



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 and NFC

MODEL NUMBER: SM-A536E/DS, SM-A536E

FCC ID: A3LSMA536E

REPORT NUMBER: 4790160849-S1V2

ISSUE DATE: 1/6/2022

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

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

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



Testing Laboratory

TL-637

Revision History

Rev.	Date	Revisions	Revised By
V1	12/30/2021	Initial Issue	--
V2	1/6/2022	Revised Sec 6.4	Jeongyeon Won

Table of Contents

1.	Attestation of Test Results	6
1.1.	<i>The Highest Reported SAR for RF exposure conditions for each bands</i>	<i>7</i>
2.	Test Specification, Methods and Procedures.....	8
3.	Facilities and Accreditation	8
4.	SAR Measurement System & Test Equipment	9
4.1.	<i>SAR Measurement System.....</i>	<i>9</i>
4.2.	<i>SAR Scan Procedures</i>	<i>10</i>
4.3.	<i>Test Equipment.....</i>	<i>12</i>
5.	Measurement Uncertainty.....	13
5.1.	<i>DECISION RULE.....</i>	<i>13</i>
6.	Device Under Test (DUT) Information	13
6.1.	<i>DUT Description</i>	<i>13</i>
6.2.	<i>Wireless Technologies.....</i>	<i>14</i>
6.3.	<i>Nominal and Maximum Output Power.....</i>	<i>15</i>
6.4.	<i>Power Back-off Operation.....</i>	<i>18</i>
6.5.	<i>General LTE SAR Test and Reporting Considerations.....</i>	<i>19</i>
6.6.	<i>LTE (TDD) Considerations.....</i>	<i>21</i>
6.7.	<i>NR (Sub 6GHz) SAR Test and Reporting Considerations.....</i>	<i>22</i>
7.	RF Exposure Conditions (Test Configurations)	23
8.	Dielectric Property Measurements & System Check	24
8.1.	<i>Dielectric Property Measurements</i>	<i>24</i>
8.2.	<i>System Check.....</i>	<i>32</i>
9.	Conducted Output Power Measurements.....	35
9.1.	<i>GSM</i>	<i>35</i>
9.2.	<i>W-CDMA</i>	<i>37</i>
9.3.	<i>LTE.....</i>	<i>43</i>
9.4.	<i>NR (Sub 6GHz).....</i>	<i>78</i>
9.5.	<i>Wi-Fi 2.4 GHz (DTS Band).....</i>	<i>94</i>
9.6.	<i>Wi-Fi 5GHz (U-NII Bands).....</i>	<i>95</i>
9.7.	<i>Bluetooth</i>	<i>96</i>
10.	Measured and Reported (Scaled) SAR Results.....	98
10.1.	<i>GSM 850.....</i>	<i>100</i>
10.2.	<i>GSM 1900.....</i>	<i>100</i>

10.3.	WCDMA Band II	101
10.4.	WCDMA Band IV.....	101
10.5.	WCDMA Band V	102
10.6.	LTE Band 2 (20MHz Bandwidth)	102
10.7.	LTE Band 12 (10MHz Bandwidth)	103
10.8.	LTE Band 13 (10MHz Bandwidth)	104
10.9.	LTE Band 26 (15MHz Bandwidth)	104
10.10.	LTE Band 41 (20MHz Bandwidth)	105
10.11.	LTE Band 66 (20MHz Bandwidth)	105
10.12.	NR Band n5 (20MHz Bandwidth).....	106
10.13.	NR Band n66 (20MHz Bandwidth).....	107
10.14.	Wi-Fi (DTS Band).....	109
10.15.	Bluetooth.....	109
10.16.	Wi-Fi (U-NII Bands).....	110
11.	SAR Measurement Variability.....	111
12.	Simultaneous Transmission SAR Analysis.....	112
12.1.	Sum of the SAR for GSM850 & Wi-Fi & BT	115
12.2.	Sum of the SAR for GSM1900 & Wi-Fi & BT	115
12.3.	Sum of the SAR for WCDMA Band II & Wi-Fi & BT	116
12.4.	Sum of the SAR for WCDMA Band IV & Wi-Fi & BT.....	117
12.5.	Sum of the SAR for WCDMA Band V & Wi-Fi & BT.....	118
12.6.	Sum of the SAR for LTE Band 2 Main Ant. 1 & Wi-Fi & BT.....	118
12.7.	Sum of the SAR for LTE Band 12 & Wi-Fi & BT	119
12.8.	Sum of the SAR for LTE Band 13 & Wi-Fi & BT	119
12.9.	Sum of the SAR for LTE Band 26 & Wi-Fi & BT	120
12.10.	Sum of the SAR for LTE Band 41 & Wi-Fi & BT	120
12.11.	Sum of the SAR for LTE Band 66 Main Ant. 1 & Wi-Fi & BT.....	121
12.12.	Sum of the SAR for NR Band n5 & Wi-Fi & BT.....	122
12.13.	Sum of the SAR for NR Band n66 Main Ant.1 & Wi-Fi & BT	122
12.14.	Sum of the SAR for ENDC(LTE B2 Sub Ant. 2 + NR Bn5) & Wi-Fi & BT	123
12.15.	Sum of the SAR for ENDC(LTE B66 Sub Ant. 2 + NR Bn5) & Wi-Fi & BT	123
12.16.	Sum of the SAR for ENDC(LTE B2 Main Ant. 1 + NR Bn66 Sub Ant. 2) & Wi-Fi & BT	124
12.17.	Sum of the SAR for ENDC(LTE B5 + NR Bn66 Sub Ant. 2) & Wi-Fi & BT	125
12.18.	Volume Scan Results	126
Appendixes	127
	4790160849-S1 FCC Report SAR_App A_Photos & Ant. Locations	127

4790160849-S1 FCC Report SAR_App B_Highest SAR Test Plots 127

4790160849-S1 FCC Report SAR_App C_System Check Plots 127

4790160849-S1 FCC Report SAR_App D_SAR Tissue Ingredients..... 127

4790160849-S1 FCC Report SAR_App E_Probe Cal. Certificates..... 127

4790160849-S1 FCC Report SAR_App F_Dipole Cal. Certificates 127



4790160849-S1 FCC Report SAR_App G_Proximity Sensor feature..... 127

4790160849-S1 FCC Report SAR_App H_LTE Carrier Aggregation 127

4790160849-S1 FCC Report SAR_App I_SPLSR criteria plots..... 127

4790160849-S1 FCC Report SAR_App J_Volume Scan Results..... 127

1. Attestation of Test Results

Applicant Name		SAMSUNG ELECTRONICS CO.,LTD.			
FCC ID		A3LSMA536E			
Model Number		SM-A536E/DS, SM-A536E			
Applicable Standards		FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures			
Exposure Category		SAR Limits (W/Kg)			
		Peak spatial-average (1g of tissue)		Product Specific 10g (10g of tissue)	
General population / Uncontrolled exposure		1.6		4.0	
RF Exposure Conditions		Equipment Class - The Highest Reported SAR (W/kg)			
		PCE	DTS	NII	DSS
Head		0.93	0.66	0.29	0.16
Body-worn		1.03	< 0.10	0.10	< 0.10
Hotspot		1.21	0.14	0.19	0.11
Product Specific 10g		3.17	N/A	0.72	N/A
Simultaneous TX	Head	1.59	1.59	1.47	1.47
	Body-worn	1.56	1.25	1.56	1.56
	Hotspot	1.50	1.34	1.50	1.50
	Product Specific 10g	3.89	N/A	3.89	N/A
Date Tested		10/29/2021 to 12/29/2021			
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 Senior Laboratory Technician UL Korea, Ltd. Suwon Laboratory		

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

Equipment Class	Band	Antenna	The Highest Reported SAR (W/kg)			
			1g of tissue			10g of tissue
			Head Exposure condition	Body-worn Exposure condition	Hotspot Exposure condition	Product Specific Exposure condition
PCE	GSM 850	Main.1 Ant.	0.316	0.308	0.781	N/A
	GSM 1900	Main.1 Ant.	0.055	0.512	0.517	1.511
	WCDMA Band II	Main.1 Ant.	0.185	0.871	0.710	1.814
	WCDMA Band IV	Main.1 Ant.	0.117	0.740	1.025	2.361
	WCDMA Band V	Main.1 Ant.	0.393	0.438	0.930	N/A
	LTE Band 2	Main.1 Ant.	0.073	0.667	0.659	1.626
	LTE Band 2	Sub.2 Ant.	0.634	0.187	0.324	N/A
	LTE Band 4	Main.1 Ant.	N/A	N/A	N/A	N/A
	LTE Band 5	Main.1 Ant.	N/A	N/A	N/A	N/A
	LTE Band 12	Main.1 Ant.	0.172	0.247	0.321	N/A
	LTE Band 13	Main.1 Ant.	0.279	0.308	0.735	N/A
	LTE Band 17	Main.1 Ant.	N/A	N/A	N/A	N/A
	LTE Band 26	Main.1 Ant.	0.259	0.359	0.686	N/A
	LTE Band 66	Main.1 Ant.	0.079	0.853	1.210	1.706
	LTE Band 66	Sub.2 Ant.	0.572	0.433	0.593	N/A
	LTE Band 41	Main.2 Ant.	0.133	0.198	0.406	N/A
	NR Band n5	Main.1 Ant.	0.220	0.262	0.502	N/A
	NR Band n66	Main.1 Ant.	0.090	1.033	1.144	1.416
	NR Band n66	Sub.2 Ant.	0.925	0.576	0.790	3.172
DTS	2.4GHz WLAN	All	0.663	0.011	0.137	N/A
UNII	5GHz WLAN	All	0.294	0.097	0.188	0.722
DSS	Bluetooth	All	0.159	0.043	0.109	N/A

2. Test Specification, Methods and Procedures

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

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 648474 D04 Handset SAR v01r03
- 690783 D01 SAR Listings on Grants v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02
- 941225 D06 Hotspot Mode v02r01
- 941225 D07 UMPC Mini Tablet v01r02
- 971168 D01 Power Meas License Digital System v03r01

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

- [TCB workshop](#) October, 2014; RF Exposure Procedures Update (Overlapping LTE Bands)
- [TCB workshop](#) October, 2014; RF Exposure Procedures Update (Other LTE Considerations)
- [TCB workshop](#) October, 2016; RF Exposure Procedures (Bluetooth Duty Factor)
- [TCB workshop](#) October, 2016; RF Exposure Procedures (DUT Holder Perturbations)
- [TCB workshop](#) May, 2017; RF Exposure Procedures (LTE Test Conditions)
- [TCB workshop](#) 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)

3. Facilities and Accreditation

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

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

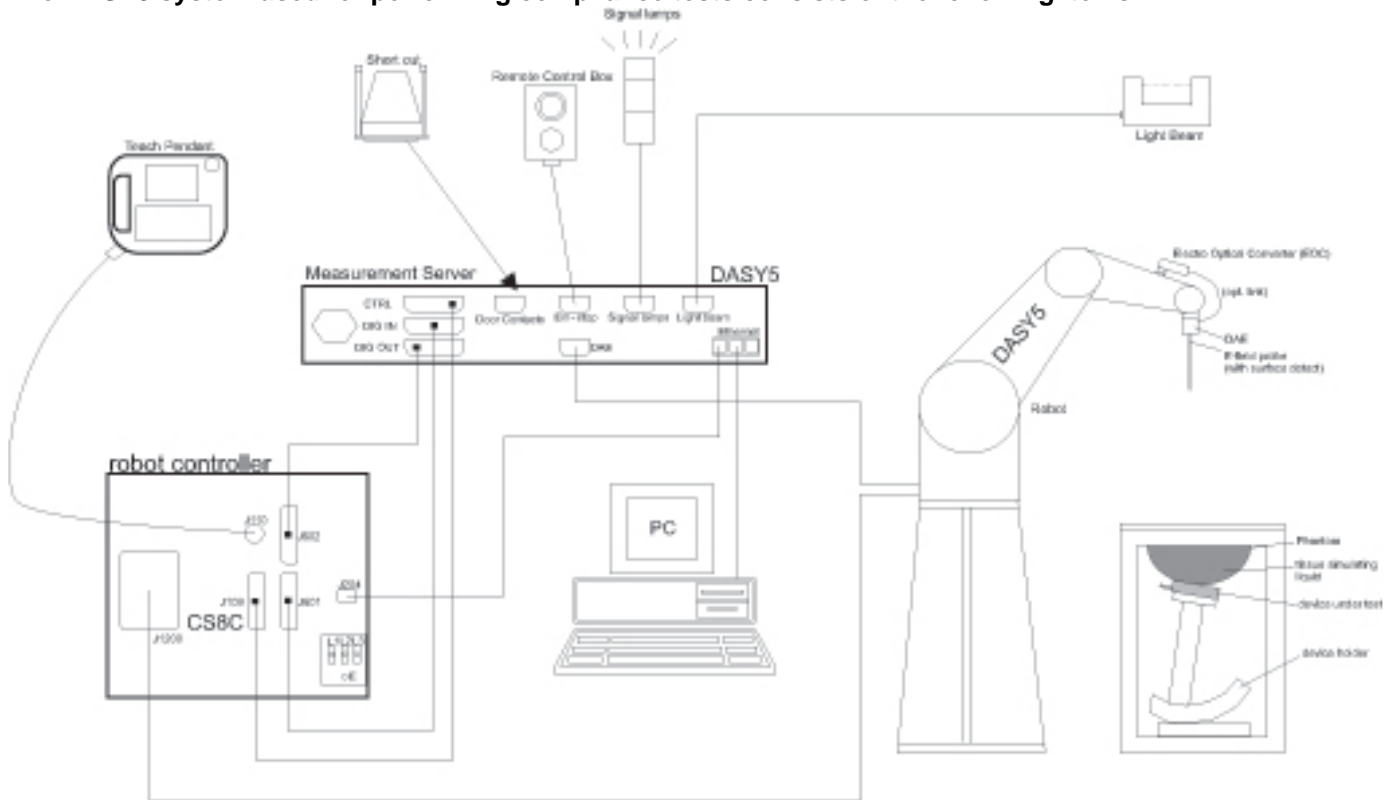
UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.

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

4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

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



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

4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

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

Step 2: Area Scan

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

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

	≤ 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	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
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 \leq the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

Step 3: Zoom Scan

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

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

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1 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.

Step 5: Z-Scan (FCC only)

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

4.3. Test Equipment

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

Dielectric Property Measurements

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

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8-4-2022
Power Sensor	Agilent	U2000A	MY54260007	8-4-2022
Power Sensor	Agilent	U2000A	MY60180020	8-4-2022
Power Amplifier	EXODUS	1410025-AMP2027-10003	10003	8-4-2022
Directional Coupler	Agilent	772D	MY52180193	8-3-2022
Directional Coupler	Agilent	778D	MY52180432	8-3-2022
Low Pass Filter	MINI-CIRCUITS	NLP-1200	VUU19301915	8-4-2022
Low Pass Filter	MICROLAB	LA-15N	3943	8-3-2022
Low Pass Filter	FILTRON	L14012FL	1410003S	8-3-2022
Low Pass Filter	MICROLAB	LA-60N	3942	8/4/2022
Attenuator	MINI-CIRCUITS	BW-N3W5+	N/A	8-4-2022
Attenuator	Agilent	8491B/003	MY39272275	8-17-2022
Attenuator	Agilent	8491B/010	MY39272011	8-4-2022
Attenuator	Agilent	8491B/020	MY39271973	8-4-2022
E-Field Probe	SPEAG	EX3DV4	7314	5/31/2022
E-Field Probe	SPEAG	EX3DV4	7645	4/15/2022
E-Field Probe	SPEAG	EX3DV4	7309	4/20/2022
E-Field Probe	SPEAG	EX3DV4	7330	9/29/2022
E-Field Probe	SPEAG	EX3DV4	7376	7/30/2022
E-Field Probe	SPEAG	EX3DV4	7313	2/23/2022
Data Acquisition Electronics	SPEAG	DAE4	1447	3/23/2022
Data Acquisition Electronics	SPEAG	DAE4	1591	3-26-2022
Data Acquisition Electronics	SPEAG	DAE4	1343	8/23/2022
Data Acquisition Electronics	SPEAG	DAE4	1468	9/27/2022
Data Acquisition Electronics	SPEAG	DAE4	1494	7-27-2022
System Validation Dipole	SPEAG	D750V3	1122	2/24/2022
System Validation Dipole	SPEAG	D835V2	4d194	3/20/2022
System Validation Dipole	SPEAG	D1750V2	1125	2/21/2022
System Validation Dipole	SPEAG	D1900V2	5d199	3/19/2022
System Validation Dipole	SPEAG	D2450V2	960	3/20/2022
System Validation Dipole	SPEAG	D2600V2	1178	4/21/2023
System Validation Dipole	SPEAG	D5GHzV2	1209	11/24/2023
System Validation Dipole	SPEAG	D5GHzV2	1184	12/3/2022
Thermometer	Lutron	MHB-382SD	AH.50213	8-4-2022
Thermometer	Lutron	MHB-382SD	AJ.45903	8-3-2022
Thermometer	Lutron	MHB-382SD	AH.50215	8-3-2022
Thermometer	Lutron	MHB-382SD	AK.12123	8-3-2022

Note(s):

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

5. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be $\leq 30\%$, for a confidence interval of $k = 2$. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

5.1. DECISION RULE

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

6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	Refer to Appendix A.		
Back Cover	<input checked="" type="checkbox"/> The Back Cover is not removable.		
Battery Options	<input checked="" type="checkbox"/> The rechargeable battery is not user accessible		
Wireless Router (Hotspot)	Wi-Fi Hotspot mode permits the device to share its cellular data connection with other Wi-Fi-enabled devices. <input checked="" type="checkbox"/> Mobile Hotspot (Wi-Fi 2.4 GHz) <input checked="" type="checkbox"/> Mobile Hotspot (Wi-Fi 5.8 GHz)		
Wi-Fi Direct	Wi-Fi Direct enabled devices transfer data directly between each other <input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 2.4 GHz) <input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 5.2 GHz_UNII-1, Wi-Fi 5.8 GHz_UNII-3)		
Test Sample Information	No.	S/N	Notes
	1	55605a9d3e257ece	Main Conducted
	2	R3CRA0RNGXZ	Main Conducted
	3	R3CRA0RNS7M	Wi-Fi & BT Conducted
	4	R3CRA0RNQHP	Wi-Fi & BT Conducted
	5	R3CRA0RNSGY	SAR
	6	R3CRA0RNSQN	SAR
	7	R3CRA0RNSAA	SAR
	8	R3CRA0RNRAJ	SAR
	9	R3CRA0RNTME	SAR
	10	R3CRA0RNTYK	SAR
	11	R3CRA0RNTKY	SAR
	12	R3CRA0RS2SA	SAR
	13	R3CRA0RS2NR	SAR

6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK)	GPRS Multi-Slot Class: <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%
		GPRS (GMSK)		
Does this device support DTM (Dual Transfer Mode)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
W-CDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Category 24) HSUPA (Category 6) DC-HSDPA (Category 24) HSPA+ (DL only)		100%
LTE	FDD Band 2 FDD Band 4 FDD Band 5 FDD Band 12 FDD Band 13 FDD Band 17 FDD Band 26 TDD Band 41 FDD Band 66	QPSK 16QAM 64QAM 256QAM Rel. 10 Carrier Aggregation (1 Uplink and 4 Downlinks)		100% (FDD) 63.3% (TDD)
		Does this device support SV-LTE (1xRTT-LTE)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5G NR (Sub 6)	NR Band n5 NR Band n66	DFT-s-OFDM: ■ $\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: ■ QPSK, 16QAM, 64QAM, 256QAM		100%
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20)		99.1% (802.11b)
	5 GHz	802.11a 802.11n (HT20) & (HT40) 802.11ac (VHT20) & (VHT40) & (VHT80)		96.3% (802.11a) 95.9% (802.11n 40)
	Does this device support bands 5.60 ~ 5.65 GHz? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Does this device support Band gap channel(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Bluetooth	2.4 GHz	Version 5.0 LE		76.7% (DH5)
NFC	13.56 MHz	Type A/B/F		N/A ⁴

Notes:

1. The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 76.7% and was considered and used for SAR Testing.
2. Duty cycle for Wi-Fi is referenced from the DTS and UNII report.
3. Measured Duty Cycle is not required due to SAR test exemption.

6.3. Nominal and Maximum Output Power

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

RF Air interface	Antenna	Mode	Time Slots	Max. RF Output Power (dBm)		Reduced. RF Output Power (Hotspot & Proximity sensor & Earjack back-off) (dBm)	
				Tune-up Limit	Frame Pwr	Tune-up Limit	Frame Pwr
GSM850	Main 1 Ant.	Voice	1	34.0	25.0		
		GPRS	1	34.0	25.0		
		GPRS	2	31.5	25.5		
		GPRS	3	30.0	25.7		
		GPRS	4	28.5	25.5		
		EGPRS	1	27.5	18.5		
		EGPRS	2	24.5	18.5		
		EGPRS	4	22.0	19.0		
GSM1900	Main 1 Ant.	Voice	1	31.0	22.0	29.3	20.3
		GPRS	1	31.0	22.0	29.3	20.3
		GPRS	2	28.5	22.5	26.3	20.3
		GPRS	3	26.5	22.2	24.3	20.0
		GPRS	4	25.0	22.0	23.3	20.3
		EGPRS	1	25.5	16.5	23.3	14.3
		EGPRS	2	23.5	17.5	21.3	15.3
		EGPRS	4	20.5	17.5	19.3	16.3

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (Hotspot & Proximity sensor & Earjack back-off) (dBm)
W-CDMA Band II	Main 1 Ant.	R99	25.0	20.0
		HSDPA	24.0	20.0
		HSUPA	23.5	19.5
		DC-HSDPA	24.0	20.0
W-CDMA Band IV	Main 1 Ant.	R99	25.0	20.0
		HSDPA	24.0	19.5
		HSUPA	24.0	19.5
		DC-HSDPA	24.0	19.5
W-CDMA Band V	Main 1 Ant.	R99	24.5	
		HSDPA	23.5	
		HSUPA	23.0	
		DC-HSDPA	23.5	

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)		
				Hotspot back-off	Proximity sensor & Ear-jack back-off	RCV back-off
LTE Band 2	Main 1 Ant.	QPSK	24.0	20.0	20.0	
LTE Band 2	Sub 2 Ant.	QPSK	23.0	19.0		18.0
LTE Band 4	Main 1 Ant.	QPSK	24.5	20.0	20.0	
LTE Band 5	Main 1 Ant.	QPSK	24.5			
LTE Band 12	Main 1 Ant.	QPSK	25.5			
LTE Band 13	Main 1 Ant.	QPSK	25.5			
LTE Band 17	Main 1 Ant.	QPSK	25.5			
LTE Band 26	Main 1 Ant.	QPSK	24.5			
LTE Band 66	Main 1 Ant.	QPSK	24.5	21.5	21.5	
LTE Band 66	Sub 2 Ant.	QPSK	23.5	19.5		16.5
LTE Band 41	Main 1 Ant.	QPSK	25.0	22.0	22.0	

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)		
				Hotspot back-off	Proximity sensor & Ear-jack back-off	RCV back-off
NR Band n5	Main 1 Ant.	DFT-s-OFDM QPSK	24.0			
NR Band n66	Main 1 Ant.	DFT-s-OFDM QPSK	25.0	22.5	22.5	
NR Band n66	Sub 2 Ant.	DFT-s-OFDM QPSK	23.0	20.5		17.0

WLAN power

Band	Mode	Max (dBm)	Reduce (dBm)	Max (dBm)				Reduce (dBm)			
		b	b	a	g	n	ac	a	g	n	ac
2.4GHz	1-10Ch	19	16		18	18			16	16	
2.4GHz	11Ch	19	16		15	15			15	15	
2.4GHz	12Ch	19	16		9	6			9	6	
2.4GHz	13Ch	19	16		8	6			8	6	
5GHz (20MHz)	UNII-1			13		13	13	13		13	13
	UNII-2A			13		13	13	13		13	13
	UNII-2C			16		16	16	14		14	14
	UNII-3			15		15	15	14		14	14
	UNII-4			13		13	13	13		13	13
5GHz (40MHz)	UNII-1					13	13			13	13
	UNII-2A					13	13			13	13
	UNII-2C					14	14			14	14
	UNII-3					15	15			14	14
	UNII-4					15	15			14	14
5GHz (80MHz)	UNII-1						11				11
	UNII-2A						7				7
	UNII-2C						13				13
	UNII-3						13				13
	UNII-4						13				13

Bluetooth-Maximum power

Band	Mode	Maximum output power (dBm)	Reduced output power (dBm)
2.4GHz	Bluetooth_GFSK	17.0	12.0
2.4GHz	Bluetooth_EDR	13.0	12.0
2.4GHz	Bluetooth_LE 1M	16.5	12.0
2.4GHz	Bluetooth_LE 2M	16.5	12.0

Note(s):

1. This device uses an independent fixed level power reduction mechanism for WLAN mode and Bluetooth operations during RCV operation. Detailed descriptions of the power reduction mechanism are included in the operational description.
2. WLAN operation scenarios are refer to section.12.

6.4. Power Back-off Operation

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

Power Back-off mode	Technologies Supported	Exposure Conditions Active			
		Head	Body-worn	Hotspot	Product Specific 10-g
WWAN (Hotspot)	GSM 1900 WCDMA Band II & IV LTE Band 2 & 4 & 66 & 41 NR Band n66	N/A	N/A	✓	N/A
WWAN (Proximity sensor)	GSM 1900 WCDMA Band II & IV LTE Band 2 & 4 & 66 & 41 NR Band n66(Main Ant.1)	N/A	N/A	N/A	✓
WWAN (Ear-jack)	GSM 1900 WCDMA Band II & IV LTE Band 2 & 4 & 66 & 41 NR Band n66(Main Ant.1)	N/A	✓	N/A	✓
WWAN (RCV)	LTE Band 2 & 66 (Sub Ant.2) NR Band n66(Sub Ant.2)	✓	N/A	N/A	N/A
WLAN (RCV)	2.4GHz/5GHz WLAN & Bluetooth	✓	N/A	N/A	N/A

Note(s):

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

Product Specific 10g Adjusted SAR Calculation

Wireless technologies	Max Tune-up Limit (dBm)	Reduced Tune-Up Limit (dBm)	Power Factor	Reported SAR Limit (W/kg)
GSM 1900	28.5	23.3	3.31	0.362
WCDMA Band II	25.0	20.0	3.16	0.379
WCDMA Band IV	25.0	20.0	3.16	0.379
LTE Band 2_Ant.1	24.0	20.0	2.51	0.478
LTE Band 66(4)_Ant.1	24.5	21.5	2.00	0.601
LTE Band 41	25.0	22.0	2.00	0.601
NR Band n66_Ant.1	25.0	22.5	1.78	0.675

Note(s):

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

6.5. General LTE SAR Test and Reporting Considerations

Item	Description						
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 2	Frequency range: 1850 - 1910 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	18700/ 1860	18675/ 1857.5	18650/ 1855	18625/ 1852.5	18615/ 1851.5	18607/ 1850.7
	Mid	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880
	High	19100/ 1900	19125/ 1902.5	19150/ 1905	19175/ 1907.5	19185/ 1908.5	19193/ 1909.3
	Band 4	Frequency range: 1710 - 1755 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20050/ 1720	20025/ 1717.5	20000/ 1715	19975/ 1712.5	19965/ 1711.5	19957/ 1710.7
	Mid	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5
	High	20300/ 1745	20325/ 1747.5	20350/ 1750	20375/ 1752.5	20385/ 1753.5	20393/ 1754.3
	Band 5	Frequency range: 824 - 849 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			20450/ 829	20425/ 826.5	20415/ 825.5	20407/ 824.7
	Mid			20525/ 836.5	20525/ 836.5	20525/ 836.5	20525/ 836.5
	High			20600/ 844	20625/ 846.5	20635/ 847.5	20643/ 848.3
	Band 12	Frequency range: 699 – 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low			23060/ 704	23035/ 701.5	23025/ 700.5	23017/ 699.7	
Mid			23095/ 707.5	23095/ 707.5	23095/ 707.5	23095/ 707.5	
High			23130/ 711	23155/ 713.5	23165/ 714.5	23173/ 715.3	
Band 13	Frequency range: 777 - 787 MHz						
	Channel Bandwidth						
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz	
Low				23205/ 779.5			
Mid			23230/ 782	23230/ 782			
High				23255/ 784.5			
Band 17	Frequency range: 704 - 716 MHz						
	Channel Bandwidth						
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz	
Low			23780/ 709	23755/ 706.5			
Mid			23790/ 710	23790/ 710			
High			23800/ 711	23825/ 713.5			

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 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 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																																																														
LTE transmitter and antenna implementation	Refer to Appendix A.																																																																			
Maximum power reduction (MPR)	<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 colspan="6">≥ 1</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																																																													
Power reduction	Yes																																																																			
Spectrum plots for RB configurations	A properly configured base station simulator was used for the SAR and power measurements; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																																			

Notes:

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

6.6. LTE (TDD) Considerations

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

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

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

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

Calculated Duty Cycle

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

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

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

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

where

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

Note(s):

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

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

Item	Description														
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band n5	Frequency range: 824 - 849 MHz													
		Channel Bandwidth (MHz)													
		100	90	80	70	60	50	40	30	25	20	15	10	5	
	Low										166800 /834	166300 /831.5	165800 /829	165300 /826.5	
	Mid										167300 /836.5	167300 /836.5	167300 /836.5	167300 /836.5	
	High										167800 /839	168300 /841.5	168800 /844	169300 /846.5	
	Band n66	Frequency range: 1710 - 1780 MHz													
		Channel Bandwidth (MHz)													
		100	90	80	70	60	50	40	30	25	20	15	10	5	
	Low											344000 /1720	343500 /1717.5	343000 /1715	342500 /1712.5
	Mid											349000 /1745	349000 /1745	349000 /1745	349000 /1745
	High											354000 /1770	354500 /1772.5	355000 /1775	355500 /1777.5
	SCS	15 kHz													
Modulations Supported in UL	DFT-s-OFDM: $\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM														
A-MPR (Additional MPR) disabled for SAR Testing?	Yes														
EN-DC Carrier Aggregation Possible Combinations															
LTE Anchor Bands for NR Band n5	LTE Band 2, 66														
LTE Anchor Bands for NR Band n66 (Sub Ant.2)	LTE Band 2, 5														

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.
- All NR Bands has supports both SA and NSA. But NR Bands of Sub Ant.2 has supports only NSA mode.

7. RF Exposure Conditions (Test Configurations)

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

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

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.

8. Dielectric Property Measurements & System Check

8.1. Dielectric Property Measurements

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

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

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

Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

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

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

IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

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

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)		
12-6-2021	Head 5250	e'	35.1900	Relative Permittivity (ϵ_r):	35.19	35.93	-2.07	5	
		e"	15.8300	Conductivity (σ):	4.62	4.70	-1.72	5	
	Head 5260	e'	35.1700	Relative Permittivity (ϵ_r):	35.17	35.92	-2.09	5	
		e"	15.8400	Conductivity (σ):	4.63	4.71	-1.69	5	
	Head 5600	e'	34.4900	Relative Permittivity (ϵ_r):	34.49	35.53	-2.94	5	
		e"	16.1800	Conductivity (σ):	5.04	5.06	-0.44	5	
	Head 5750	e'	34.2300	Relative Permittivity (ϵ_r):	34.23	35.36	-3.20	5	
		e"	16.3100	Conductivity (σ):	5.21	5.21	0.02	5	
	Head 5825	e'	34.0800	Relative Permittivity (ϵ_r):	34.08	35.30	-3.46	5	
		e"	16.3400	Conductivity (σ):	5.29	5.27	0.42	5	
	12-20-2021	Head 5250	e'	35.7300	Relative Permittivity (ϵ_r):	35.73	35.93	-0.57	5
			e"	16.2800	Conductivity (σ):	4.75	4.70	1.07	5
Head 5260		e'	35.7100	Relative Permittivity (ϵ_r):	35.71	35.92	-0.59	5	
		e"	16.2900	Conductivity (σ):	4.76	4.71	1.10	5	
Head 5600		e'	35.0000	Relative Permittivity (ϵ_r):	35.00	35.53	-1.50	5	
		e"	16.6500	Conductivity (σ):	5.18	5.06	2.45	5	
Head 5750		e'	34.7100	Relative Permittivity (ϵ_r):	34.71	35.36	-1.85	5	
		e"	16.8300	Conductivity (σ):	5.38	5.21	3.21	5	
Head 5825		e'	34.5800	Relative Permittivity (ϵ_r):	34.58	35.30	-2.04	5	
		e"	16.9000	Conductivity (σ):	5.47	5.27	3.87	5	
12-22-2021		Head 5250	e'	35.6300	Relative Permittivity (ϵ_r):	35.63	35.93	-0.84	5
			e"	15.5900	Conductivity (σ):	4.55	4.70	-3.21	5
	Head 5260	e'	35.6100	Relative Permittivity (ϵ_r):	35.61	35.92	-0.87	5	
		e"	15.6000	Conductivity (σ):	4.56	4.71	-3.18	5	
	Head 5600	e'	35.3200	Relative Permittivity (ϵ_r):	35.32	35.53	-0.60	5	
		e"	15.9300	Conductivity (σ):	4.96	5.06	-1.98	5	
	Head 5750	e'	35.0700	Relative Permittivity (ϵ_r):	35.07	35.36	-0.83	5	
		e"	16.0800	Conductivity (σ):	5.14	5.21	-1.39	5	
	Head 5825	e'	34.9500	Relative Permittivity (ϵ_r):	34.95	35.30	-0.99	5	
		e"	16.1400	Conductivity (σ):	5.23	5.27	-0.81	5	

SAR 2 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)		
12-15-2021	Head 5250	e'	36.2500	Relative Permittivity (ϵ_r):	36.25	35.93	0.88	5	
		e"	16.3800	Conductivity (σ):	4.78	4.70	1.69	5	
	Head 5260	e'	36.2300	Relative Permittivity (ϵ_r):	36.23	35.92	0.86	5	
		e"	16.3900	Conductivity (σ):	4.79	4.71	1.72	5	
	Head 5600	e'	35.7400	Relative Permittivity (ϵ_r):	35.74	35.53	0.58	5	
		e"	16.5100	Conductivity (σ):	5.14	5.06	1.59	5	
	Head 5750	e'	35.5300	Relative Permittivity (ϵ_r):	35.53	35.36	0.47	5	
		e"	16.5800	Conductivity (σ):	5.30	5.21	1.67	5	
	Head 5800	e'	35.4600	Relative Permittivity (ϵ_r):	35.46	35.30	0.45	5	
		e"	16.6000	Conductivity (σ):	5.35	5.27	1.58	5	
	Head 5925	e'	35.2900	Relative Permittivity (ϵ_r):	35.29	35.20	0.26	5	
		e"	16.6500	Conductivity (σ):	5.49	5.40	1.58	5	
	12-20-2021	Head 5250	e'	36.1400	Relative Permittivity (ϵ_r):	36.14	35.93	0.58	5
			e"	16.1500	Conductivity (σ):	4.71	4.70	0.26	5
Head 5260		e'	36.1900	Relative Permittivity (ϵ_r):	36.19	35.92	0.75	5	
		e"	16.2000	Conductivity (σ):	4.74	4.71	0.54	5	
Head 5600		e'	35.9300	Relative Permittivity (ϵ_r):	35.93	35.53	1.11	5	
		e"	16.1300	Conductivity (σ):	5.02	5.06	-0.75	5	
Head 5750		e'	35.7300	Relative Permittivity (ϵ_r):	35.73	35.36	1.04	5	
		e"	16.2600	Conductivity (σ):	5.20	5.21	-0.29	5	
Head 5825		e'	35.7600	Relative Permittivity (ϵ_r):	35.76	35.30	1.30	5	
		e"	16.0700	Conductivity (σ):	5.20	5.27	-1.24	5	

SAR 3 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
11-25-2021	Head 1900	e'	39.4800	Relative Permittivity (ϵ_r):	39.48	40.00	-1.30	5
		e"	13.1100	Conductivity (σ):	1.39	1.40	-1.07	5
	Head 1850	e'	39.4900	Relative Permittivity (ϵ_r):	39.49	40.00	-1.28	5
		e"	13.2300	Conductivity (σ):	1.36	1.40	-2.79	5
	Head 1910	e'	39.4800	Relative Permittivity (ϵ_r):	39.48	40.00	-1.30	5
		e"	13.1000	Conductivity (σ):	1.39	1.40	-0.63	5
11-30-2021	Head 750	e'	41.3200	Relative Permittivity (ϵ_r):	41.32	41.96	-1.53	5
		e"	21.3200	Conductivity (σ):	0.89	0.89	-0.45	5
	Head 700	e'	41.4300	Relative Permittivity (ϵ_r):	41.43	42.22	-1.87	5
		e"	22.5800	Conductivity (σ):	0.88	0.89	-1.17	5
	Head 790	e'	41.1700	Relative Permittivity (ϵ_r):	41.17	41.76	-1.40	5
		e"	20.4000	Conductivity (σ):	0.90	0.90	-0.01	5
11-30-2021	Head 835	e'	40.8800	Relative Permittivity (ϵ_r):	40.88	41.50	-1.49	5
		e"	19.6100	Conductivity (σ):	0.91	0.90	1.16	5
	Head 820	e'	40.9600	Relative Permittivity (ϵ_r):	40.96	41.60	-1.54	5
		e"	19.8500	Conductivity (σ):	0.91	0.90	0.73	5
	Head 850	e'	40.8400	Relative Permittivity (ϵ_r):	40.84	41.50	-1.59	5
		e"	19.3800	Conductivity (σ):	0.92	0.92	0.10	5
12-6-2021	Head 835	e'	42.2300	Relative Permittivity (ϵ_r):	42.23	41.50	1.76	5
		e"	20.1800	Conductivity (σ):	0.94	0.90	4.10	5
	Head 820	e'	42.3000	Relative Permittivity (ϵ_r):	42.30	41.60	1.68	5
		e"	20.3600	Conductivity (σ):	0.93	0.90	3.32	5
	Head 850	e'	42.1900	Relative Permittivity (ϵ_r):	42.19	41.50	1.66	5
		e"	19.8500	Conductivity (σ):	0.94	0.92	2.53	5
12-13-2021	Head 1750	e'	39.7500	Relative Permittivity (ϵ_r):	39.75	40.08	-0.83	5
		e"	14.4000	Conductivity (σ):	1.40	1.37	2.35	5
	Head 1710	e'	39.8600	Relative Permittivity (ϵ_r):	39.86	40.15	-0.71	5
		e"	14.6400	Conductivity (σ):	1.39	1.35	3.39	5
	Head 1755	e'	39.7400	Relative Permittivity (ϵ_r):	39.74	40.08	-0.84	5
		e"	14.3600	Conductivity (σ):	1.40	1.37	2.15	5
12-15-2021	Head 1750	e'	40.2700	Relative Permittivity (ϵ_r):	40.27	40.08	0.46	5
		e"	14.0200	Conductivity (σ):	1.36	1.37	-0.35	5
	Head 1710	e'	40.4500	Relative Permittivity (ϵ_r):	40.45	40.15	0.76	5
		e"	14.1100	Conductivity (σ):	1.34	1.35	-0.36	5
	Head 1755	e'	40.2500	Relative Permittivity (ϵ_r):	40.25	40.08	0.43	5
		e"	14.0100	Conductivity (σ):	1.37	1.37	-0.34	5
12-22-2021	Head 1900	e'	39.6600	Relative Permittivity (ϵ_r):	39.66	40.00	-0.85	5
		e"	13.4700	Conductivity (σ):	1.42	1.40	1.65	5
	Head 1850	e'	39.6900	Relative Permittivity (ϵ_r):	39.69	40.00	-0.78	5
		e"	13.4900	Conductivity (σ):	1.39	1.40	-0.88	5
	Head 1910	e'	39.6600	Relative Permittivity (ϵ_r):	39.66	40.00	-0.85	5
		e"	13.4700	Conductivity (σ):	1.43	1.40	2.18	5
12-23-2021	Head 1750	e'	40.2100	Relative Permittivity (ϵ_r):	40.21	40.08	0.31	5
		e"	13.4100	Conductivity (σ):	1.30	1.37	-4.68	5
	Head 1710	e'	40.3800	Relative Permittivity (ϵ_r):	40.38	40.15	0.58	5
		e"	13.5600	Conductivity (σ):	1.29	1.35	-4.24	5
	Head 1755	e'	40.1900	Relative Permittivity (ϵ_r):	40.19	40.08	0.28	5
		e"	13.4000	Conductivity (σ):	1.31	1.37	-4.68	5

