	Item	Simultaneous transmission scenarios				
Head & Body-w orn & Hotspot & Phablet-10g	1	WWAN (2G/3G/LTE/NR)	+	(DTS Ant.1 or DTS Ant.2)		
	2	WWAN (2G/3G/LTE/NR)	+	DTS MIMO		
	3	WWAN (2G/3G/LTE/NR)	+	(UNII Ant.1 or UNII Ant.2)		
	4	WWAN (2G/3G/LTE/NR)	+	UNII MIMO		
	5	WWAN (2G/3G/LTE/NR)	+	BT		
	6	WWAN (2G/3G/LTE/NR)	+	BT	+	(UNII Ant.1 or UNII Ant.2)
	7	WWAN (2G/3G/LTE/NR)	+	BT	+	UNII MIMO
	8	ENDC (LTE + NR)	+	(DTS Ant.1 or DTS Ant.2)		
	9	ENDC (LTE + NR)	+	DTS MIMO		
	10	ENDC (LTE + NR)	+	(UNII Ant.1 or UNII Ant.2)		
	11	ENDC (LTE + NR)	+	UNII MIMO		
	12	ENDC (LTE + NR)	+	BT		
	13	ENDC (LTE + NR)	+	BT	+	(UNII Ant.1 or UNII Ant.2)
	14	ENDC (LTE + NR)	+	BT	+	UNII MIMO
Phablet-10g	15	Scenatios item (1-14)		+	NFC	

Notes:

1. DTS supports Wi-Fi Direct, Hotspot and VoIP.
2. U-NII supports Wi-Fi Direct, Hotspot and VoIP.
3. GPRS, W-CDMA, LTE, NR supports Hotspot and VoIP
4. U-NII Radio can transmit simultaneously with Bluetooth Radio.
5. NR Radio support to both SA and NSA (ENDC) Radio.
6. BT tethering is considered about each RF exposure conditions.
7. NFC can transmit simultaneously with other Radios in Phablet-10g condition.

Note(s):

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

Simultaneous transmission SAR test exclusion considerations

KDB 447498 D04 Interim General RF Exposure Guidance provides two procedures for determining simultaneous transmission SAR test exclusion: Sum of SAR

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.

12.1. Sum of the SAR for WWAN & Wi-Fi & BT & NFC

RF Exposure	Test Position	Standalone SAR (W/kg)									Sum of SAR (W/kg)				
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT	NFC	WWAN + DTS MIMO	WWAN + UNII MIMO	WWAN + BT	WWAN + BT + UNII MIMO	WWAN + NFC + UNII MIMO
		1	2	3	4	5	6	7	8	9	1+4 (1+3)	1+7 (1+5/1+6)	1+8	1+7+8 (1+5+8/1+6+8)	1+7+9 (1+5+9/1+6+9)
Head (1-g SAR)	All positions	0.811	0.259	0.208	0.467	0.137	0.046	0.183	0.121		1.278	0.994	0.932	1.115	
Body-Worn (1-g SAR)	All positions	0.666	0.244	0.061	0.305	0.225	0.133	0.358	0.030		0.971	1.024	0.696	1.054	
Hotspot (1-g SAR)	Rear	0.838	0.463	0.136	0.599	0.057	0.163	0.220	0.080		1.437	1.058	0.918	1.138	
	Front	0.679	0.463	0.136	0.599	0.129	0.163	0.292	0.041		1.278	0.971	0.720	1.012	
	Edge 1	0.504	0.463	0.136	0.599	0.129	0.163	0.292	0.015		1.103	0.796	0.519	0.811	
	Edge 2	0.503													
	Edge 3	1.058													
	Edge 4	0.436	0.386	0.136	0.522	0.129	0.163	0.292	0.080		0.958	0.728	0.516	0.808	
Product Specific (10-g SAR)	Rear					0.562	0.797	1.359		0.026		1.359			1.385
	Front					1.387	0.797	2.184		0.000		2.184			2.184
	Edge 1					1.387	0.797	2.184		0.000		2.184			2.184
	Edge 2														
	Edge 3	2.603										2.603			2.603
	Edge 4					1.387	0.797	2.184		0.000		2.184			2.184

Note(s):

- Green value is estimated SAR value.
- Blue value is sum SAR of (DTS Ant.1+Ant.2 or UNII Ant.1 + Ant.2).
- UNII MIMO SAR are using the sum of UNII Ant.1 and UNII Ant.2 in All RF exposure conditions.
So Simultaneous transmission scenario (1+7 / 1+7+8) contains to (1+5 & 1+6) / (1+5+8 & 1+6+8) respectively.
- DTS MIMO SAR are using the sum of DTS Ant.1 and DTS Ant.2 in All RF exposure conditions.
So Simultaneous transmission scenario (1+4) contains to (1+2 & 1+3).
- WWAN SAR value used highest SAR of WWAN's SAR results for satisfy to simultaneous transmission with Wi-Fi and BT.

Conclusion:

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

Appendixes

Refer to separated files for the following appendixes.

4790632108-S1 FCC Report SAR_App A_Photos & Ant. Locations

4790632108-S1 FCC Report SAR_App B_Highest SAR Test Plots

4790632108-S1 FCC Report SAR_App C_System Check Plots

4790632108-S1 FCC Report SAR_App D_SAR Tissue Ingredients

4790632108-S1 FCC Report SAR_App E_Probe Cal. Certificates

4790632108-S1 FCC Report SAR_App F_Dipole Cal. Certificates

4790632108-S1 FCC Report SAR_App G_Proximity Sensor feature

4790632108-S1 FCC Report SAR_App H_LTE Carrier Aggregation

END OF REPORT