SAR 4 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
11-29-2021	Head 2450	e'	38.0700	Relative Permittivity (ϵ_r):	38.07	39.20	-2.88	5
		e''	13.6400	Conductivity (σ):	1.86	1.80	3.23	5
	Head 2400	e'	38.1300	Relative Permittivity (ϵ_r):	38.13	39.30	-2.97	5
		e''	13.6200	Conductivity (σ):	1.82	1.75	3.76	5
	Head 2480	e'	38.0000	Relative Permittivity (ϵ_r):	38.00	39.16	-2.97	5
		e''	13.6300	Conductivity (σ):	1.88	1.83	2.57	5
11-29-2021	Head 2600	e'	37.7100	Relative Permittivity (ϵ_r):	37.71	39.01	-3.33	5
		e''	13.7400	Conductivity (σ):	1.99	1.96	1.23	5
	Head 2500	e'	37.9200	Relative Permittivity (ϵ_r):	37.92	39.14	-3.11	5
		e''	13.6300	Conductivity (σ):	1.89	1.85	2.19	5
	Head 2700	e'	37.4900	Relative Permittivity (ϵ_r):	37.49	38.88	-3.59	5
		e''	13.7700	Conductivity (σ):	2.07	2.07	-0.14	5
12-1-2021	Head 835	e'	40.3300	Relative Permittivity (ϵ_r):	40.33	41.50	-2.82	5
		e''	20.0200	Conductivity (σ):	0.93	0.90	3.28	5
	Head 820	e'	40.3600	Relative Permittivity (ϵ_r):	40.36	41.60	-2.99	5
		e''	20.3000	Conductivity (σ):	0.93	0.90	3.02	5
	Head 850	e'	40.3100	Relative Permittivity (ϵ_r):	40.31	41.50	-2.87	5
		e''	19.7500	Conductivity (σ):	0.93	0.92	2.02	5
12-1-2021	Head 2450	e'	38.4000	Relative Permittivity (ϵ_r):	38.40	39.20	-2.04	5
		e''	13.7000	Conductivity (σ):	1.87	1.80	3.68	5
	Head 2400	e'	38.5000	Relative Permittivity (ϵ_r):	38.50	39.30	-2.03	5
		e''	13.7500	Conductivity (σ):	1.83	1.75	4.75	5
	Head 2480	e'	38.3500	Relative Permittivity (ϵ_r):	38.35	39.16	-2.07	5
		e''	13.6700	Conductivity (σ):	1.89	1.83	2.87	5
12-6-2021	Head 1900	e'	40.3300	Relative Permittivity (ϵ_r):	40.33	40.00	0.82	5
		e''	13.1000	Conductivity (σ):	1.38	1.40	-1.15	5
	Head 1850	e'	40.4000	Relative Permittivity (ϵ_r):	40.40	40.00	1.00	5
		e''	13.1600	Conductivity (σ):	1.35	1.40	-3.31	5
	Head 1910	e'	40.3100	Relative Permittivity (ϵ_r):	40.31	40.00	0.78	5
		e''	13.0900	Conductivity (σ):	1.39	1.40	-0.70	5
12-6-2021	Head 2450	e'	39.3400	Relative Permittivity (ϵ_r):	39.34	39.20	0.36	5
		e''	13.2500	Conductivity (σ):	1.81	1.80	0.28	5
	Head 2400	e'	39.4600	Relative Permittivity (ϵ_r):	39.46	39.30	0.42	5
		e''	13.2600	Conductivity (σ):	1.77	1.75	1.02	5
	Head 2480	e'	39.2800	Relative Permittivity (ϵ_r):	39.28	39.16	0.30	5
		e''	13.2500	Conductivity (σ):	1.83	1.83	-0.29	5
12-17-2021	Head 5180	e'	36.2200	Relative Permittivity (ϵ_r):	36.22	36.01	0.57	5
		e''	15.7100	Conductivity (σ):	4.52	4.63	-2.28	5
	Head 5200	e'	36.1800	Relative Permittivity (ϵ_r):	36.18	35.99	0.53	5
		e''	15.7300	Conductivity (σ):	4.55	4.65	-2.21	5
	Head 5600	e'	35.4600	Relative Permittivity (ϵ_r):	35.46	35.53	-0.21	5
		e''	16.0300	Conductivity (σ):	4.99	5.06	-1.36	5
	Head 5800	e'	35.1300	Relative Permittivity (ϵ_r):	35.13	35.30	-0.48	5
		e''	16.2000	Conductivity (σ):	5.22	5.27	-0.86	5
	Head 5825	e'	35.0900	Relative Permittivity (ϵ_r):	35.09	35.30	-0.59	5
		e''	16.2100	Conductivity (σ):	5.25	5.27	-0.38	5

SAR 4 Room (Continued)

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)		
12-20-2021	Head 5250	e'	36.2800	Relative Permittivity (ϵ_r):	36.28	35.93	0.97	5	
		e"	16.0100	Conductivity (σ):	4.67	4.70	-0.61	5	
	Head 5260	e'	36.2100	Relative Permittivity (ϵ_r):	36.21	35.92	0.80	5	
		e"	16.0400	Conductivity (σ):	4.69	4.71	-0.45	5	
	Head 5600	e'	36.0700	Relative Permittivity (ϵ_r):	36.07	35.53	1.51	5	
		e"	16.1200	Conductivity (σ):	5.02	5.06	-0.81	5	
	Head 5750	e'	35.6900	Relative Permittivity (ϵ_r):	35.69	35.36	0.93	5	
		e"	16.0500	Conductivity (σ):	5.13	5.21	-1.58	5	
	Head 5825	e'	35.4200	Relative Permittivity (ϵ_r):	35.42	35.30	0.34	5	
		e"	16.3600	Conductivity (σ):	5.30	5.27	0.55	5	
	12-22-2021	Head 2450	e'	38.2700	Relative Permittivity (ϵ_r):	38.27	39.20	-2.37	5
			e"	13.2200	Conductivity (σ):	1.80	1.80	0.05	5
Head 2400		e'	38.3700	Relative Permittivity (ϵ_r):	38.37	39.30	-2.36	5	
		e"	13.3000	Conductivity (σ):	1.77	1.75	1.32	5	
Head 2480		e'	38.1800	Relative Permittivity (ϵ_r):	38.18	39.16	-2.51	5	
		e"	13.2500	Conductivity (σ):	1.83	1.83	-0.29	5	
12-24-2021	Head 1750	e'	40.1600	Relative Permittivity (ϵ_r):	40.16	40.08	0.19	5	
		e"	14.5800	Conductivity (σ):	1.42	1.37	3.63	5	
	Head 1710	e'	40.3600	Relative Permittivity (ϵ_r):	40.36	40.15	0.53	5	
		e"	14.7100	Conductivity (σ):	1.40	1.35	3.88	5	
	Head 1755	e'	40.1400	Relative Permittivity (ϵ_r):	40.14	40.08	0.16	5	
		e"	14.5700	Conductivity (σ):	1.42	1.37	3.64	5	

SAR 5 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
11-22-2021	Head 1750	e'	39.6600	Relative Permittivity (ϵ_r):	39.66	40.08	-1.06	5
		e''	13.7600	Conductivity (σ):	1.34	1.37	-2.20	5
	Head 1710	e'	39.7800	Relative Permittivity (ϵ_r):	39.78	40.15	-0.91	5
		e''	13.8400	Conductivity (σ):	1.32	1.35	-2.26	5
	Head 1755	e'	39.6400	Relative Permittivity (ϵ_r):	39.64	40.08	-1.09	5
		e''	13.7400	Conductivity (σ):	1.34	1.37	-2.26	5
11-22-2021	Head 1900	e'	39.3800	Relative Permittivity (ϵ_r):	39.38	40.00	-1.55	5
		e''	13.5600	Conductivity (σ):	1.43	1.40	2.33	5
	Head 1850	e'	39.4700	Relative Permittivity (ϵ_r):	39.47	40.00	-1.33	5
		e''	13.6600	Conductivity (σ):	1.41	1.40	0.37	5
	Head 1910	e'	39.3600	Relative Permittivity (ϵ_r):	39.36	40.00	-1.60	5
		e''	13.5500	Conductivity (σ):	1.44	1.40	2.79	5
11-23-2021	Head 835	e'	42.8300	Relative Permittivity (ϵ_r):	42.83	41.50	3.20	5
		e''	19.3400	Conductivity (σ):	0.90	0.90	-0.23	5
	Head 820	e'	42.8600	Relative Permittivity (ϵ_r):	42.86	41.60	3.02	5
		e''	19.5800	Conductivity (σ):	0.89	0.90	-0.64	5
	Head 850	e'	42.8300	Relative Permittivity (ϵ_r):	42.83	41.50	3.20	5
		e''	19.1000	Conductivity (σ):	0.90	0.92	-1.34	5
11-25-2021	Head 750	e'	41.9300	Relative Permittivity (ϵ_r):	41.93	41.96	-0.08	5
		e''	21.1900	Conductivity (σ):	0.88	0.89	-1.05	5
	Head 700	e'	42.1000	Relative Permittivity (ϵ_r):	42.10	42.22	-0.28	5
		e''	22.2600	Conductivity (σ):	0.87	0.89	-2.57	5
	Head 790	e'	41.8100	Relative Permittivity (ϵ_r):	41.81	41.76	0.13	5
		e''	20.4000	Conductivity (σ):	0.90	0.90	-0.01	5
11-25-2021	Head 1900	e'	39.1200	Relative Permittivity (ϵ_r):	39.12	40.00	-2.20	5
		e''	13.1900	Conductivity (σ):	1.39	1.40	-0.47	5
	Head 1850	e'	39.1200	Relative Permittivity (ϵ_r):	39.12	40.00	-2.20	5
		e''	13.3100	Conductivity (σ):	1.37	1.40	-2.20	5
	Head 1910	e'	39.1300	Relative Permittivity (ϵ_r):	39.13	40.00	-2.17	5
		e''	13.1800	Conductivity (σ):	1.40	1.40	-0.02	5
11-29-2021	Head 1750	e'	38.6000	Relative Permittivity (ϵ_r):	38.60	40.08	-3.70	5
		e''	14.1200	Conductivity (σ):	1.37	1.37	0.36	5
	Head 1710	e'	38.7300	Relative Permittivity (ϵ_r):	38.73	40.15	-3.53	5
		e''	14.2900	Conductivity (σ):	1.36	1.35	0.91	5
	Head 1755	e'	38.5800	Relative Permittivity (ϵ_r):	38.58	40.08	-3.74	5
		e''	14.1000	Conductivity (σ):	1.38	1.37	0.30	5
11-29-2021	Head 1900	e'	38.2900	Relative Permittivity (ϵ_r):	38.29	40.00	-4.28	5
		e''	13.7300	Conductivity (σ):	1.45	1.40	3.61	5
	Head 1850	e'	38.3400	Relative Permittivity (ϵ_r):	38.34	40.00	-4.15	5
		e''	13.8200	Conductivity (σ):	1.42	1.40	1.54	5
	Head 1910	e'	38.2800	Relative Permittivity (ϵ_r):	38.28	40.00	-4.30	5
		e''	13.7200	Conductivity (σ):	1.46	1.40	4.08	5
12-3-2021	Head 1750	e'	39.9100	Relative Permittivity (ϵ_r):	39.91	40.08	-0.44	5
		e''	14.1600	Conductivity (σ):	1.38	1.37	0.65	5
	Head 1710	e'	40.0500	Relative Permittivity (ϵ_r):	40.05	40.15	-0.24	5
		e''	14.3300	Conductivity (σ):	1.36	1.35	1.20	5
	Head 1755	e'	39.8900	Relative Permittivity (ϵ_r):	39.89	40.08	-0.47	5
		e''	14.1500	Conductivity (σ):	1.38	1.37	0.66	5

SAR 5 Room (Continued)

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
12-6-2021	Head 1750	e'	41.7600	Relative Permittivity (ϵ_r):	41.76	40.08	4.18	5
		e"	13.6800	Conductivity (σ):	1.33	1.37	-2.76	5
	Head 1710	e'	41.8000	Relative Permittivity (ϵ_r):	41.80	40.15	4.12	5
		e"	13.8200	Conductivity (σ):	1.31	1.35	-2.41	5
	Head 1755	e'	41.7500	Relative Permittivity (ϵ_r):	41.75	40.08	4.17	5
		e"	13.6700	Conductivity (σ):	1.33	1.37	-2.76	5
12-8-2021	Head 1750	e'	39.2400	Relative Permittivity (ϵ_r):	39.24	40.08	-2.11	5
		e"	13.4500	Conductivity (σ):	1.31	1.37	-4.40	5
	Head 1710	e'	39.2900	Relative Permittivity (ϵ_r):	39.29	40.15	-2.13	5
		e"	13.6500	Conductivity (σ):	1.30	1.35	-3.61	5
	Head 1755	e'	39.2200	Relative Permittivity (ϵ_r):	39.22	40.08	-2.14	5
		e"	13.4100	Conductivity (σ):	1.31	1.37	-4.61	5
12-13-2021	Head 1750	e'	39.8200	Relative Permittivity (ϵ_r):	39.82	40.08	-0.66	5
		e"	13.6000	Conductivity (σ):	1.32	1.37	-3.33	5
	Head 1710	e'	40.0000	Relative Permittivity (ϵ_r):	40.00	40.15	-0.36	5
		e"	13.7200	Conductivity (σ):	1.30	1.35	-3.11	5
	Head 1755	e'	39.8000	Relative Permittivity (ϵ_r):	39.80	40.08	-0.69	5
		e"	13.6000	Conductivity (σ):	1.33	1.37	-3.26	5
12-13-2021	Head 1900	e'	39.0000	Relative Permittivity (ϵ_r):	39.00	40.00	-2.50	5
		e"	12.8600	Conductivity (σ):	1.36	1.40	-2.96	5
	Head 1850	e'	39.4100	Relative Permittivity (ϵ_r):	39.41	40.00	-1.48	5
		e"	13.1700	Conductivity (σ):	1.35	1.40	-3.23	5
	Head 1910	e'	38.9100	Relative Permittivity (ϵ_r):	38.91	40.00	-2.73	5
		e"	12.8400	Conductivity (σ):	1.36	1.40	-2.60	5
12-15-2021	Head 1750	e'	40.1700	Relative Permittivity (ϵ_r):	40.17	40.08	0.21	5
		e"	14.1700	Conductivity (σ):	1.38	1.37	0.72	5
	Head 1710	e'	40.3600	Relative Permittivity (ϵ_r):	40.36	40.15	0.53	5
		e"	14.2900	Conductivity (σ):	1.36	1.35	0.91	5
	Head 1755	e'	40.1500	Relative Permittivity (ϵ_r):	40.15	40.08	0.18	5
		e"	14.1500	Conductivity (σ):	1.38	1.37	0.66	5
12-20-2021	Head 1750	e'	40.7800	Relative Permittivity (ϵ_r):	40.78	40.08	1.73	5
		e"	13.4400	Conductivity (σ):	1.31	1.37	-4.47	5
	Head 1710	e'	40.8800	Relative Permittivity (ϵ_r):	40.88	40.15	1.83	5
		e"	13.5400	Conductivity (σ):	1.29	1.35	-4.38	5
	Head 1755	e'	40.7600	Relative Permittivity (ϵ_r):	40.76	40.08	1.70	5
		e"	13.4300	Conductivity (σ):	1.31	1.37	-4.46	5
12-20-2021	Head 1900	e'	40.6500	Relative Permittivity (ϵ_r):	40.65	40.00	1.63	5
		e"	12.9600	Conductivity (σ):	1.37	1.40	-2.20	5
	Head 1850	e'	40.7100	Relative Permittivity (ϵ_r):	40.71	40.00	1.78	5
		e"	13.0800	Conductivity (σ):	1.35	1.40	-3.89	5
	Head 1910	e'	40.6600	Relative Permittivity (ϵ_r):	40.66	40.00	1.65	5
		e"	12.9500	Conductivity (σ):	1.38	1.40	-1.76	5
12-22-2021	Head 1750	e'	39.6200	Relative Permittivity (ϵ_r):	39.62	40.08	-1.16	5
		e"	13.9200	Conductivity (σ):	1.35	1.37	-1.06	5
	Head 1710	e'	39.8100	Relative Permittivity (ϵ_r):	39.81	40.15	-0.84	5
		e"	14.0800	Conductivity (σ):	1.34	1.35	-0.57	5
	Head 1755	e'	39.6000	Relative Permittivity (ϵ_r):	39.60	40.08	-1.19	5
		e"	13.9000	Conductivity (σ):	1.36	1.37	-1.12	5
12-27-2021	Head 1750	e'	40.7600	Relative Permittivity (ϵ_r):	40.76	40.08	1.68	5
		e"	13.6500	Conductivity (σ):	1.33	1.37	-2.98	5
	Head 1710	e'	40.5600	Relative Permittivity (ϵ_r):	40.56	40.15	1.03	5
		e"	13.8500	Conductivity (σ):	1.32	1.35	-2.19	5
	Head 1755	e'	40.7600	Relative Permittivity (ϵ_r):	40.76	40.08	1.70	5
		e"	13.5700	Conductivity (σ):	1.32	1.37	-3.47	5

8.2. System Check

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

System Performance Check Measurement Conditions:

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

Reference Target SAR Values

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

System Dipole	Serial No.	Cal. Date	Freq. (MHz)	Target SAR Values (W/kg)	
				1g/10g	Head
D750V3	1122	2-24-2020	750	1g	8.54
				10g	5.59
D835V2	4d194	3-20-2020	835	1g	9.76
				10g	6.42
D1750V2	1125	2-21-2020	1750	1g	36.50
				10g	19.20
D1900V2	5d199	3-19-2020	1900	1g	40.50
				10g	21.00
D2450V2	960	3-20-2020	2450	1g	53.20
				10g	24.80
D2600V2	1178	4-21-2021	2600	1g	56.60
				10g	25.40
D5GHzV2	1184	12-3-2020	5250	1g	79.10
				10g	22.70
			5600	1g	82.40
				10g	23.30
			5750	1g	79.90
				10g	22.60
D5GHzV2	1209	11-24-2021	5800	1g	79.00
				10g	22.40

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations.

System Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within 10% of the manufacturer calibrated dipole SAR target.

SAR 1 Room

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
12-6-2021	D5GHzV2 (5250)	1184	Head	1g	7.81	78.1	79.10	-1.26	
				10g	2.33	23.3	22.70	2.64	
12-6-2021	D5GHzV2 (5600)	1184	Head	1g	8.63	86.3	82.40	4.73	1, 2
				10g	2.52	25.2	23.30	8.15	
12-6-2021	D5GHzV2 (5750)	1184	Head	1g	7.86	78.6	79.90	-1.63	
				10g	2.31	23.1	22.60	2.21	
12-20-2021	D5GHzV2 (5750)	1184	Head	1g	8.03	80.3	79.90	0.50	
				10g	2.35	23.5	22.60	3.98	
12-22-2021	D5GHzV2 (5250)	1184	Head	1g	7.90	79.0	79.10	-0.13	
				10g	2.32	23.2	22.70	2.20	

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				
12-15-2021	D5GHzV2 (5250)	1184	Head	1g	7.98	79.8	79.10	0.88	
				10g	2.27	22.7	22.70	0.00	
12-15-2021	D5GHzV2 (5600)	1184	Head	1g	8.79	87.9	82.40	6.67	3, 4
				10g	2.46	24.6	23.30	5.58	
12-15-2021	D5GHzV2 (5750)	1184	Head	1g	7.74	77.4	79.90	-3.13	
				10g	2.19	21.9	22.60	-3.10	
12-15-2021	D5GHzV2 (5800)	1209	Head	1g	7.67	76.7	79.00	-2.91	5, 6
				10g	2.17	21.7	22.40	-3.13	
12-20-2021	D5GHzV2 (5600)	1184	Head	1g	8.10	81.0	82.40	-1.70	
				10g	2.27	22.7	23.30	-2.58	

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				
11-25-2021	D1900V2	5d199	Head	1g	3.89	38.9	40.50	-3.95	
				10g	2.04	20.4	21.00	-2.86	
11-30-2021	D750V3	1122	Head	1g	0.84	8.4	8.54	-2.22	7, 8
				10g	0.55	5.5	5.59	-1.25	
11-30-2021	D835V2	4d194	Head	1g	0.99	9.9	9.76	1.13	
				10g	0.65	6.5	6.42	0.62	
12-6-2021	D835V2	4d194	Head	1g	1.00	10.0	9.76	2.46	9, 10
				10g	0.68	6.8	6.42	5.14	
12-13-2021	D1750V2	1125	Head	1g	3.76	37.6	36.50	3.01	
				10g	2.05	20.5	19.20	6.77	
12-15-2021	D1750V2	1125	Head	1g	3.64	36.4	36.50	-0.27	
				10g	1.96	19.6	19.20	2.08	
12-22-2021	D1900V2	5d199	Head	1g	3.87	38.7	40.50	-4.44	11, 12
				10g	2.04	20.4	21.00	-2.86	
12-23-2021	D1750V2	1125	Head	1g	3.37	33.7	36.50	-7.67	13, 14
				10g	1.82	18.2	19.20	-5.21	

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				
11-29-2021	D2450V2	960	Head	1g	5.30	53.0	53.20	-0.38	15, 16
				10g	2.44	24.4	24.80	-1.61	
11-29-2021	D2600V2	1178	Head	1g	5.69	56.9	56.60	0.53	
				10g	2.54	25.4	25.40	0.00	
12-1-2021	D835V2	4d194	Head	1g	0.98	9.8	9.76	0.10	
				10g	0.63	6.3	6.42	-1.71	
12-1-2021	D2450V2	960	Head	1g	5.37	53.7	53.20	0.94	
				10g	2.47	24.7	24.80	-0.40	
12-6-2021	D1900V2	5d199	Head	1g	3.95	39.5	40.50	-2.47	
				10g	2.01	20.1	21.00	-4.29	
12-6-2021	D2450V2	960	Head	1g	5.06	50.6	53.20	-4.89	
				10g	2.33	23.3	24.80	-6.05	
12-17-2021	D5GHzV2 (5750)	1184	Head	1g	7.63	76.3	79.90	-4.51	
				10g	2.19	21.9	22.60	-3.10	
12-20-2021	D5GHzV2 (5250)	1184	Head	1g	7.40	74.0	79.10	-6.45	
				10g	2.10	21.0	22.70	-7.49	
12-22-2021	D2450V2	960	Head	1g	5.11	51.1	53.20	-3.95	17, 18
				10g	2.36	23.6	24.80	-4.84	
12-24-2021	D1750V2	1125	Head	1g	3.55	35.5	36.50	-2.74	
				10g	1.87	18.7	19.20	-2.60	

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				
11-22-2021	D1750V2	1125	Head	1g	3.79	37.9	36.50	3.84	19, 20
				10g	2.07	20.7	19.20	7.81	
11-22-2021	D1900V2	5d199	Head	1g	4.19	41.9	40.50	3.46	
				10g	2.23	22.3	21.00	6.19	
11-23-2021	D835V2	4d194	Head	1g	0.99	9.9	9.76	1.54	
				10g	0.66	6.6	6.42	2.49	
11-25-2021	D750V3	1122	Head	1g	0.84	8.4	8.54	-1.17	
				10g	0.56	5.6	5.59	0.36	
11-25-2021	D1900V2	5d199	Head	1g	3.99	39.9	40.50	-1.48	
				10g	2.10	21.0	21.00	0.00	
11-29-2021	D1750V2	1125	Head	1g	3.66	36.6	36.50	0.27	
				10g	1.99	19.9	19.20	3.65	
11-29-2021	D1900V2	5d199	Head	1g	4.28	42.8	40.50	5.68	
				10g	2.28	22.8	21.00	8.57	
12-3-2021	D1750V2	1125	Head	1g	3.87	38.7	36.50	6.03	
				10g	2.09	20.9	19.20	8.85	
12-6-2021	D1750V2	1125	Head	1g	3.61	36.1	36.50	-1.10	
				10g	1.98	19.8	19.20	3.13	
12-8-2021	D1750V2	1125	Head	1g	3.71	37.1	36.50	1.64	
				10g	1.99	19.9	19.20	3.65	
12-13-2021	D1750V2	1125	Head	1g	3.78	37.8	36.50	3.56	
				10g	2.05	20.5	19.20	6.77	
12-13-2021	D1900V2	5d199	Head	1g	3.98	39.8	40.50	-1.73	
				10g	2.10	21.0	21.00	0.00	
12-15-2021	D1750V2	1125	Head	1g	3.86	38.6	36.50	5.75	
				10g	2.08	20.8	19.20	8.33	
12-20-2021	D1750V2	1125	Head	1g	3.65	36.5	36.50	0.00	
				10g	2.03	20.3	19.20	5.73	
12-20-2021	D1900V2	5d199	Head	1g	4.16	41.6	40.50	2.72	
				10g	2.26	22.6	21.00	7.62	
12-22-2021	D1750V2	1125	Head	1g	3.85	38.5	36.50	5.48	
				10g	2.06	20.6	19.20	7.29	
12-27-2021	D1750V2	1125	Head	1g	3.64	36.4	36.50	-0.27	
				10g	2.06	20.6	19.20	7.29	

9. Conducted Output Power Measurements

9.1. GSM

Per KDB 941225 D01 3G SAR Procedures:

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

GSM850 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	128	824.2	32.2	23.2	34.0	25.0
			190	836.6	32.7	23.7		
			251	848.8	33.4	24.3		
GPRS (GMSK)	CS1	1	128	824.2	32.2	23.2	34.0	25.0
			190	836.6	33.1	24.0		
			251	848.8	33.3	24.2		
		2	128	824.2	29.6	23.6	31.5	25.5
			190	836.6	30.7	24.7		
			251	848.8	31.0	25.0		
		3	128	824.2	28.6	24.4	30.0	25.7
			190	836.6	29.0	24.7		
			251	848.8	29.5	25.3		
		4	128	824.2	26.6	23.6	28.5	25.5
			190	836.6	27.3	24.3		
			251	848.8	27.7	24.7		
EGPRS (8PSK)	MCS5	1	128	824.2	25.7	16.7	27.5	18.5
			190	836.6	26.5	17.4		
			251	848.8	26.8	17.8		
		2	128	824.2	22.3	16.3	24.5	18.5
			190	836.6	23.0	16.9		
			251	848.8	23.1	17.1		
		3	128	824.2	22.1	17.8	23.0	18.7
			190	836.6	21.5	17.2		
			251	848.8	21.8	17.6		
		4	128	824.2	20.5	17.5	22.0	19.0
			190	836.6	21.2	18.2		
			251	848.8	20.1	17.1		

Notes:

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

- GMSK (GPRS) mode with 3 time slots for Max power, based on the Tune-up Procedure. Refer to §6.3.
- SAR is not required for EGPRS (8PSK) mode because the maximum output power and tune-up limit is $\leq 1/4$ 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 Average Power (dBm)				Reduced Average Power (dBm) Hotspot back-off				Reduced Average Power (dBm) Proximity sensor back-off			
					Measured		Tune-up Limit		Measured		Tune-up Limit		Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	512	1850.2	29.4	20.3	31.0	22.0	29.1	20.1	29.3	20.3	28.2	19.2	29.3	20.3
			661	1880.0	29.2	20.2			28.8	19.8			27.9	18.9		
			810	1909.8	29.2	20.2			28.8	19.8			28.0	19.0		
GPRS (GMSK)	CS1	1	512	1850.2	29.4	20.4	31.0	22.0	28.8	19.8	29.3	20.3	27.9	18.9	29.3	20.3
			661	1880.0	29.2	20.2			27.8	18.8			27.8	18.7		
			810	1909.8	29.3	20.2			27.6	18.6			27.6	18.6		
		2	512	1850.2	26.9	20.9	28.5	22.5	26.2	20.2	26.3	20.3	25.5	19.5	26.3	20.3
			661	1880.0	26.6	20.6			25.1	19.0			25.0	19.0		
			810	1909.8	26.5	20.5			24.8	18.7			24.8	18.8		
	3	512	1850.2	25.3	21.0	26.5	22.2	24.1	19.8	24.3	20.0	23.8	19.5	24.3	20.0	
		661	1880.0	24.7	20.5			23.1	18.9			23.1	18.9			
		810	1909.8	24.5	20.2			22.8	18.6			22.9	18.6			
	4	512	1850.2	24.2	21.2	25.0	22.0	22.7	19.7	23.3	20.3	22.7	19.7	23.3	20.3	
		661	1880.0	23.9	20.9			22.0	19.0			22.1	19.0			
		810	1909.8	23.6	20.6			21.7	18.7			21.8	18.8			
EGPRS (8PSK)	MCS5	1	512	1850.2	23.8	14.8	25.5	16.5	21.9	12.9	23.3	14.3	22.6	13.5	23.3	14.3
			661	1880.0	23.8	14.8			21.7	12.7			21.8	12.8		
			810	1909.8	23.7	14.7			21.9	12.9			21.7	12.7		
		2	512	1850.2	22.2	16.2	23.5	17.5	19.7	13.7	21.3	15.3	20.2	14.2	21.3	15.3
			661	1880.0	21.9	15.9			19.5	13.5			19.3	13.3		
			810	1909.8	22.0	16.0			19.5	13.5			19.6	13.5		
	3	512	1850.2	20.8	16.5	22.0	17.7	18.2	13.9	19.8	15.5	18.2	14.0	19.8	15.5	
		661	1880.0	20.5	16.2			18.1	13.8			18.1	13.9			
		810	1909.8	20.5	16.2			17.9	13.7			18.0	13.8			
	4	512	1850.2	19.3	16.2	20.5	17.5	17.4	14.4	19.3	16.3	17.2	14.2	19.3	16.3	
		661	1880.0	19.0	15.9			17.2	14.2			17.2	14.2			
		810	1909.8	18.9	15.9			17.4	14.4			17.4	14.4			

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

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} = β_{hs}/β_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.		

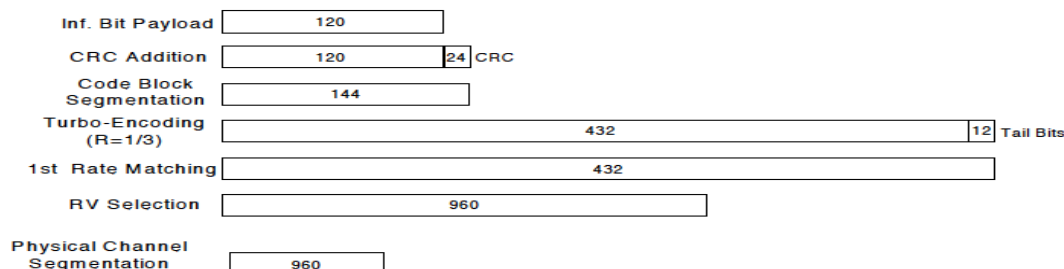


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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			
	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	
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack Repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	$A_{hs} = \beta_{hs}/\beta_c$	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 Average Power (dBm)			Reduced Average Power (dBm) Hotspot back-off			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	24.0	N/A	25.0	18.9	N/A	20.0	18.9	N/A	20.0
		9400	1880.0	24.2			19.2			19.2		
		9538	1907.6	24.1			19.1			19.1		
HSDPA	Subtest 1	9262	1852.4	22.6	0.0	24.0	18.9	0	20.0	18.9	0	20.0
		9400	1880.0	23.1			19.3			19.2		
		9538	1907.6	23.5			19.2			19.2		
	Subtest 2	9262	1852.4	22.6	0.0	24.0	18.9	0	20.0	18.9	0	20.0
		9400	1880.0	23.1			19.2			19.2		
		9538	1907.6	23.3			19.2			19.1		
	Subtest 3	9262	1852.4	21.7	1.0	23.5	18.6	0.0	20.0	18.5	0.0	20.0
		9400	1880.0	22.2			18.8			18.7		
		9538	1907.6	22.5			18.9			18.9		
	Subtest 4	9262	1852.4	22.2	1.0	23.5	18.9	0.0	20.0	18.9	0.0	20.0
		9400	1880.0	22.7			18.7			18.7		
		9538	1907.6	22.9			18.9			18.9		
HSUPA	Subtest 1	9262	1852.4	23.0	1.0	23.5	17.9	0	19.5	17.9	0	19.5
		9400	1880.0	22.8			18.1			18.1		
		9538	1907.6	23.1			18.0			18.0		
	Subtest 2	9262	1852.4	20.9	2.0	21.5	18.1	0	19.5	18.1	0	19.5
		9400	1880.0	20.8			18.0			18.0		
		9538	1907.6	21.0			18.1			18.1		
	Subtest 3	9262	1852.4	22.0	1.0	22.5	18.1	0	19.5	18.1	0	19.5
		9400	1880.0	22.0			18.1			18.0		
		9538	1907.6	22.2			18.2			18.2		
	Subtest 4	9262	1852.4	23.0	2.0	23.5	18.1	0	19.5	18.2	0	19.5
		9400	1880.0	22.9			18.0			18.0		
		9538	1907.6	23.2			18.2			18.2		
	Subtest 5	9262	1852.4	23.2	0.0	23.5	19.1	0	19.5	19.1	0	19.5
		9400	1880.0	22.9			19.3			19.3		
		9538	1907.6	23.2			19.1			19.1		
DC-HSDPA	Subtest 1	9262	1852.4	22.5	0.0	24.0	19.0	0	20.0	19.0	0	20.0
		9400	1880.0	23.1			19.3			19.3		
		9538	1907.6	23.4			19.2			19.2		
	Subtest 2	9262	1852.4	22.6	0.0	24.0	19.0	0	20.0	19.0	0	20.0
		9400	1880.0	23.1			19.3			19.2		
		9538	1907.6	23.4			19.2			19.1		
	Subtest 3	9262	1852.4	21.7	1.0	23.5	19.1	0.0	20.0	18.9	0.0	20.0
		9400	1880.0	22.2			18.9			19.2		
		9538	1907.6	22.4			18.9			19.2		
	Subtest 4	9262	1852.4	22.2	1.0	23.5	18.9	0.0	20.0	19.0	0.0	20.0
		9400	1880.0	22.6			19.0			19.3		
		9538	1907.6	22.9			19.1			19.2		

W-CDMA Band IV Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Hotspot back-off			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	23.1	N/A	25.0	18.0	N/A	20.0	18.0	N/A	20.0
		1413	1732.6	23.9			18.2			18.2		
		1513	1752.6	24.5			18.2			18.3		
HSDPA	Subtest 1	1312	1712.4	22.5	0	24.0	18.0	0	19.5	18.0	0	19.5
		1413	1732.6	22.9			18.2			18.2		
		1513	1752.6	23.7			18.3			18.3		
	Subtest 2	1312	1712.4	22.6	0	24.0	18.0	0	19.5	18.0	0	19.5
		1413	1732.6	23.0			18.2			18.2		
		1513	1752.6	23.7			18.3			18.3		
	Subtest 3	1312	1712.4	21.6	0.5	23.5	18.0	0.0	19.5	18.0	0.0	19.5
		1413	1732.6	21.9			18.2			18.2		
		1513	1752.6	22.6			18.3			18.3		
	Subtest 4	1312	1712.4	22.1	0.5	23.5	18.0	0.0	19.5	18.0	0.0	19.5
		1413	1732.6	22.4			18.2			18.2		
		1513	1752.6	23.1			18.3			18.3		
HSUPA	Subtest 1	1312	1712.4	22.2	0	24.0	17.0	0	19.5	17.0	0	19.5
		1413	1732.6	22.6			17.0			17.0		
		1513	1752.6	21.5			17.1			17.1		
	Subtest 2	1312	1712.4	20.1	2	22.0	16.8	1	18.5	16.8	1	18.5
		1413	1732.6	20.5			17.0			17.0		
		1513	1752.6	21.2			17.0			17.0		
	Subtest 3	1312	1712.4	21.5	1	23.0	16.8	1	18.5	16.8	1	18.5
		1413	1732.6	21.9			17.0			17.0		
		1513	1752.6	22.4			17.0			17.0		
	Subtest 4	1312	1712.4	22.5	0	24.0	16.8	1	18.5	16.8	1	18.5
		1413	1732.6	22.6			17.0			17.0		
		1513	1752.6	23.2			17.0			17.0		
	Subtest 5	1312	1712.4	22.2	0	24.0	18.1	0	19.5	18.1	0	19.5
		1413	1732.6	22.7			18.3			18.3		
		1513	1752.6	23.5			18.3			18.3		
DC-HSDPA	Subtest 1	1312	1712.4	22.5	0	24.0	17.9	0	19.5	17.9	0	19.5
		1413	1732.6	22.9			18.2			18.2		
		1513	1752.6	23.6			18.3			18.2		
	Subtest 2	1312	1712.4	22.6	0	24.0	18.0	0	19.5	17.9	0	19.5
		1413	1732.6	23.0			18.2			18.2		
		1513	1752.6	23.6			18.3			18.2		
	Subtest 3	1312	1712.4	21.5	0.5	23.5	18.0	0.5	19.0	17.9	0.5	19.0
		1413	1732.6	21.9			18.2			18.2		
		1513	1752.6	22.4			18.2			18.2		
	Subtest 4	1312	1712.4	22.0	0.5	23.5	18.0	0.5	19.0	18.0	0.5	19.0
		1413	1732.6	22.3			18.2			18.2		
		1513	1752.6	22.9			18.3			18.2		

W-CDMA Band V Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)		
				Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	4132	826.4	22.6	N/A	24.5
		4183	836.6	22.7		
		4233	846.6	22.6		
HSDPA	Subtest 1	4132	826.4	22.5	0	23.5
		4183	836.6	22.7		
		4233	846.6	22.4		
	Subtest 2	4132	826.4	22.5	0	23.5
		4183	836.6	22.7		
		4233	846.6	22.4		
	Subtest 3	4132	826.4	21.6	0.5	23.0
		4183	836.6	22.2		
		4233	846.6	21.5		
	Subtest 4	4132	826.4	22.3	0.5	23.0
		4183	836.6	22.7		
		4233	846.6	22.0		
HSUPA	Subtest 1	4132	826.4	21.5	0	23.0
		4183	836.6	21.7		
		4233	846.6	21.6		
	Subtest 2	4132	826.4	17.9	3	20.0
		4183	836.6	18.5		
		4233	846.6	18.2		
	Subtest 3	4132	826.4	21.0	1	22.0
		4183	836.6	21.7		
		4233	846.6	21.6		
	Subtest 4	4132	826.4	17.9	3	20.0
		4183	836.6	18.7		
		4233	846.6	18.9		
	Subtest 5	4132	826.4	22.1	0	23.0
		4183	836.6	22.7		
		4233	846.6	22.6		
DC-HSDPA	Subtest 1	4132	826.4	22.4	0	23.5
		4183	836.6	22.7		
		4233	846.6	22.3		
	Subtest 2	4132	826.4	22.4	0	23.5
		4183	836.6	22.6		
		4233	846.6	22.2		
	Subtest 3	4132	826.4	21.3	0.5	23.0
		4183	836.6	21.8		
		4233	846.6	20.7		
	Subtest 4	4132	826.4	22.2	0.5	23.0
		4183	836.6	22.6		
		4233	846.6	21.9		

9.3. LTE

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

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

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

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

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

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

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

Maximum Output Power (Tune-up Limit) for LTE

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

- a) The maximum output power, including tolerance, for the smaller band must be ≤ the larger band to qualify for the SAR test exclusion.
- b) The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.
 - LTE Band 4 (1710 – 1755 MHz) is covered by LTE Band 66 (1710 – 1780 MHz) in Main 1 Ant.
 - LTE Band 5 (824 – 849 MHz) is covered by LTE Band 26 (814 – 849 MHz)
 - LTE Band 17 (704 – 716 MHz) is covered by LTE Band 12 (699 – 716 MHz)

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

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

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

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

1. Max power

LTE Band 2 (Main Ant.1) Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100		
1860 MHz	1880 MHz	1900 MHz						
20 MHz	QPSK	1	0	23.1	23.2	23.2	0.0	24.0
		1	49	23.4	23.5	23.3	0.0	24.0
		1	99	23.4	23.3	23.4	0.0	24.0
		50	0	21.4	21.4	21.6	2.0	22.0
		50	24	21.4	21.6	21.6	2.0	22.0
		50	50	21.4	21.4	21.6	2.0	22.0
	16QAM	100	0	21.4	21.4	21.6	2.0	22.0
		1	0	21.4	21.5	21.2	2.0	22.0
		1	49	21.7	21.6	21.5	2.0	22.0
		1	99	21.7	21.5	21.3	2.0	22.0
		50	0	20.3	20.4	20.5	3.0	21.0
		50	24	20.4	20.4	20.6	3.0	21.0
	64QAM	50	50	20.4	20.4	20.6	3.0	21.0
		100	0	20.4	20.4	20.5	3.0	21.0
		1	0	20.0	20.3	20.4	3.0	21.0
		1	49	20.3	20.3	20.5	3.0	21.0
		1	99	20.3	20.2	20.4	3.0	21.0
		50	0	19.3	19.5	19.5	4.0	20.0
	256QAM	50	24	19.4	19.5	19.6	4.0	20.0
		50	50	19.5	19.4	19.6	4.0	20.0
		100	0	19.4	19.4	19.5	4.0	20.0
		1	0	19.3	19.5	19.5	4.0	20.0
		1	49	19.5	19.8	19.5	4.0	20.0
		1	99	19.5	19.5	19.6	4.0	20.0
15 MHz	QPSK	50	0	18.4	18.5	18.6	4.0	20.0
		50	24	18.5	18.5	18.6	4.0	20.0
		50	50	18.5	18.5	18.6	4.0	20.0
		100	0	18.4	18.5	18.6	4.0	20.0
		1	0	23.2	23.1	23.2	0.0	24.0
		1	37	23.1	23.1	23.2	0.0	24.0
	16QAM	1	74	23.3	23.3	23.3	0.0	24.0
		36	0	21.6	21.5	21.5	2.0	22.0
		36	20	21.6	21.5	21.6	2.0	22.0
		36	39	21.6	21.6	21.7	2.0	22.0
		75	0	21.5	21.5	21.6	2.0	22.0
		1	0	21.4	21.5	21.7	2.0	22.0
64QAM	1	37	21.3	21.4	21.7	2.0	22.0	
	1	74	21.6	21.4	21.8	2.0	22.0	
	36	0	20.5	20.5	20.6	3.0	21.0	
	36	20	20.5	20.5	20.6	3.0	21.0	
	36	39	20.5	20.5	20.6	3.0	21.0	
	75	0	20.5	20.5	20.6	3.0	21.0	
256QAM	1	0	20.4	20.4	20.5	3.0	21.0	
	1	37	20.4	20.2	20.4	3.0	21.0	
	1	74	20.6	20.2	20.5	3.0	21.0	
	36	0	19.4	19.5	19.6	4.0	20.0	
	36	20	19.4	19.5	19.7	4.0	20.0	
	36	39	19.5	19.5	19.7	4.0	20.0	
256QAM	75	0	19.5	19.5	19.6	4.0	20.0	
	1	0	19.3	19.6	19.5	4.0	20.0	
	1	37	19.3	19.6	19.5	4.0	20.0	
	1	74	19.5	19.6	19.6	4.0	20.0	
	36	0	18.4	18.5	18.5	4.0	20.0	
	36	20	18.4	18.5	18.5	4.0	20.0	
256QAM	36	39	18.5	18.5	18.6	4.0	20.0	
	75	0	18.5	18.5	18.5	4.0	20.0	

LTE Band 2 (Main Ant.1) Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18650	18900	19150		
				1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	23.1	23.2	23.2	0.0	24.0
		1	25	23.2	23.4	23.2	0.0	24.0
		1	49	23.3	23.3	23.4	0.0	24.0
		25	0	21.4	21.5	21.5	2.0	22.0
		25	12	21.4	21.4	21.5	2.0	22.0
		25	25	21.4	21.4	21.5	2.0	22.0
	16QAM	50	0	21.4	21.5	21.5	2.0	22.0
		1	0	21.2	21.5	21.9	2.0	22.0
		1	25	21.3	21.6	21.9	2.0	22.0
		1	49	21.2	21.5	21.9	2.0	22.0
		25	0	20.4	20.5	20.5	3.0	21.0
		25	12	20.4	20.5	20.4	3.0	21.0
	64QAM	25	25	20.4	20.5	20.4	3.0	21.0
		50	0	20.4	20.4	20.4	3.0	21.0
		1	0	20.4	20.3	20.4	3.0	21.0
		1	25	20.3	20.2	20.4	3.0	21.0
		1	49	20.4	20.2	20.5	3.0	21.0
		25	0	19.5	19.5	19.6	4.0	20.0
	256QAM	25	12	19.5	19.5	19.5	4.0	20.0
		25	25	19.5	19.5	19.5	4.0	20.0
		50	0	19.4	19.5	19.5	4.0	20.0
		1	0	19.3	19.8	19.4	4.0	20.0
		1	25	19.4	19.8	19.5	4.0	20.0
		1	49	19.4	19.7	19.6	4.0	20.0
5 MHz	QPSK	25	0	18.5	18.6	18.6	4.0	20.0
		25	12	18.5	18.6	18.6	4.0	20.0
		25	25	18.6	18.6	18.6	4.0	20.0
		50	0	18.5	18.5	18.6	4.0	20.0
		1	0	23.4	23.3	23.3	0.0	24.0
		1	12	23.4	23.3	23.2	0.0	24.0
	16QAM	1	24	23.5	23.4	23.5	0.0	24.0
		12	0	21.5	21.5	21.5	2.0	22.0
		12	7	21.5	21.4	21.5	2.0	22.0
		12	13	21.5	21.4	21.5	2.0	22.0
		25	0	21.5	21.4	21.5	2.0	22.0
		1	0	21.4	21.5	21.8	2.0	22.0
	64QAM	1	12	21.3	21.4	21.6	2.0	22.0
		1	24	21.5	21.4	21.8	2.0	22.0
		12	0	20.4	20.4	20.5	3.0	21.0
		12	7	20.4	20.4	20.5	3.0	21.0
		12	13	20.4	20.4	20.5	3.0	21.0
		25	0	20.4	20.4	20.4	3.0	21.0
	256QAM	1	0	20.4	20.0	20.4	3.0	21.0
		1	12	20.4	20.0	20.3	3.0	21.0
		1	24	20.5	20.0	20.3	3.0	21.0
		12	0	19.5	19.4	19.4	4.0	20.0
		12	7	19.5	19.4	19.4	4.0	20.0
		12	13	19.5	19.4	19.4	4.0	20.0
256QAM	25	0	19.4	19.4	19.5	4.0	20.0	
	1	0	19.3	19.2	19.9	4.0	20.0	
	1	12	19.2	19.1	19.8	4.0	20.0	
	1	24	19.4	19.3	19.9	4.0	20.0	
	12	0	18.5	18.5	18.6	4.0	20.0	
	12	7	18.5	18.5	18.6	4.0	20.0	
256QAM	12	13	18.5	18.5	18.6	4.0	20.0	
	25	0	18.6	18.5	18.5	4.0	20.0	

LTE Band 2 (Main Ant.1) Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18615	18900	19185		
				1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	23.3	23.3	23.3	0.0	24.0
		1	8	23.1	23.1	23.3	0.0	24.0
		1	14	23.4	23.3	23.4	0.0	24.0
		8	0	21.6	21.4	21.6	2.0	22.0
		8	4	21.6	21.5	21.6	2.0	22.0
		8	7	21.6	21.5	21.6	2.0	22.0
	16QAM	15	0	21.4	21.4	21.5	2.0	22.0
		1	0	21.3	21.7	21.7	2.0	22.0
		1	8	21.2	21.6	21.7	2.0	22.0
		1	14	21.2	21.7	21.7	2.0	22.0
		8	0	20.4	20.4	20.4	3.0	21.0
		8	4	20.5	20.5	20.4	3.0	21.0
	64QAM	8	7	20.4	20.4	20.4	3.0	21.0
		15	0	20.4	20.4	20.3	3.0	21.0
		1	0	20.4	20.6	20.4	3.0	21.0
		1	8	20.3	20.5	20.4	3.0	21.0
		1	14	20.3	20.7	20.6	3.0	21.0
		8	0	19.4	19.5	19.5	4.0	20.0
	256QAM	8	4	19.4	19.4	19.5	4.0	20.0
		8	7	19.4	19.4	19.5	4.0	20.0
		15	0	19.5	19.4	19.5	4.0	20.0
1		0	19.4	19.7	19.5	4.0	20.0	
1		8	19.3	19.5	19.5	4.0	20.0	
1		14	19.4	19.6	19.6	4.0	20.0	
1.4 MHz	QPSK	8	0	18.5	18.5	18.4	4.0	20.0
		8	4	18.6	18.5	18.4	4.0	20.0
		8	7	18.5	18.5	18.5	4.0	20.0
		15	0	18.6	18.5	18.6	4.0	20.0
		1	0	23.5	23.5	23.6	0.0	24.0
		1	3	23.4	23.3	23.4	0.0	24.0
	16QAM	1	5	23.5	23.5	23.6	0.0	24.0
		3	0	23.5	23.5	23.5	0.0	24.0
		3	1	23.5	23.6	23.5	0.0	24.0
		3	3	23.4	23.4	23.5	0.0	24.0
		6	0	21.4	21.6	21.5	2.0	22.0
		1	0	21.4	21.7	21.5	2.0	22.0
	64QAM	1	3	21.5	21.8	21.7	2.0	22.0
		1	5	21.5	21.7	21.6	2.0	22.0
		3	0	21.6	21.5	21.5	2.0	22.0
		3	1	21.5	21.5	21.5	2.0	22.0
		3	3	21.5	21.5	21.4	2.0	22.0
		6	0	20.4	20.5	20.4	3.0	21.0
	256QAM	1	0	20.5	20.6	20.6	3.0	21.0
		1	3	20.4	20.5	20.5	3.0	21.0
		1	5	20.4	20.5	20.5	3.0	21.0
3		0	20.6	20.6	20.5	3.0	21.0	
3		1	20.6	20.6	20.5	3.0	21.0	
3		3	20.5	20.5	20.4	3.0	21.0	
QPSK	6	0	19.4	19.4	19.5	4.0	20.0	
	1	0	19.5	19.3	19.6	4.0	20.0	
	1	3	19.4	19.3	19.6	4.0	20.0	
	1	5	19.5	19.3	19.7	4.0	20.0	
	3	0	19.5	19.4	19.3	4.0	20.0	
	3	1	19.4	19.4	19.2	4.0	20.0	
16QAM	3	3	19.3	19.3	19.3	4.0	20.0	
	6	0	18.5	18.5	18.5	4.0	20.0	

LTE Band 12 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				23060 704 MHz	23095 707.5 MHz	23130 711 MHz		
10 MHz	QPSK	1	0		24.1		0.0	25.5
		1	25		24.0		0.0	25.5
		1	49		24.0		0.0	25.5
		25	0		22.2		2.0	23.5
		25	12		22.2		2.0	23.5
		25	25		22.1		2.0	23.5
	16QAM	50	0		22.2		2.0	23.5
		1	0		22.4		2.0	23.5
		1	25		22.4		2.0	23.5
		1	49		22.3		2.0	23.5
		25	0		21.2		3.0	22.5
		25	12		21.2		3.0	22.5
	64QAM	25	25		21.1		3.0	22.5
		50	0		21.1		3.0	22.5
		1	0		21.0		3.0	22.5
		1	25		20.9		3.0	22.5
		1	49		20.9		3.0	22.5
		25	0		20.2		4.0	21.5
	256QAM	25	12		20.1		4.0	21.5
		25	25		20.1		4.0	21.5
50		0		20.1		4.0	21.5	
1		0		20.2		4.0	21.5	
1		25		20.1		4.0	21.5	
1		49		20.1		4.0	21.5	
25		0		19.2		5.0	20.5	
25		12		19.2		5.0	20.5	
25	25		19.2		5.0	20.5		
50	0		19.2		5.0	20.5		
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23035 701.5 MHz	23095 707.5 MHz	23155 713.5 MHz		
5 MHz	QPSK	1	0	24.1	24.0	24.0	0.0	25.5
		1	12	24.0	24.0	23.9	0.0	25.5
		1	24	24.1	24.0	24.0	0.0	25.5
		12	0	22.2	22.2	22.1	2.0	23.5
		12	7	22.2	22.1	22.1	2.0	23.5
		12	13	22.2	22.1	22.0	2.0	23.5
	16QAM	25	0	22.2	22.1	22.1	2.0	23.5
		1	0	22.3	22.5	22.4	2.0	23.5
		1	12	22.0	22.3	22.3	2.0	23.5
		1	24	22.3	22.5	22.4	2.0	23.5
		12	0	21.3	21.0	21.0	3.0	22.5
		12	7	21.3	21.0	21.0	3.0	22.5
	64QAM	12	13	21.3	21.0	21.0	3.0	22.5
		25	0	21.2	21.1	21.0	3.0	22.5
		1	0	20.8	21.3	21.0	3.0	22.5
		1	12	20.8	21.1	20.9	3.0	22.5
		1	24	20.9	21.1	21.0	3.0	22.5
		12	0	20.1	20.1	20.0	4.0	21.5
	256QAM	12	7	20.0	20.0	20.0	4.0	21.5
		12	13	20.0	20.0	19.9	4.0	21.5
		25	0	20.0	20.1	20.0	4.0	21.5
		1	0	20.0	20.4	20.0	4.0	21.5
		1	12	19.9	20.3	19.8	4.0	21.5
		1	24	20.0	20.4	20.0	4.0	21.5
		12	0	19.2	19.2	19.1	5.0	20.5
		12	7	19.2	19.2	19.1	5.0	20.5
	12	13	19.2	19.2	19.1	5.0	20.5	
	25	0	19.2	19.1	19.1	5.0	20.5	

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	24.0	24.0	23.9	0.0	25.5
		1	8	23.9	23.8	23.7	0.0	25.5
		1	14	24.0	24.1	23.9	0.0	25.5
		8	0	22.3	22.2	22.1	2.0	23.5
		8	4	22.3	22.1	22.1	2.0	23.5
		8	7	22.3	22.2	22.1	2.0	23.5
	16QAM	15	0	22.2	22.1	22.1	2.0	23.5
		1	0	22.6	22.0	22.2	2.0	23.5
		1	8	22.5	21.8	22.1	2.0	23.5
		1	14	22.5	21.9	22.3	2.0	23.5
		8	0	21.2	21.0	21.1	3.0	22.5
		8	4	21.2	21.1	21.1	3.0	22.5
	64QAM	8	7	21.1	21.0	21.1	3.0	22.5
		15	0	21.1	21.1	21.0	3.0	22.5
		1	0	21.0	21.2	21.1	3.0	22.5
		1	8	20.9	20.9	20.9	3.0	22.5
		1	14	20.9	21.2	21.1	3.0	22.5
		8	0	20.1	20.2	20.2	4.0	21.5
	256QAM	8	4	20.1	20.2	20.1	4.0	21.5
		8	7	20.1	20.2	20.1	4.0	21.5
		15	0	20.1	20.1	20.1	4.0	21.5
1		0	20.1	20.3	20.0	4.0	21.5	
1		8	20.0	20.3	19.8	4.0	21.5	
1		14	20.1	20.3	19.9	4.0	21.5	
1.4 MHz	QPSK	8	0	19.3	19.2	19.1	5.0	20.5
		8	4	19.3	19.2	19.0	5.0	20.5
		8	7	19.3	19.2	19.1	5.0	20.5
		15	0	19.3	19.2	19.1	5.0	20.5
		1	0	24.1	24.2	24.2	0.0	25.5
		1	3	24.0	24.0	23.9	0.0	25.5
	16QAM	1	5	24.2	24.2	24.1	0.0	25.5
		3	0	24.2	24.2	24.1	0.0	25.5
		3	1	24.2	24.2	24.1	0.0	25.5
		3	3	24.2	24.1	24.1	0.0	25.5
		6	0	22.2	22.2	22.1	2.0	23.5
		1	0	22.0	22.6	22.1	2.0	23.5
	64QAM	1	3	22.1	22.7	22.3	2.0	23.5
		1	5	22.1	22.6	22.2	2.0	23.5
		3	0	22.2	22.1	22.1	2.0	23.5
		3	1	22.1	22.2	22.1	2.0	23.5
		3	3	22.2	22.2	22.1	2.0	23.5
		6	0	21.3	21.1	21.1	3.0	22.5
	256QAM	1	0	21.2	21.4	21.1	3.0	22.5
		1	3	21.3	21.1	21.0	3.0	22.5
		1	5	21.3	21.3	21.0	3.0	22.5
3		0	21.1	21.3	21.0	3.0	22.5	
3		1	21.1	21.2	21.0	3.0	22.5	
3		3	21.0	21.2	21.0	3.0	22.5	
QPSK	6	0	20.1	20.2	20.0	4.0	21.5	
	1	0	20.1	20.2	20.3	4.0	21.5	
	1	3	20.1	20.2	20.1	4.0	21.5	
	1	5	20.1	20.2	20.4	4.0	21.5	
	3	0	20.4	20.3	20.0	4.0	21.5	
	3	1	20.3	20.2	20.0	4.0	21.5	
16QAM	3	3	20.3	20.1	19.9	4.0	21.5	
	6	0	19.3	19.2	19.0	5.0	20.5	

LTE Band 13 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				23205	23230	23255		
				782 MHz				
10 MHz	QPSK	1	0		23.9		0.0	25.5
		1	25		23.8		0.0	25.5
		1	49		23.9		0.0	25.5
		25	0		22.1		2.0	23.5
		25	12		22.1		2.0	23.5
		25	25		22.1		2.0	23.5
	16QAM	50	0		22.1		2.0	23.5
		1	0		22.0		2.0	23.5
		1	25		22.0		2.0	23.5
		1	49		21.9		2.0	23.5
		25	0		21.1		3.0	22.5
		25	12		21.1		3.0	22.5
	64QAM	25	25		21.1		3.0	22.5
		50	0		21.1		3.0	22.5
		1	0		21.0		3.0	22.5
		1	25		21.0		3.0	22.5
		1	49		20.9		3.0	22.5
		25	0		20.2		4.0	21.5
	256QAM	25	12		20.2		4.0	21.5
		25	25		20.2		4.0	21.5
50		0		20.1		4.0	21.5	
1		0		20.1		4.0	21.5	
1		25		20.1		4.0	21.5	
1		49		20.1		4.0	21.5	
				779.5 MHz	782 MHz	784.5 MHz		
5 MHz	QPSK	1	0		24.0		0.0	25.5
		1	12		23.8		0.0	25.5
		1	24		24.0		0.0	25.5
		12	0		22.1		2.0	23.5
		12	7		22.1		2.0	23.5
		12	13		22.1		2.0	23.5
	16QAM	25	0		22.1		2.0	23.5
		1	0		22.3		2.0	23.5
		1	12		22.0		2.0	23.5
		1	24		22.2		2.0	23.5
		12	0		21.2		3.0	22.5
		12	7		21.2		3.0	22.5
	64QAM	12	13		21.2		3.0	22.5
		25	0		21.1		3.0	22.5
		1	0		21.1		3.0	22.5
		1	12		20.8		3.0	22.5
		1	24		21.0		3.0	22.5
		12	0		20.1		4.0	21.5
	256QAM	12	7		20.1		4.0	21.5
		12	13		20.1		4.0	21.5
25		0		20.1		4.0	21.5	
1		0		20.3		4.0	21.5	
1		12		20.2		4.0	21.5	
1		24		20.3		4.0	21.5	
				779.5 MHz	782 MHz	784.5 MHz		
256QAM	12	0		19.2		5.0	20.5	
	12	7		19.2		5.0	20.5	
	12	13		19.1		5.0	20.5	
	25	0		19.1		5.0	20.5	

LTE Band 26 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					
				Measured Pwr (dBm)				MPR	Tune-up Limit
				26765	26790	26865	26965		
				821.5 MHz	824 MHz	831.5 MHz	841.5 MHz		
15 MHz	QPSK	1	0	23.2	23.3	23.4	22.7	0.0	24.5
		1	37	23.1	23.2	23.0	22.6	0.0	24.5
		1	74	23.1	23.2	23.1	22.6	0.0	24.5
		36	0	21.5	21.6	21.7	21.2	2.0	22.5
		36	20	21.5	21.6	21.3	21.2	2.0	22.5
		36	39	21.4	21.5	21.3	21.2	2.0	22.5
		75	0	21.5	21.6	21.3	21.2	2.0	22.5
	16QAM	1	0	21.5	21.6	21.6	21.5	2.0	22.5
		1	37	21.4	21.5	21.4	21.4	2.0	22.5
		1	74	21.4	21.5	21.5	21.4	2.0	22.5
		36	0	20.5	20.6	20.3	20.2	3.0	21.5
		36	20	20.5	20.6	20.3	20.2	3.0	21.5
		36	39	20.4	20.5	20.3	20.2	3.0	21.5
		75	0	20.4	20.5	20.3	20.2	3.0	21.5
	64QAM	1	0	20.2	20.5	20.3	20.1	3.0	21.5
		1	37	20.2	20.4	20.0	20.0	3.0	21.5
		1	74	20.2	20.3	20.2	20.0	3.0	21.5
		36	0	19.4	19.7	19.3	19.3	4.0	20.5
		36	20	19.4	19.7	19.3	19.3	4.0	20.5
		36	39	19.3	19.6	19.3	19.3	4.0	20.5
		75	0	19.4	19.6	19.3	19.2	4.0	20.5
	256QAM	1	0	19.4	19.6	19.4	19.0	4.0	20.5
		1	37	19.3	19.5	19.2	18.9	4.0	20.5
		1	74	19.4	19.5	19.3	19.0	4.0	20.5
		36	0	18.4	18.6	18.3	18.2	5.0	19.5
		36	20	18.4	18.6	18.3	18.2	5.0	19.5
		36	39	18.4	18.5	18.3	18.2	5.0	19.5
		75	0	18.4	18.6	18.3	18.2	5.0	19.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)				MPR	Tune-up Limit
				26740	26790	26865	26990		
				819 MHz	824 MHz	831.5 MHz	844 MHz		
				10 MHz	QPSK	1	0	23.2	23.3
1	25	23.1	23.3			23.1	22.8	0.0	24.5
1	49	23.2	23.3			23.1	22.9	0.0	24.5
25	0	21.4	21.6			21.3	21.2	2.0	22.5
25	12	21.4	21.5			21.3	21.2	2.0	22.5
25	25	21.4	21.5			21.3	21.1	2.0	22.5
50	0	21.4	21.5			21.3	21.2	2.0	22.5
16QAM	1	0	21.2		21.8	21.6	21.6	2.0	22.5
	1	25	21.2		21.8	21.6	21.6	2.0	22.5
	1	49	21.1		21.7	21.6	21.5	2.0	22.5
	25	0	20.4		20.6	20.3	20.2	3.0	21.5
	25	12	20.4		20.6	20.3	20.1	3.0	21.5
	25	25	20.4		20.5	20.3	20.1	3.0	21.5
	50	0	20.4		20.5	20.2	20.1	3.0	21.5
64QAM	1	0	20.5		20.4	20.1	19.9	3.0	21.5
	1	25	20.4		20.4	20.0	19.9	3.0	21.5
	1	49	20.4		20.4	20.1	19.9	3.0	21.5
	25	0	19.4		19.6	19.2	19.2	4.0	20.5
	25	12	19.4		19.6	19.2	19.2	4.0	20.5
	25	25	19.4		19.5	19.2	19.2	4.0	20.5
	50	0	19.4		19.6	19.2	19.1	4.0	20.5
256QAM	1	0	19.2		19.6	19.4	19.2	4.0	20.5
	1	25	19.2		19.5	19.2	19.0	4.0	20.5
	1	49	19.1		19.5	19.3	19.1	4.0	20.5
	25	0	18.5		18.6	18.3	18.2	5.0	19.5
	25	12	18.5		18.6	18.3	18.1	5.0	19.5
	25	25	18.5		18.5	18.3	18.1	5.0	19.5
	50	0	18.4		18.5	18.3	18.1	5.0	19.5

LTE Band 26 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)				MPR	Tune-up Limit
				26715	26790	26865	27015		
				816.5 MHz	824 MHz	831.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	23.4	23.4	23.2	23.0	0.0	24.5
		1	12	23.3	23.3	23.2	22.9	0.0	24.5
		1	24	23.4	23.4	23.3	23.0	0.0	24.5
		12	0	21.5	21.5	21.3	21.2	2.0	22.5
		12	7	21.5	21.5	21.3	21.1	2.0	22.5
		12	13	21.5	21.5	21.3	21.1	2.0	22.5
	16QAM	25	0	21.5	21.6	21.3	21.1	2.0	22.5
		1	0	21.7	21.9	21.6	21.6	2.0	22.5
		1	12	21.5	21.6	21.4	21.3	2.0	22.5
		1	24	21.7	21.8	21.5	21.6	2.0	22.5
		12	0	20.4	20.7	20.2	20.2	3.0	21.5
		12	7	20.4	20.7	20.2	20.2	3.0	21.5
	64QAM	12	13	20.4	20.7	20.2	20.2	3.0	21.5
		25	0	20.4	20.6	20.2	20.1	3.0	21.5
		1	0	20.2	20.3	20.0	20.1	3.0	21.5
		1	12	20.1	20.3	19.9	19.9	3.0	21.5
		1	24	20.2	20.4	20.0	20.0	3.0	21.5
		12	0	19.4	19.6	19.2	19.0	4.0	20.5
	256QAM	12	7	19.4	19.6	19.1	19.0	4.0	20.5
		12	13	19.4	19.5	19.1	19.0	4.0	20.5
		25	0	19.4	19.5	19.2	19.1	4.0	20.5
		1	0	19.5	19.4	19.4	19.1	4.0	20.5
		1	12	19.3	19.2	19.2	18.9	4.0	20.5
		1	24	19.4	19.3	19.3	19.1	4.0	20.5
	3 MHz	QPSK	12	0	18.5	18.5	18.3	18.2	5.0
12			7	18.5	18.5	18.2	18.2	5.0	19.5
12			13	18.5	18.5	18.2	18.2	5.0	19.5
25			0	18.5	18.5	18.2	18.0	5.0	19.5
1			0	23.3	23.4	23.1	22.9	0.0	24.5
1			8	23.1	23.3	23.0	22.7	0.0	24.5
16QAM		1	14	23.2	23.4	23.2	23.0	0.0	24.5
		8	0	21.5	21.6	21.4	21.2	2.0	22.5
		8	4	21.5	21.6	21.3	21.1	2.0	22.5
		8	7	21.5	21.6	21.3	21.2	2.0	22.5
		15	0	21.5	21.5	21.3	21.1	2.0	22.5
		1	0	21.9	21.7	21.5	21.0	2.0	22.5
64QAM		1	8	21.6	21.6	21.4	20.8	2.0	22.5
		1	14	21.9	21.6	21.4	20.9	2.0	22.5
		8	0	20.5	20.6	20.3	20.0	3.0	21.5
	8	4	20.5	20.6	20.3	20.1	3.0	21.5	
	8	7	20.5	20.5	20.3	20.0	3.0	21.5	
	15	0	20.4	20.5	20.2	20.1	3.0	21.5	
256QAM	1	0	20.3	20.7	20.0	20.2	3.0	21.5	
	1	8	20.2	20.6	19.8	20.1	3.0	21.5	
	1	14	20.2	20.8	20.1	20.3	3.0	21.5	
	8	0	19.4	19.6	19.3	19.1	4.0	20.5	
	8	4	19.4	19.6	19.2	19.1	4.0	20.5	
	8	7	19.4	19.6	19.2	19.1	4.0	20.5	
16QAM	15	0	19.4	19.7	19.2	19.2	4.0	20.5	
	1	0	19.3	19.8	19.4	18.8	4.0	20.5	
	1	8	19.1	19.6	19.3	18.7	4.0	20.5	
	1	14	19.3	19.7	19.4	18.9	4.0	20.5	
	8	0	18.6	18.5	18.3	18.1	5.0	19.5	
	8	4	18.6	18.5	18.3	18.0	5.0	19.5	
QPSK	8	7	18.6	18.5	18.3	18.1	5.0	19.5	
	15	0	18.6	18.6	18.3	18.1	5.0	19.5	

LTE Band 26 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)				MPR	Tune-up Limit
				26697	26790	26865	27033		
				814.7 MHz	824 MHz	831.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	23.5	23.7	23.4	23.2	0.0	24.5
		1	3	23.3	23.6	23.1	23.0	0.0	24.5
		1	5	23.5	23.6	23.3	23.1	0.0	24.5
		3	0	23.6	23.7	23.2	23.2	0.0	24.5
		3	1	23.6	23.7	23.3	23.2	0.0	24.5
		3	3	23.5	23.6	23.3	23.2	0.0	24.5
	16QAM	6	0	21.5	21.6	21.3	21.1	1.0	23.5
		1	0	21.8	21.5	21.3	21.2	1.0	23.5
		1	3	21.8	21.6	21.5	21.3	1.0	23.5
		1	5	21.8	21.6	21.4	21.3	1.0	23.5
		3	0	21.5	21.6	21.3	21.2	1.0	23.5
		3	1	21.6	21.6	21.3	21.1	1.0	23.5
	64QAM	3	3	21.5	21.6	21.3	21.1	1.0	23.5
		6	0	20.4	20.6	20.4	20.2	2.0	22.5
		1	0	20.9	21.0	20.4	20.1	2.0	22.5
		1	3	20.7	20.8	20.3	20.1	2.0	22.5
		1	5	20.7	20.9	20.3	20.1	2.0	22.5
		3	0	20.6	20.6	20.3	20.1	2.0	22.5
	256QAM	3	1	20.5	20.5	20.3	20.0	2.0	22.5
		3	3	20.5	20.5	20.2	20.2	2.0	22.5
		6	0	19.5	19.5	19.3	19.1	3.0	21.5
		1	0	19.4	19.5	19.4	19.1	4.0	20.5
		1	3	19.4	19.5	19.2	19.2	4.0	20.5
		1	5	19.4	19.5	19.4	19.0	4.0	20.5
		3	0	19.4	19.5	19.2	19.2	4.0	20.5
		3	1	19.4	19.4	19.2	19.1	4.0	20.5
		3	3	19.4	19.3	19.2	19.2	4.0	20.5
		6	0	18.4	18.6	18.2	18.1	4.0	20.5

LTE Band 66 (Main Ant.1) Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	23.0	23.3	24.0	0.0	24.5
		1	49	23.2	23.5	24.3	0.0	24.5
		1	99	23.3	23.5	23.6	0.0	24.5
		50	0	21.4	21.9	22.3	1.0	23.5
		50	24	21.4	21.8	22.3	1.0	23.5
		50	50	21.3	21.7	22.4	1.0	23.5
	100	0	21.3	21.7	22.2	1.0	23.5	
	16QAM	1	0	21.1	21.3	22.2	1.0	23.5
		1	49	21.2	21.5	22.3	1.0	23.5
		1	99	21.2	21.2	22.3	1.0	23.5
		50	0	20.2	20.7	21.1	2.0	22.5
		50	24	20.2	20.7	21.1	2.0	22.5
		50	50	20.2	20.7	21.1	2.0	22.5
	100	0	20.2	20.7	21.1	2.0	22.5	
	64QAM	1	0	19.7	20.2	20.7	2.5	22.0
		1	49	19.7	20.2	20.8	2.5	22.0
		1	99	19.8	20.2	20.8	2.5	22.0
		50	0	19.6	20.2	20.0	3.0	21.5
		50	24	19.6	20.1	20.0	3.0	21.5
		50	50	19.6	20.1	20.0	3.0	21.5
	100	0	19.7	20.1	20.0	3.0	21.5	
	256QAM	1	0	19.1	19.5	20.1	3.0	21.5
		1	49	19.2	19.6	20.3	3.0	21.5
		1	99	19.3	19.6	20.4	3.0	21.5
50		0	18.4	18.8	19.3	4.0	20.5	
50		24	18.5	18.8	19.4	4.0	20.5	
50		50	18.5	18.8	19.3	4.0	20.5	
100	0	18.4	18.8	19.3	4.0	20.5		
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132047	132322	132597		
				1717.5 MHz	1745 MHz	1772.5 MHz		
				1717.5 MHz	1745 MHz	1772.5 MHz		
15 MHz	QPSK	1	0	23.2	23.8	24.3	0.0	24.5
		1	37	23.2	23.8	24.4	0.0	24.5
		1	74	23.4	23.9	24.5	0.0	24.5
		36	0	21.8	22.4	22.9	1.0	23.5
		36	20	21.8	22.3	22.9	1.0	23.5
		36	39	21.8	22.3	22.9	1.0	23.5
	75	0	21.7	22.3	22.8	1.0	23.5	
	16QAM	1	0	21.3	22.2	22.7	1.0	23.5
		1	37	21.3	22.1	22.7	1.0	23.5
		1	74	21.4	22.2	22.8	1.0	23.5
		36	0	20.6	21.2	21.7	2.0	22.5
		36	20	20.6	21.2	21.7	2.0	22.5
		36	39	20.6	21.2	21.7	2.0	22.5
	75	0	20.6	21.2	21.7	2.0	22.5	
	64QAM	1	0	20.5	20.9	21.5	2.5	22.0
		1	37	20.5	20.8	21.4	2.5	22.0
		1	74	20.6	20.9	21.5	2.5	22.0
		36	0	19.5	20.2	20.6	3.0	21.5
		36	20	19.5	20.1	20.6	3.0	21.5
		36	39	19.5	20.1	20.6	3.0	21.5
	75	0	19.6	20.0	20.5	3.0	21.5	
	256QAM	1	0	19.4	20.1	20.1	3.0	21.5
		1	37	19.6	20.1	20.2	3.0	21.5
		1	74	19.6	20.1	20.3	3.0	21.5
36		0	18.7	19.2	19.7	4.0	20.5	
36		20	18.7	19.2	19.7	4.0	20.5	
36		39	18.7	19.2	19.7	4.0	20.5	
75	0	18.7	19.2	19.7	4.0	20.5		

LTE Band 66 (Main Ant.1) Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622		
				1715 MHz	1745 MHz	1775 MHz		
10 MHz	QPSK	1	0	23.2	23.9	24.1	0.0	24.5
		1	25	23.2	23.9	24.1	0.0	24.5
		1	49	23.4	24.0	24.5	0.0	24.5
		25	0	21.6	22.2	22.7	1.0	23.5
		25	12	21.6	22.2	22.7	1.0	23.5
		25	25	21.5	22.1	22.7	1.0	23.5
	16QAM	50	0	21.6	22.1	22.6	1.0	23.5
		1	0	21.2	21.9	22.8	1.0	23.5
		1	25	21.3	22.0	22.9	1.0	23.5
		1	49	21.2	22.0	22.8	1.0	23.5
		25	0	20.5	21.1	21.5	2.0	22.5
		25	12	20.5	21.1	21.5	2.0	22.5
	64QAM	25	25	20.5	21.1	21.5	2.0	22.5
		50	0	20.5	21.1	21.4	2.0	22.5
		1	0	20.4	20.8	21.3	2.5	22.0
		1	25	20.4	20.9	21.3	2.5	22.0
		1	49	20.3	20.8	21.4	2.5	22.0
		25	0	19.5	20.1	20.4	3.0	21.5
	256QAM	25	12	19.5	20.1	20.4	3.0	21.5
		25	25	19.5	20.1	20.4	3.0	21.5
		50	0	19.4	20.0	20.4	3.0	21.5
		1	0	19.2	20.1	20.4	3.0	21.5
		1	25	19.4	20.1	20.3	3.0	21.5
		1	49	19.4	20.2	20.5	3.0	21.5
5 MHz	QPSK	25	0	18.6	19.3	19.7	4.0	20.5
		25	12	18.6	19.3	19.7	4.0	20.5
		25	25	18.6	19.3	19.7	4.0	20.5
		50	0	18.7	19.3	19.7	4.0	20.5
		1	0	22.9	24.0	24.2	0.0	24.5
		1	12	23.0	24.0	24.3	0.0	24.5
	16QAM	1	24	23.2	24.1	24.5	0.0	24.5
		12	0	21.4	22.2	22.7	1.0	23.5
		12	7	21.4	22.1	22.7	1.0	23.5
		12	13	21.3	22.1	22.7	1.0	23.5
		25	0	21.4	22.1	22.7	1.0	23.5
		1	0	21.4	22.2	22.8	1.0	23.5
	64QAM	1	12	21.2	22.0	22.5	1.0	23.5
		1	24	21.5	22.1	22.7	1.0	23.5
		12	0	20.3	20.9	21.6	2.0	22.5
		12	7	20.3	20.9	21.6	2.0	22.5
		12	13	20.3	20.9	21.6	2.0	22.5
		25	0	20.4	21.1	21.5	2.0	22.5
	256QAM	1	0	19.9	20.7	21.1	2.5	22.0
		1	12	19.9	20.7	21.0	2.5	22.0
		1	24	20.1	20.7	21.1	2.5	22.0
		12	0	19.2	19.9	20.3	3.0	21.5
		12	7	19.2	19.9	20.2	3.0	21.5
		12	13	19.2	19.9	20.2	3.0	21.5
16QAM	25	0	19.2	19.9	20.2	3.0	21.5	
	1	0	19.2	19.7	19.9	3.0	21.5	
	1	12	19.3	19.7	20.0	3.0	21.5	
	1	24	19.4	19.7	20.1	3.0	21.5	
	12	0	18.5	19.0	19.7	4.0	20.5	
	12	7	18.5	19.1	19.7	4.0	20.5	
256QAM	12	13	18.5	19.1	19.7	4.0	20.5	
	25	0	18.5	19.2	19.7	4.0	20.5	

LTE Band 66 (Main Ant.1) Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657		
				1711.5 MHz	1745 MHz	1778.5 MHz		
3 MHz	QPSK	1	0	23.2	23.9	24.3	0.0	24.5
		1	8	23.1	23.7	24.4	0.0	24.5
		1	14	23.4	23.9	24.4	0.0	24.5
		8	0	21.6	22.3	23.0	1.0	23.5
		8	4	21.6	22.3	23.0	1.0	23.5
		8	7	21.5	22.2	23.0	1.0	23.5
	16QAM	15	0	21.5	22.2	22.7	1.0	23.5
		1	0	21.1	22.2	22.8	1.0	23.5
		1	8	21.2	22.1	22.7	1.0	23.5
		1	14	21.0	22.2	22.7	1.0	23.5
		8	0	20.3	21.1	21.7	2.0	22.5
		8	4	20.4	21.1	21.6	2.0	22.5
	64QAM	8	7	20.2	21.1	21.6	2.0	22.5
		15	0	20.4	21.0	21.5	2.0	22.5
		1	0	20.1	21.1	21.5	2.0	22.5
		1	8	20.1	20.9	21.4	2.0	22.5
		1	14	20.0	21.1	21.6	2.0	22.5
		8	0	19.3	20.0	20.5	3.0	21.5
	256QAM	8	4	19.3	19.9	20.5	3.0	21.5
		8	7	19.3	19.9	20.5	3.0	21.5
		15	0	19.3	20.0	20.5	3.0	21.5
		1	0	19.1	20.2	20.5	3.0	21.5
		1	8	19.1	20.2	20.5	3.0	21.5
		1	14	19.2	20.3	20.6	3.0	21.5
1.4 MHz	QPSK	8	0	18.6	19.2	19.8	4.0	20.5
		8	4	18.6	19.2	19.7	4.0	20.5
		8	7	18.6	19.2	19.8	4.0	20.5
		15	0	18.7	19.2	19.8	4.0	20.5
		1	0	23.4	23.7	23.9	0.0	24.5
		1	3	23.5	23.7	24.0	0.0	24.5
	16QAM	1	5	23.7	23.9	24.1	0.0	24.5
		3	0	23.8	23.9	24.2	0.0	24.5
		3	1	23.8	23.9	24.1	0.0	24.5
		3	3	23.9	24.0	24.2	0.0	24.5
		6	0	23.9	24.0	24.2	0.0	24.5
		1	0	22.2	22.3	22.3	1.0	23.5
	64QAM	1	3	22.2	22.3	22.2	1.0	23.5
		1	5	22.2	22.3	22.2	1.0	23.5
		3	0	21.8	21.9	22.3	1.0	23.5
		3	1	21.8	21.9	22.3	1.0	23.5
		3	3	21.8	21.9	22.3	1.0	23.5
		6	0	21.8	21.9	22.4	2.0	22.5
	256QAM	1	0	20.9	21.0	21.3	2.0	22.5
		1	3	20.9	21.0	21.2	2.0	22.5
		1	5	20.9	21.0	21.3	2.0	22.5
		3	0	20.9	21.1	21.4	2.0	22.5
		3	1	20.9	21.1	21.3	2.0	22.5
		3	3	21.0	21.1	21.3	2.0	22.5
16QAM	6	0	21.0	21.1	21.2	3.0	21.5	
	1	0	20.2	20.2	20.1	3.0	21.5	
	1	3	20.3	20.3	20.2	3.0	21.5	
	1	5	20.4	20.4	20.2	3.0	21.5	
	3	0	20.2	20.3	20.7	3.0	21.5	
	3	1	20.2	20.3	20.7	3.0	21.5	
QPSK	3	3	20.3	20.4	20.7	3.0	21.5	
	6	0	20.3	20.4	20.5	4.0	20.5	

LTE Band 41 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)							MPR	Tune-up Limit
				Measured Pwr (dBm)					MPR	Tune-up Limit		
				39750	40185	40620	41055	41490				
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz				
20 MHz	QPSK	1	0	23.9	23.4	23.7	23.5	23.4	0.0	25.0		
		1	49	23.8	23.3	23.7	23.5	23.4	0.0	25.0		
		1	99	23.8	23.3	23.9	23.5	23.4	0.0	25.0		
		50	0	22.0	21.7	22.0	21.8	21.8	2.0	23.0		
		50	24	22.0	21.7	22.0	21.8	21.8	2.0	23.0		
		50	50	22.0	21.7	22.0	21.8	21.8	2.0	23.0		
	16QAM	100	0	22.0	21.7	22.0	21.8	21.8	2.0	23.0		
		1	0	21.8	21.6	21.8	21.5	21.7	2.0	23.0		
		1	49	21.8	21.8	21.7	21.7	21.9	2.0	23.0		
		1	99	21.9	21.6	22.1	21.5	21.6	2.0	23.0		
		50	0	21.0	20.6	21.1	20.8	20.7	3.0	22.0		
		50	24	21.0	20.7	21.0	20.8	20.7	3.0	22.0		
	64QAM	50	50	20.9	20.7	21.0	20.7	20.7	3.0	22.0		
		100	0	21.0	20.7	21.0	20.8	20.8	3.0	22.0		
		1	0	20.5	20.4	20.7	20.8	20.7	3.0	22.0		
		1	49	20.6	20.6	20.6	20.1	20.7	3.0	22.0		
		1	99	20.4	20.4	20.7	20.1	20.3	3.0	22.0		
		50	0	20.0	19.8	20.0	19.8	19.9	4.0	21.0		
	256QAM	50	24	20.0	19.8	20.0	19.7	19.9	4.0	21.0		
		50	50	20.0	19.8	20.0	19.7	19.8	4.0	21.0		
		100	0	20.0	19.8	19.9	19.7	19.8	4.0	21.0		
		1	0	19.6	20.2	19.9	19.6	19.7	4.0	21.0		
		1	49	20.1	19.7	19.5	19.8	20.0	4.0	21.0		
		1	99	20.1	19.6	19.7	19.6	19.5	4.0	21.0		
15 MHz	QPSK	50	0	19.1	18.7	19.0	18.8	18.9	5.0	20.0		
		50	24	19.1	18.7	19.0	18.8	18.9	5.0	20.0		
		50	50	19.0	18.7	19.0	18.8	18.8	5.0	20.0		
		100	0	19.0	18.8	19.0	18.8	18.9	5.0	20.0		
		1	0	24.1	23.7	24.1	23.7	23.8	0.0	25.0		
		1	37	24.0	23.6	23.9	23.7	23.8	0.0	25.0		
	16QAM	1	74	24.0	23.7	23.9	23.8	23.6	0.0	25.0		
		36	0	22.0	21.7	22.0	21.7	21.8	2.0	23.0		
		36	20	22.0	21.7	22.0	21.7	21.8	2.0	23.0		
		36	39	22.0	21.7	21.9	21.7	21.8	2.0	23.0		
		75	0	22.0	21.7	21.9	21.7	21.8	2.0	23.0		
		1	0	21.6	21.5	21.8	21.4	21.6	2.0	23.0		
	64QAM	1	37	21.4	21.5	21.8	21.3	21.7	2.0	23.0		
		1	74	21.7	21.7	21.9	21.6	21.5	2.0	23.0		
		36	0	21.0	20.7	21.0	20.7	20.8	3.0	22.0		
		36	20	21.0	20.7	21.0	20.7	20.8	3.0	22.0		
		36	39	21.0	20.7	21.0	20.7	20.8	3.0	22.0		
		75	0	20.9	20.6	20.9	20.7	20.8	3.0	22.0		
	256QAM	1	0	20.6	20.4	20.8	20.1	20.6	3.0	22.0		
		1	37	20.3	20.3	20.7	19.6	20.3	3.0	22.0		
		1	74	20.5	20.4	21.2	20.6	20.5	3.0	22.0		
		36	0	20.0	19.7	20.1	19.7	19.7	4.0	21.0		
		36	20	20.0	19.6	20.0	19.8	19.7	4.0	21.0		
		36	39	19.9	19.7	20.0	19.8	19.8	4.0	21.0		
QPSK	75	0	19.9	19.7	20.0	19.7	19.8	4.0	21.0			
	1	0	20.1	19.8	19.8	19.9	20.0	4.0	21.0			
	1	37	19.8	19.5	19.4	19.7	19.8	4.0	21.0			
	1	74	19.9	19.8	19.3	19.8	19.9	4.0	21.0			
	36	0	19.1	18.7	19.0	18.8	18.8	5.0	20.0			
	36	20	19.1	18.7	19.0	18.8	18.8	5.0	20.0			
16QAM	36	39	19.0	18.7	19.0	18.8	18.8	5.0	20.0			
	75	0	19.0	18.8	19.0	18.7	18.9	5.0	20.0			

LTE Band 41 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	24.1	23.7	24.1	23.8	23.8	0.0	25.0
		1	25	23.9	23.7	24.1	23.7	23.9	0.0	25.0
		1	49	23.9	23.7	24.0	23.7	23.8	0.0	25.0
		25	0	22.0	21.7	22.0	21.8	21.8	2.0	23.0
		25	12	22.0	21.7	22.0	21.8	21.8	2.0	23.0
		25	25	22.0	21.7	22.0	21.8	21.8	2.0	23.0
	16QAM	1	0	21.9	21.2	21.7	21.8	21.4	2.0	23.0
		1	25	21.9	21.2	21.7	21.8	21.4	2.0	23.0
		1	49	22.0	21.2	21.7	21.8	21.3	2.0	23.0
		25	0	21.0	20.7	20.9	20.8	20.8	3.0	22.0
		25	12	21.0	20.7	20.9	20.8	20.8	3.0	22.0
		25	25	21.0	20.7	20.9	20.8	20.8	3.0	22.0
	64QAM	1	0	20.6	20.6	20.6	20.3	20.4	3.0	22.0
		1	25	20.4	20.6	20.7	20.2	20.2	3.0	22.0
		1	49	20.6	20.6	20.5	20.4	20.4	3.0	22.0
		25	0	20.0	19.6	20.0	19.7	19.7	4.0	21.0
		25	12	20.0	19.6	20.1	19.7	19.7	4.0	21.0
		25	25	20.0	19.6	20.0	19.7	19.7	4.0	21.0
	256QAM	1	0	19.8	19.5	20.0	19.7	19.6	4.0	21.0
		1	25	19.8	19.4	19.9	19.8	19.6	4.0	21.0
		1	49	19.7	19.5	20.0	19.7	19.4	4.0	21.0
		25	0	19.0	18.7	19.1	18.8	18.8	5.0	20.0
		25	12	19.0	18.7	19.1	18.8	18.8	5.0	20.0
		25	25	19.0	18.7	19.1	18.7	18.8	5.0	20.0
	5 MHz	QPSK	1	0	23.8	23.3	24.0	23.5	23.5	0.0
1			12	23.6	23.1	23.9	23.3	23.2	0.0	25.0
1			24	23.7	23.2	23.9	23.4	23.3	0.0	25.0
12			0	21.9	21.6	21.9	21.7	21.7	2.0	23.0
12			7	21.9	21.6	21.9	21.7	21.7	2.0	23.0
12			13	21.9	21.7	22.0	21.7	21.7	2.0	23.0
16QAM		1	0	22.0	21.7	22.0	21.7	21.7	2.0	23.0
		1	12	21.3	21.6	22.0	21.3	21.5	2.0	23.0
		1	24	21.4	21.7	22.0	21.3	21.5	2.0	23.0
		12	0	20.7	20.6	20.9	20.5	20.7	3.0	22.0
		12	7	20.7	20.6	20.9	20.5	20.7	3.0	22.0
		12	13	20.7	20.7	20.9	20.5	20.7	3.0	22.0
64QAM		25	0	20.9	20.7	21.0	20.7	20.7	3.0	22.0
		1	0	20.5	20.6	20.9	20.4	20.9	3.0	22.0
		1	12	20.4	20.5	20.9	20.1	20.7	3.0	22.0
		1	24	20.4	20.5	21.0	20.2	20.7	3.0	22.0
		12	0	19.9	19.6	20.0	19.7	19.7	4.0	21.0
		12	7	19.9	19.6	20.0	19.7	19.7	4.0	21.0
256QAM		12	13	19.9	19.6	20.0	19.7	19.7	4.0	21.0
		25	0	20.0	19.6	20.1	19.8	19.7	4.0	21.0
		1	0	19.8	20.0	20.0	19.7	20.0	4.0	21.0
		1	12	19.7	19.7	19.8	19.6	19.8	4.0	21.0
		1	24	19.8	19.9	19.9	19.7	20.0	4.0	21.0
		12	0	19.0	18.7	19.0	18.7	18.8	5.0	20.0
		12	7	19.0	18.7	19.0	18.7	18.7	5.0	20.0
	12	13	19.0	18.7	19.0	18.7	18.8	5.0	20.0	
	25	0	19.0	18.7	19.0	18.7	18.8	5.0	20.0	

LTE Band 2 (Sub Ant.2) Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	22.3	22.5	22.2	0.0	23.0
		1	49	22.1	22.6	22.0	0.0	23.0
		1	99	22.3	22.5	22.2	0.0	23.0
		50	0	21.1	21.5	21.2	1.0	22.0
		50	24	21.2	21.6	21.1	1.0	22.0
		50	50	21.3	21.4	21.2	1.0	22.0
	100	0	21.2	21.4	21.1	1.0	22.0	
	16QAM	1	0	21.7	21.9	21.6	1.0	22.0
		1	49	21.6	21.8	21.5	1.0	22.0
		1	99	20.7	21.0	20.7	1.0	22.0
		50	0	20.3	20.5	20.2	1.0	22.0
		50	24	20.2	20.4	20.2	1.0	22.0
		50	50	20.3	20.5	20.2	1.0	22.0
	100	0	20.3	20.5	20.2	1.0	22.0	
	64QAM	1	0	20.9	21.1	20.8	1.0	22.0
		1	49	21.2	21.4	21.1	1.0	22.0
		1	99	21.4	21.6	21.3	1.0	22.0
		50	0	20.3	20.4	20.2	2.0	21.0
		50	24	20.2	20.4	20.1	2.0	21.0
		50	50	20.3	20.5	20.2	2.0	21.0
	100	0	20.3	20.5	20.2	2.0	21.0	
	256QAM	1	0	17.1	17.3	17.0	4.0	19.0
		1	49	17.0	17.1	17.0	4.0	19.0
		1	99	17.2	17.3	17.0	4.0	19.0
50		0	17.2	17.4	17.1	4.0	19.0	
50		24	17.1	17.3	17.0	4.0	19.0	
50		50	17.1	17.3	17.0	4.0	19.0	
100	0	17.2	17.4	17.1	4.0	19.0		
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18675	18900	19125		
				1857.5 MHz	1880 MHz	1902.5 MHz		
				1867.5 MHz	1880 MHz	1902.5 MHz		
15 MHz	QPSK	1	0	22.1	22.4	22.2	0.0	23.0
		1	37	22.2	22.5	22.3	0.0	23.0
		1	74	22.0	22.3	22.1	0.0	23.0
		36	0	21.1	21.4	21.2	1.0	22.0
		36	20	21.2	21.5	21.3	1.0	22.0
		36	39	21.1	21.4	21.2	1.0	22.0
	75	0	21.1	21.4	21.2	1.0	22.0	
	16QAM	1	0	21.4	21.7	21.5	1.0	22.0
		1	37	21.7	22.0	21.8	1.0	22.0
		1	74	21.4	21.7	21.5	1.0	22.0
		36	0	20.2	20.5	20.3	1.0	22.0
		36	20	20.1	20.4	20.2	1.0	22.0
		36	39	20.2	20.5	20.3	1.0	22.0
	75	0	20.1	20.4	20.2	1.0	22.0	
	64QAM	1	0	20.5	20.8	20.6	1.0	22.0
		1	37	20.4	20.7	20.5	1.0	22.0
		1	74	20.4	20.7	20.5	1.0	22.0
		36	0	19.1	19.4	19.2	2.0	21.0
		36	20	19.2	19.5	19.3	2.0	21.0
		36	39	19.1	19.4	19.2	2.0	21.0
	75	0	19.2	19.5	19.3	2.0	21.0	
	256QAM	1	0	17.3	17.6	17.4	4.0	19.0
		1	37	17.1	17.4	17.2	4.0	19.0
		1	74	18.1	18.4	18.2	4.0	19.0
36		0	17.2	17.5	17.3	4.0	19.0	
36		20	17.2	17.5	17.3	4.0	19.0	
36		39	17.2	17.5	17.3	4.0	19.0	
75	0	17.1	17.4	17.2	4.0	19.0		

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

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18650	18900	19150		
				1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	22.2	22.4	22.0	0.0	23.0
		1	25	22.0	22.2	21.8	0.0	23.0
		1	49	22.1	22.3	21.9	0.0	23.0
		25	0	21.2	21.4	21.0	1.0	22.0
		25	12	21.2	21.4	21.0	1.0	22.0
		25	25	21.2	21.4	21.0	1.0	22.0
	16QAM	50	0	21.2	21.4	21.0	1.0	22.0
		1	0	21.4	21.6	21.2	1.0	22.0
		1	25	21.3	21.5	21.1	1.0	22.0
		1	49	21.4	21.6	21.2	1.0	22.0
		25	0	20.3	20.5	20.1	1.0	22.0
		25	12	20.2	20.4	20.0	1.0	22.0
	64QAM	25	25	20.2	20.4	20.0	1.0	22.0
		50	0	20.3	20.5	20.1	1.0	22.0
		1	0	20.5	20.7	20.3	1.0	22.0
		1	25	20.5	20.7	20.3	1.0	22.0
		1	49	20.3	20.5	20.1	1.0	22.0
		25	0	19.1	19.3	18.9	2.0	21.0
	256QAM	25	12	19.2	19.4	19.0	2.0	21.0
		25	25	19.1	19.3	18.9	2.0	21.0
		50	0	19.2	19.4	19.0	2.0	21.0
		1	0	17.5	17.7	17.3	4.0	19.0
		1	25	17.1	17.3	16.9	4.0	19.0
		1	49	17.2	17.4	17.0	4.0	19.0
5 MHz	QPSK	25	0	17.2	17.4	17.0	4.0	19.0
		25	12	17.1	17.3	16.9	4.0	19.0
		25	25	17.2	17.4	17.0	4.0	19.0
		50	0	17.2	17.4	17.0	4.0	19.0
		1	0	22.0	22.3	22.1	0.0	23.0
		1	12	22.0	22.3	22.1	0.0	23.0
	16QAM	1	24	22.1	22.4	22.2	0.0	23.0
		12	0	21.1	21.4	21.2	1.0	22.0
		12	7	21.1	21.4	21.2	1.0	22.0
		12	13	21.1	21.4	21.2	1.0	22.0
		25	0	21.1	21.4	21.2	1.0	22.0
		1	0	21.0	21.3	21.1	1.0	22.0
	64QAM	1	12	21.6	21.9	21.7	1.0	22.0
		1	24	21.4	21.7	21.5	1.0	22.0
		12	0	20.1	20.4	20.2	1.0	22.0
		12	7	19.9	20.2	20.0	1.0	22.0
		12	13	20.1	20.4	20.2	1.0	22.0
		25	0	20.1	20.4	20.2	1.0	22.0
	256QAM	1	0	19.9	20.2	20.0	1.0	22.0
		1	12	20.0	20.3	20.1	1.0	22.0
		1	24	20.1	20.4	20.2	1.0	22.0
		12	0	19.1	19.4	19.2	2.0	21.0
		12	7	19.0	19.3	19.1	2.0	21.0
		12	13	19.1	19.4	19.2	2.0	21.0
5 MHz	256QAM	25	0	19.1	19.4	19.2	2.0	21.0
		1	0	17.1	17.4	17.2	4.0	19.0
		1	12	17.3	17.6	17.4	4.0	19.0
		1	24	17.3	17.6	17.4	4.0	19.0
		12	0	17.1	17.4	17.2	4.0	19.0
		12	7	17.0	17.3	17.1	4.0	19.0
	256QAM	12	13	17.1	17.4	17.2	4.0	19.0
		25	0	17.1	17.4	17.2	4.0	19.0

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

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18615	18900	19185		
				1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	22.0	22.3	22.1	0.0	23.0
		1	8	22.0	22.3	22.1	0.0	23.0
		1	14	22.0	22.3	22.1	0.0	23.0
		8	0	21.1	21.4	21.2	1.0	22.0
		8	4	21.1	21.4	21.2	1.0	22.0
		8	7	21.2	21.5	21.3	1.0	22.0
	16QAM	15	0	21.0	21.3	21.1	1.0	22.0
		1	0	21.1	21.4	21.2	1.0	22.0
		1	8	21.2	21.5	21.3	1.0	22.0
		1	14	21.1	21.4	21.2	1.0	22.0
		8	0	20.2	20.5	20.3	1.0	22.0
		8	4	20.2	20.5	20.3	1.0	22.0
	64QAM	8	7	20.1	20.4	20.2	1.0	22.0
		15	0	20.1	20.4	20.2	1.0	22.0
		1	0	20.2	20.5	20.3	1.0	22.0
		1	8	20.2	20.5	20.3	1.0	22.0
		1	14	20.3	20.6	20.4	1.0	22.0
		8	0	19.1	19.4	19.2	2.0	21.0
	256QAM	8	4	19.0	19.3	19.1	2.0	21.0
		8	7	19.1	19.4	19.2	2.0	21.0
		15	0	19.2	19.5	19.3	2.0	21.0
1		0	17.4	17.7	17.5	4.0	19.0	
1		8	17.0	17.3	17.1	4.0	19.0	
1		14	17.7	18.0	17.8	4.0	19.0	
1.4 MHz	QPSK	8	0	17.0	17.3	17.1	4.0	19.0
		8	4	17.0	17.3	17.1	4.0	19.0
		8	7	16.9	17.2	17.0	4.0	19.0
		15	0	17.0	17.3	17.1	4.0	19.0
		1	0	22.2	22.4	22.1	0.0	23.0
		1	3	22.0	22.2	21.9	0.0	23.0
	16QAM	1	5	22.2	22.4	22.1	0.0	23.0
		3	0	22.1	22.3	22.0	0.0	23.0
		3	1	22.0	22.2	21.9	0.0	23.0
		3	3	22.1	22.3	22.0	0.0	23.0
		6	0	21.1	21.3	21.0	1.0	22.0
		1	0	21.5	21.7	21.4	1.0	22.0
	64QAM	1	3	21.3	21.5	21.2	1.0	22.0
		1	5	21.4	21.6	21.3	1.0	22.0
		3	0	21.3	21.5	21.2	1.0	22.0
		3	1	21.2	21.4	21.1	1.0	22.0
		3	3	21.3	21.5	21.2	1.0	22.0
		6	0	20.3	20.5	20.2	2.0	21.0
	256QAM	1	0	20.1	20.3	20.0	2.0	21.0
		1	3	20.0	20.2	19.9	2.0	21.0
		1	5	20.1	20.3	20.0	2.0	21.0
3		0	20.1	20.3	20.0	2.0	21.0	
3		1	20.0	20.2	19.9	2.0	21.0	
3		3	20.2	20.4	20.1	2.0	21.0	
16QAM	6	0	19.1	19.3	19.0	3.0	20.0	
	1	0	17.3	17.5	17.2	4.0	19.0	
	1	3	16.7	16.9	16.6	4.0	19.0	
	1	5	16.8	17.0	16.7	4.0	19.0	
	3	0	17.3	17.5	17.2	4.0	19.0	
	3	1	17.2	17.4	17.1	4.0	19.0	
64QAM	3	3	17.1	17.3	17.0	4.0	19.0	
	6	0	17.1	17.3	17.0	4.0	19.0	

LTE Band 66 (Sub Ant.2) Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				132072 1720 MHz	132322 1745 MHz	132572 1770 MHz		
20 MHz	QPSK	1	0	22.2	22.5	22.7	0.0	23.5
		1	49	22.0	22.3	22.5	0.0	23.5
		1	99	22.1	22.4	22.6	0.0	23.5
		50	0	21.2	21.5	21.7	1.0	22.5
		50	24	21.2	21.5	21.7	1.0	22.5
		50	50	21.2	21.5	21.7	1.0	22.5
	100	0	21.2	21.5	21.7	1.0	22.5	
	16QAM	1	0	21.2	21.5	21.7	1.0	22.5
		1	49	21.4	21.7	21.9	1.0	22.5
		1	99	21.1	21.4	21.6	1.0	22.5
		50	0	20.3	20.6	20.8	2.0	21.5
		50	24	20.2	20.5	20.7	2.0	21.5
		50	50	20.3	20.6	20.8	2.0	21.5
	100	0	20.2	20.5	20.7	2.0	21.5	
	64QAM	1	0	20.5	20.8	21.0	2.0	21.5
		1	49	20.1	20.4	20.6	2.0	21.5
		1	99	20.4	20.7	20.9	2.0	21.5
		50	0	19.2	19.5	19.7	3.0	20.5
		50	24	19.3	19.6	19.8	3.0	20.5
		50	50	19.3	19.6	19.8	3.0	20.5
	100	0	19.3	19.6	19.8	3.0	20.5	
	256QAM	1	0	16.9	17.2	17.4	5.0	18.5
		1	49	17.3	17.6	17.8	5.0	18.5
		1	99	17.6	17.9	18.1	5.0	18.5
50		0	17.1	17.4	17.6	5.0	18.5	
50		24	17.2	17.5	17.7	5.0	18.5	
50		50	17.2	17.5	17.7	5.0	18.5	
100	0	17.1	17.4	17.6	5.0	18.5		
15 MHz	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132047 1717.5 MHz	132322 1745 MHz	132597 1772.5 MHz		
15 MHz	QPSK	1	0	22.1	22.3	22.6	0.0	23.5
		1	37	21.9	22.1	22.4	0.0	23.5
		1	74	22.2	22.4	22.7	0.0	23.5
		36	0	21.1	21.3	21.6	1.0	22.5
		36	20	21.2	21.4	21.7	1.0	22.5
		36	39	21.2	21.4	21.7	1.0	22.5
	75	0	21.2	21.4	21.7	1.0	22.5	
	16QAM	1	0	21.3	21.5	21.8	1.0	22.5
		1	37	21.0	21.2	21.5	1.0	22.5
		1	74	21.0	21.2	21.5	1.0	22.5
		36	0	20.2	20.4	20.7	2.0	21.5
		36	20	20.1	20.3	20.6	2.0	21.5
		36	39	20.2	20.4	20.7	2.0	21.5
	75	0	20.1	20.3	20.6	2.0	21.5	
	64QAM	1	0	20.6	20.8	21.1	2.0	21.5
		1	37	20.5	20.7	21.0	2.0	21.5
		1	74	20.5	20.7	21.0	2.0	21.5
		36	0	19.2	19.4	19.7	3.0	20.5
		36	20	19.2	19.4	19.7	3.0	20.5
		36	39	19.3	19.5	19.8	3.0	20.5
	75	0	19.2	19.4	19.7	3.0	20.5	
	256QAM	1	0	17.6	17.8	18.1	5.0	18.5
		1	37	16.8	17.0	17.3	5.0	18.5
		1	74	17.6	17.8	18.1	5.0	18.5
36		0	17.1	17.3	17.6	5.0	18.5	
36		20	17.1	17.3	17.6	5.0	18.5	
36		39	17.3	17.5	17.8	5.0	18.5	
75	0	17.2	17.4	17.7	5.0	18.5		

LTE Band 66 (Sub Ant.2) Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622		
				1715 MHz	1745 MHz	1775 MHz		
10 MHz	QPSK	1	0	22.0	22.3	22.5	0.0	23.5
		1	25	21.9	22.2	22.4	0.0	23.5
		1	49	22.0	22.3	22.5	0.0	23.5
		25	0	21.0	21.3	21.5	1.0	22.5
		25	12	21.0	21.3	21.5	1.0	22.5
		25	25	21.0	21.3	21.5	1.0	22.5
	16QAM	50	0	21.1	21.4	21.6	1.0	22.5
		1	0	21.1	21.4	21.6	1.0	22.5
		1	25	21.2	21.5	21.7	1.0	22.5
		1	49	21.0	21.3	21.5	1.0	22.5
		25	0	20.0	20.3	20.5	2.0	21.5
		25	12	19.9	20.2	20.4	2.0	21.5
	64QAM	25	25	20.1	20.4	20.6	2.0	21.5
		50	0	20.1	20.4	20.6	2.0	21.5
		1	0	20.4	20.7	20.9	2.0	21.5
		1	25	20.0	20.3	20.5	2.0	21.5
		1	49	20.3	20.6	20.8	2.0	21.5
		25	0	19.0	19.3	19.5	3.0	20.5
	256QAM	25	12	19.0	19.3	19.5	3.0	20.5
		25	25	19.1	19.4	19.6	3.0	20.5
		50	0	19.1	19.4	19.6	3.0	20.5
1		0	17.2	17.5	17.7	5.0	18.5	
1		25	17.5	17.8	18.0	5.0	18.5	
1		49	16.8	17.1	17.3	5.0	18.5	
5 MHz	QPSK	25	0	17.1	17.4	17.6	5.0	18.5
		25	12	17.1	17.4	17.6	5.0	18.5
		25	25	17.1	17.4	17.6	5.0	18.5
		50	0	17.0	17.3	17.5	5.0	18.5
		1	0	22.1	22.4	22.6	0.0	23.5
	16QAM	1	12	22.1	22.4	22.6	0.0	23.5
		1	24	22.1	22.4	22.6	0.0	23.5
		12	0	21.1	21.4	21.6	1.0	22.5
		12	7	21.0	21.3	21.5	1.0	22.5
		12	13	21.1	21.4	21.6	1.0	22.5
25		0	21.0	21.3	21.5	1.0	22.5	
64QAM		1	0	21.1	21.4	21.6	1.0	22.5
		1	12	21.1	21.4	21.6	1.0	22.5
		1	24	21.2	21.5	21.7	1.0	22.5
		12	0	20.0	20.3	20.5	2.0	21.5
	12	7	20.2	20.5	20.7	2.0	21.5	
256QAM	12	13	20.0	20.3	20.5	2.0	21.5	
	25	0	20.1	20.4	20.6	2.0	21.5	
	1	0	20.4	20.7	20.9	2.0	21.5	
	1	12	20.0	20.3	20.5	2.0	21.5	
	1	24	20.4	20.7	20.9	2.0	21.5	
	12	0	19.0	19.3	19.5	3.0	20.5	
	12	7	19.0	19.3	19.5	3.0	20.5	
	12	13	19.3	19.6	19.8	3.0	20.5	
	25	0	19.0	19.3	19.5	3.0	20.5	
	1	0	17.2	17.5	17.7	5.0	18.5	

LTE Band 66 (Sub Ant.2) Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657		
				1711.5 MHz	1745 MHz	1778.5 MHz		
3 MHz	QPSK	1	0	22.0	22.3	22.5	0.0	23.5
		1	8	22.0	22.3	22.5	0.0	23.5
		1	14	22.0	22.3	22.5	0.0	23.5
		8	0	21.0	21.3	21.5	1.0	22.5
		8	4	21.1	21.4	21.6	1.0	22.5
		8	7	21.1	21.4	21.6	1.0	22.5
		15	0	21.1	21.4	21.6	1.0	22.5
	16QAM	1	0	21.3	21.6	21.8	1.0	22.5
		1	8	21.2	21.5	21.7	1.0	22.5
		1	14	21.3	21.6	21.8	1.0	22.5
		8	0	20.2	20.5	20.7	2.0	21.5
		8	4	20.2	20.5	20.7	2.0	21.5
		8	7	20.1	20.4	20.6	2.0	21.5
	64QAM	15	0	20.0	20.3	20.5	2.0	21.5
		1	0	20.2	20.5	20.7	2.0	21.5
		1	8	20.2	20.5	20.7	2.0	21.5
		1	14	19.9	20.2	20.4	2.0	21.5
		8	0	19.1	19.4	19.6	3.0	20.5
		8	4	19.1	19.4	19.6	3.0	20.5
	256QAM	8	7	19.0	19.3	19.5	3.0	20.5
		15	0	19.0	19.3	19.5	3.0	20.5
1		0	17.2	17.5	17.7	5.0	18.5	
1		8	16.8	17.1	17.3	5.0	18.5	
1		14	17.3	17.6	17.8	5.0	18.5	
8		0	17.1	17.4	17.6	5.0	18.5	
8		4	17.0	17.3	17.5	5.0	18.5	
1.4 MHz	QPSK	8	7	17.1	17.4	17.6	5.0	18.5
		15	0	17.0	17.3	17.5	5.0	18.5
		1	0	21.9	22.2	22.4	0.0	23.5
		1	3	21.8	22.1	22.3	0.0	23.5
		1	5	21.9	22.2	22.4	0.0	23.5
		3	0	21.9	22.2	22.4	0.0	23.5
		3	1	21.9	22.2	22.4	0.0	23.5
	16QAM	3	3	21.8	22.1	22.3	0.0	23.5
		6	0	21.0	21.3	21.5	1.0	22.5
		1	0	21.1	21.4	21.6	1.0	22.5
		1	3	21.1	21.4	21.6	1.0	22.5
		1	5	21.0	21.3	21.5	1.0	22.5
		3	0	21.1	21.4	21.6	1.0	22.5
		3	1	20.8	21.1	21.3	1.0	22.5
	64QAM	3	3	21.0	21.3	21.5	1.0	22.5
		6	0	19.8	20.1	20.3	2.0	21.5
		1	0	19.9	20.2	20.4	2.0	21.5
		1	3	20.1	20.4	20.6	2.0	21.5
		1	5	20.0	20.3	20.5	2.0	21.5
		3	0	20.1	20.4	20.6	2.0	21.5
		3	1	20.0	20.3	20.5	2.0	21.5
256QAM	3	3	19.8	20.1	20.3	2.0	21.5	
	6	0	19.0	19.3	19.5	3.0	20.5	
	1	0	17.4	17.7	17.9	5.0	18.5	
	1	3	16.8	17.1	17.3	5.0	18.5	
	1	5	16.9	17.2	17.4	5.0	18.5	
	3	0	16.9	17.2	17.4	5.0	18.5	
	3	1	16.9	17.2	17.4	5.0	18.5	
256QAM	3	3	16.9	17.2	17.4	5.0	18.5	
	6	0	16.9	17.2	17.4	5.0	18.5	

2. Reduced power

LTE Band 2 (Main Ant.1) Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) RCV back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100			18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz			1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	18.1	18.4	18.0	0.0	20.0	18.2	18.3	18.0	0.0	20.0
		1	49	18.3	18.5	18.1	0.0	20.0	18.3	18.5	18.1	0.0	20.0
		1	99	18.4	18.2	18.1	0.0	20.0	18.4	18.2	18.1	0.0	20.0
		50	0	18.5	18.6	18.4	0.0	20.0	18.5	18.6	18.4	0.0	20.0
		50	24	18.5	18.6	18.4	0.0	20.0	18.6	18.6	18.5	0.0	20.0
		50	50	18.6	18.5	18.4	0.0	20.0	18.6	18.6	18.5	0.0	20.0
	16QAM	100	0	18.5	18.5	18.4	0.0	20.0	18.5	18.6	18.4	0.0	20.0
		1	0	18.6	18.7	17.9	0.0	20.0	18.7	18.7	17.9	0.0	20.0
		1	49	18.8	18.7	18.0	0.0	20.0	18.9	18.8	18.0	0.0	20.0
		1	99	18.8	18.5	18.1	0.0	20.0	18.9	18.6	18.0	0.0	20.0
		50	0	18.5	18.6	18.5	0.0	20.0	18.5	18.6	18.5	0.0	20.0
		50	24	18.5	18.6	18.5	0.0	20.0	18.6	18.6	18.5	0.0	20.0
	64QAM	50	50	18.6	18.5	18.5	0.0	20.0	18.6	18.5	18.5	0.0	20.0
		100	0	18.6	18.6	18.4	0.0	20.0	18.6	18.6	18.5	0.0	20.0
		1	0	18.3	18.4	18.3	0.0	20.0	18.3	18.5	18.3	0.0	20.0
		1	49	18.6	18.6	18.3	0.0	20.0	18.5	18.6	18.2	0.0	20.0
		1	99	18.5	18.6	18.3	0.0	20.0	18.6	18.5	18.3	0.0	20.0
		50	0	18.6	18.5	18.3	0.0	20.0	18.6	18.6	18.2	0.0	20.0
	256QAM	50	24	18.7	18.6	18.3	0.0	20.0	18.7	18.6	18.2	0.0	20.0
		50	50	18.7	18.5	18.3	0.0	20.0	18.7	18.5	18.2	0.0	20.0
		100	0	18.6	18.5	18.2	0.0	20.0	18.6	18.6	18.2	0.0	20.0
		1	0	18.4	18.8	18.2	0.0	20.0	18.4	18.6	18.4	0.0	20.0
		1	49	18.5	18.8	18.2	0.0	20.0	18.5	18.7	18.4	0.0	20.0
		1	99	18.5	18.6	18.3	0.0	20.0	18.6	18.6	18.4	0.0	20.0
15 MHz	QPSK	50	0	18.5	18.7	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0
		50	24	18.6	18.7	18.5	0.0	20.0	18.6	18.6	18.5	0.0	20.0
		50	50	18.6	18.6	18.5	0.0	20.0	18.6	18.6	18.5	0.0	20.0
		100	0	18.6	18.6	18.5	0.0	20.0	18.6	18.6	18.5	0.0	20.0
		1	0	18.0	18.3	18.0	0.0	20.0	18.0	18.4	18.0	0.0	20.0
		1	37	18.1	18.3	18.0	0.0	20.0	18.1	18.4	18.0	0.0	20.0
	16QAM	1	74	18.2	18.2	18.1	0.0	20.0	18.2	18.3	18.1	0.0	20.0
		36	0	18.3	18.5	18.3	0.0	20.0	18.4	18.5	18.3	0.0	20.0
		36	20	18.4	18.5	18.3	0.0	20.0	18.4	18.6	18.4	0.0	20.0
		36	39	18.4	18.5	18.4	0.0	20.0	18.5	18.5	18.4	0.0	20.0
		75	0	18.4	18.4	18.3	0.0	20.0	18.4	18.5	18.4	0.0	20.0
		1	0	18.2	18.8	18.6	0.0	20.0	18.5	18.8	18.7	0.0	20.0
	64QAM	1	37	18.2	18.6	18.6	0.0	20.0	18.6	18.7	18.7	0.0	20.0
		1	74	18.3	18.6	18.7	0.0	20.0	18.6	18.7	18.8	0.0	20.0
		36	0	18.4	18.5	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0
		36	20	18.4	18.6	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0
		36	39	18.5	18.5	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0
		75	0	18.4	18.5	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0
	256QAM	1	0	18.5	18.5	18.4	0.0	20.0	18.5	18.6	18.2	0.0	20.0
		1	37	18.7	18.6	18.4	0.0	20.0	18.6	18.6	18.3	0.0	20.0
		1	74	18.7	18.6	18.5	0.0	20.0	18.7	18.6	18.2	0.0	20.0
		36	0	18.4	18.6	18.4	0.0	20.0	18.4	18.6	18.2	0.0	20.0
		36	20	18.5	18.6	18.5	0.0	20.0	18.5	18.7	18.2	0.0	20.0
		36	39	18.5	18.6	18.4	0.0	20.0	18.5	18.7	18.2	0.0	20.0
256QAM	75	0	18.5	18.6	18.5	0.0	20.0	18.5	18.7	18.2	0.0	20.0	
	1	0	18.3	19.0	18.5	0.0	20.0	18.1	18.7	18.4	0.0	20.0	
	1	37	18.3	18.9	18.5	0.0	20.0	18.1	18.6	18.5	0.0	20.0	
	1	74	18.5	18.8	18.6	0.0	20.0	18.3	18.5	18.5	0.0	20.0	
	36	0	18.4	18.6	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0	
	36	20	18.5	18.6	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0	
256QAM	36	39	18.5	18.5	18.5	0.0	20.0	18.5	18.6	18.5	0.0	20.0	
	75	0	18.5	18.5	18.5	0.0	20.0	18.5	18.6	18.5	0.0	20.0	

LTE Band 2 (Main Ant.1) 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	18.0	18.4	17.9	0.0	20.0	18.2	18.5	18.0	0.0	20.0
		1	25	18.1	18.4	17.9	0.0	20.0	18.2	18.4	18.0	0.0	20.0
		1	49	18.2	18.3	18.1	0.0	20.0	18.3	18.4	18.1	0.0	20.0
		25	0	18.3	18.5	18.3	0.0	20.0	18.4	18.6	18.4	0.0	20.0
		25	12	18.4	18.5	18.4	0.0	20.0	18.5	18.6	18.4	0.0	20.0
		25	25	18.4	18.5	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0
	16QAM	50	0	18.4	18.5	18.4	0.0	20.0	18.4	18.6	18.4	0.0	20.0
		1	0	18.4	18.8	18.6	0.0	20.0	18.4	18.7	18.7	0.0	20.0
		1	25	18.4	18.7	18.7	0.0	20.0	18.4	18.7	18.7	0.0	20.0
		1	49	18.5	18.7	18.7	0.0	20.0	18.4	18.7	18.8	0.0	20.0
		25	0	18.4	18.6	18.4	0.0	20.0	18.5	18.7	18.4	0.0	20.0
		25	12	18.5	18.6	18.4	0.0	20.0	18.5	18.7	18.4	0.0	20.0
	64QAM	25	25	18.5	18.6	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0
		50	0	18.4	18.6	18.4	0.0	20.0	18.5	18.6	18.4	0.0	20.0
		1	0	18.4	18.4	18.5	0.0	20.0	18.3	18.4	18.3	0.0	20.0
		1	25	18.4	18.4	18.5	0.0	20.0	18.3	18.4	18.3	0.0	20.0
		1	49	18.5	18.4	18.5	0.0	20.0	18.4	18.4	18.3	0.0	20.0
		25	0	18.6	18.4	18.5	0.0	20.0	18.6	18.4	18.3	0.0	20.0
	256QAM	25	12	18.6	18.4	18.5	0.0	20.0	18.6	18.4	18.3	0.0	20.0
		25	25	18.6	18.4	18.5	0.0	20.0	18.6	18.4	18.3	0.0	20.0
		50	0	18.5	18.4	18.5	0.0	20.0	18.5	18.4	18.3	0.0	20.0
1		0	18.4	18.6	18.3	0.0	20.0	18.4	18.9	18.4	0.0	20.0	
1		25	18.4	18.5	18.3	0.0	20.0	18.4	18.7	18.3	0.0	20.0	
1		49	18.5	18.6	18.4	0.0	20.0	18.5	18.7	18.5	0.0	20.0	
5 MHz	QPSK	25	0	18.5	18.6	18.5	0.0	20.0	18.5	18.7	18.5	0.0	20.0
		25	12	18.5	18.6	18.5	0.0	20.0	18.5	18.7	18.5	0.0	20.0
		50	0	18.5	18.6	18.5	0.0	20.0	18.5	18.6	18.5	0.0	20.0
		1	0	18.4	18.4	18.1	0.0	20.0	18.7	18.5	18.5	0.0	20.0
		1	12	18.4	18.4	18.2	0.0	20.0	18.6	18.5	18.5	0.0	20.0
		1	24	18.5	18.5	18.2	0.0	20.0	18.7	18.6	18.5	0.0	20.0
	16QAM	12	0	18.5	18.4	18.2	0.0	20.0	18.5	18.6	18.5	0.0	20.0
		12	7	18.5	18.5	18.2	0.0	20.0	18.5	18.5	18.5	0.0	20.0
		12	13	18.5	18.5	18.2	0.0	20.0	18.5	18.5	18.4	0.0	20.0
		25	0	18.5	18.4	18.2	0.0	20.0	18.5	18.6	18.4	0.0	20.0
		1	0	18.4	18.4	18.1	0.0	20.0	18.7	18.5	18.5	0.0	20.0
		1	12	18.4	18.4	18.2	0.0	20.0	18.6	18.5	18.5	0.0	20.0
	64QAM	1	24	18.5	18.5	18.2	0.0	20.0	18.7	18.6	18.5	0.0	20.0
		12	0	18.5	18.4	18.2	0.0	20.0	18.5	18.6	18.5	0.0	20.0
		12	7	18.5	18.5	18.2	0.0	20.0	18.5	18.5	18.5	0.0	20.0
12		13	18.5	18.5	18.2	0.0	20.0	18.5	18.5	18.4	0.0	20.0	
25		0	18.5	18.4	18.2	0.0	20.0	18.5	18.6	18.4	0.0	20.0	
1		0	18.2	18.7	18.4	0.0	20.0	18.6	18.5	18.5	0.0	20.0	
256QAM	1	12	18.2	18.6	18.3	0.0	20.0	18.5	18.3	18.5	0.0	20.0	
	1	24	18.3	18.7	18.6	0.0	20.0	18.7	18.5	18.6	0.0	20.0	
	12	0	18.4	18.7	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0	
	12	7	18.4	18.6	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0	
	12	13	18.4	18.6	18.5	0.0	20.0	18.5	18.6	18.5	0.0	20.0	
	25	0	18.5	18.5	18.5	0.0	20.0	18.5	18.7	18.5	0.0	20.0	

LTE Band 2 (Main Ant.1) Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pw r (dBm)			MPR	Tune-up Limit	Measured Pw r (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	18.1	18.3	18.1	0.0	20.0	18.3	18.4	18.2	0.0	20.0
		1	8	18.0	18.2	17.9	0.0	20.0	18.2	18.3	18.1	0.0	20.0
		1	14	18.3	18.3	18.2	0.0	20.0	18.4	18.4	18.3	0.0	20.0
		8	0	18.3	18.5	18.4	0.0	20.0	18.4	18.6	18.5	0.0	20.0
		8	4	18.3	18.4	18.4	0.0	20.0	18.4	18.6	18.5	0.0	20.0
		8	7	18.3	18.5	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0
	16QAM	15	0	18.3	18.5	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0
		1	0	18.3	19.0	18.6	0.0	20.0	18.3	18.9	18.7	0.0	20.0
		1	8	18.2	18.7	18.5	0.0	20.0	18.2	18.7	18.7	0.0	20.0
		1	14	18.3	19.0	18.5	0.0	20.0	18.2	18.9	18.7	0.0	20.0
		8	0	18.3	18.5	18.4	0.0	20.0	18.4	18.7	18.5	0.0	20.0
		8	4	18.3	18.6	18.4	0.0	20.0	18.4	18.7	18.5	0.0	20.0
	64QAM	8	7	18.3	18.5	18.4	0.0	20.0	18.4	18.6	18.5	0.0	20.0
		15	0	18.4	18.5	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0
		1	0	18.2	18.6	18.5	0.0	20.0	18.4	18.4	18.5	0.0	20.0
		1	8	18.2	18.6	18.4	0.0	20.0	18.3	18.4	18.5	0.0	20.0
		1	14	18.4	18.5	18.6	0.0	20.0	18.6	18.3	18.5	0.0	20.0
		8	0	18.4	18.5	18.6	0.0	20.0	18.6	18.4	18.5	0.0	20.0
	256QAM	8	4	18.4	18.5	18.6	0.0	20.0	18.6	18.4	18.5	0.0	20.0
		8	7	18.4	18.6	18.6	0.0	20.0	18.6	18.3	18.5	0.0	20.0
		15	0	18.5	18.5	18.6	0.0	20.0	18.5	18.3	18.6	0.0	20.0
1		0	18.3	18.4	18.6	0.0	20.0	18.5	18.5	18.9	0.0	20.0	
1		8	18.2	18.3	18.3	0.0	20.0	18.3	18.5	18.8	0.0	20.0	
1		14	18.5	18.4	18.4	0.0	20.0	18.4	18.5	18.9	0.0	20.0	
1.4 MHz	QPSK	8	0	18.5	18.6	18.7	0.0	20.0	18.5	18.7	18.6	0.0	20.0
		8	4	18.5	18.6	18.7	0.0	20.0	18.6	18.7	18.6	0.0	20.0
		8	7	18.5	18.6	18.7	0.0	20.0	18.6	18.7	18.6	0.0	20.0
		15	0	18.5	18.7	18.6	0.0	20.0	18.5	18.7	18.4	0.0	20.0
		1	0	18.2	18.5	18.4	0.0	20.0	18.4	18.7	18.5	0.0	20.0
		1	3	18.0	18.3	18.2	0.0	20.0	18.2	18.4	18.4	0.0	20.0
	16QAM	1	5	18.2	18.4	18.4	0.0	20.0	18.4	18.6	18.5	0.0	20.0
		3	0	18.2	18.5	18.4	0.0	20.0	18.4	18.6	18.4	0.0	20.0
		3	1	18.2	18.5	18.4	0.0	20.0	18.4	18.6	18.5	0.0	20.0
		3	3	18.2	18.4	18.3	0.0	20.0	18.3	18.6	18.5	0.0	20.0
		6	0	18.2	18.4	18.4	0.0	20.0	18.4	18.5	18.5	0.0	20.0
		1	0	18.4	18.6	18.8	0.0	20.0	18.3	18.9	18.4	0.0	20.0
	64QAM	1	3	18.5	18.7	18.9	0.0	20.0	18.3	18.9	18.4	0.0	20.0
		1	5	18.5	18.7	18.9	0.0	20.0	18.4	18.8	18.8	0.0	20.0
		3	0	18.5	18.4	18.5	0.0	20.0	18.4	18.7	18.6	0.0	20.0
		3	1	18.5	18.5	18.5	0.0	20.0	18.5	18.7	18.7	0.0	20.0
		3	3	18.5	18.6	18.6	0.0	20.0	18.5	18.8	18.6	0.0	20.0
		6	0	18.4	18.5	18.4	0.0	20.0	18.5	18.6	18.6	0.0	20.0
	256QAM	1	0	18.4	19.1	18.6	0.0	20.0	18.8	19.1	18.6	0.0	20.0
		1	3	18.3	19.0	18.5	0.0	20.0	18.5	19.1	18.5	0.0	20.0
		1	5	18.6	19.1	18.3	0.0	20.0	18.5	19.1	18.5	0.0	20.0
3		0	18.4	19.0	18.6	0.0	20.0	18.5	19.0	18.3	0.0	20.0	
3		1	18.4	19.0	18.5	0.0	20.0	18.6	18.7	18.3	0.0	20.0	
3		3	18.5	19.0	18.7	0.0	20.0	18.5	18.9	18.5	0.0	20.0	
256QAM	6	0	18.2	19.1	18.3	0.0	20.0	18.4	19.1	18.3	0.0	20.0	
	1	0	18.3	18.8	18.4	0.0	20.0	18.4	18.7	18.6	0.0	20.0	
	1	3	18.3	18.3	18.4	0.0	20.0	18.4	18.6	18.6	0.0	20.0	
	1	5	18.4	18.8	18.5	0.0	20.0	18.4	18.7	18.6	0.0	20.0	
	3	0	18.3	18.6	18.6	0.0	20.0	18.3	18.6	18.6	0.0	20.0	
	3	1	18.4	18.6	18.6	0.0	20.0	18.4	18.6	18.6	0.0	20.0	
256QAM	3	3	18.4	18.5	18.6	0.0	20.0	18.4	18.6	18.6	0.0	20.0	
	6	0	18.5	18.5	18.4	0.0	20.0	18.5	18.6	18.5	0.0	20.0	

LTE Band 66 (Main Ant.1) Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572			132047	132322	132597		
				1720 MHz	1745 MHz	1770 MHz			1717.5 MHz	1745 MHz	1772.5 MHz		
20 MHz	QPSK	1	0	20.0	20.4	20.8	0.0	21.5	20.4	20.5	20.6	0.0	21.5
		1	49	20.1	20.4	20.9	0.0	21.5	20.4	20.5	21.0	0.0	21.5
		1	99	20.1	20.4	20.9	0.0	21.5	20.4	20.4	20.9	0.0	21.5
		50	0	20.3	20.7	21.2	0.0	21.5	20.3	20.8	21.1	0.0	21.5
		50	24	20.3	20.7	21.2	0.0	21.5	20.3	20.8	21.2	0.0	21.5
		50	50	20.3	20.7	21.3	0.0	21.5	20.3	20.7	21.2	0.0	21.5
	16QAM	100	0	20.3	20.7	21.2	0.0	21.5	20.3	20.7	21.2	0.0	21.5
		1	0	20.3	20.6	20.6	0.0	21.5	19.9	20.6	21.3	0.0	21.5
		1	49	20.6	20.7	20.8	0.0	21.5	20.2	20.7	21.4	0.0	21.5
		1	99	20.5	20.7	20.7	0.0	21.5	20.0	20.6	21.2	0.0	21.5
		50	0	20.3	20.6	20.9	0.0	21.5	20.3	20.6	21.1	0.0	21.5
		50	24	20.3	20.6	20.9	0.0	21.5	20.3	20.6	21.2	0.0	21.5
	64QAM	50	50	20.3	20.6	20.9	0.0	21.5	20.3	20.6	21.1	0.0	21.5
		100	0	20.3	20.7	20.9	0.0	21.5	20.3	20.7	21.2	0.0	21.5
		1	0	19.9	20.5	20.6	0.0	21.5	19.4	20.3	20.8	0.0	21.5
		1	49	19.9	20.4	20.8	0.0	21.5	19.7	20.4	20.7	0.0	21.5
		1	99	19.9	20.5	20.8	0.0	21.5	19.8	20.4	20.7	0.0	21.5
		50	0	19.9	20.5	20.0	0.0	21.5	19.2	20.3	20.6	0.0	21.5
	256QAM	50	24	19.8	20.5	20.0	0.0	21.5	19.2	20.3	20.7	0.0	21.5
		50	50	19.9	20.4	20.0	0.0	21.5	19.2	20.4	20.7	0.0	21.5
		100	0	19.9	20.4	19.9	0.0	21.5	19.2	20.3	20.7	0.0	21.5
		1	0	19.0	19.9	20.0	0.0	21.5	19.0	19.7	20.0	0.0	21.5
		1	49	19.1	19.6	20.2	0.0	21.5	19.3	19.8	20.1	0.0	21.5
		1	99	19.1	19.9	20.3	0.0	21.5	19.3	19.7	20.2	0.0	21.5
15 MHz	QPSK	50	0	18.4	18.9	19.4	1.0	20.5	18.5	18.9	19.4	1.0	20.5
		50	24	18.5	18.9	19.4	1.0	20.5	18.5	18.9	19.4	1.0	20.5
		50	50	18.5	18.9	19.4	1.0	20.5	18.5	18.9	19.4	1.0	20.5
		100	0	18.5	18.9	19.4	1.0	20.5	18.5	18.9	19.4	1.0	20.5
		1	0	20.0	20.8	21.0	0.0	21.5	20.0	20.8	21.2	0.0	21.5
		1	37	20.0	20.7	21.0	0.0	21.5	20.0	20.6	21.1	0.0	21.5
	16QAM	1	74	20.2	20.8	21.1	0.0	21.5	20.1	20.7	21.3	0.0	21.5
		36	0	20.4	20.8	21.3	0.0	21.5	20.5	21.0	21.5	0.0	21.5
		36	20	20.5	20.8	21.3	0.0	21.5	20.6	21.0	21.5	0.0	21.5
		36	39	20.5	20.8	21.4	0.0	21.5	20.6	20.9	21.5	0.0	21.5
		75	0	20.5	20.8	21.3	0.0	21.5	20.6	21.0	21.5	0.0	21.5
		1	0	20.2	20.7	21.3	0.0	21.5	20.7	20.8	21.5	0.0	21.5
64QAM	1	37	20.2	20.7	21.3	0.0	21.5	20.7	20.7	21.4	0.0	21.5	
	1	74	20.3	20.8	21.4	0.0	21.5	20.8	20.8	21.5	0.0	21.5	
	36	0	20.5	20.8	21.3	0.0	21.5	20.6	20.9	21.5	0.0	21.5	
	36	20	20.5	20.8	21.3	0.0	21.5	20.6	20.9	21.5	0.0	21.5	
	36	39	20.5	20.8	21.4	0.0	21.5	20.7	20.9	21.5	0.0	21.5	
	75	0	20.5	20.8	21.3	0.0	21.5	20.6	20.9	21.4	0.0	21.5	
256QAM	1	0	20.3	21.0	21.3	0.0	21.5	20.5	20.9	21.2	0.0	21.5	
	1	37	20.4	20.9	21.2	0.0	21.5	20.5	20.9	21.1	0.0	21.5	
	1	74	20.5	21.0	21.3	0.0	21.5	20.6	20.9	21.2	0.0	21.5	
	36	0	19.5	20.1	20.6	0.0	21.5	19.5	20.2	20.7	0.0	21.5	
	36	20	19.5	20.1	20.6	0.0	21.5	19.5	20.2	20.7	0.0	21.5	
	36	39	19.5	20.1	20.6	0.0	21.5	19.5	20.1	20.7	0.0	21.5	
256QAM	75	0	19.5	20.0	20.5	0.0	21.5	19.6	20.1	20.6	0.0	21.5	
	1	0	19.3	20.1	20.2	0.0	21.5	19.4	20.2	20.4	0.0	21.5	
	1	37	19.5	20.1	20.3	0.0	21.5	19.6	20.2	20.5	0.0	21.5	
	1	74	19.6	20.2	20.5	0.0	21.5	19.7	20.2	20.6	0.0	21.5	
	36	0	18.6	19.2	19.7	1.0	20.5	18.7	19.3	19.7	1.0	20.5	
	36	20	18.7	19.2	19.7	1.0	20.5	18.7	19.3	19.8	1.0	20.5	
256QAM	36	39	18.7	19.2	19.7	1.0	20.5	18.7	19.3	19.8	1.0	20.5	
	36	39	18.7	19.2	19.7	1.0	20.5	18.7	19.3	19.8	1.0	20.5	
	75	0	18.7	19.2	19.7	1.0	20.5	18.8	19.2	19.8	1.0	20.5	
	75	0	18.7	19.2	19.7	1.0	20.5	18.8	19.2	19.8	1.0	20.5	

LTE Band 66 (Main Ant.1) Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132022	132322	132622			132022	132322	132622		
				1715 MHz	1745 MHz	1775 MHz			1715 MHz	1745 MHz	1775 MHz		
10 MHz	QPSK	1	0	20.1	20.9	20.8	0.0	21.5	20.1	20.9	21.1	0.0	21.5
		1	25	20.2	20.9	20.8	0.0	21.5	20.1	20.9	21.1	0.0	21.5
		1	49	20.2	20.8	21.0	0.0	21.5	20.2	20.9	21.3	0.0	21.5
		25	0	20.4	21.1	21.4	0.0	21.5	20.5	20.8	21.4	0.0	21.5
		25	12	20.5	21.1	21.4	0.0	21.5	20.5	20.8	21.4	0.0	21.5
		25	25	20.5	21.1	21.4	0.0	21.5	20.5	20.8	21.5	0.0	21.5
	16QAM	50	0	20.5	20.8	21.5	0.0	21.5	20.5	20.8	21.5	0.0	21.5
		1	0	20.2	20.7	21.5	0.0	21.5	20.2	20.8	21.5	0.0	21.5
		1	25	20.3	20.8	21.5	0.0	21.5	20.3	20.9	21.5	0.0	21.5
		1	49	20.3	20.8	21.5	0.0	21.5	20.2	20.8	21.5	0.0	21.5
		25	0	20.5	20.9	21.4	0.0	21.5	20.5	20.8	21.4	0.0	21.5
		25	12	20.5	20.9	21.4	0.0	21.5	20.5	20.8	21.4	0.0	21.5
	64QAM	25	25	20.5	20.9	21.4	0.0	21.5	20.5	20.8	21.4	0.0	21.5
		50	0	20.5	20.9	21.4	0.0	21.5	20.5	20.8	21.4	0.0	21.5
		1	0	20.4	20.6	21.2	0.0	21.5	20.2	20.8	21.4	0.0	21.5
		1	25	20.3	20.6	21.3	0.0	21.5	20.3	20.8	21.5	0.0	21.5
		1	49	20.4	20.6	21.3	0.0	21.5	20.3	20.8	21.5	0.0	21.5
		25	0	19.6	20.1	20.5	0.0	21.5	19.6	20.1	20.5	0.0	21.5
	256QAM	25	12	19.6	20.0	20.4	0.0	21.5	19.6	20.1	20.5	0.0	21.5
		25	25	19.6	20.0	20.4	0.0	21.5	19.6	20.1	20.5	0.0	21.5
		50	0	19.5	20.0	20.4	0.0	21.5	19.5	20.0	20.4	0.0	21.5
1		0	19.2	20.1	20.1	0.0	21.5	19.2	20.2	20.4	0.0	21.5	
1		25	19.4	20.1	20.1	0.0	21.5	19.3	20.2	20.4	0.0	21.5	
1		49	19.4	20.2	20.3	0.0	21.5	19.3	20.2	20.6	0.0	21.5	
5 MHz	QPSK	25	0	18.6	19.3	19.7	1.0	20.5	18.7	19.3	19.8	1.0	20.5
		25	12	18.7	19.3	19.7	1.0	20.5	18.7	19.3	19.8	1.0	20.5
		25	25	18.6	19.3	19.7	1.0	20.5	18.7	19.3	19.8	1.0	20.5
		50	0	18.7	19.3	19.7	1.0	20.5	18.7	19.3	19.8	1.0	20.5
		1	0	20.0	20.8	21.3	0.0	21.5	20.1	20.5	21.0	0.0	21.5
		1	12	19.9	20.7	21.3	0.0	21.5	19.9	20.5	21.0	0.0	21.5
	16QAM	1	24	20.1	20.8	21.4	0.0	21.5	20.2	20.6	21.1	0.0	21.5
		12	0	20.3	20.8	21.2	0.0	21.5	20.3	20.8	21.2	0.0	21.5
		12	7	20.3	20.8	21.2	0.0	21.5	20.3	20.8	21.2	0.0	21.5
		12	13	20.4	20.7	21.3	0.0	21.5	20.4	20.8	21.3	0.0	21.5
		25	0	20.4	20.8	21.3	0.0	21.5	20.4	20.8	21.3	0.0	21.5
		1	0	20.5	20.9	21.4	0.0	21.5	20.5	20.9	21.4	0.0	21.5
	64QAM	1	12	20.3	20.8	21.3	0.0	21.5	20.3	20.7	21.3	0.0	21.5
		1	24	20.5	20.9	21.4	0.0	21.5	20.5	20.9	21.3	0.0	21.5
		12	0	20.5	21.0	21.5	0.0	21.5	20.5	20.7	21.2	0.0	21.5
12		7	20.5	21.0	21.5	0.0	21.5	20.5	20.7	21.1	0.0	21.5	
12		13	20.5	21.0	21.5	0.0	21.5	20.5	20.7	21.2	0.0	21.5	
25		0	20.5	21.0	21.4	0.0	21.5	20.5	20.8	21.2	0.0	21.5	
256QAM	1	0	19.6	21.1	21.2	0.0	21.5	19.9	20.9	21.2	0.0	21.5	
	1	12	19.7	21.0	21.2	0.0	21.5	19.9	20.8	21.2	0.0	21.5	
	1	24	19.8	21.0	21.3	0.0	21.5	20.1	20.8	21.3	0.0	21.5	
	12	0	19.2	20.0	20.4	0.0	21.5	19.1	20.0	20.5	0.0	21.5	
	12	7	19.2	20.0	20.4	0.0	21.5	19.1	19.9	20.4	0.0	21.5	
	12	13	19.2	19.9	20.4	0.0	21.5	19.1	19.9	20.4	0.0	21.5	
	25	0	19.3	20.0	20.3	0.0	21.5	19.2	20.0	20.4	0.0	21.5	
	1	0	19.2	20.2	20.4	0.0	21.5	19.0	20.2	20.6	0.0	21.5	
	1	12	19.2	20.1	20.4	0.0	21.5	19.2	20.2	20.6	0.0	21.5	
1	24	19.2	20.3	20.5	0.0	21.5	19.2	20.3	20.8	0.0	21.5		
256QAM	12	0	18.5	19.3	19.8	1.0	20.5	18.4	19.2	19.8	1.0	20.5	
	12	7	18.5	19.3	19.8	1.0	20.5	18.5	19.2	19.8	1.0	20.5	
	12	13	18.5	19.2	19.8	1.0	20.5	18.5	19.2	19.8	1.0	20.5	
	25	0	18.5	19.2	19.8	1.0	20.5	18.4	19.2	19.8	1.0	20.5	
	25	0	18.5	19.2	19.8	1.0	20.5	18.4	19.2	19.8	1.0	20.5	

LTE Band 66 (Main Ant.1) Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657			131987	132322	132657		
				1711.5 MHz	1745 MHz	1778.5 MHz			1711.5 MHz	1745 MHz	1778.5 MHz		
3 MHz	QPSK	1	0	19.7	20.7	21.2	0.0	21.5	19.7	20.7	21.2	0.0	21.5
		1	8	19.6	20.6	21.0	0.0	21.5	19.6	20.6	21.1	0.0	21.5
		1	14	19.8	20.7	21.3	0.0	21.5	19.8	20.8	21.4	0.0	21.5
		8	0	20.2	20.7	21.3	0.0	21.5	20.1	20.8	21.3	0.0	21.5
		8	4	20.2	20.7	21.3	0.0	21.5	20.2	20.7	21.4	0.0	21.5
		8	7	20.2	20.8	21.4	0.0	21.5	20.2	20.8	21.4	0.0	21.5
	16QAM	15	0	20.2	20.7	21.3	0.0	21.5	20.3	20.7	21.3	0.0	21.5
		1	0	20.3	20.9	21.2	0.0	21.5	20.4	20.9	20.9	0.0	21.5
		1	8	20.2	20.8	21.0	0.0	21.5	20.3	20.8	20.7	0.0	21.5
		1	14	20.4	20.9	21.1	0.0	21.5	20.5	20.8	20.8	0.0	21.5
		8	0	20.3	20.7	21.1	0.0	21.5	20.3	20.7	21.1	0.0	21.5
		8	4	20.3	20.7	21.2	0.0	21.5	20.3	20.6	21.3	0.0	21.5
	64QAM	8	7	20.3	20.6	21.1	0.0	21.5	20.3	20.6	21.2	0.0	21.5
		15	0	20.2	20.6	21.2	0.0	21.5	20.3	20.7	21.2	0.0	21.5
		1	0	20.2	20.7	21.1	0.0	21.5	20.1	21.0	21.1	0.0	21.5
		1	8	20.1	20.5	21.0	0.0	21.5	20.0	20.8	21.0	0.0	21.5
		1	14	20.1	20.7	21.2	0.0	21.5	20.3	21.0	21.0	0.0	21.5
		8	0	19.3	19.8	20.2	0.0	21.5	19.2	19.8	20.2	0.0	21.5
	256QAM	8	4	19.3	20.1	20.5	0.0	21.5	19.2	19.8	20.2	0.0	21.5
		8	7	19.3	20.0	20.5	0.0	21.5	19.2	19.8	20.2	0.0	21.5
		15	0	19.2	19.9	20.4	0.0	21.5	19.1	19.6	20.1	0.0	21.5
1		0	19.2	20.2	20.4	0.0	21.5	19.3	19.5	20.1	0.0	21.5	
1		8	19.2	20.1	20.4	0.0	21.5	19.3	19.7	20.3	0.0	21.5	
1		14	19.4	20.2	20.6	0.0	21.5	19.5	20.0	20.6	0.0	21.5	
1.4 MHz	QPSK	8	0	18.6	19.2	19.7	1.0	20.5	18.5	19.2	19.8	1.0	20.5
		8	4	18.6	19.2	19.7	1.0	20.5	18.5	19.2	19.8	1.0	20.5
		8	7	18.6	19.2	19.7	1.0	20.5	18.5	19.3	19.8	1.0	20.5
		15	0	18.6	19.2	19.8	1.0	20.5	18.5	19.2	19.9	1.0	20.5
		1	0	19.8	20.9	21.3	0.0	21.5	19.9	20.8	21.3	0.0	21.5
		1	3	19.7	20.8	21.0	0.0	21.5	19.9	20.5	21.1	0.0	21.5
	16QAM	1	5	19.9	20.9	21.3	0.0	21.5	20.0	20.7	21.3	0.0	21.5
		3	0	20.1	21.0	21.4	0.0	21.5	20.2	21.0	21.5	0.0	21.5
		3	1	20.2	21.0	21.5	0.0	21.5	20.2	20.9	21.5	0.0	21.5
		3	3	20.2	21.0	21.5	0.0	21.5	20.1	20.8	21.5	0.0	21.5
		6	0	20.1	21.0	21.5	0.0	21.5	20.1	21.0	21.5	0.0	21.5
		1	0	20.1	20.7	21.1	0.0	21.5	20.0	21.3	21.3	0.0	21.5
	64QAM	1	3	20.2	20.8	21.2	0.0	21.5	20.1	21.4	21.5	0.0	21.5
		1	5	20.2	20.8	21.1	0.0	21.5	20.1	21.4	21.4	0.0	21.5
		3	0	20.5	21.1	21.2	0.0	21.5	20.3	20.9	21.4	0.0	21.5
		3	1	20.4	21.0	21.0	0.0	21.5	20.2	20.9	21.5	0.0	21.5
		3	3	20.4	21.1	21.1	0.0	21.5	20.3	20.9	21.5	0.0	21.5
		6	0	20.2	21.0	21.0	0.0	21.5	20.2	20.9	21.5	0.0	21.5
	256QAM	1	0	20.1	21.2	21.3	0.0	21.5	20.2	21.2	21.1	0.0	21.5
		1	3	20.0	21.0	21.4	0.0	21.5	20.1	21.0	21.2	0.0	21.5
		1	5	20.1	21.0	21.3	0.0	21.5	20.2	21.0	21.2	0.0	21.5
3		0	20.3	21.1	21.3	0.0	21.5	20.2	21.1	21.3	0.0	21.5	
3		1	20.2	21.0	21.3	0.0	21.5	20.2	21.0	21.2	0.0	21.5	
3		3	20.2	21.0	21.3	0.0	21.5	20.2	21.0	21.2	0.0	21.5	
256QAM	6	0	19.2	20.1	20.5	0.0	21.5	19.1	20.1	20.5	0.0	21.5	
	1	0	19.2	20.0	20.6	0.0	21.5	19.1	20.0	20.4	0.0	21.5	
	1	3	19.3	19.8	20.7	0.0	21.5	19.1	19.9	20.5	0.0	21.5	
	1	5	19.3	20.1	20.7	0.0	21.5	19.1	20.1	20.5	0.0	21.5	
	3	0	19.4	20.2	20.8	0.0	21.5	19.3	20.0	20.9	0.0	21.5	
	3	1	19.4	20.1	20.8	0.0	21.5	19.2	20.0	20.8	0.0	21.5	
256QAM	3	3	19.3	20.1	20.8	0.0	21.5	19.2	20.0	20.8	0.0	21.5	
	6	0	19.2	19.1	19.8	0.0	21.5	19.1	19.2	19.8	0.0	21.5	
	6	0	19.2	19.1	19.8	0.0	21.5	19.1	19.2	19.8	0.0	21.5	

LTE Band 41 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off								Reduced Average Power (dBm) Proximity sensor back-off							
				Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit		
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490				
2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz	2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz										
20 MHz	QPSK	1	0	20.4	20.5	20.7	20.2	20.6	0.0	22.0	20.8	20.2	20.8	20.6	20.4	0.0	22.0		
		1	49	20.4	20.4	20.6	20.1	20.5	0.0	22.0	20.9	20.2	20.7	20.5	20.4	0.0	22.0		
		1	99	20.4	20.4	20.7	20.2	20.5	0.0	22.0	20.8	20.3	20.9	20.5	20.4	0.0	22.0		
		50	0	21.0	20.7	21.0	20.7	20.8	0.0	22.0	21.1	20.7	21.0	20.8	20.9	0.0	22.0		
		50	24	21.0	20.7	21.0	20.7	20.7	0.0	22.0	21.1	20.7	21.0	20.8	20.8	0.0	22.0		
		50	50	20.9	20.6	21.0	20.7	20.7	0.0	22.0	21.0	20.7	21.1	20.8	20.8	0.0	22.0		
	100	0	20.9	20.6	21.0	20.7	20.8	0.0	22.0	21.0	20.7	21.0	20.8	20.8	0.0	22.0			
	16QAM	1	0	20.8	20.4	20.6	20.7	20.4	0.0	22.0	21.1	20.5	21.2	20.8	20.9	0.0	22.0		
		1	49	20.9	20.5	20.6	20.7	20.7	0.0	22.0	21.0	20.8	21.0	20.6	21.0	0.0	22.0		
		1	99	20.8	20.4	20.8	20.9	20.5	0.0	22.0	20.9	20.8	21.2	20.7	21.0	0.0	22.0		
		50	0	20.9	20.7	21.0	20.7	20.8	0.0	22.0	21.1	20.7	21.0	20.8	20.8	0.0	22.0		
		50	24	20.9	20.8	21.0	20.7	20.8	0.0	22.0	21.1	20.7	21.0	20.8	20.8	0.0	22.0		
		50	50	20.9	20.7	21.0	20.7	20.7	0.0	22.0	21.1	20.7	21.1	20.8	20.8	0.0	22.0		
	100	0	20.9	20.7	21.0	20.7	20.8	0.0	22.0	21.1	20.7	21.1	20.8	20.8	0.0	22.0			
	64QAM	1	0	20.8	20.6	20.8	20.3	20.4	0.0	22.0	21.4	20.8	20.5	20.9	20.5	0.0	22.0		
		1	49	20.7	20.3	20.3	20.7	20.4	0.0	22.0	21.2	20.7	20.7	20.6	20.6	0.0	22.0		
		1	99	20.8	20.5	21.0	20.7	20.4	0.0	22.0	20.6	20.8	20.5	20.8	20.2	0.0	22.0		
		50	0	20.2	19.7	20.0	19.8	19.8	0.0	22.0	20.0	19.9	20.0	19.8	19.8	0.0	22.0		
		50	24	20.1	19.7	20.0	19.8	19.8	0.0	22.0	20.0	19.8	20.0	19.7	19.9	0.0	22.0		
		50	50	20.2	19.7	20.0	19.8	19.8	0.0	22.0	20.0	19.8	20.0	19.7	19.9	0.0	22.0		
	100	0	20.0	19.7	20.0	19.8	19.8	0.0	22.0	20.0	19.8	20.0	19.8	19.9	0.0	22.0			
	256QAM	1	0	19.9	19.6	20.1	19.8	19.7	1.0	21.0	19.8	19.6	19.8	19.8	20.0	1.0	21.0		
		1	49	19.9	20.0	20.0	19.6	20.0	1.0	21.0	20.2	19.7	19.7	20.2	20.2	1.0	21.0		
		1	99	20.3	19.6	19.9	19.9	19.9	1.0	21.0	19.9	19.6	19.9	20.0	19.5	1.0	21.0		
50		0	19.1	18.7	19.0	18.8	18.8	1.0	21.0	19.1	18.8	19.0	18.8	18.9	1.0	21.0			
50		24	19.1	18.7	19.0	18.8	18.8	1.0	21.0	19.1	18.8	19.0	18.8	18.9	1.0	21.0			
50		50	19.1	18.8	19.0	18.8	18.9	1.0	21.0	19.1	18.8	19.0	18.8	18.9	1.0	21.0			
100	0	19.0	18.7	19.1	18.8	18.8	1.0	21.0	19.1	18.8	19.1	18.8	18.9	1.0	21.0				
15 MHz	QPSK	1	0	20.9	20.5	20.9	20.6	20.7	0.0	22.0	21.0	20.6	21.0	20.7	20.9	0.0	22.0		
		1	37	20.5	20.4	20.7	20.3	20.5	0.0	22.0	20.8	20.6	20.9	20.5	20.6	0.0	22.0		
1		74	20.9	20.5	20.9	20.6	20.6	0.0	22.0	20.9	20.6	21.0	20.7	20.8	0.0	22.0			
36		0	21.0	20.6	20.9	20.7	20.8	0.0	22.0	21.1	20.7	21.0	20.8	20.9	0.0	22.0			
36		20	20.9	20.6	21.0	20.7	20.7	0.0	22.0	21.1	20.7	21.0	20.8	20.9	0.0	22.0			
36		39	20.9	20.6	21.0	20.7	20.7	0.0	22.0	21.1	20.7	21.0	20.8	20.8	0.0	22.0			
75	0	21.0	20.6	20.9	20.7	20.7	0.0	22.0	21.0	20.7	21.0	20.8	20.8	0.0	22.0				
16QAM	1	0	20.5	20.4	20.7	20.2	20.4	0.0	22.0	20.4	20.2	20.6	20.6	20.3	0.0	22.0			
	1	37	20.4	20.3	20.6	20.2	20.3	0.0	22.0	21.2	20.2	20.9	20.4	20.3	0.0	22.0			
	1	74	20.3	20.4	20.4	20.2	20.1	0.0	22.0	20.7	20.2	21.1	20.6	20.3	0.0	22.0			
	36	0	21.0	20.7	20.9	20.7	20.8	0.0	22.0	21.1	20.7	21.0	20.9	20.9	0.0	22.0			
	36	20	20.9	20.7	20.9	20.8	20.8	0.0	22.0	21.1	20.8	21.0	20.8	20.9	0.0	22.0			
	36	39	21.0	20.7	20.9	20.8	20.8	0.0	22.0	21.1	20.7	21.1	20.8	20.9	0.0	22.0			
75	0	21.0	20.7	21.0	20.7	20.7	0.0	22.0	21.0	20.7	21.1	20.8	20.8	0.0	22.0				
64QAM	1	0	20.9	20.1	21.0	20.9	19.8	0.0	22.0	20.3	20.4	20.9	20.4	20.7	0.0	22.0			
	1	37	20.9	20.0	20.3	20.4	19.8	0.0	22.0	20.0	20.5	20.7	20.4	20.5	0.0	22.0			
	1	74	21.0	20.1	20.6	20.9	20.2	0.0	22.0	20.2	20.3	20.7	20.4	20.5	0.0	22.0			
	36	0	20.0	19.7	20.0	19.7	19.8	0.0	22.0	20.0	19.6	20.1	19.7	19.7	0.0	22.0			
	36	20	20.0	19.7	20.0	19.7	19.8	0.0	22.0	20.1	19.6	20.1	19.7	19.8	0.0	22.0			
	36	39	20.0	19.7	20.0	19.7	19.8	0.0	22.0	20.0	19.6	20.1	19.7	19.8	0.0	22.0			
75	0	20.0	19.6	20.0	19.7	19.7	0.0	22.0	19.9	19.7	20.0	19.7	19.8	0.0	22.0				
256QAM	1	0	19.9	19.7	19.8	19.9	19.9	1.0	21.0	19.9	19.7	19.6	20.0	19.8	1.0	21.0			
	1	37	19.5	19.8	19.4	19.6	19.7	1.0	21.0	19.8	19.8	19.6	19.7	19.7	1.0	21.0			
	1	74	19.8	19.5	19.8	19.9	19.8	1.0	21.0	20.0	19.5	19.5	19.7	19.9	1.0	21.0			
	36	0	19.0	18.8	19.0	18.8	18.8	1.0	21.0	19.0	18.7	19.0	18.8	18.9	1.0	21.0			
	36	20	19.0	18.8	19.0	18.7	18.8	1.0	21.0	19.1	18.8	19.1	18.8	18.8	1.0	21.0			
	36	39	19.0	18.7	19.0	18.8	18.8	1.0	21.0	19.0	18.7	19.0	18.8	18.9	1.0	21.0			
75	0	19.1	18.7	19.0	18.8	18.8	1.0	21.0	19.0	18.8	19.1	18.8	18.9	1.0	21.0				

LTE Band 41 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	20.9	20.6	21.0	20.7	20.7	0.0	22.0	21.1	20.7	21.0	20.8	20.9	0.0	22.0
		1	25	21.0	20.5	20.8	20.6	20.6	0.0	22.0	20.9	20.6	20.9	20.6	20.7	0.0	22.0
		1	49	20.9	20.6	20.9	20.6	20.6	0.0	22.0	20.9	20.6	20.9	20.6	20.8	0.0	22.0
		25	0	20.9	20.7	21.0	20.7	20.7	0.0	22.0	21.1	20.7	21.0	20.8	20.9	0.0	22.0
		25	12	20.9	20.7	21.0	20.7	20.7	0.0	22.0	21.0	20.7	21.0	20.8	20.9	0.0	22.0
		25	25	20.9	20.6	21.0	20.7	20.7	0.0	22.0	21.0	20.7	21.0	20.7	20.8	0.0	22.0
	16QAM	1	0	20.5	20.7	21.0	20.8	20.9	0.0	22.0	21.1	20.6	21.0	20.8	20.9	0.0	22.0
		1	25	20.5	20.7	21.0	20.8	20.9	0.0	22.0	21.0	20.6	21.0	20.8	20.8	0.0	22.0
		1	49	20.4	20.8	21.1	20.8	20.9	0.0	22.0	21.1	20.7	21.1	20.8	20.9	0.0	22.0
		25	0	20.9	20.7	21.0	20.7	20.7	0.0	22.0	21.0	20.7	21.0	20.7	20.8	0.0	22.0
		25	12	20.9	20.7	21.0	20.7	20.8	0.0	22.0	21.0	20.7	21.0	20.7	20.8	0.0	22.0
		25	25	20.9	20.7	21.0	20.7	20.7	0.0	22.0	21.0	20.7	21.1	20.8	20.8	0.0	22.0
	64QAM	1	0	20.9	20.7	21.0	20.7	20.7	0.0	22.0	20.9	20.7	21.0	20.8	20.8	0.0	22.0
		1	0	20.6	20.5	21.0	20.1	20.3	0.0	22.0	20.4	20.8	20.8	20.2	20.3	0.0	22.0
		1	25	20.5	20.5	21.0	20.0	20.2	0.0	22.0	20.2	20.7	20.8	20.1	20.1	0.0	22.0
		1	49	20.7	20.4	20.9	20.2	20.3	0.0	22.0	20.4	20.7	20.7	20.3	20.3	0.0	22.0
		25	0	20.0	19.7	20.0	19.7	19.8	0.0	22.0	20.0	19.7	20.0	19.8	19.8	0.0	22.0
		25	12	20.0	19.7	20.0	19.8	19.7	0.0	22.0	20.0	19.7	20.0	19.7	19.8	0.0	22.0
	256QAM	1	0	19.8	19.6	19.7	19.6	19.7	1.0	21.0	19.8	19.4	20.1	19.8	19.9	1.0	21.0
		1	25	19.9	19.6	19.5	19.6	19.8	1.0	21.0	19.9	19.3	20.1	19.9	20.0	1.0	21.0
		1	49	19.8	19.6	19.6	19.5	19.7	1.0	21.0	19.8	19.4	20.1	19.7	19.8	1.0	21.0
		25	0	19.0	18.8	19.1	18.8	18.8	1.0	21.0	19.0	18.8	19.2	18.8	18.8	1.0	21.0
		25	12	19.0	18.8	19.1	18.8	18.8	1.0	21.0	19.0	18.8	19.1	18.8	18.8	1.0	21.0
		25	25	19.0	18.8	19.1	18.7	18.8	1.0	21.0	19.0	18.8	19.1	18.8	18.8	1.0	21.0
	5 MHz	QPSK	1	0	20.7	20.7	20.6	20.5	21.0	0.0	22.0	21.1	20.7	20.7	20.8	20.6	0.0
1			12	20.5	20.6	20.4	20.3	20.8	0.0	22.0	20.9	20.6	20.5	20.7	20.4	0.0	22.0
1			24	20.6	20.6	20.6	20.4	20.8	0.0	22.0	21.0	20.6	20.7	20.7	20.5	0.0	22.0
12			0	21.0	20.7	21.0	20.8	20.9	0.0	22.0	21.0	20.7	21.0	20.7	20.8	0.0	22.0
12			7	21.0	20.7	21.0	20.7	20.8	0.0	22.0	21.0	20.7	21.0	20.7	20.8	0.0	22.0
12			13	20.9	20.7	21.0	20.7	20.8	0.0	22.0	21.0	20.7	21.0	20.7	20.8	0.0	22.0
16QAM		25	0	21.0	20.7	21.0	20.8	20.9	0.0	22.0	21.0	20.7	21.1	20.8	20.8	0.0	22.0
		1	0	20.6	20.6	20.9	20.3	20.7	0.0	22.0	21.0	20.7	20.6	20.6	20.3	0.0	22.0
		1	12	20.5	20.5	20.8	20.3	20.5	0.0	22.0	20.8	20.5	20.5	20.5	20.3	0.0	22.0
		1	24	20.6	20.6	21.0	20.4	20.6	0.0	22.0	20.9	20.6	20.7	20.6	20.4	0.0	22.0
		12	0	20.8	20.7	21.0	20.6	20.8	0.0	22.0	21.0	20.7	20.9	20.8	20.6	0.0	22.0
		12	7	20.8	20.7	21.0	20.6	20.8	0.0	22.0	21.0	20.7	20.9	20.8	20.6	0.0	22.0
64QAM		12	13	20.8	20.7	21.0	20.6	20.8	0.0	22.0	21.0	20.7	20.9	20.8	20.6	0.0	22.0
		25	0	21.0	20.8	21.0	20.8	20.8	0.0	22.0	21.0	20.8	21.1	20.8	20.8	0.0	22.0
		1	0	21.1	20.3	20.9	20.5	20.4	0.0	22.0	21.0	20.3	21.0	20.8	20.5	0.0	22.0
		1	12	20.9	20.2	20.8	20.2	20.2	0.0	22.0	21.0	20.1	20.8	20.7	20.3	0.0	22.0
		1	24	20.9	20.2	21.0	20.4	20.2	0.0	22.0	21.1	20.2	20.9	20.8	20.3	0.0	22.0
		12	0	20.0	19.7	20.0	19.7	19.7	0.0	22.0	19.9	19.7	20.0	19.8	19.9	0.0	22.0
256QAM		12	7	20.0	19.7	20.0	19.7	19.7	0.0	22.0	19.9	19.7	20.0	19.7	19.9	0.0	22.0
		12	13	20.0	19.7	20.0	19.7	19.7	0.0	22.0	20.0	19.7	20.0	19.8	19.9	0.0	22.0
		25	0	19.9	19.8	20.1	19.7	19.8	0.0	22.0	20.0	19.8	20.0	19.8	19.9	0.0	22.0
		1	0	20.2	19.5	20.0	19.8	19.7	1.0	21.0	19.9	19.6	20.2	19.7	19.7	1.0	21.0
		1	12	20.0	19.4	19.9	19.7	19.6	1.0	21.0	19.8	19.5	20.0	19.6	19.5	1.0	21.0
		1	24	20.2	19.6	20.0	19.8	19.6	1.0	21.0	19.9	19.7	20.2	19.6	19.6	1.0	21.0

LTE Band 2 (Sub Ant.2) Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) RCV back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100			18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz			1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	18.1	18.5	18.2	0.0	19.0	17.1	17.5	17.2	0.0	18.0
		1	49	18.2	18.6	18.3	0.0	19.0	17.2	17.7	17.3	0.0	18.0
		1	99	18.5	18.6	18.5	0.0	19.0	17.5	17.7	17.5	0.0	18.0
		50	0	18.2	18.5	18.3	0.0	19.0	17.2	17.5	17.3	0.0	18.0
		50	24	18.1	18.5	18.2	0.0	19.0	17.1	17.5	17.2	0.0	18.0
		50	50	18.1	18.5	18.2	0.0	19.0	17.1	17.5	17.2	0.0	18.0
	16QAM	100	0	18.1	18.5	18.2	0.0	19.0	17.1	17.5	17.2	0.0	18.0
		1	0	18.1	18.3	18.0	0.0	19.0	17.1	17.3	17.0	0.0	18.0
		1	49	18.3	18.6	18.4	0.0	19.0	17.3	17.5	17.4	0.0	18.0
		1	99	17.7	18.1	17.8	0.0	19.0	17.0	17.1	16.8	0.0	18.0
		50	0	18.1	18.5	18.2	0.0	19.0	17.1	17.5	17.2	0.0	18.0
		50	24	18.0	18.4	18.1	0.0	19.0	17.0	17.4	17.1	0.0	18.0
	64QAM	50	50	18.3	18.5	18.4	0.0	19.0	17.2	17.3	17.2	0.0	18.0
		100	0	18.2	18.6	18.3	0.0	19.0	17.2	17.4	17.3	0.0	18.0
		1	0	18.5	18.6	18.3	0.0	19.0	17.5	17.3	17.3	0.0	18.0
		1	49	18.2	18.6	18.3	0.0	19.0	17.2	17.4	17.3	0.0	18.0
		1	99	18.3	18.7	18.4	0.0	19.0	17.3	17.4	17.3	0.0	18.0
		50	0	18.1	18.5	18.2	0.0	19.0	17.1	17.3	17.2	0.0	18.0
	256QAM	50	24	18.2	18.6	18.3	0.0	19.0	17.2	17.4	17.3	0.0	18.0
		50	50	18.2	18.6	18.3	0.0	19.0	17.2	17.3	17.3	0.0	18.0
		100	0	18.2	18.6	18.3	0.0	19.0	17.2	17.4	17.3	0.0	18.0
		1	0	17.3	17.7	17.4	1.0	18.0	16.3	16.7	16.4	1.0	17.0
		1	49	17.0	17.4	17.1	1.0	18.0	16.0	16.4	16.1	1.0	17.0
		1	99	16.5	16.9	16.6	1.0	18.0	15.5	15.9	15.6	1.0	17.0
15 MHz	QPSK	50	0	17.4	17.8	17.5	1.0	18.0	16.4	16.8	16.5	1.0	17.0
		50	24	16.9	17.3	17.0	1.0	18.0	15.9	16.3	16.0	1.0	17.0
		50	50	17.3	17.7	17.4	1.0	18.0	16.3	16.7	16.4	1.0	17.0
		100	0	17.2	17.6	17.3	1.0	18.0	16.2	16.6	16.3	1.0	17.0
		1	0	17.9	18.5	18.0	0.0	19.0	16.9	17.5	17.0	0.0	18.0
		1	37	18.2	18.7	18.3	0.0	19.0	17.2	17.7	17.3	0.0	18.0
	16QAM	1	74	18.2	18.7	18.3	0.0	19.0	17.2	17.7	17.3	0.0	18.0
		36	0	18.0	18.5	18.1	0.0	19.0	17.0	17.5	17.1	0.0	18.0
		36	20	18.1	18.6	18.2	0.0	19.0	17.1	17.6	17.2	0.0	18.0
		36	39	18.0	18.5	18.1	0.0	19.0	17.0	17.5	17.1	0.0	18.0
		75	0	18.1	18.6	18.2	0.0	19.0	17.1	17.4	17.2	0.0	18.0
		1	0	18.2	18.3	18.2	0.0	19.0	17.1	17.2	17.1	0.0	18.0
	64QAM	1	37	18.0	18.2	18.0	0.0	19.0	17.1	17.3	17.2	0.0	18.0
		1	74	18.3	18.4	18.3	0.0	19.0	17.3	17.5	17.4	0.0	18.0
		36	0	17.9	18.4	18.0	0.0	19.0	16.9	17.4	17.0	0.0	18.0
		36	20	18.0	18.5	18.1	0.0	19.0	17.0	17.4	17.1	0.0	18.0
		36	39	18.2	18.4	18.3	0.0	19.0	17.2	17.4	17.3	0.0	18.0
		75	0	18.0	18.5	18.1	0.0	19.0	17.0	17.4	17.1	0.0	18.0
	256QAM	1	0	18.1	18.5	18.2	0.0	19.0	17.1	17.3	17.2	0.0	18.0
		1	37	17.9	18.0	17.9	0.0	19.0	17.3	17.4	17.1	0.0	18.0
		1	74	18.0	18.2	18.1	0.0	19.0	17.3	17.5	17.4	0.0	18.0
		36	0	18.0	18.5	18.1	0.0	19.0	17.0	17.5	17.1	0.0	18.0
		36	20	18.2	18.5	18.3	0.0	19.0	17.2	17.5	17.3	0.0	18.0
		36	39	18.1	18.4	18.2	0.0	19.0	17.1	17.4	17.2	0.0	18.0
256QAM	75	0	18.1	18.4	18.2	0.0	19.0	17.1	17.4	17.2	0.0	18.0	
	1	0	17.5	18.0	17.6	1.0	18.0	16.5	17.0	16.6	1.0	17.0	
	1	37	17.2	17.7	17.3	1.0	18.0	16.2	16.7	16.3	1.0	17.0	
	1	74	17.5	18.0	17.6	1.0	18.0	16.5	17.0	16.6	1.0	17.0	
	36	0	17.4	17.9	17.5	1.0	18.0	16.4	16.9	16.5	1.0	17.0	
	36	20	17.0	17.5	17.1	1.0	18.0	16.0	16.5	16.1	1.0	17.0	
256QAM	36	39	17.3	17.8	17.4	1.0	18.0	16.3	16.8	16.4	1.0	17.0	
	75	0	17.1	17.6	17.2	1.0	18.0	16.1	16.6	16.2	1.0	17.0	

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

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18650	18900	19150			18650	18900	19150		
				1855 MHz	1880 MHz	1905 MHz			1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	18.0	18.2	18.0	0.0	19.0	17.0	17.4	17.1	0.0	18.0
		1	25	18.1	18.3	18.1	0.0	19.0	17.2	17.3	17.1	0.0	18.0
		1	49	18.3	18.5	18.3	0.0	19.0	17.3	17.7	17.3	0.0	18.0
		25	0	18.1	18.3	18.1	0.0	19.0	17.1	17.3	17.2	0.0	18.0
		25	12	18.1	18.3	18.1	0.0	19.0	17.1	17.4	17.1	0.0	18.0
		25	25	18.1	18.3	18.1	0.0	19.0	17.1	17.3	17.2	0.0	18.0
	16QAM	50	0	18.2	18.4	18.2	0.0	19.0	17.2	17.4	17.2	0.0	18.0
		1	0	18.3	18.5	18.3	0.0	19.0	17.3	17.3	17.3	0.0	18.0
		1	25	18.0	18.2	18.0	0.0	19.0	17.1	17.2	17.0	0.0	18.0
		1	49	18.3	18.5	18.3	0.0	19.0	17.3	17.3	17.3	0.0	18.0
		25	0	18.0	18.2	18.0	0.0	19.0	17.0	17.2	17.0	0.0	18.0
		25	12	18.0	18.2	18.0	0.0	19.0	17.0	17.2	17.0	0.0	18.0
	64QAM	25	25	18.2	18.4	18.2	0.0	19.0	17.2	17.4	17.2	0.0	18.0
		50	0	18.2	18.4	18.2	0.0	19.0	17.2	17.4	17.2	0.0	18.0
		1	0	18.1	18.3	18.1	0.0	19.0	17.1	17.3	17.1	0.0	18.0
		1	25	18.4	18.6	18.4	0.0	19.0	17.2	17.3	17.1	0.0	18.0
		1	49	18.1	18.3	18.1	0.0	19.0	17.1	17.3	17.2	0.0	18.0
		25	0	18.1	18.3	18.1	0.0	19.0	17.1	17.3	17.1	0.0	18.0
	256QAM	25	12	18.2	18.4	18.2	0.0	19.0	17.2	17.4	17.2	0.0	18.0
		25	25	18.0	18.2	18.0	0.0	19.0	17.0	17.2	17.0	0.0	18.0
50		0	18.1	18.3	18.1	0.0	19.0	17.1	17.3	17.1	0.0	18.0	
1		0	17.8	18.0	17.8	1.0	18.0	16.8	17.0	16.8	1.0	17.0	
1		25	17.2	17.4	17.2	1.0	18.0	16.2	16.4	16.2	1.0	17.0	
1		49	16.5	16.7	16.5	1.0	18.0	15.5	15.7	15.5	1.0	17.0	
5 MHz	QPSK	25	0	17.4	17.6	17.4	1.0	18.0	16.4	16.6	16.4	1.0	17.0
		25	12	17.0	17.2	17.0	1.0	18.0	16.0	16.2	16.0	1.0	17.0
		25	25	17.4	17.6	17.4	1.0	18.0	16.4	16.6	16.4	1.0	17.0
		50	0	17.2	17.4	17.2	1.0	18.0	16.2	16.4	16.2	1.0	17.0
		1	0	17.3	17.6	17.3	1.0	18.0	16.3	16.6	16.3	1.0	17.0
		1	25	17.3	17.6	17.3	1.0	18.0	16.3	16.6	16.3	1.0	17.0
	16QAM	1	0	17.9	18.2	17.9	0.0	19.0	16.9	17.2	17.2	0.0	18.0
		1	12	18.2	18.2	18.0	0.0	19.0	17.2	17.4	17.2	0.0	18.0
		1	24	18.3	18.4	18.3	0.0	19.0	17.3	17.4	17.3	0.0	18.0
		12	0	17.9	18.2	18.2	0.0	19.0	16.9	17.2	17.1	0.0	18.0
		12	7	17.7	18.0	18.0	0.0	19.0	16.9	17.1	17.0	0.0	18.0
		12	13	18.1	18.4	18.4	0.0	19.0	17.1	17.4	17.4	0.0	18.0
	64QAM	25	0	18.0	18.3	18.3	0.0	19.0	17.0	17.3	17.3	0.0	18.0
		1	0	17.6	17.9	17.9	0.0	19.0	17.0	17.2	17.0	0.0	18.0
		1	12	18.0	18.3	18.1	0.0	19.0	17.0	17.3	17.3	0.0	18.0
		1	24	18.0	18.3	18.3	0.0	19.0	17.0	17.4	17.1	0.0	18.0
		12	0	18.0	18.3	18.2	0.0	19.0	17.0	17.3	17.2	0.0	18.0
		12	7	18.0	18.3	18.1	0.0	19.0	17.0	17.3	17.3	0.0	18.0
	256QAM	12	13	18.0	18.3	18.1	0.0	19.0	17.0	17.3	17.1	0.0	18.0
		25	0	18.0	18.3	18.2	0.0	19.0	17.0	17.4	17.3	0.0	18.0
1		0	17.3	17.6	17.6	1.0	18.0	16.3	16.6	16.6	1.0	17.0	
1		12	17.4	17.7	17.7	1.0	18.0	16.4	16.7	16.7	1.0	17.0	
1		24	16.7	17.0	17.0	1.0	18.0	15.7	16.0	16.0	1.0	17.0	
12		0	17.3	17.6	17.6	1.0	18.0	16.3	16.6	16.6	1.0	17.0	
5 MHz	256QAM	12	7	16.9	17.2	17.2	1.0	18.0	15.9	16.2	16.2	1.0	17.0
		12	13	17.2	17.5	17.5	1.0	18.0	16.2	16.5	16.5	1.0	17.0
		25	0	17.1	17.4	17.4	1.0	18.0	16.1	16.4	16.4	1.0	17.0

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

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit	
				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	17.9	18.2	18.2	0.0	19.0	16.9	17.2	17.2	0.0	18.0	
		1	8	18.1	18.4	18.4	0.0	19.0	17.1	17.4	17.4	0.0	18.0	
		1	14	18.2	18.7	18.5	0.0	19.0	17.2	17.6	17.5	0.0	18.0	
		8	0	18.0	18.3	18.3	0.0	19.0	17.0	17.3	17.3	0.0	18.0	
		8	4	18.0	18.3	18.3	0.0	19.0	17.0	17.3	17.3	0.0	18.0	
		8	7	18.1	18.4	18.2	0.0	19.0	17.1	17.4	17.4	0.0	18.0	
	16QAM	15	0	18.0	18.3	18.1	0.0	19.0	17.0	17.3	17.2	0.0	18.0	
		1	0	18.0	18.3	18.1	0.0	19.0	17.0	17.3	17.2	0.0	18.0	
		1	8	17.8	18.3	18.2	0.0	19.0	16.8	17.1	17.1	0.0	18.0	
		1	14	18.0	18.3	18.2	0.0	19.0	17.0	17.3	17.2	0.0	18.0	
		8	0	17.9	18.3	18.2	0.0	19.0	16.9	17.2	17.2	0.0	18.0	
		8	4	18.0	18.4	18.2	0.0	19.0	17.0	17.3	17.3	0.0	18.0	
		8	7	18.1	18.4	18.2	0.0	19.0	17.1	17.4	17.2	0.0	18.0	
		15	0	18.0	18.3	18.2	0.0	19.0	17.0	17.3	17.3	0.0	18.0	
		64QAM	1	0	17.8	18.1	18.0	0.0	19.0	16.8	17.1	17.1	0.0	18.0
	1		8	18.2	18.5	18.3	0.0	19.0	17.2	17.4	17.2	0.0	18.0	
	1		14	18.2	18.5	18.3	0.0	19.0	17.2	17.4	17.2	0.0	18.0	
	8		0	18.0	18.4	18.3	0.0	19.0	17.0	17.3	17.1	0.0	18.0	
	8		4	18.0	18.3	18.1	0.0	19.0	17.0	17.3	17.2	0.0	18.0	
	8		7	18.1	18.4	18.3	0.0	19.0	17.1	17.4	17.3	0.0	18.0	
	15		0	18.1	18.4	18.2	0.0	19.0	17.1	17.4	17.1	0.0	18.0	
	256QAM		1	0	17.7	18.0	18.0	1.0	18.0	16.7	17.0	17.0	1.0	17.0
			1	8	17.1	17.4	17.4	1.0	18.0	16.1	16.4	16.4	1.0	17.0
		1	14	17.0	17.3	17.3	1.0	18.0	16.0	16.3	16.3	1.0	17.0	
		8	0	17.3	17.6	17.3	1.0	18.0	16.3	16.6	16.6	1.0	17.0	
		8	4	16.8	17.1	17.1	1.0	18.0	15.8	16.1	16.1	1.0	17.0	
		8	7	17.1	17.4	17.3	1.0	18.0	16.1	16.4	16.4	1.0	17.0	
	15	0	17.0	17.3	17.1	1.0	18.0	16.0	16.3	16.3	1.0	17.0		
	1.4 MHz	QPSK	1	0	18.0	18.2	18.1	0.0	19.0	17.0	17.2	17.1	0.0	18.0
			1	3	18.0	18.2	18.1	0.0	19.0	17.0	17.2	17.1	0.0	18.0
			1	5	18.4	18.6	18.5	0.0	19.0	17.4	17.6	17.5	0.0	18.0
			3	0	18.0	18.5	18.1	0.0	19.0	17.0	17.2	17.1	0.0	18.0
			3	1	18.1	18.5	18.2	0.0	19.0	17.1	17.4	17.1	0.0	18.0
			3	3	18.0	18.4	18.1	0.0	19.0	17.1	17.3	17.1	0.0	18.0
		16QAM	6	0	18.0	18.3	18.1	0.0	19.0	17.0	17.2	17.1	0.0	18.0
			1	0	18.4	18.4	18.3	0.0	19.0	17.4	17.4	17.5	0.0	18.0
1			3	18.0	18.2	18.1	0.0	19.0	17.0	17.2	17.1	0.0	18.0	
1			5	18.2	18.3	18.1	0.0	19.0	17.3	17.4	17.4	0.0	18.0	
3			0	18.1	18.3	18.2	0.0	19.0	17.1	17.3	17.2	0.0	18.0	
3			1	18.1	18.2	18.1	0.0	19.0	17.1	17.2	17.1	0.0	18.0	
3			3	18.2	18.3	18.1	0.0	19.0	17.3	17.2	17.4	0.0	18.0	
6			0	18.2	18.4	18.3	0.0	19.0	17.2	17.4	17.3	0.0	18.0	
64QAM			1	0	17.7	17.9	17.8	0.0	19.0	16.7	16.9	16.8	0.0	18.0
		1	3	18.0	18.2	18.1	0.0	19.0	17.0	17.2	17.1	0.0	18.0	
		1	5	18.0	18.2	18.1	0.0	19.0	17.0	17.2	17.1	0.0	18.0	
		3	0	18.0	18.2	18.1	0.0	19.0	17.0	17.2	17.1	0.0	18.0	
		3	1	18.2	18.4	18.1	0.0	19.0	17.1	17.2	17.1	0.0	18.0	
		3	3	18.2	18.4	18.3	0.0	19.0	17.2	17.4	17.3	0.0	18.0	
256QAM		6	0	18.0	18.2	18.1	0.0	19.0	17.0	17.2	17.1	0.0	18.0	
		1	0	17.6	17.8	17.7	1.0	18.0	16.6	16.8	16.7	1.0	17.0	
		1	3	16.8	17.0	16.9	1.0	18.0	15.8	16.0	15.9	1.0	17.0	
		1	5	16.2	16.4	16.3	1.0	18.0	15.2	15.4	15.3	1.0	17.0	
		3	0	17.5	17.7	17.6	1.0	18.0	16.5	16.7	16.6	1.0	17.0	
		3	1	17.0	17.2	17.1	1.0	18.0	16.0	16.2	16.1	1.0	17.0	
3		3	17.2	17.4	17.3	1.0	18.0	16.2	16.4	16.3	1.0	17.0		
6		0	17.1	17.3	17.2	1.0	18.0	16.1	16.3	16.2	1.0	17.0		

LTE Band 66 (Sub Ant.2) Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) RCY back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572			132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	18.0	18.3	19.0	0.0	19.5	15.2	15.6	15.9	0.0	16.5
		1	49	18.0	18.3	18.7	0.0	19.5	14.7	15.1	15.4	0.0	16.5
		1	99	18.3	18.6	18.7	0.0	19.5	15.1	15.5	15.8	0.0	16.5
		50	0	18.1	18.4	18.8	0.0	19.5	15.0	15.4	15.9	0.0	16.5
		50	24	18.1	18.4	18.8	0.0	19.5	15.2	15.6	15.9	0.0	16.5
		50	50	18.1	18.4	18.8	0.0	19.5	14.8	15.2	15.5	0.0	16.5
	100	0	18.1	18.4	18.8	0.0	19.5	14.9	15.3	15.6	0.0	16.5	
	16QAM	1	0	18.1	18.4	18.8	0.0	19.5	15.1	15.5	15.8	0.0	16.5
		1	49	18.1	18.4	18.8	0.0	19.5	14.8	15.2	15.5	0.0	16.5
		1	99	18.0	18.3	18.7	0.0	19.5	15.1	15.5	15.8	0.0	16.5
		50	0	18.0	18.3	18.7	0.0	19.5	15.1	15.5	15.8	0.0	16.5
		50	24	18.0	18.3	18.7	0.0	19.5	15.2	15.6	15.9	0.0	16.5
		50	50	18.3	18.6	19.0	0.0	19.5	14.7	15.1	15.4	0.0	16.5
	100	0	18.1	18.4	18.8	0.0	19.5	14.9	15.3	15.6	0.0	16.5	
	64QAM	1	0	18.1	18.4	18.8	0.0	19.5	14.9	15.3	15.6	0.0	16.5
		1	49	18.1	18.4	18.8	0.0	19.5	15.0	15.4	15.7	0.0	16.5
		1	99	18.3	18.6	19.0	0.0	19.5	14.9	15.3	15.6	0.0	16.5
		50	0	18.2	18.5	18.9	0.0	19.5	14.9	15.3	15.6	0.0	16.5
		50	24	18.3	18.6	19.0	0.0	19.5	15.0	15.4	15.7	0.0	16.5
		50	50	18.2	18.5	18.9	0.0	19.5	14.8	15.2	15.5	0.0	16.5
	100	0	18.2	18.5	18.9	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
	256QAM	1	0	17.2	17.5	17.9	1.0	18.5	15.5	15.9	16.2	0.0	16.5
		1	49	17.4	17.7	18.1	1.0	18.5	15.2	15.6	15.9	0.0	16.5
		1	99	17.0	17.3	17.7	1.0	18.5	14.3	14.7	15.0	0.0	16.5
50		0	17.3	17.6	18.0	1.0	18.5	15.1	15.5	15.8	0.0	16.5	
50		24	17.0	17.3	17.7	1.0	18.5	15.3	15.7	16.0	0.0	16.5	
50		50	17.4	17.7	18.1	1.0	18.5	14.7	15.1	15.4	0.0	16.5	
100	0	17.2	17.5	17.9	1.0	18.5	14.7	15.1	15.4	0.0	16.5		
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132047	132322	132597			132047	132322	132597		
				1717.5 MHz	1745 MHz	1772.5 MHz			1717.5 MHz	1745 MHz	1772.5 MHz		
				15 MHz					15 MHz				
15 MHz	QPSK	1	0	17.9	18.1	18.6	0.0	19.5	15.2	15.5	15.9	0.0	16.5
		1	37	18.0	18.2	18.7	0.0	19.5	14.8	15.1	15.5	0.0	16.5
		1	74	18.4	18.6	19.1	0.0	19.5	15.3	15.6	16.0	0.0	16.5
		36	0	18.0	18.2	18.7	0.0	19.5	15.1	15.4	15.8	0.0	16.5
		36	20	18.1	18.3	18.8	0.0	19.5	15.4	15.7	16.1	0.0	16.5
		36	39	18.1	18.3	18.8	0.0	19.5	14.9	15.2	15.6	0.0	16.5
	75	0	18.2	18.4	18.9	0.0	19.5	15.0	15.3	15.7	0.0	16.5	
	16QAM	1	0	18.2	18.4	18.9	0.0	19.5	15.3	15.6	16.0	0.0	16.5
		1	37	17.7	17.9	18.4	0.0	19.5	14.6	14.9	15.3	0.0	16.5
		1	74	17.9	18.1	18.6	0.0	19.5	15.0	15.3	15.7	0.0	16.5
		36	0	17.9	18.1	18.6	0.0	19.5	15.2	15.5	15.9	0.0	16.5
		36	20	17.9	18.1	18.6	0.0	19.5	15.3	15.6	16.0	0.0	16.5
		36	39	18.3	18.5	19.0	0.0	19.5	14.8	15.1	15.5	0.0	16.5
	75	0	18.0	18.2	18.7	0.0	19.5	14.9	15.2	15.6	0.0	16.5	
	64QAM	1	0	18.3	18.5	19.0	0.0	19.5	15.2	15.5	15.9	0.0	16.5
		1	37	18.5	18.7	19.2	0.0	19.5	15.5	15.8	16.2	0.0	16.5
		1	74	18.4	18.6	19.1	0.0	19.5	15.1	15.4	15.8	0.0	16.5
		36	0	18.1	18.3	18.8	0.0	19.5	15.0	15.3	15.7	0.0	16.5
		36	20	18.2	18.4	18.9	0.0	19.5	15.2	15.5	15.9	0.0	16.5
		36	39	18.3	18.5	19.0	0.0	19.5	15.0	15.3	15.7	0.0	16.5
	75	0	18.1	18.3	18.8	0.0	19.5	14.8	15.1	15.5	0.0	16.5	
	256QAM	1	0	17.8	18.0	18.5	1.0	18.5	15.8	16.1	16.1	0.0	16.5
		1	37	16.9	17.1	17.6	1.0	18.5	14.5	14.8	15.2	0.0	16.5
		1	74	16.9	17.1	17.6	1.0	18.5	15.1	15.4	15.8	0.0	16.5
		36	0	17.4	17.6	18.1	1.0	18.5	15.2	15.5	15.9	0.0	16.5
		36	20	16.9	17.1	17.6	1.0	18.5	15.3	15.6	16.0	0.0	16.5
		36	39	17.5	17.7	18.2	1.0	18.5	14.9	15.2	15.6	0.0	16.5
75	0	17.3	17.5	18.0	1.0	18.5	15.0	15.3	15.7	0.0	16.5		

LTE Band 66 (Sub Ant.2) Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit	
				132022	132322	132622			132022	132322	132622			
				1715 MHz	1745 MHz	1775 MHz			1715 MHz	1745 MHz	1775 MHz			
10 MHz	QPSK	1	0	17.9	18.2	18.6	0.0	19.5	15.2	15.6	15.9	0.0	16.5	
		1	25	17.9	18.2	18.6	0.0	19.5	14.7	15.1	15.4	0.0	16.5	
		1	49	18.2	18.5	18.9	0.0	19.5	15.1	15.5	15.8	0.0	16.5	
		25	0	17.9	18.2	18.6	0.0	19.5	15.0	15.4	15.7	0.0	16.5	
		25	12	17.9	18.2	18.6	0.0	19.5	15.2	15.6	15.9	0.0	16.5	
		25	25	17.9	18.2	18.6	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
	16QAM	50	0	18.1	18.4	18.8	0.0	19.5	14.9	15.3	15.6	0.0	16.5	
		1	0	18.0	18.3	18.7	0.0	19.5	15.1	15.5	15.8	0.0	16.5	
		1	25	17.9	18.2	18.6	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
		1	49	17.9	18.2	18.6	0.0	19.5	15.1	15.5	15.8	0.0	16.5	
		25	0	17.7	18.0	18.4	0.0	19.5	15.1	15.5	15.8	0.0	16.5	
		25	12	17.8	18.1	18.5	0.0	19.5	15.2	15.6	15.9	0.0	16.5	
	64QAM	25	25	18.1	18.4	18.8	0.0	19.5	14.7	15.1	15.4	0.0	16.5	
		50	0	18.0	18.3	18.7	0.0	19.5	14.9	15.3	15.6	0.0	16.5	
		1	0	18.0	18.3	18.7	0.0	19.5	14.9	15.3	15.6	0.0	16.5	
		1	25	18.0	18.3	18.7	0.0	19.5	15.0	15.4	15.7	0.0	16.5	
		1	49	18.2	18.5	18.9	0.0	19.5	14.9	15.3	15.6	0.0	16.5	
		25	0	18.0	18.3	18.7	0.0	19.5	14.9	15.3	15.6	0.0	16.5	
	256QAM	25	12	18.0	18.3	18.7	0.0	19.5	15.0	15.4	15.7	0.0	16.5	
		25	25	18.1	18.4	18.8	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
		50	0	18.0	18.3	18.7	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
		1	0	17.4	17.7	18.1	1.0	18.5	15.5	15.9	16.2	0.0	16.5	
		1	25	17.6	17.9	18.3	1.0	18.5	15.2	15.6	15.9	0.0	16.5	
		1	49	16.2	16.5	16.9	1.0	18.5	14.3	14.7	15.0	0.0	16.5	
	256QAM	25	0	17.3	17.6	18.0	1.0	18.5	15.1	15.5	15.8	0.0	16.5	
25		12	16.9	17.2	17.6	1.0	18.5	15.3	15.7	16.0	0.0	16.5		
25		25	17.3	17.6	18.0	1.0	18.5	14.7	15.1	15.4	0.0	16.5		
50		0	17.0	17.3	17.7	1.0	18.5	14.7	15.1	15.4	0.0	16.5		
5 MHz		QPSK	1	0	17.9	18.2	18.6	0.0	19.5	15.1	15.5	15.6	0.0	16.5
			1	12	18.1	18.4	18.8	0.0	19.5	14.8	15.2	15.5	0.0	16.5
	1		24	18.3	18.6	19.0	0.0	19.5	15.1	15.5	15.6	0.0	16.5	
	12		0	18.0	18.3	18.7	0.0	19.5	14.9	15.3	15.6	0.0	16.5	
	12		7	17.9	18.2	18.6	0.0	19.5	15.1	15.5	15.8	0.0	16.5	
	12		13	18.0	18.3	18.7	0.0	19.5	14.7	15.1	15.4	0.0	16.5	
	16QAM	25	0	18.0	18.3	18.7	0.0	19.5	14.7	15.1	15.4	0.0	16.5	
		1	0	18.0	18.3	18.7	0.0	19.5	15.0	15.4	15.7	0.0	16.5	
		1	12	17.7	18.0	18.4	0.0	19.5	14.5	14.9	15.2	0.0	16.5	
		1	24	18.1	18.4	18.8	0.0	19.5	15.2	15.4	15.6	0.0	16.5	
		12	0	17.8	18.1	18.5	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
		12	7	18.0	18.3	18.7	0.0	19.5	15.1	15.5	15.8	0.0	16.5	
	64QAM	12	13	18.0	18.3	18.7	0.0	19.5	14.4	14.8	15.1	0.0	16.5	
		25	0	18.0	18.3	18.7	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
		1	0	18.0	18.3	18.7	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
		1	12	18.0	18.3	18.7	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
		1	24	18.2	18.5	18.9	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
		12	0	18.0	18.3	18.7	0.0	19.5	14.7	15.1	15.4	0.0	16.5	
	256QAM	12	7	18.0	18.3	18.7	0.0	19.5	14.8	15.2	15.4	0.0	16.5	
		12	13	18.2	18.5	18.9	0.0	19.5	14.8	15.2	15.4	0.0	16.5	
		25	0	17.9	18.2	18.6	0.0	19.5	14.5	14.9	15.2	0.0	16.5	
		1	0	17.4	17.7	18.1	1.0	18.5	15.3	15.3	15.4	0.0	16.5	
		1	12	17.1	17.4	17.8	1.0	18.5	14.9	15.1	15.3	0.0	16.5	
		1	24	16.8	17.1	17.5	1.0	18.5	14.4	14.5	14.8	0.0	16.5	
	256QAM	12	0	17.3	17.6	18.0	1.0	18.5	15.0	15.2	15.3	0.0	16.5	
12		7	16.8	17.1	17.5	1.0	18.5	15.1	15.5	15.8	0.0	16.5		
12		13	17.5	17.8	18.2	1.0	18.5	14.8	15.2	15.5	0.0	16.5		
25		0	17.1	17.4	17.8	1.0	18.5	14.7	15.1	15.4	0.0	16.5		

LTE Band 66 (Sub Ant.2) Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit	
				131987	132322	132657			131987	132322	132657			
				1711.5 MHz	1745 MHz	1778.5 MHz			1711.5 MHz	1745 MHz	1778.5 MHz			
3 MHz	QPSK	1	0	17.8	18.1	18.5	0.0	19.5	15.0	15.4	15.7	0.0	16.5	
		1	8	18.0	18.3	18.7	0.0	19.5	14.7	15.1	15.4	0.0	16.5	
		1	14	18.2	18.3	18.6	0.0	19.5	15.0	15.4	15.7	0.0	16.5	
		8	0	18.0	18.3	18.6	0.0	19.5	14.9	15.3	15.6	0.0	16.5	
		8	4	18.0	18.3	18.5	0.0	19.5	15.2	15.4	15.6	0.0	16.5	
		8	7	18.0	18.3	18.6	0.0	19.5	14.7	15.1	15.4	0.0	16.5	
	16QAM	15	0	18.0	18.3	18.5	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
		1	0	18.2	18.4	18.6	0.0	19.5	15.1	15.5	15.8	0.0	16.5	
		1	8	17.9	18.2	18.6	0.0	19.5	14.7	15.1	15.4	0.0	16.5	
		1	14	18.2	18.4	18.6	0.0	19.5	15.3	15.4	15.5	0.0	16.5	
		8	0	17.9	18.2	18.6	0.0	19.5	15.0	15.4	15.6	0.0	16.5	
		8	4	18.0	18.3	18.7	0.0	19.5	15.1	15.4	15.6	0.0	16.5	
	64QAM	8	7	18.1	18.4	18.8	0.0	19.5	14.5	14.9	15.2	0.0	16.5	
		15	0	17.9	18.2	18.6	0.0	19.5	14.7	15.1	15.4	0.0	16.5	
		1	0	17.8	18.1	18.5	0.0	19.5	14.6	15.0	15.3	0.0	16.5	
		1	8	18.2	18.3	18.5	0.0	19.5	15.1	15.5	15.8	0.0	16.5	
		1	14	17.7	18.0	18.4	0.0	19.5	14.3	14.7	15.0	0.0	16.5	
		8	0	18.1	18.4	18.6	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
	256QAM	8	4	18.1	18.4	18.5	0.0	19.5	14.9	15.3	15.6	0.0	16.5	
		8	7	18.0	18.3	18.7	0.0	19.5	14.6	15.0	15.3	0.0	16.5	
		15	0	17.9	18.2	18.6	0.0	19.5	14.5	14.9	15.2	0.0	16.5	
		1	0	17.4	17.7	18.1	1.0	18.5	14.5	15.1	15.3	0.0	16.5	
		1	8	16.9	17.2	17.6	1.0	18.5	14.7	15.1	15.4	0.0	16.5	
		1	14	16.7	17.0	17.4	1.0	18.5	14.7	14.9	15.0	0.0	16.5	
	1.4 MHz	QPSK	8	0	17.4	17.7	18.1	1.0	18.5	15.1	15.3	15.5	0.0	16.5
			8	4	16.8	17.1	17.5	1.0	18.5	15.0	15.4	15.5	0.0	16.5
			8	7	17.3	17.6	18.0	1.0	18.5	14.6	15.0	15.3	0.0	16.5
15			0	17.0	17.3	17.7	1.0	18.5	14.5	14.9	15.2	0.0	16.5	
1			0	17.7	18.0	18.4	0.0	19.5	14.9	15.3	15.6	0.0	16.5	
1			3	17.9	18.2	18.6	0.0	19.5	14.6	15.0	15.3	0.0	16.5	
16QAM		1	5	18.1	18.4	18.8	0.0	19.5	14.9	15.3	15.6	0.0	16.5	
		3	0	17.8	18.1	18.5	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
		3	1	17.8	18.1	18.5	0.0	19.5	15.2	15.4	15.6	0.0	16.5	
		3	3	17.6	18.3	18.4	0.0	19.5	15.1	15.2	15.5	0.0	16.5	
		6	0	17.6	18.3	18.7	0.0	19.5	14.9	15.1	15.4	0.0	16.5	
		1	0	18.0	18.3	18.7	0.0	19.5	15.0	15.4	15.7	0.0	16.5	
64QAM		1	3	17.8	18.1	18.5	0.0	19.5	14.5	14.9	15.2	0.0	16.5	
		1	5	17.9	18.2	18.6	0.0	19.5	15.0	15.4	15.7	0.0	16.5	
		3	0	18.8	18.1	18.5	0.0	19.5	14.9	15.0	15.5	0.0	16.5	
		3	1	18.1	18.2	18.3	0.0	19.5	14.7	15.1	15.5	0.0	16.5	
		3	3	18.2	18.3	18.4	0.0	19.5	15.3	15.7	15.0	0.0	16.5	
		6	0	17.7	18.0	18.4	0.0	19.5	14.5	14.9	15.2	0.0	16.5	
256QAM		1	0	17.5	17.8	18.2	0.0	19.5	14.3	14.7	15.0	0.0	16.5	
		1	3	18.1	18.4	18.8	0.0	19.5	15.0	15.4	15.7	0.0	16.5	
		1	5	17.9	18.2	18.6	0.0	19.5	14.5	14.9	15.2	0.0	16.5	
		3	0	18.1	18.4	18.8	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
		3	1	18.4	18.3	18.7	0.0	19.5	14.8	15.2	15.5	0.0	16.5	
		3	3	17.9	18.1	18.5	0.0	19.5	15.4	15.8	15.6	0.0	16.5	
256QAM		6	0	17.9	18.2	18.6	0.0	19.5	14.8	14.9	15.2	0.0	16.5	
		1	0	17.6	17.9	18.3	0.0	19.5	14.9	15.1	15.2	0.0	16.5	
		1	3	16.9	17.2	17.4	1.0	18.5	14.7	15.1	15.4	0.0	16.5	
	1	5	16.8	16.9	17.5	1.0	18.5	14.6	14.9	15.2	0.0	16.5		
	3	0	17.2	17.5	17.9	1.0	18.5	14.9	15.3	15.6	0.0	16.5		
	3	1	16.7	17.0	17.4	1.0	18.5	15.0	15.4	15.7	0.0	16.5		
256QAM	3	3	17.0	17.3	17.7	1.0	18.5	14.8	14.8	15.1	0.0	16.5		
	6	0	16.9	17.2	17.6	1.0	18.5	14.7	14.9	15.2	0.0	16.5		

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	≤ 1	≤ 0.5 ²	0 ²
DFT-s-OFDM 16 QAM	≤ 2	≤ 2.5	≤ 1
DFT-s-OFDM 64 QAM		≤ 4.5	
DFT-s-OFDM 256 QAM		≤ 3	≤ 1.5
CP-OFDM QPSK	≤ 3	≤ 3	≤ 2
CP-OFDM 16 QAM		≤ 3.5	
CP-OFDM 64 QAM		≤ 6.5	
CP-OFDM 256 QAM			

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

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

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

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

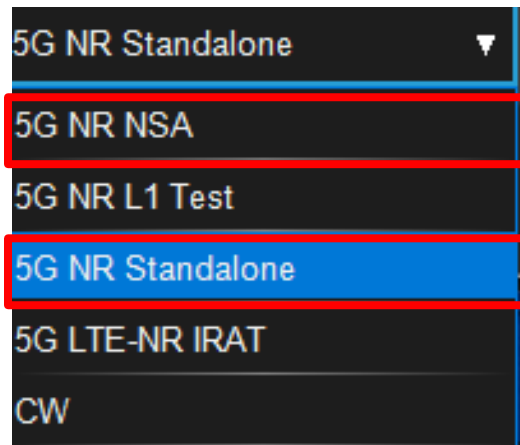
Network Signalling label	Requirements (subclause)	NR Band	Channel bandwidth (MHz)	Resources Blocks (N _{RB})	A-MPR (dB)
NS_01		Table 5.2-1	5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 90, 100	Table 5.3.2-1	N/A

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

Procedure used to establish power measurement for NR Bands

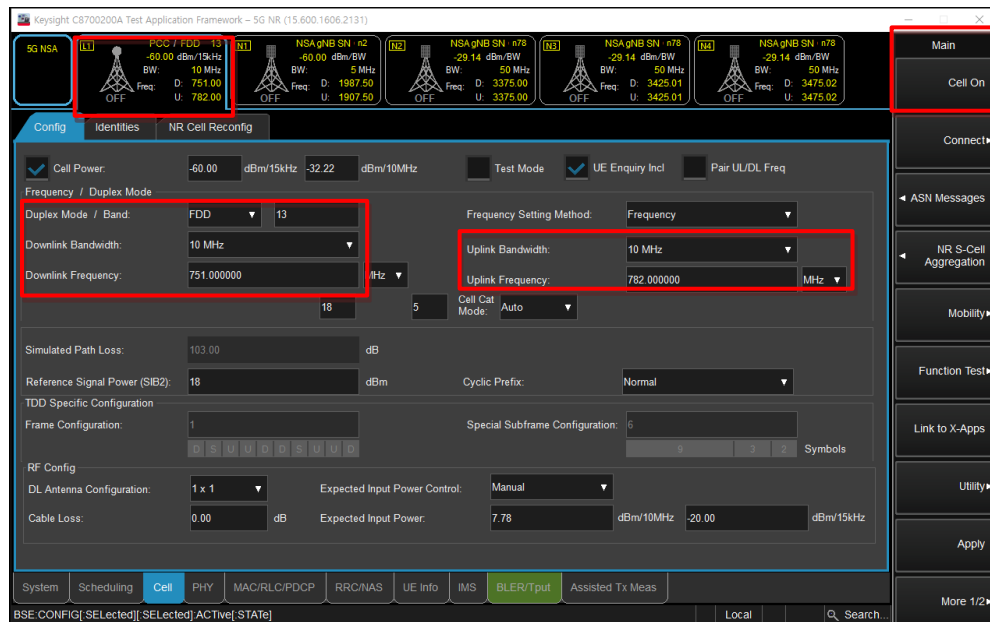
- **SA mode** : Select 5G NR Standalone in Test application Mode, then select Switch TA mode.
- **NSA mode** : Select 5G NR NSA in Test application Mode, then select Switch TA mode.



(Figure-1)

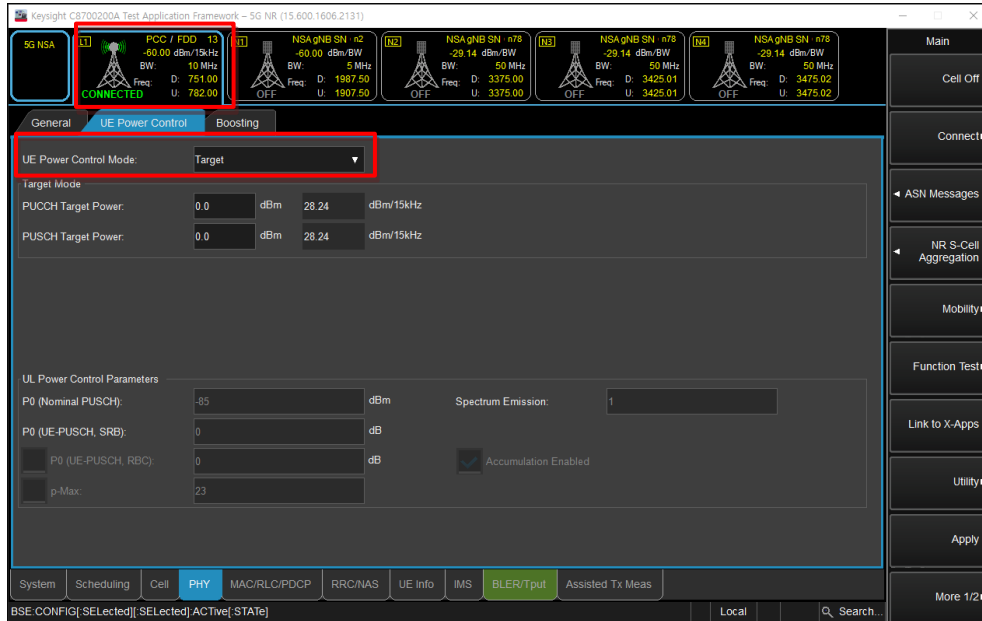
Setup for LTE Band (Apply to Only NSA mode)

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



(Figure-2)

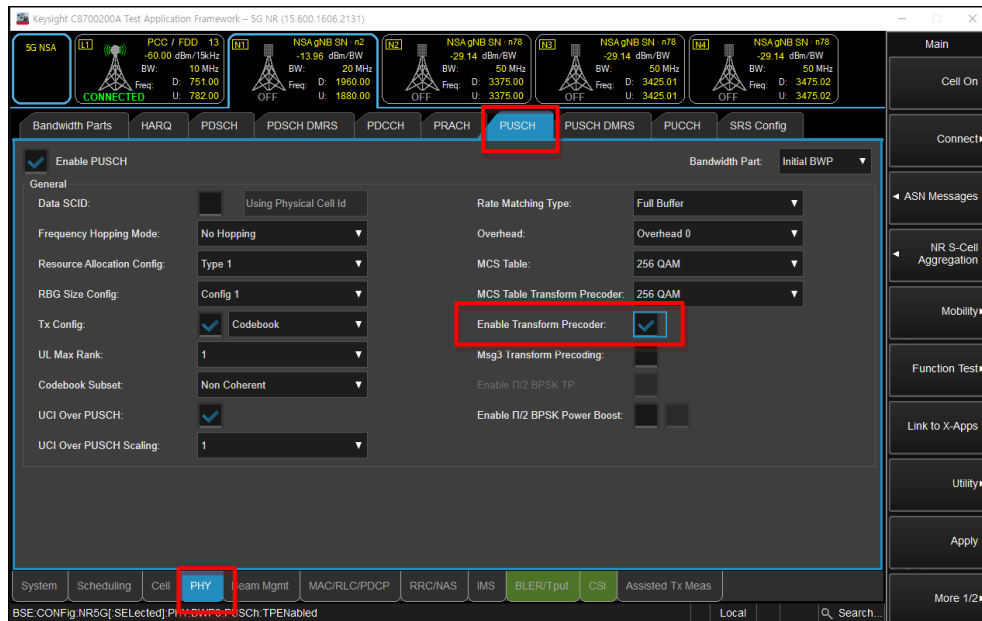
- Turn the Airplane Mode On and then turn the Airplane mode off.
- Select All down bits for UL Power control Mode in LTE.



(Figure-3)

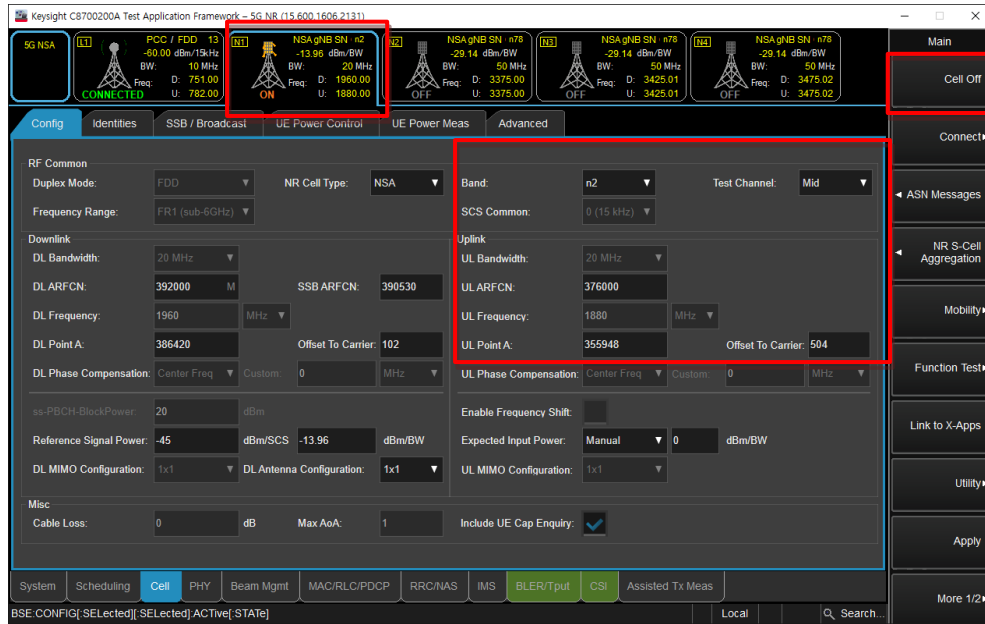
Setup for NR Band (Apply to Both SA / NSA mode)

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



(Figure-4)

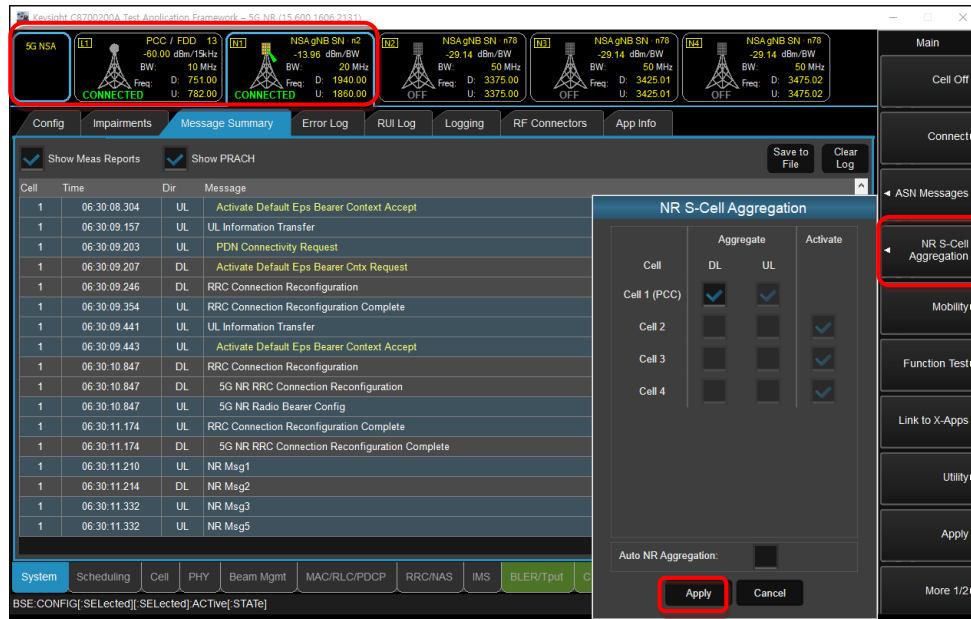
- Select operating band, BW, SCS and Channel.
- Turn the NR Cell On using “ON | OFF” Key.



(Figure-5)

Connect NR S-Cell Aggregation

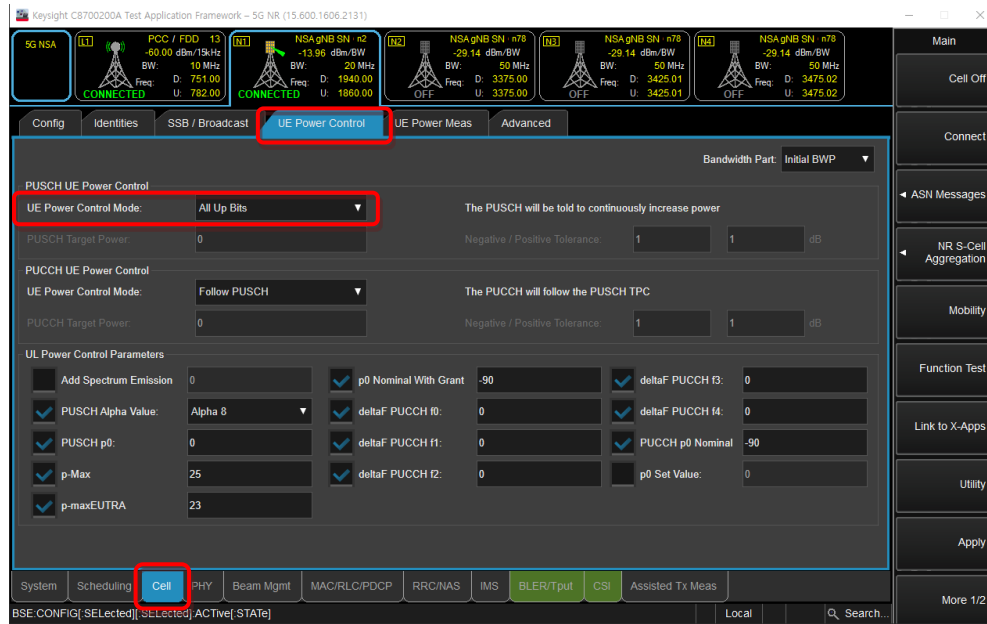
- Click NR S-Cell Aggregation.
- Check the Cell 1’s DL and UL box (PCC) and then Click Apply.
- Check the message summary If message shows NR Msg 5, It is connected.



(Figure-6)

Max power setting

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



(Figure-7)

Selecting Start RB/Count/MCS

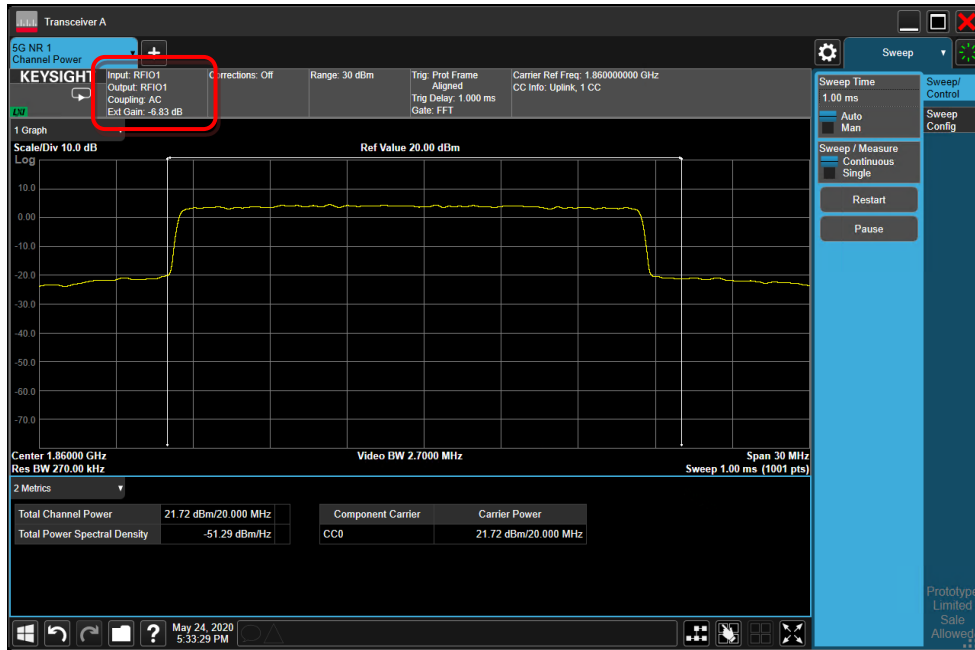
- Select the each test configuration (Start RB, Count, MCS).



(Figure-8)

View Tx Power

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



(Figure-9)

1. Max power

NR Band n5 Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
					Measured Pwr (dBm)			MPR	Tune-up Limit
					166800	167300	167800		
					834 MHz	836.5 MHz	839 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1		22.8		0.0	24.0
			1	53		23.2		0.0	24.0
			1	104		23.6		0.0	24.0
			50	0		22.5		0.5	23.5
			50	25		23.2		0.0	24.0
			50	54		23.0		0.5	23.5
			100	0		22.8		0.5	23.5
		QPSK	1	1		22.9		0.0	24.0
			1	53		23.3		0.0	24.0
			1	104		23.6		0.0	24.0
			50	0		22.0		1.0	23.0
			50	25		23.2		0.0	24.0
			50	54		22.5		1.0	23.0
		100	0		22.2		1.0	23.0	
	16QAM	1	1		22.0		1.0	23.0	
64QAM	1	1		20.3		2.5	21.5		
256QAM	1	1		18.2		4.5	19.5		
CP-OFDM	QPSK	1	1		22.9		1.0	23.0	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					166300	167300	168300		
					831.5 MHz	836.5 MHz	841.5 MHz		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1		22.8		0.0	24.0
			1	40		23.0		0.0	24.0
			1	77		23.4		0.0	24.0
			36	0		22.4		0.5	23.5
			36	22		23.1		0.0	24.0
			36	43		22.8		0.5	23.5
			75	0		22.6		0.5	23.5
		QPSK	1	1		22.8		0.0	24.0
			1	40		23.1		0.0	24.0
			1	77		23.5		0.0	24.0
			36	0		21.9		1.0	23.0
			36	22		23.1		0.0	24.0
			36	43		22.3		1.0	23.0
			75	0		22.1		1.0	23.0
	16QAM	1	1		21.7		1.0	23.0	
64QAM	1	1		20.4		2.5	21.5		
256QAM	1	1		18.3		4.5	19.5		
CP-OFDM	QPSK	1	1		22.9		1.0	23.0	

NR Band n5 Measured Results (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	
					165800	167300	168800			
					829 MHz	836.5 MHz	844 MHz			
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1		23.2		0.0	24.0	
			1	26		23.5		0.0	24.0	
			1	50		23.6		0.0	24.0	
			25	0		22.8		0.5	23.5	
			25	14		23.4		0.0	24.0	
			25	27		23.0		0.5	23.5	
			50	0		22.9		0.5	23.5	
		QPSK	1	1		23.2		0.0	24.0	
			1	26		23.6		0.0	24.0	
			1	50		23.6		0.0	24.0	
			25	0		22.3		1.0	23.0	
			25	14		23.4		0.0	24.0	
			25	27		22.5		1.0	23.0	
			50	0		22.4		1.0	23.0	
16QAM	1	1		21.9		1.0	23.0			
64QAM	1	1		20.2		2.5	21.5			
256QAM	1	1		18.3		4.5	19.5			
CP-OFDM	QPSK	1	1		22.9		1.0	23.0		
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	22.9	23.3	23.3	0.0	24.0	
			1	13	22.9	23.3	23.3	0.0	24.0	
			1	23	23.0	23.5	23.4	0.0	24.0	
			12	0	22.4	22.3	22.8	0.5	23.5	
			12	7	22.9	23.3	23.3	0.0	24.0	
			12	13	22.5	22.4	22.9	0.5	23.5	
			25	0	22.4	22.3	22.8	0.5	23.5	
		QPSK	1	1	22.9	23.3	23.3	0.0	24.0	
			1	13	22.9	23.2	23.3	0.0	24.0	
			1	23	23.0	23.4	23.5	0.0	24.0	
			12	0	21.9	22.3	22.3	1.0	23.0	
			12	7	22.9	23.4	23.4	0.0	24.0	
			12	13	22.0	22.4	22.4	1.0	23.0	
			25	0	21.9	22.4	22.4	1.0	23.0	
		16QAM	1	1	21.8	21.9	21.9	1.0	23.0	
		64QAM	1	1	20.5	20.4	20.7	2.5	21.5	
		256QAM	1	1	18.3	18.3	18.3	4.5	19.5	
		CP-OFDM	QPSK	1	1	22.9	22.9	22.9	1.0	23.0

NR Band n66 (Main Ant.1) Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
					Measured Power (dBm)			MPR	Tune-up Limit
					344000	349000	354000		
					1720 MHz	1745 MHz	1770 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.7	24.1	24.5	0.0	25
			1	53	24.3	24.6	24.9	0.0	25
			1	104	24.2	24.3	23.4	0.0	25
			50	0	23.4	24.1	24.4	0.5	24.5
			50	25	23.6	24.5	24.8	0.0	25
			50	54	23.6	24.2	24.2	0.5	24.5
			100	0	23.7	24.0	24.3	0.5	24.5
		QPSK	1	1	23.5	24.2	24.4	0.0	25
			1	53	24.2	24.7	24.9	0.0	25
			1	104	24.2	24.2	23.5	0.0	25
			50	0	22.9	23.4	24.0	1.0	24
			50	25	24.0	24.5	24.8	0.0	25
			50	54	23.3	23.8	23.4	1.0	24
	100	0	23.0	23.6	23.9	1.0	24		
16QAM	1	1	22.7	23.2	23.7	1.0	24		
64QAM	1	1	21.0	21.8	22.3	2.5	22.5		
256QAM	1	1	19.6	19.8	20.3	4.5	20.5		
CP-OFDM	QPSK	1	1	21.6	22.4	22.9	1.5	23.5	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Power (dBm)			MPR	Tune-up Limit
					343500	349000	354500		
					1717.5 MHz	1745 MHz	1772.5 MHz		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.3	24.1	24.6	0.0	25
			1	40	23.7	24.4	24.6	0.0	25
			1	77	24.0	24.7	24.1	0.0	25
			36	0	23.3	24.0	24.5	0.5	24.5
			36	18	24.0	24.6	24.6	0.0	25
			36	43	23.7	24.2	24.3	0.5	24.5
			75	0	23.6	24.1	24.3	0.5	24.5
		QPSK	1	1	23.4	24.3	24.3	0.0	25
			1	40	24.0	24.6	24.5	0.0	25
			1	77	24.0	24.2	23.4	0.0	25
			36	0	23.0	23.5	23.2	1.0	24
			36	18	24.1	24.6	24.5	0.0	25
			36	43	23.2	23.8	23.7	1.0	24
			75	0	23.1	23.6	23.7	1.0	24
		16QAM	1	1	22.6	23.2	23.7	1.0	24
		64QAM	1	1	21.1	21.8	22.3	2.5	22.5
		256QAM	1	1	19.2	19.7	20.2	4.5	20.5
	CP-OFDM	QPSK	1	1	23.4	23.4	23.2	1.5	23.5

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

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					343000	349000	355000		
					1715 MHz	1745 MHz	1775 MHz		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.9	24.0	24.4	0.0	25
			1	26	23.4	24.2	24.3	0.0	25
			1	50	23.6	24.2	23.3	0.0	25
			25	0	22.9	23.7	23.9	0.5	24.5
			25	12	23.6	24.3	23.9	0.0	25
			25	27	23.2	23.8	23.1	0.5	24.5
			50	0	23.1	23.8	23.4	0.5	24.5
		QPSK	1	1	23.0	24.0	24.0	0.0	25
			1	26	23.3	24.0	23.6	0.0	25
			1	50	23.4	23.8	22.8	0.0	25
			25	0	22.3	23.3	23.2	1.0	24
			25	12	23.3	24.1	23.7	0.0	25
			25	27	22.6	23.2	22.5	1.0	24
		50	0	22.5	23.3	22.9	1.0	24	
	16QAM	1	1	22.7	23.4	23.8	1.0	24	
64QAM	1	1	21.2	21.9	22.3	2.5	22.5		
256QAM	1	1	19.2	19.8	20.3	4.5	20.5		
CP-OFDM	QPSK	1	1	23.1	23.2	23.4	1.5	23.5	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					342500	349000	355500		
					1712.5 MHz	1745 MHz	1777.5 MHz		
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.9	24.0	24.4	0.0	25
			1	13	23.1	24.1	24.1	0.0	25
			1	23	23.4	24.3	23.5	0.0	25
			12	0	22.8	23.7	23.7	0.5	24.5
			12	6	23.4	24.2	23.7	0.0	25
			12	13	23.0	23.8	23.1	0.5	24.5
			25	0	23.0	23.8	23.3	0.5	24.5
		QPSK	1	1	23.1	24.2	23.8	0.0	25
			1	13	23.2	24.1	23.3	0.0	25
			1	23	23.3	24.0	23.0	0.0	25
			12	0	22.4	23.3	23.0	1.0	24
			12	6	23.3	24.2	23.5	0.0	25
			12	13	22.5	23.4	22.5	1.0	24
			25	0	22.4	23.3	22.8	1.0	24
	16QAM	1	1	23.6	23.4	23.8	1.0	24	
64QAM	1	1	22.1	21.9	22.3	2.5	22.5		
256QAM	1	1	20.1	19.9	20.3	4.5	20.5		
CP-OFDM	QPSK	1	1	23.4	23.1	23.4	1.5	23.5	

NR Band n66 (Sub Ant.2) Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
					Measured Pwr (dBm)			MPR	Tune-up Limit
					344000	349000	354000		
					1720 MHz	1745 MHz	1770 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.0	22.6	21.5	0.0	23
			1	53	22.4	22.8	22.5	0.0	23
			1	104	21.6	22.9	22.9	0.0	23
			50	0	21.8	22.8	21.1	0.0	23
			50	25	22.5	22.8	22.3	0.0	23
			50	54	21.5	23.0	22.6	0.0	23
			100	0	21.9	22.3	22.1	0.0	23
		QPSK	1	1	22.1	21.6	21.2	0.0	23
			1	53	22.5	22.5	22.2	0.0	23
			1	104	21.3	22.6	22.6	0.0	23
			50	0	21.3	21.8	20.5	1.0	22
			50	25	22.5	23.0	22.4	0.0	23
			50	54	21.0	21.9	22.1	0.0	23
			100	0	21.5	21.9	21.5	1.0	22
16QAM	1	1	21.0	21.9	20.1	1.0	22		
64QAM	1	1	19.6	20.1	18.9	2.5	20.5		
256QAM	1	1	17.5	18.2	17.7	4.5	18.5		
CP-OFDM	QPSK	1	1	20.4	20.9	20.5	1.5	21.5	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					343500	349000	354500		
					1717.5 MHz	1745 MHz	1772.5 MHz		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.2	22.7	21.5	0.0	23
			1	40	22.4	22.8	22.9	0.0	23
			1	77	21.4	22.9	23.0	0.0	23
			36	0	21.8	22.3	20.7	0.5	22.5
			36	22	22.5	22.9	23.0	0.0	23
			36	43	21.6	22.5	22.0	0.5	22.5
			75	0	22.0	22.4	21.5	0.5	22.5
		QPSK	1	1	22.1	22.7	21.0	0.0	23
			1	40	22.4	22.8	21.7	0.0	23
			1	77	21.3	23.0	22.5	0.0	23
			36	0	21.3	21.8	20.9	1.0	22
			36	22	22.5	22.9	23.0	0.0	23
			36	43	21.2	22.0	22.0	1.0	22
			75	0	21.5	21.9	22.0	1.0	22
16QAM	1	1	21.2	21.7	20.4	1.0	22		
64QAM	1	1	19.4	20.3	18.6	2.5	20.5		
256QAM	1	1	17.5	18.3	17.6	4.5	18.5		
CP-OFDM	QPSK	1	1	20.5	21.1	20.5	1.5	21.5	

NR Band n66 (Sub Ant.2) Measured Results (Continued)

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					343000	349000	355000		
					1715 MHz	1745 MHz	1775 MHz		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	21.9	22.6	22.9	0.0	23
			1	26	22.2	22.8	21.0	0.0	23
			1	50	22.4	22.9	22.7	0.0	23
			25	0	21.8	22.1	20.4	0.5	22.5
			25	14	22.4	22.7	22.8	0.0	23
			25	27	20.3	22.3	20.6	0.5	22.5
		50	0	20.2	22.2	22.3	0.5	22.5	
		QPSK	1	1	22.2	21.3	22.6	0.0	23
			1	26	22.2	22.9	20.8	0.0	23
			1	50	22.3	22.9	22.5	0.0	23
			25	0	19.7	21.6	21.8	1.0	22
			25	14	22.4	22.7	22.8	0.0	23
			25	27	21.2	21.8	20.2	1.0	22
		50	0	21.1	21.7	21.7	1.0	22	
		16QAM	1	1	21.2	21.6	21.8	1.0	22
	64QAM	1	1	19.7	20.2	20.4	2.5	20.5	
256QAM	1	1	17.6	18.3	18.4	4.5	18.5		
CP-OFDM	QPSK	1	1	20.6	21.1	21.4	1.5	21.5	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
					342500	349000	355500		
					1712.5 MHz	1745 MHz	1777.5 MHz		
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	21.9	22.7	22.7	0.0	23
			1	13	22.0	22.7	22.7	0.0	23
			1	23	22.2	22.8	21.7	0.0	23
			12	0	21.6	22.2	22.1	0.5	22.5
			12	7	22.1	22.7	22.7	0.0	23
			12	13	21.7	22.3	20.5	0.5	22.5
		25	0	20.5	22.2	22.1	0.5	22.5	
		QPSK	1	1	22.2	22.7	22.7	0.0	23
			1	13	21.9	22.8	21.1	0.0	23
			1	23	22.2	22.7	22.7	0.0	23
			12	0	21.0	21.7	21.7	1.0	22
			12	7	22.1	22.7	20.6	0.0	23
			12	13	21.2	21.8	21.6	1.0	22
		25	0	21.3	21.7	21.7	1.0	22	
		16QAM	1	1	21.2	22.0	22.0	1.0	22
	64QAM	1	1	19.9	20.2	20.1	2.5	20.5	
256QAM	1	1	17.3	18.2	18.3	4.5	18.5		
CP-OFDM	QPSK	1	1	20.6	21.2	21.3	1.5	21.5	

2. Reduced power

NR Band n66 (Main Ant.1) Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
					Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					344000	349000	354000			344000	349000	354000		
					1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	20.7	21.1	21.8	0.0	22.5	20.7	21.1	21.8	0.0	22.5
			1	53	21.2	21.5	22.0	0.0	22.5	21.2	21.5	22.0	0.0	22.5
			1	104	21.3	21.6	21.3	0.0	22.5	21.3	21.6	21.4	0.0	22.5
			50	0	20.9	21.5	22.0	0.0	22.5	20.9	21.5	22.1	0.0	22.5
			50	25	21.2	21.5	22.1	0.0	22.5	21.1	21.5	22.2	0.0	22.5
			50	54	21.1	21.7	22.1	0.0	22.5	21.1	21.8	22.1	0.0	22.5
			100	0	21.2	21.6	22.2	0.0	22.5	21.1	21.5	22.1	0.0	22.5
		QPSK	1	1	20.6	21.2	21.7	0.0	22.5	20.5	21.1	21.8	0.0	22.5
			1	53	21.3	21.7	22.2	0.0	22.5	21.0	21.7	22.1	0.0	22.5
			1	104	21.2	21.8	21.6	0.0	22.5	21.1	21.8	21.4	0.0	22.5
			50	0	20.7	21.5	22.0	0.0	22.5	20.8	21.5	22.0	0.0	22.5
			50	25	21.0	21.6	22.2	0.0	22.5	21.0	21.6	22.2	0.0	22.5
			50	54	21.3	21.8	22.2	0.0	22.5	21.2	21.8	22.2	0.0	22.5
			100	0	21.1	21.6	22.2	0.0	22.5	21.1	21.7	22.2	0.0	22.5
	16QAM	1	1	20.8	21.3	21.9	0.0	22.5	20.7	21.3	21.9	0.0	22.5	
	64QAM	1	1	20.6	21.2	21.8	0.0	22.5	20.7	21.1	21.8	0.0	22.5	
256QAM	1	1	19.4	19.8	20.2	2.0	20.5	19.5	19.7	20.0	2.0	20.5		
CP-OFDM	QPSK	1	1	20.2	20.9	21.5	0.0	22.5	20.2	20.9	21.4	0.0	22.5	
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	20.4	20.7	21.2	0.0	22.5	20.5	20.6	21.2	0.0	22.5
			1	40	20.3	21.0	21.4	0.0	22.5	20.2	20.9	21.3	0.0	22.5
1			77	20.5	21.2	21.4	0.0	22.5	20.4	21.1	21.3	0.0	22.5	
36			0	20.4	21.0	21.5	0.0	22.5	20.3	20.9	21.4	0.0	22.5	
36			18	20.5	21.1	21.6	0.0	22.5	20.4	21.1	21.5	0.0	22.5	
36			43	20.6	21.3	21.5	0.0	22.5	20.6	21.2	21.5	0.0	22.5	
75			0	20.6	21.1	21.6	0.0	22.5	20.5	21.1	21.5	0.0	22.5	
QPSK		1	1	20.3	20.8	21.4	0.0	22.5	20.2	20.8	21.3	0.0	22.5	
		1	40	20.5	21.0	21.5	0.0	22.5	20.4	21.0	21.4	0.0	22.5	
		1	77	20.6	21.2	21.4	0.0	22.5	20.6	21.2	21.4	0.0	22.5	
		36	0	20.5	21.1	21.5	0.0	22.5	20.4	21.0	21.5	0.0	22.5	
		36	18	20.6	21.2	21.6	0.0	22.5	20.5	21.1	21.5	0.0	22.5	
		36	43	20.7	21.3	21.5	0.0	22.5	20.7	21.2	21.5	0.0	22.5	
		75	0	20.6	21.2	21.6	0.0	22.5	20.5	21.1	21.5	0.0	22.5	
16QAM	1	1	20.4	21.0	21.5	0.0	22.5	20.4	21.0	21.5	0.0	22.5		
64QAM	1	1	20.5	21.0	21.1	0.0	22.5	20.5	21.1	21.6	0.0	22.5		
256QAM	1	1	19.1	19.3	19.4	2.0	20.5	19.1	19.6	20.2	2.0	20.5		
CP-OFDM	QPSK	1	1	20.3	21.0	21.4	0.0	22.5	20.4	20.9	21.4	0.0	22.5	

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

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					343000	349000	355000			343000	349000	355000		
					1715 MHz	1745 MHz	1775 MHz			1715 MHz	1745 MHz	1775 MHz		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	20.7	20.7	21.2	0.0	22.5	20.3	21.1	21.6	0.0	22.5
			1	26	20.2	21.0	21.3	0.0	22.5	20.6	21.4	21.7	0.0	22.5
			1	50	20.3	21.1	21.3	0.0	22.5	20.7	21.5	21.8	0.0	22.5
			25	0	20.2	20.9	21.4	0.0	22.5	20.6	21.3	21.8	0.0	22.5
			25	12	20.3	21.0	21.4	0.0	22.5	20.7	21.4	21.8	0.0	22.5
			25	27	20.4	21.1	21.4	0.0	22.5	20.8	21.5	21.8	0.0	22.5
			50	0	20.4	21.0	21.4	0.0	22.5	20.8	21.4	21.9	0.0	22.5
		QPSK	1	1	20.2	20.8	21.4	0.0	22.5	20.6	21.3	21.8	0.0	22.5
			1	26	20.5	21.0	21.5	0.0	22.5	20.8	21.5	21.9	0.0	22.5
			1	50	20.4	21.1	21.4	0.0	22.5	20.8	21.5	21.8	0.0	22.5
			25	0	20.3	20.9	21.5	0.0	22.5	20.7	21.4	21.9	0.0	22.5
			25	12	20.4	21.0	21.4	0.0	22.5	20.8	21.5	21.9	0.0	22.5
			25	27	20.5	21.1	21.4	0.0	22.5	20.9	21.5	21.9	0.0	22.5
			50	0	20.4	21.0	21.4	0.0	22.5	20.8	21.5	21.9	0.0	22.5
16QAM	1	1	20.5	21.1	21.6	0.0	22.5	20.5	21.1	21.6	0.0	22.5		
64QAM	1	1	20.4	21.2	21.7	0.0	22.5	20.5	21.2	21.7	0.0	22.5		
256QAM	1	1	19.1	19.8	20.2	2.0	20.5	19.1	19.8	20.2	2.0	20.5		
CP-OFDM	QPSK	1	1	20.4	21.0	21.5	0.0	22.5	20.4	21.1	21.5	0.0	22.5	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					342500	349000	355500			342500	349000	355500		
					1712.5 MHz	1745 MHz	1777.5 MHz			1712.5 MHz	1745 MHz	1777.5 MHz		
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	20.3	21.7	21.5	0.0	22.5	20.7	21.2	21.5	0.0	22.5
			1	13	20.4	21.1	21.5	0.0	22.5	20.7	21.3	21.5	0.0	22.5
			1	23	20.6	21.3	21.7	0.0	22.5	20.8	21.4	21.7	0.0	22.5
			12	0	20.5	21.2	21.7	0.0	22.5	20.7	21.4	21.7	0.0	22.5
			12	6	20.6	21.3	21.7	0.0	22.5	20.8	21.4	21.7	0.0	22.5
			12	13	20.6	21.3	21.8	0.0	22.5	20.8	21.4	21.8	0.0	22.5
			25	0	20.6	21.3	21.8	0.0	22.5	20.8	21.4	21.8	0.0	22.5
		QPSK	1	1	20.6	21.2	21.8	0.0	22.5	20.7	21.3	21.8	0.0	22.5
			1	13	20.6	21.2	21.7	0.0	22.5	20.7	21.3	21.7	0.0	22.5
			1	23	20.8	21.3	21.8	0.0	22.5	20.8	21.4	21.8	0.0	22.5
			12	0	20.6	21.3	21.8	0.0	22.5	20.8	21.4	21.8	0.0	22.5
			12	6	20.7	21.4	21.8	0.0	22.5	20.8	21.4	21.8	0.0	22.5
			12	13	20.8	21.4	21.8	0.0	22.5	20.8	21.5	21.8	0.0	22.5
			25	0	20.7	21.4	21.8	0.0	22.5	20.8	21.4	21.8	0.0	22.5
16QAM	1	1	20.3	21.1	21.5	0.0	22.5	20.4	21.1	21.5	0.0	22.5		
64QAM	1	1	20.4	21.1	21.6	0.0	22.5	20.5	21.3	21.6	0.0	22.5		
256QAM	1	1	20.5	19.7	20.1	2.0	20.5	20.3	19.8	20.2	2.0	20.5		
CP-OFDM	QPSK	1	1	20.3	21.0	21.5	0.0	22.5	20.3	21.1	21.5	0.0	22.5	

NR Band n66 (Sub Ant.2) Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) RCV back-off				
					Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					344000	349000	354000			344000	349000	354000		
					1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.1	19.5	19.3	0.0	20.5	15.5	15.9	16.4	0.0	17
			1	53	19.5	19.8	19.8	0.0	20.5	15.8	16.2	16.5	0.0	17
			1	104	19.5	20.1	19.8	0.0	20.5	15.7	16.3	16.4	0.0	17
			50	0	19.2	19.8	19.3	0.0	20.5	15.8	16.2	16.5	0.0	17
			50	28	19.4	19.8	20.0	0.0	20.5	15.8	16.2	16.5	0.0	17
			50	56	19.4	20.0	19.9	0.0	20.5	16.0	16.4	16.4	0.0	17
			100	0	19.4	19.8	19.9	0.0	20.5	15.9	16.2	16.5	0.0	17
		QPSK	1	1	18.9	19.5	18.8	0.0	20.5	15.5	15.9	16.1	0.0	17
			1	53	19.4	19.7	19.7	0.0	20.5	15.9	16.2	16.4	0.0	17
			1	104	19.3	19.9	19.8	0.0	20.5	16.5	16.6	16.5	0.0	17
			50	0	19.2	19.7	19.2	0.0	20.5	15.7	16.2	16.5	0.0	17
			50	28	19.4	20.0	19.9	0.0	20.5	16.5	16.6	16.6	0.0	17
			50	56	19.5	19.9	19.9	0.0	20.5	16.0	16.4	16.4	0.0	17
			100	0	19.3	19.8	20.0	0.0	20.5	15.9	16.5	16.5	0.0	17
16QAM	1	1	19.1	19.5	18.9	0.0	20.5	15.6	16.0	16.3	0.0	17		
64QAM	1	1	18.0	19.3	18.7	1.0	19.5	15.3	15.7	16.2	0.0	17		
256QAM	1	1	17.4	18.3	17.8	2.0	18.5	15.5	16.0	15.7	0.0	17		
CP-OFDM	QPSK	1	1	19.0	19.6	18.8	0.0	20.5	15.5	16.0	16.1	0.0	17	
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					343500	349000	354500			343500	349000	354500		
					1717.5 MHz	1745 MHz	1772.5 MHz			1717.5 MHz	1745 MHz	1772.5 MHz		
					15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	18.9	19.5	19.9	0.0	20.5
1	40	19.2	19.6	19.8				0.0	20.5	15.7	16.1	16.3	0.0	17
1	77	19.4	19.9	19.7				0.0	20.5	16.0	16.4	16.3	0.0	17
36	0	19.2	19.6	20.0				0.0	20.5	16.8	16.1	16.3	0.0	17
36	22	19.3	19.7	20.0				0.0	20.5	15.9	16.2	16.3	0.0	17
36	43	19.4	19.8	19.9				0.0	20.5	16.0	16.3	16.2	0.0	17
75	0	19.3	19.7	20.0				0.0	20.5	15.9	16.3	16.3	0.0	17
QPSK	1	1	18.9	19.5			18.9	0.0	20.5	15.5	16.1	16.3	0.0	17
	1	40	19.2	19.6			19.9	0.0	20.5	15.5	16.1	16.2	0.0	17
	1	77	19.4	19.9			20.0	0.0	20.5	15.8	16.5	16.2	0.0	17
	36	0	19.2	19.6			19.9	0.0	20.5	16.0	16.1	16.4	0.0	17
	36	22	19.3	19.7			20.0	0.0	20.5	15.7	16.2	16.4	0.0	17
	36	43	19.4	19.8			20.0	0.0	20.5	15.8	16.4	16.3	0.0	17
	75	0	19.3	19.7			19.9	0.0	20.5	15.9	16.3	16.3	0.0	17
16QAM	1	1	19.2	19.7	18.6	0.0	20.5	15.3	15.9	16.2	0.0	17		
64QAM	1	1	19.2	19.6	18.2	0.0	20.5	15.3	16.0	16.3	0.0	17		
256QAM	1	1	17.6	18.2	17.5	2.0	18.5	15.5	16.1	15.6	0.0	17		
CP-OFDM	QPSK	1	1	19.0	19.6	18.9	0.0	20.5	15.6	16.0	15.7	0.0	17	

NR Band n66 (Sub Ant.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
					343000	349000	355000			343000	349000	355000		
					1715 MHz	1745 MHz	1775 MHz			1715 MHz	1745 MHz	1775 MHz		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.0	19.6	19.9	0.0	20.5	15.6	16.1	16.4	0.0	17
			1	26	19.3	19.7	19.8	0.0	20.5	15.8	16.3	16.4	0.0	17
			1	50	19.4	19.9	19.7	0.0	20.5	16.0	16.3	16.4	0.0	17
			25	0	19.1	19.7	19.9	0.0	20.5	15.6	16.2	16.4	0.0	17
			25	14	19.2	19.7	19.8	0.0	20.5	15.7	16.1	16.4	0.0	17
			25	27	19.3	19.8	19.7	0.0	20.5	16.0	16.3	16.3	0.0	17
			50	0	19.2	19.7	19.8	0.0	20.5	15.7	16.1	16.3	0.0	17
		QPSK	1	1	19.0	19.6	19.1	0.0	20.5	15.7	16.1	16.4	0.0	17
			1	26	19.2	19.7	19.7	0.0	20.5	15.8	16.2	16.4	0.0	17
			1	50	19.4	19.8	19.7	0.0	20.5	16.0	16.4	16.3	0.0	17
			25	0	19.1	19.7	19.9	0.0	20.5	15.7	16.1	16.4	0.0	17
			25	14	19.2	19.7	19.8	0.0	20.5	15.8	16.2	16.4	0.0	17
			25	27	19.3	19.8	19.7	0.0	20.5	15.9	16.3	16.4	0.0	17
		CP-OFDM	16QAM	1	1	19.1	19.8	19.1	0.0	20.5	15.4	16.2	16.3	0.0
64QAM	1		1	19.2	19.9	20.2	0.0	20.5	15.5	16.1	16.4	0.0	17	
256QAM	1		1	17.4	18.4	18.5	2.0	18.5	15.8	16.1	16.4	0.0	17	
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	19.4	19.7	19.7	0.0	20.5	15.7	16.2	16.3	0.0	17
			1	13	19.5	19.7	19.6	0.0	20.5	15.7	16.1	16.3	0.0	17
			1	23	19.6	19.8	19.7	0.0	20.5	15.9	16.3	16.4	0.0	17
			12	0	19.5	19.7	19.7	0.0	20.5	15.7	16.2	16.4	0.0	17
			12	7	19.5	19.8	19.7	0.0	20.5	15.7	16.2	16.3	0.0	17
			12	13	19.6	19.8	19.7	0.0	20.5	15.8	16.2	16.4	0.0	17
			25	0	19.5	19.8	19.7	0.0	20.5	15.8	16.2	16.3	0.0	17
		QPSK	1	1	19.4	19.7	19.8	0.0	20.5	15.7	16.2	16.3	0.0	17
			1	13	19.5	19.7	19.6	0.0	20.5	15.6	16.2	16.2	0.0	17
			1	23	19.6	19.8	19.7	0.0	20.5	15.8	16.3	16.5	0.0	17
			12	0	19.5	19.7	19.7	0.0	20.5	15.7	16.1	16.3	0.0	17
			12	7	19.5	19.8	19.7	0.0	20.5	15.7	16.1	16.3	0.0	17
			12	13	19.6	19.8	19.7	0.0	20.5	15.8	16.2	16.3	0.0	17
		CP-OFDM	16QAM	1	1	19.1	20.0	19.8	0.0	20.5	15.8	16.2	16.1	0.0
64QAM	1		1	19.2	20.0	20.0	0.0	20.5	15.6	16.2	16.3	0.0	17	
256QAM	1		1	17.4	18.3	18.2	2.0	18.5	15.6	16.4	16.4	0.0	17	

9.5. Wi-Fi 2.4 GHz (DTS Band)

Normal WLAN SISO output power results

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode power					
					Max. Average Power			Reduced Average Power		
					Meas. Avg Power (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Meas. Avg Power (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi 2.4G Ant.1	802.11b	1 Mbps	1	2412.0	18.7	19.0	Yes	15.1	16.0	Yes
			6	2437.0	18.0			15.5		
			11	2462.0	18.6			15.1		
			12	2467.0	18.2			15.6		
			13	2472.0	17.4			14.7		

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.

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

Normal WLAN SISO output power results

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode power					
						Max. Average Power			Reduced Average Power		
						Avg Power (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Power (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
5GHz MIMO Ant.1	5.3 (UNII 2A)	802.11a	6 Mbps	Not Required			13.0	No	Not Required	13.0	No
							9.0			9.0	
		802.11n (HT20)	6.5 Mbps	Not Required			13.0	No	Not Required	13.0	No
							9.0			9.0	
							9.0			9.0	
		802.11n (HT40)	13.5 Mbps	54	5270	12.0	13.0	Yes	12.0	13.0	Yes
				62	5310	11.6			11.6		
		802.11ac (VHT20)	6.5 Mbps	Not Required			13.0	No	Not Required	13.0	No
							9.0			9.0	
				9.0		9.0					
	802.11ac (VHT40)	13.5 Mbps	Not Required			13.0	No	Not Required	13.0	No	
						9.0			9.0		
	802.11ac (VHT80)	29.3 Mbps	Not Required			7.0	No	Not Required	7.0	No	
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	15.4	16.0	Yes	Not Required	14.0	No
				120	5600	15.4					
				124	5620	15.2					
				144	5720	15.4					
802.11n (HT20)		6.5 Mbps	Not Required			16.0	No	Not Required	14.0	No	
802.11n (HT40)		13.5 Mbps	102	5510	Not Required	14.0	No	13.7	14.0	Yes	
			118	5590							
			126	5630							
	142		5710								
802.11ac (VHT20)	6.5 Mbps	Not Required			16.0	No	Not Required	14.0	No		
802.11ac (VHT40)	13.5 Mbps	Not Required			14.0	No	Not Required	14.0	No		
802.11ac (VHT80)	29.3 Mbps	Not Required			13.0	No	Not Required	13.0	No		

Normal WLAN SISO output power results (continued)

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode power					
						Max. Average Power			Reduced Average Power		
						Avg Power (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Power (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
5GHz MIMO Ant.1	5.8 (UNII 3)	802.11a	6 Mbps	Not Required			15.0	No	Not Required	14.0	No
		802.11n (HT20)	6.5 Mbps	Not Required			15.0	No	Not Required	14.0	No
		802.11n (HT40)	13.5 Mbps	151	5755	13.4	15.0	Yes	13.4	14.0	Yes
				159	5795	13.5			13.5		
	802.11ac (VHT20)	6.5 Mbps	Not Required			15.0	No	Not Required	14.0	No	
	802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	14.0	No	
	802.11ac (VHT80)	29.3 Mbps	Not Required			13.0	No	Not Required	13.0	Yes	
5.9 (U-NII 4)	802.11a	6 Mbps	Not Required			13.0	No	Not Required	13.0	No	
	802.11n (HT20)	6.5 Mbps	Not Required			13.0	No	Not Required	13.0	No	
	802.11n (HT40)	13.5 Mbps	167	5835	13.6	15.0	Yes	13.6	14.0	Yes	
			175	5875	13.2			13.2			
802.11ac (VHT20)	6.5 Mbps	Not Required			13.0	No	Not Required	13.0	No		
802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	14.0	No		
802.11ac (VHT80)	29.3 Mbps	Not Required			13.0	No	Not Required	13.0	Yes		

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.

9.7. Bluetooth

Bluetooth SISO Measured Results

Band (GHz)	Antenna	Mode	Ch #	Freq. (MHz)	Maximum Average Power (dBm)		Reduced Average Power (dBm)	
					Meas Pwr	Tune-up Limit	Meas Pwr	Tune-up Limit
2.4	BT SISO Ant.1	GFSK	0	2402	16.4	17.0	11.4	12.0
			39	2441	16.1		11.9	
			78	2480	15.2		10.4	
		EDR	0	2402	12.0	13.0	9.3	12.0
			39	2441	11.5		9.6	
			78	2480	10.6		8.1	
		LE 1M	0	2402	15.9	16.5	4.9	12.0
			19	2440	15.7		5.1	
			39	2480	14.5		3.7	
		LE 2M	0	2402	15.9	16.5	7.9	12.0
			19	2440	15.8		8.5	
			39	2480	14.8		6.8	

Note(s):

For All exposure conditions, SAR test is evaluated at GFSK mode in Bluetooth using maximum power condition.

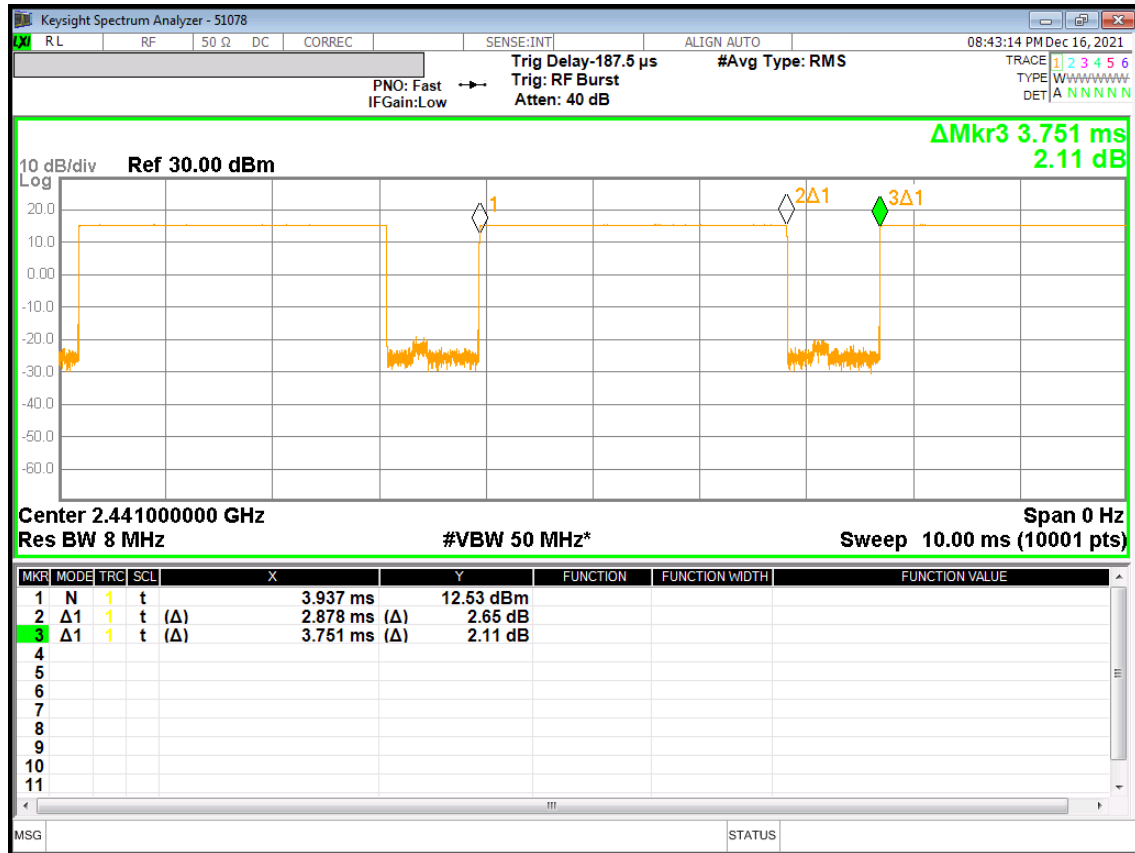
Bluetooth (Continued)

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
GFSK	DH5	2.878	3.751	76.7%	1.30

Duty Cycle plots

GFSK



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 $\leq 1/4$ 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	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	GPRS 3 Slots	N/A	0	Left Touch	251	848.8	30.0	29.5	0.230	0.257	1
					Left Tilt	251	848.8	30.0	29.5	0.125	0.140	
					Right Touch	251	848.8	30.0	29.5	0.283	0.316	
					Right Tilt	251	848.8	30.0	29.5	0.116	0.130	
	Body-worn	GPRS 3 Slots	N/A	15	Rear	251	848.8	30.0	29.5	0.276	0.308	2
					Front	251	848.8	30.0	29.5	0.244	0.273	
	Hotspot	GPRS 3 Slots	N/A	10	Rear	251	848.8	30.0	29.5	0.703	0.781	3
					Front	251	848.8	30.0	29.5	0.285	0.317	
					Edge 2	251	848.8	30.0	29.5	0.359	0.399	
					Edge 3	251	848.8	30.0	29.5	0.257	0.286	
				Edge 4	251	848.8	30.0	29.5	0.161	0.179		

10.2. GSM 1900

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	GPRS 2 Slots	Off	0	Left Touch	661	1880.0	28.5	26.9	0.028	0.041	4
					Left Tilt	661	1880.0	28.5	26.9	0.020	0.029	
					Right Touch	661	1880.0	28.5	26.9	0.038	0.055	
					Right Tilt	661	1880.0	28.5	26.9	0.021	0.030	
	Body-worn	GPRS 2 Slots	Off	15	Rear	661	1880.0	28.5	26.9	0.351	0.512	5
					Front	661	1880.0	28.5	26.9	0.170	0.248	
	Hotspot	GPRS 4 Slots	On	10	Rear	512	1850.2	23.3	22.7	0.400	0.457	
					Front	512	1850.2	23.3	22.7	0.220	0.251	
					Edge 2	512	1850.2	23.3	22.7	0.040	0.045	
					Edge 3	512	1850.2	23.3	22.7	0.452	0.517	6
				Edge 4	512	1850.2	23.3	22.7	0.021	0.024		
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Plot No.
Main 1 Ant.	Product Specific 10-g	GPRS 2	Off	10	Rear	661	1880.0	28.5	26.9	0.399	0.582	
				12	Edge 3	661	1880.0	28.5	26.9	0.396	0.578	
		GPRS 4	On	0	Rear	512	1850.2	23.3	22.7	0.864	0.997	
					Edge 3	512	1850.2	23.3	22.7	1.310	1.511	7

10.3. WCDMA Band II

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	Rel 99 RMC	Off	0	Left Touch	9400	1880.0	25.0	24.2	0.085	0.101	8
					Left Tilt	9400	1880.0	25.0	24.2	0.101	0.121	
					Right Touch	9400	1880.0	25.0	24.2	0.154	0.185	
					Right Tilt	9400	1880.0	25.0	24.2	0.083	0.099	
	Body-worn	Rel 99 RMC	Off	15	Rear	9262	1852.4	25.0	24.0	0.686	0.871	9
						9400	1880.0	25.0	24.2	0.714	0.857	
					Front	9400	1880.0	25.0	24.2	0.420	0.504	
	Hotspot	Rel 99 RMC	On	10	Rear	9400	1880.0	20.0	19.2	0.416	0.501	10
					Front	9400	1880.0	20.0	19.2	0.227	0.273	
					Edge 2	9400	1880.0	20.0	19.2	0.026	0.031	
					Edge 3	9400	1880.0	20.0	19.2	0.590	0.710	
					Edge 4	9400	1880.0	20.0	19.2	0.052	0.063	
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Plot No.
Main 1 Ant.	Product Specific 10-g	Rel 99 RMC	Off	10	Rear	9400	1880.0	25.0	24.2	0.769	0.922	
				12	Edge 3	9400	1880.0	25.0	24.2	0.938	1.125	
			On	0	Rear	9400	1880.0	20.0	19.2	1.050	1.270	
				0	Edge 3	9400	1880.0	20.0	19.2	1.500	1.814	

10.4. WCDMA Band IV

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	Rel 99 RMC	Off	0	Left Touch	1513	1752.6	25.0	24.5	0.074	0.084	12
					Left Tilt	1513	1752.6	25.0	24.5	0.050	0.056	
					Right Touch	1513	1752.6	25.0	24.5	0.104	0.117	
					Right Tilt	1513	1752.6	25.0	24.5	0.045	0.051	
	Body-worn	Rel 99 RMC	Off	15	Rear	1513	1752.6	25.0	24.5	0.657	0.740	13
					Front	1513	1752.6	25.0	24.5	0.403	0.454	
	Hotspot	Rel 99 RMC	On	10	Rear	1413	1732.6	20.0	18.2	0.412	0.627	14
					Front	1413	1732.6	20.0	18.2	0.288	0.438	
					Edge 2	1413	1732.6	20.0	18.2	0.054	0.082	
					Edge 3	1312	1712.4	20.0	18.0	0.570	0.903	
						1413	1732.6	20.0	18.2	0.598	0.910	
					Edge 4	1413	1732.6	20.0	18.2	0.051	0.078	
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Plot No.
Main 1 Ant.	Product Specific 10-g	Rel 99 RMC	Off	10	Rear	1513	1752.6	25.0	24.5	0.911	1.027	
				6	Front	1513	1752.6	25.0	24.5	1.100	1.240	
				12	Edge 3	1513	1752.6	25.0	24.5	0.925	1.042	
			On	0	Rear	1413	1732.6	20.0	18.2	0.742	1.115	
					Front	1413	1732.6	20.0	18.2	0.400	0.601	
					Edge 3	1312	1712.4	20.0	18.0	1.420	2.250	
						1413	1732.6	20.0	18.2	1.500	2.254	
						1513	1752.6	20.0	18.3	1.590	2.361	

10.5. WCDMA Band V

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	Rel 99 RMC	N/A	0	Left Touch	4183	836.6	24.5	22.6	0.168	0.259	16
					Left Tilt	4183	836.6	24.5	22.6	0.108	0.167	
					Right Touch	4183	836.6	24.5	22.6	0.255	0.393	
					Right Tilt	4183	836.6	24.5	22.6	0.127	0.196	
	Body-worn	Rel 99 RMC	N/A	15	Rear	4183	836.6	24.5	22.6	0.284	0.438	17
					Front	4183	836.6	24.5	22.6	0.208	0.321	
	Hotspot	Rel 99 RMC	N/A	10	Rear	4132	826.4	24.5	22.6	0.571	0.876	18
						4183	836.6	24.5	22.6	0.593	0.915	
						4233	846.6	24.5	22.5	0.590	0.930	
					Front	4183	836.6	24.5	22.6	0.330	0.509	
					Edge 2	4183	836.6	24.5	22.6	0.224	0.346	
					Edge 3	4183	836.6	24.5	22.6	0.363	0.560	
Edge 4	4183	836.6	24.5	22.6	0.053	0.081						

10.6. LTE Band 2 (20MHz Bandwidth)

Main Ant.1 SAR results

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.					
										Tune-up limit	Meas.	Meas.	Scaled						
Main 1 Ant.	Head	QPSK	Off	0	Left Touch	18900	1880.0	1	49	24.0	23.5	0.044	0.050	19					
								50	24	22.0	21.6	0.028	0.031						
					Left Tilt	18900	1880.0	1	49	24.0	23.5	0.031	0.035						
								50	24	22.0	21.6	0.019	0.021						
					Right Touch	18900	1880.0	1	49	24.0	23.5	0.065	0.073						
								50	24	22.0	21.6	0.040	0.043						
					Right Tilt	18900	1880.0	1	49	24.0	23.5	0.025	0.028						
								50	24	22.0	21.6	0.013	0.014						
					Body-worn	QPSK	Off	15	Rear	18900	1880.0	1	49		24.0	23.5	0.595	0.667	20
												50	24		22.0	21.6	0.391	0.424	
									Front	18900	1880.0	1	49		24.0	23.5	0.373	0.418	
												50	24		22.0	21.6	0.243	0.263	
	Hotspot	QPSK	On	10	Rear	18900	1880.0	1	49	20.0	18.5	0.401	0.568						
								50	24	20.0	18.6	0.418	0.579						
					Front	18900	1880.0	1	49	20.0	18.5	0.203	0.287						
								50	24	20.0	18.6	0.213	0.295						
					Edge 2	18900	1880.0	1	49	20.0	18.5	0.022	0.031						
								50	24	20.0	18.6	0.023	0.031						
					Edge 3	18900	1880.0	1	49	20.0	18.5	0.453	0.641						
								50	24	20.0	18.6	0.476	0.659						
					Edge 4	18900	1880.0	1	49	20.0	18.5	0.038	0.053						
								50	24	20.0	18.6	0.040	0.056						
	Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.				
	Main 1 Ant.	Product specific 10-g SAR	QPSK	Off	10	Rear	18900	1880.0	1	49	24.0	23.5	0.625	0.701					
12					Edge 3	1			49	24.0	23.5	0.577	0.647						
On				Rear	18900	1880.0	1	49	20.0	18.5	0.961	1.370							
				Edge 3			1	49	20.0	18.5	1.140	1.626							

Sub Ant.2 SAR results

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Sub 2 Ant.	Head	QPSK	On	0	Left Touch	18900	1880.0	1	49	18.0	17.7	0.320	0.346	
								50	24	18.0	17.5	0.326	0.363	
					Left Tilt	18900	1880.0	1	49	18.0	17.7	0.371	0.401	
								50	24	18.0	17.5	0.379	0.422	
					Right Touch	18900	1880.0	1	49	18.0	17.7	0.556	0.601	
								50	24	18.0	17.5	0.568	0.633	
	Right Tilt	18900	1880.0	1	49	18.0	17.7	0.568	0.614					
				50	24	18.0	17.5	0.569	0.634	23				
	Body-worn	QPSK	Off	15	Rear	18900	1880.0	1	49	23.0	22.6	0.171	0.187	24
								50	24	22.0	21.6	0.141	0.155	
					Front	18900	1880.0	1	49	23.0	22.6	0.124	0.136	
								50	24	22.0	21.6	0.102	0.112	
	Hotspot	QPSK	On	10	Rear	18900	1880.0	1	49	19.0	18.6	0.178	0.196	
								50	24	19.0	18.5	0.178	0.198	
					Front	18900	1880.0	1	49	19.0	18.6	0.130	0.143	
								50	24	19.0	18.5	0.129	0.144	
					Edge 1	18900	1880.0	1	49	19.0	18.6	0.281	0.309	
								50	24	19.0	18.5	0.291	0.324	25
Edge 4	18900	1880.0	1	49	19.0	18.6	0.037	0.041						
			50	24	19.0	18.5	0.039	0.044						

Note(s):

1. For LTE Band 2 of Sub Ant.2., It work only EN-DC scenarios.

10.7. LTE Band 12 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	QPSK	N/A	0	Left Touch	23095	707.5	1	0	25.5	24.1	0.085	0.119	
								25	0	23.5	22.2	0.059	0.079	
					Left Tilt	23095	707.5	1	0	25.5	24.1	0.046	0.064	
								25	0	23.5	22.2	0.032	0.043	
					Right Touch	23095	707.5	1	0	25.5	24.1	0.123	0.172	26
								25	0	23.5	22.2	0.082	0.111	
	Right Tilt	23095	707.5	1	0	25.5	24.1	0.056	0.078					
				25	0	23.5	22.2	0.034	0.045					
	Body-worn	QPSK	N/A	15	Rear	23095	707.5	1	0	25.5	24.1	0.177	0.247	27
								25	0	23.5	22.2	0.121	0.163	
					Front	23095	707.5	1	0	25.5	24.1	0.144	0.201	
								25	0	23.5	22.2	0.098	0.132	
	Hotspot	QPSK	N/A	10	Rear	23095	707.5	1	0	25.5	24.1	0.230	0.321	28
								25	0	23.5	22.2	0.153	0.206	
					Front	23095	707.5	1	0	25.5	24.1	0.139	0.194	
								25	0	23.5	22.2	0.093	0.125	
					Edge 2	23095	707.5	1	0	25.5	24.1	0.137	0.191	
								25	0	23.5	22.2	0.082	0.110	
Edge 3	23095	707.5	1	0	25.5	24.1	0.112	0.156						
			25	0	23.5	22.2	0.075	0.100						
Edge 4	23095	707.5	1	0	25.5	24.1	0.081	0.113						
			25	0	23.5	22.2	0.053	0.071						

10.8. LTE Band 13 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	QPSK	N/A	0	Left Touch	23230	782.0	1	0	25.5	23.9	0.148	0.213	
								25	0	23.5	22.1	0.086	0.119	
					Left Tilt	23230	782.0	1	0	25.5	23.9	0.077	0.111	
								25	0	23.5	22.1	0.045	0.062	
					Right Touch	23230	782.0	1	0	25.5	23.9	0.194	0.279	29
								25	0	23.5	22.1	0.188	0.259	
					Right Tilt	23230	782.0	1	0	25.5	23.9	0.084	0.121	
								25	0	23.5	22.1	0.083	0.114	
	Body-w orn	QPSK	N/A	15	Rear	23230	782.0	1	0	25.5	23.9	0.214	0.308	30
								25	0	23.5	22.1	0.127	0.175	
					Front	23230	782.0	1	0	25.5	23.9	0.193	0.278	
								25	0	23.5	22.1	0.109	0.150	
	Hotspot	QPSK	N/A	10	Rear	23230	782.0	1	0	25.5	23.9	0.511	0.735	31
								25	0	23.5	22.1	0.255	0.352	
					Front	23230	782.0	1	0	25.5	23.9	0.231	0.332	
								25	0	23.5	22.1	0.139	0.192	
					Edge 2	23230	782.0	1	0	25.5	23.9	0.213	0.307	
								25	0	23.5	22.1	0.125	0.173	
					Edge 3	23230	782.0	1	0	25.5	23.9	0.164	0.236	
								25	0	23.5	22.1	0.098	0.135	
					Edge 4	23230	782.0	1	0	25.5	23.9	0.144	0.207	
25								0	23.5	22.1	0.084	0.116		

10.9. LTE Band 26 (15MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	QPSK	N/A	0	Left Touch	26865	831.5	1	0	24.5	23.4	0.150	0.195	
								36	0	22.5	21.7	0.103	0.125	
					Left Tilt	26865	831.5	1	0	24.5	23.4	0.073	0.095	
								36	0	22.5	21.7	0.052	0.064	
					Right Touch	26865	831.5	1	0	24.5	23.4	0.199	0.259	32
								36	0	22.5	21.7	0.137	0.167	
					Right Tilt	26865	831.5	1	0	24.5	23.4	0.078	0.101	
								36	0	22.5	21.7	0.059	0.071	
	Body-w orn	QPSK	N/A	15	Rear	26865	831.5	1	0	24.5	23.4	0.276	0.359	33
								36	0	22.5	21.7	0.191	0.232	
					Front	26865	831.5	1	0	24.5	23.4	0.210	0.273	
								36	0	22.5	21.7	0.145	0.176	
	Hotspot	QPSK	N/A	10	Rear	26865	831.5	1	0	24.5	23.4	0.528	0.686	34
								36	0	22.5	21.7	0.362	0.440	
					Front	26865	831.5	1	0	24.5	23.4	0.295	0.383	
								36	0	22.5	21.7	0.203	0.247	
					Edge 2	26865	831.5	1	0	24.5	23.4	0.259	0.337	
								36	0	22.5	21.7	0.184	0.224	
					Edge 3	26865	831.5	1	0	24.5	23.4	0.249	0.324	
								36	0	22.5	21.7	0.168	0.204	
					Edge 4	26865	831.5	1	0	24.5	23.4	0.097	0.126	
36								0	22.5	21.7	0.070	0.085		

10.10. LTE Band 41 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	QPSK	Off	0	Left Touch	40620	2593.0	1	99	25.0	23.9	0.104	0.133	35
								50	50	23.0	22.0	0.069	0.086	
					Left Tilt	40620	2593.0	1	99	25.0	23.9	0.036	0.046	
								50	50	23.0	22.0	0.021	0.027	
					Right Touch	40620	2593.0	1	99	25.0	23.9	0.047	0.060	
								50	50	23.0	22.0	0.031	0.038	
	Right Tilt	40620	2593.0	1	99	25.0	23.9	0.031	0.039					
				50	50	23.0	22.0	0.017	0.021					
	Body-worn	QPSK	Off	15	Rear	40620	2593.0	1	99	25.0	23.9	0.155	0.198	36
								50	50	23.0	22.0	0.104	0.130	
					Front	40620	2593.0	1	99	25.0	23.9	0.107	0.136	
	50	50	23.0	22.0	0.070	0.087								
	Hotspot	QPSK	On	10	Rear	40620	2593.0	1	99	22.0	20.7	0.135	0.182	
								50	50	22.0	21.0	0.140	0.177	
					Front	40620	2593.0	1	99	22.0	20.7	0.087	0.117	
50								50	22.0	21.0	0.089	0.113		
Edge 3					40620	2593.0	1	99	22.0	20.7	0.301	0.406	37	
							50	50	22.0	21.0	0.321	0.406		
Edge 4					40620	2593.0	1	99	22.0	20.7	0.077	0.104		
							50	50	22.0	21.0	0.076	0.096		

10.11. LTE Band 66 (20MHz Bandwidth)

Main Ant.1 SAR results

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.		
										Tune-up limit	Meas.	Meas.	Scaled			
Main 1 Ant.	Head	QPSK	Off	0	Left Touch	132572	1770.0	1	49	24.5	24.3	0.067	0.070			
								50	50	22.5	22.4	0.046	0.047			
					Left Tilt	132572	1770.0	1	49	24.5	24.3	0.028	0.029			
								50	50	22.5	22.4	0.016	0.017			
					Right Touch	132572	1770.0	1	49	24.5	24.3	0.076	0.079	38		
								50	50	22.5	22.4	0.054	0.056			
					Right Tilt	132572	1770.0	1	49	24.5	24.3	0.036	0.037			
								50	50	22.5	22.4	0.021	0.022			
	Body-worn	QPSK	Off	15	Rear	132572	1770.0	1	49	24.5	24.3	0.630	0.653	39		
								50	50	22.5	22.4	0.430	0.445			
					Front	132572	1770.0	1	49	24.5	24.3	0.336	0.348			
								50	50	22.5	22.4	0.233	0.241			
	Hotspot	QPSK	On	10	Rear	132072	1720.0	1	49	21.5	20.1	0.826	1.135			
								50	50	21.5	20.3	0.886	1.156			
						132322	1745.0	1	49	21.5	20.4	0.873	1.116			
								50	50	21.5	20.7	0.887	1.063			
					132572	1770.0	1	49	21.5	20.9	0.813	0.930				
							50	50	21.5	21.3	0.906	0.951				
					Front	132572	1770.0	1	49	21.5	20.9	0.453	0.518			
								50	50	21.5	21.3	0.466	0.489			
Edge 2						132572	1770.0	1	49	21.5	20.9	0.085	0.098			
								50	50	21.5	21.3	0.090	0.094			
Edge 3					132072	1720.0	1	49	21.5	20.1	0.788	1.082				
							50	50	21.5	20.3	0.899	1.173				
	132322	1745.0	1	49	21.5	20.4	0.946	1.210	40							
			50	50	21.5	20.7	1.010	1.210								
132572	1770.0	1	49	21.5	20.9	0.861	0.985									
		50	50	21.5	21.3	1.030	1.081									
Edge 4	132572	1770.0	1	49	21.5	20.9	0.081	0.093								
			50	50	21.5	21.3	0.087	0.091								
Main 1 Ant.	Product Specific 10-g	QPSK	Off	12	Rear	132572	1770.0	1	49	24.5	24.3	0.935	0.969			
								50	50	22.5	22.4	0.501	0.518			
					10	Edge 3	132572	1770.0	1	49	24.5	24.3	0.813	0.843		
									50	50	22.5	22.4	0.501	0.518		
					On	0	Rear	132572	1770.0	1	49	21.5	21.0	1.510	1.706	41
										50	50	21.5	21.2	1.560	1.670	

Sub Ant.2 SAR results

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Sub 2 Ant.	Head	QPSK	On	0	Left Touch	132572	1770.0	1	0	16.5	15.9	0.301	0.349	
								50	0	16.5	15.9	0.303	0.346	
					Left Tilt	132572	1770.0	1	0	16.5	15.9	0.335	0.388	
								50	0	16.5	15.9	0.335	0.383	
					Right Touch	132572	1770.0	1	0	16.5	15.9	0.452	0.524	
								50	0	16.5	15.9	0.455	0.520	
					Right Tilt	132572	1770.0	1	0	16.5	15.9	0.494	0.572	42
								50	0	16.5	15.9	0.494	0.565	
	Body-worn	QPSK	\	15	Rear	132572	1770.0	1	0	23.5	22.7	0.356	0.433	43
								50	0	22.5	21.7	0.292	0.351	
					Front	132572	1770.0	1	0	23.5	22.7	0.234	0.285	
								50	0	22.5	21.7	0.210	0.252	
	Hotspot	QPSK	On	10	Rear	132072	1720.0	1	0	19.5	19.0	0.387	0.434	
								50	0	19.5	18.8	0.404	0.474	
					Front	132572	1770.0	1	0	19.5	19.0	0.241	0.270	
								50	0	19.5	18.8	0.252	0.295	
Edge 1					132572	1770.0	1	0	19.5	19.0	0.499	0.560		
							50	0	19.5	18.8	0.506	0.593	44	
Edge 4					132572	1770.0	1	0	19.5	19.0	0.077	0.087		
							50	0	19.5	18.8	0.083	0.098		

Note(s):

1. For LTE Band 66 of Sub Ant.2., It work only EN-DC scenarios.

10.12. NR Band n5 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
											Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	DFT-s-OFDM	QPSK	N/A	0	Left Touch	167300	836.5	1	104	24.0	23.6	0.125	0.136	
									50	25	24.0	23.2	0.136	0.162	
						Left Tilt	167300	836.5	1	104	24.0	23.6	0.067	0.073	
									50	25	24.0	23.2	0.082	0.097	
						Right Touch	167300	836.5	1	104	24.0	23.6	0.160	0.175	
									50	25	24.0	23.2	0.185	0.220	45
						Right Tilt	167300	836.5	1	104	24.0	23.6	0.078	0.085	
									50	25	24.0	23.2	0.091	0.108	
	CP-OFDM	QPSK	N/A	0	Right Touch	167300	836.5	1	1	23.5	22.9	0.119	0.137		
	Body-worn	DFT-s-OFDM	QPSK	N/A	15	Rear	167300	836.5	1	104	24.0	23.6	0.218	0.238	
									50	25	24.0	23.2	0.220	0.262	46
						Front	167300	836.5	1	104	24.0	23.6	0.159	0.174	
									50	25	24.0	23.2	0.169	0.201	
	CP-OFDM	QPSK	N/A	15	Rear	167300	836.5	1	1	23.5	22.9	0.123	0.142		
	Hotspot	DFT-s-OFDM	QPSK	N/A	10	Rear	167300	836.5	1	104	24.0	23.6	0.407	0.444	
									50	25	24.0	23.2	0.422	0.502	47
						Front	167300	836.5	1	104	24.0	23.6	0.217	0.237	
									50	25	24.0	23.2	0.223	0.265	
Edge 2						167300	836.5	1	104	24.0	23.6	0.136	0.148		
								50	25	24.0	23.2	0.159	0.189		
Edge 3						167300	836.5	1	104	24.0	23.6	0.145	0.158		
								50	25	24.0	23.2	0.134	0.159		
Edge 4	167300	836.5	1	104	24.0	23.6	0.071	0.077							
			50	25	24.0	23.2	0.095	0.112							
CP-OFDM	QPSK	N/A	10	Rear	167300	836.5	1	1	23.5	22.9	0.274	0.316			

Note(s):

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

10.13. NR Band n66 (20MHz Bandwidth)

Main Ant.1 SAR results

Antenna	RF Exposure Conditions	Modulation	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.		
											Tune-up limit	Meas.	Meas.	Scaled			
Main 1 Ant.	Head	DFT-s-OFDM	QPSK	Off	0	Left Touch	354000	1770.0	1	53	25.0	24.9	0.079	0.081	48		
									50	25	25.0	24.8	0.084	0.088			
						Left Tilt	354000	1770.0	1	53	25.0	24.9	0.039	0.040			
									50	25	25.0	24.8	0.040	0.042			
						Right Touch	354000	1770.0	1	53	25.0	24.9	0.078	0.080			
									50	25	25.0	24.8	0.083	0.087			
						Right Tilt	354000	1770.0	1	53	25.0	24.9	0.037	0.038			
									50	25	25.0	24.8	0.038	0.039			
	CP-OFDM	QPSK	Off	0	Right Touch	354000	1770.0	1	1	23.5	22.9	0.049	0.057				
	Body-w orn	DFT-s-OFDM	QPSK	Off	15	Rear	344000	1720.0	1	53	25.0	24.2	0.852	1.027	49		
									50	25	25.0	24.0	0.828	1.033			
							349000	1745.0	1	53	25.0	24.7	0.892	0.967			
									50	25	25.0	24.5	0.880	0.981			
						354000	1770.0	1	53	25.0	24.9	0.734	0.753				
								50	25	25.0	24.8	0.724	0.760				
						Front	354000	1770.0	1	53	22.5	22.2	0.484	0.522			
									50	25	22.5	22.2	0.499	0.530			
	CP-OFDM	QPSK	Off	15	Rear		344000	1720.0	1	1	23.5	21.6	0.480	0.738			
					Hotspot		DFT-s-OFDM	QPSK	On	10	Rear	344000	1720.0	1	53	22.5	21.3
	50	25	22.5	21.0		0.728								1.031			
	349000	1745.0	1	53		22.5						21.7	0.793	0.962			
			50	25		22.5						21.6	0.790	0.981			
	354000	1770.0	1	53		22.5					22.2	0.779	0.840				
			50	25		22.5					22.2	0.766	0.813				
	Front	354000	1770.0	1		53					22.5	22.2	0.484	0.522			
				50		25					22.5	22.2	0.499	0.530			
		Edge 2	354000	1770.0		1					53	22.5	22.2	0.083	0.089		
						50					25	22.5	22.2	0.081	0.086		
Edge 3	344000	1720.0	1	53		22.5					21.3	0.796	1.057				
			50	25		22.5					21.0	0.808	1.144				
	349000	1745.0	1	53		22.5					21.7	0.741	0.899				
			50	25		22.5					21.6	0.888	1.103				
354000	1770.0	1	53	22.5		22.2					0.852	0.919					
		50	25	22.5		22.2					0.887	0.942					
	Edge 4	354000	1770.0	1	53	22.5	22.2	0.069	0.074								
				50	25	22.5	22.2	0.069	0.073								
CP-OFDM	QPSK	On	10	Edge 3	344000	1720.0	1	1	22.5	20.2	0.628	1.079					
Antenna	RF Exposure Conditions	Modulation	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		10-g SAR (W/kg)		Plot No.		
Main 1 Ant.	Product Specific 10-g	DFT-s-OFDM	QPSK	Off	10	Rear	354000	1770.0	1	53	25.0	24.9	0.773	0.793	51		
									50	25	25.0	24.8	0.784	0.823			
						Edge 3	354000	1770.0	1	53	25.0	24.9	0.778	0.798			
									50	25	25.0	24.8	0.781	0.820			
						Rear	354000	1770.0	1	53	22.5	22.1	1.300	1.416			
				50	25				22.5	22.2	1.290	1.382					
				Edge 3	354000	1770.0	1	53	22.5	22.1	1.270	1.383					
							50	25	22.5	22.2	1.270	1.361					
				CP-OFDM	QPSK	On	0	Rear	354000	1770.0	1	1	22.5	21.4		1.090	1.404

Sub Ant.2 SAR results

Antenna	RF Exposure Conditions	Modulation	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
											Tune-up limit	Meas.	Meas.	Scaled	
Sub 2 Ant.	Head	DFT-s-OFDM	QPSK	On	0	Left Touch	349000	1745.0	1	104	17.0	16.6	0.436	0.474	
									50	25	17.0	16.6	0.509	0.556	
						Left Tilt	349000	1745.0	1	104	17.0	16.6	0.467	0.507	
									50	25	17.0	16.6	0.551	0.601	
						Right Touch	349000	1745.0	1	104	17.0	16.6	0.615	0.668	
									50	25	17.0	16.6	0.695	0.759	
						Right Tilt	344000	1720.0	1	104	17.0	16.5	0.805	0.907	
									50	25	17.0	16.5	0.803	0.911	
							349000	1745.0	1	104	17.0	16.6	0.738	0.802	
									50	25	17.0	16.6	0.713	0.778	
	354000	1770.0	1	104	17.0	16.5	0.824	0.920							
			50	25	17.0	16.6	0.846	0.925	52						
	CP-OFDM	QPSK	On	0	Right Tilt	354000	1770.0	1	1	17.0	15.5	0.474	0.676		
	Body-w orn	DFT-s-OFDM	QPSK	Off	15	Rear	349000	1745.0	1	104	23.0	22.6	0.321	0.350	
									50	25	23.0	23.0	0.572	0.576	53
						Front	349000	1745.0	1	104	23.0	22.6	0.320	0.348	
		50	25	23.0	23.0				0.401	0.404					
		CP-OFDM	QPSK	Off	15	Rear	349000	1745.0	1	1	21.5	20.9	0.313	0.356	
		Hotspot	DFT-s-OFDM	QPSK	On	10	Rear	349000	1745.0	1	104	20.5	19.9	0.340	0.389
	50									25	20.5	20.0	0.507	0.571	
Front	349000						1745.0	1	104	20.5	19.9	0.274	0.314		
								50	25	20.5	20.0	0.428	0.482		
Edge 1	349000						1745.0	1	104	20.5	19.9	0.520	0.596		
								50	25	20.5	20.0	0.701	0.790	54	
Edge 4	349000						1745.0	1	104	20.5	19.9	0.086	0.098		
								50	25	20.5	20.0	0.138	0.156		
CP-OFDM	QPSK	On	10	Edge 1	349000	1745.0	1	1	20.5	19.6	0.499	0.620			
Antenna	RF Exposure Conditions	Modulation	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		10-g SAR (W/kg)		Plot No.
Sub 2 Ant.	Product specific 10-g SAR	DFT-s-OFDM	QPSK	Off	0	Edge 1	344000	1720.0	50	25	23.0	22.5	2.230	2.514	
							349000	1745.0	50	25	23.0	23.0	3.150	3.172	55
							354000	1770.0	50	25	23.0	22.4	2.560	2.973	
							349000	1745.0	1	1	21.5	20.9	2.420	2.753	

Note(s):

1. CP-OFDM mode were evaluated at worst configuration of DFT-s-OFDM in each exposure conditions.
2. For NR Band n66 of Sub Ant.2., It work only EN-DC scenarios.

10.14. Wi-Fi (DTS Band)

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
WLAN	2.4GHz	802.11b 1 Mbps	Head	On	0	Left Touch	6	2437.0	0.402	99.1%	16.0	15.5				
						Left Tilt	6	2437.0	0.570	99.1%	16.0	15.5				
						Right Touch	6	2437.0	0.741	99.1%	16.0	15.5	0.587	0.663	2	56
						Right Tilt	6	2437.0	0.853	99.1%	16.0	15.5	0.500	0.565		
			Body-w orn	Off	15	Rear	1	2412.0	0.057	99.1%	19.0	18.7	0.010	0.011	1	57
						Front	1	2412.0	0.048	99.1%	19.0	18.7				
			Hotspot	Off	10	Rear	1	2412.0	0.117	99.1%	19.0	18.7	0.077	0.083	4	
						Front	1	2412.0	0.098	99.1%	19.0	18.7				
						Edge 1	1	2412.0	0.201	99.1%	19.0	18.7	0.127	0.137	1	58
						Edge 4	1	2412.0	0.014	99.1%	19.0	18.7				

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.

10.15. Bluetooth

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
BT	2.4 GHz	GFSK	Head	Off	0	Left Touch	39	2441.0	76.7%	12.0	11.9	0.061	0.081	
						Left Tilt	39	2441.0	76.7%	12.0	11.9	0.082	0.110	
						Right Touch	39	2441.0	76.7%	12.0	11.9	0.119	0.159	59
						Right Tilt	39	2441.0	76.7%	12.0	11.9	0.116	0.155	
		GFSK	Body-w orn	Off	15	Rear	0	2402.0	76.7%	17.0	16.4	0.029	0.043	60
						Front	0	2402.0	76.7%	17.0	16.4	0.027	0.040	
		GFSK	Hotspot	Off	10	Rear	0	2402.0	76.7%	17.0	16.4	0.050	0.075	
						Front	0	2402.0	76.7%	17.0	16.4	0.045	0.068	
						Edge 1	0	2402.0	76.7%	17.0	16.4	0.074	0.109	61
						Edge 4	0	2402.0	76.7%	17.0	16.4	0.019	0.028	

10.16. Wi-Fi (U-NII Bands)

Normal 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					
WLAN	5.3 GHz U-NII 2A	802.11n (HT40) MCSO	Head	On	0	Left Touch	54	5270.0	0.116	95.9%	13.0	12.0									
						Left Tilt	54	5270.0	0.085	95.9%	13.0	12.0									
						Right Touch	54	5270.0	0.499	95.9%	13.0	12.0	0.226	0.294					1	62	
						Right Tilt	54	5270.0	0.313	95.9%	13.0	12.0	0.125	0.163					4		
	802.11n (HT40) MCSO	Body-worn	Off	15	Rear	54	5270.0	0.105	95.9%	13.0	12.0	0.039	0.051					1	63		
					Front	54	5270.0	0.052	95.9%	13.0	12.0										
		Product Specific 10-g	Off	0	Rear	54	5270.0	1.954	95.9%	13.0	12.0										
					Front	54	5270.0	1.665	95.9%	13.0	12.0										
					Edge 1	54	5270.0	0.726	95.9%	13.0	12.0										
					Edge 4	54	5270.0	3.442	95.9%	13.0	12.0					0.348	0.453	1	64		

Normal 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				
WLAN MIMO Ant.1	5.5 GHz U-NII 2C	802.11n MCSO HT40	Head	On	0	Left Touch	126	5630.0	0.111	95.9%	14.0	13.8								
						Left Tilt	126	5630.0	0.096	95.9%	14.0	13.8								
						Right Touch	126	5630.0	0.542	95.9%	14.0	13.8	0.239	0.264					1	65
						Right Tilt	126	5630.0	0.135	95.9%	14.0	13.8	0.052	0.058					4	
	802.11a 6 Mbps	Body-worn	Off	15	Rear	120	5600.0	0.218	96.3%	16.0	15.4	0.079	0.093					1	66	
					Front	120	5600.0	0.086	96.3%	16.0	15.4									
		Product Specific 10-g	Off	0	Rear	120	5600.0	3.185	96.3%	16.0	15.4									
					Front	120	5600.0	1.998	96.3%	16.0	15.4									
					Edge 1	120	5600.0	0.233	96.3%	16.0	15.4									
					Edge 4	120	5600.0	8.779	96.3%	16.0	15.4					0.608	0.722	1	67	

Normal 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)		10-g SAR (W/kg)		Note	Plot No.		
											Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled				
WLAN	5.8 GHz U-NII 3	802.11n MCSO HT40	Head	On	0	Left Touch	159	5795.0	0.124	95.9%	14.0	13.5								
						Left Tilt	159	5795.0	0.134	95.9%	14.0	13.5								
						Right Touch	159	5795.0	0.489	95.9%	14.0	13.5	0.164	0.191					1	68
						Right Tilt	159	5795.0	0.137	95.9%	14.0	13.5	0.058	0.067					4	
	802.11n MCSO HT40	Body-worn	Off	15	Rear	159	5795.0	0.177	95.9%	15.0	13.5	0.066	0.097					1	69	
					Front	159	5795.0	0.151	95.9%	15.0	13.5									
		Hotspot	Off	10	Rear	151	5755.0	0.264	95.9%	15.0	13.4	0.110	0.166					1		
					Front	151	5755.0	0.059	95.9%	15.0	13.4									
					Edge 1	151	5755.0	0.019	95.9%	15.0	13.4	0.006	0.008					4		
					Edge 4	151	5755.0	0.252	95.9%	15.0	13.4	0.125	0.188					4	70	

Normal U-NII 4 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				
WLAN	5.9 GHz U-NII 4	802.11n (HT40) MCSO	Head	On	0	Left Touch	167	5835.0	0.065	95.9%	14.0	13.6								
						Left Tilt	167	5835.0	0.075	95.9%	14.0	13.6								
						Right Touch	167	5835.0	0.224	95.9%	14.0	13.6	0.069	0.079					1	71
						Right Tilt	167	5835.0	0.090	95.9%	14.0	13.6	0.041	0.047					4	
	802.11n (HT40) MCSO	Body-worn	Off	15	Rear	167	5835.0	0.099	95.9%	15.0	13.6	0.034	0.049					1	72	
					Front	167	5835.0	0.123	95.9%	15.0	13.6									
		Product Specific 10-g	Off	0	Rear	167	5835.0	1.107	95.9%	15.0	13.6					0.136	0.195	4		
					Front	167	5835.0	0.864	95.9%	15.0	13.6									
					Edge 1	167	5835.0	0.126	95.9%	15.0	13.6					0.013	0.018	4		
					Edge 4	167	5835.0	4.448	95.9%	15.0	13.6					0.399	0.573	1	73	

Note(s):

- 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.
- 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.
- 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).
- Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

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 .

Peak spatial-average (1g of tissue)

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Repeated Measured SAR (W/kg)	Largest to Smallest SAR Ratio
700	LTE Band 12	Hotspot	Rear	No	0.230	N/A	N/A
	LTE Band 13	Hotspot	Rear	No	0.511	N/A	N/A
835	GSM 850	Hotspot	Rear	No	0.703	N/A	N/A
	WCDMA Band V	Hotspot	Rear	No	0.593	N/A	N/A
	LTE Band 26	Hotspot	Rear	No	0.528	N/A	N/A
	NR Band n5	Hotspot	Rear	No	0.422	N/A	N/A
1750	WCDMA Band IV	Hotspot	Edge 3	No	0.683	N/A	N/A
	LTE Band 66	Hotspot	Edge 3	Yes	1.030	1.030	N/A
	NR Band n66	Body-w orn	Rear	No	0.892	N/A	N/A
1900	GSM 1900	Hotspot	Edge 3	No	0.452	N/A	N/A
	WCDMA Band II	Body-w orn	Rear	No	0.714	N/A	N/A
	LTE Band 2	Body-w orn	Rear	No	0.595	N/A	N/A
2400	Wi-Fi 802.11b/g/n	Head	Right Touch	No	0.587	N/A	N/A
	Bluetooth	Head	Right Touch	No	0.119	N/A	N/A
2600	LTE Band 41	Hotspot	Edge 3	No	0.321	N/A	N/A
5300	Wi-Fi 802.11a/n	Head	Right Touch	No	0.226	N/A	N/A
5500	Wi-Fi 802.11a/n	Head	Right Touch	No	0.239	N/A	N/A
5800	Wi-Fi 802.11a/n	Head	Right Touch	No	0.164	N/A	N/A
5900	Wi-Fi 802.11a/n	Head	Right Touch	No	0.069	N/A	N/A

Peak spatial-average (10g of tissue)

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Repeated Measured SAR (W/kg)	Largest to Smallest SAR Ratio
1750	WCDMA Band IV	Product Specific 10-g	Edge 3	No	1.590	N/A	N/A
	LTE Band 66	Product Specific 10-g	Edge 3	No	1.560	N/A	N/A
	NR Band n66	Product Specific 10-g	Edge 1	Yes	3.150	3.06	N/A
1900	WCDMA Band II	Product Specific 10-g	Edge 3	No	1.500	N/A	N/A
	LTE Band 2	Product Specific 10-g	Edge 3	No	1.140	N/A	N/A
5300	Wi-Fi 802.11a/n	Product Specific 10-g	Edge 4	No	0.348	N/A	N/A
5500	Wi-Fi 802.11a/n	Product Specific 10-g	Edge 4	No	0.608	N/A	N/A
5900	Wi-Fi 802.11a/n	Product Specific 10-g	Edge 4	No	0.399	N/A	N/A

Note(s):

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

12. Simultaneous Transmission SAR Analysis

Simultaneous Transmission Condition

RF Exposure Condition	Item	Capable Transmit Configurations	
Head & Body-w orn & Hotspot & Phablet-10g	1	WWAN (2G/3G/LTE/NR) + DTS	Scenarios
	2	WWAN (2G/3G/LTE/NR) + UNII	
	3	WWAN (2G/3G/LTE/NR) + BT	
	4	WWAN (2G/3G/LTE/NR) + UNII + BT	
	5	WWAN (ENDC(LTE+NR) + DTS	
	6	WWAN (ENDC(LTE+NR) + UNII	
	7	WWAN (ENDC(LTE+NR) + BT	
	8	WWAN (ENDC(LTE+NR) + UNII + BT	

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 w ith Bluetooth Radio.
5. DTS Radio cannot transmit simultaneously w ith Bluetooth Radio.
6. NR Radio support to both SA and NSA(ENDC) Radio.
7. BT tethering is considered about each RF exposure conditions.

Simultaneous transmission SAR test exclusion considerations

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

Sum of SAR

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

SAR to Peak Location Ratio (SPLSR)

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

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

Where:

SAR₁ is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

SAR₂ is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

Ri is the separation distance between the pair of simultaneous transmitting antennas. When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of

$$[(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2]$$

In order for a pair of simultaneous transmitting antennas with the sum of 1-g SAR > 1.6 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

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

When an individual antenna transmits at on two bands simultaneously, the sum of the highest *reported* SAR for the frequency bands should be used to determine **SAR₁**, or **SAR₂**. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

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

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

Simultaneous transmission SAR measurement

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

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

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

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

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

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

SPLSR Hotspot Combination

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

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

Test procedure

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

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

12.1. Sum of the SAR for GSM850 & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.257	0.663	0.294	0.081	0.920	0.551	0.338	0.632
	Left Tilt	0.140	0.663	0.294	0.110	0.803	0.434	0.250	0.544
	Right Touch	0.316	0.663	0.294	0.159	0.979	0.610	0.475	0.769
	Right Tilt	0.130	0.565	0.163	0.155	0.695	0.293	0.285	0.448
Body-Worn (1-g SAR)	Rear	0.308	0.011	0.272	0.043	0.319	0.580	0.351	0.623
	Front	0.273	0.011	0.272	0.040	0.284	0.545	0.313	0.585
Hotspot (1-g SAR)	Rear	0.781	0.083	0.166	0.075	0.864	0.947	0.856	1.022
	Front	0.317	0.137	0.188	0.068	0.454	0.505	0.385	0.573
	Edge 1		0.137	0.188	0.109				
	Edge 2	0.399							
	Edge 3	0.286							
	Edge 4	0.179	0.137	0.188	0.028	0.316	0.367	0.207	0.395

12.2. Sum of the SAR for GSM1900 & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.041	0.663	0.294	0.081	0.704	0.335	0.122	0.416
	Left Tilt	0.029	0.663	0.294	0.110	0.692	0.323	0.139	0.433
	Right Touch	0.055	0.663	0.294	0.159	0.718	0.349	0.214	0.508
	Right Tilt	0.030	0.565	0.163	0.155	0.595	0.193	0.185	0.348
Body-Worn (1-g SAR)	Rear	0.512	0.011	0.272	0.043	0.523	0.784	0.555	0.827
	Front	0.248	0.011	0.272	0.040	0.259	0.520	0.288	0.560
Hotspot (1-g SAR)	Rear	0.457	0.083	0.166	0.075	0.540	0.623	0.532	0.698
	Front	0.251	0.137	0.188	0.068	0.388	0.439	0.319	0.507
	Edge 1		0.137	0.188	0.109				
	Edge 2	0.045							
	Edge 3	0.517							
	Edge 4	0.024	0.137	0.188	0.028	0.161	0.212	0.052	0.240

Note(s):

1. Green value is estimated SAR value.

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.101	0.663	0.294	0.081	0.764	0.395	0.182	0.476
	Left Tilt	0.121	0.663	0.294	0.110	0.784	0.415	0.231	0.525
	Right Touch	0.185	0.663	0.294	0.159	0.848	0.479	0.344	0.638
	Right Tilt	0.099	0.565	0.163	0.155	0.664	0.262	0.254	0.417
Body-Worn (1-g SAR)	Rear	0.871	0.011	0.272	0.043	0.882	1.143	0.914	1.186
	Front	0.504	0.011	0.272	0.040	0.515	0.776	0.544	0.816
Hotspot (1-g SAR)	Rear	0.501	0.083	0.166	0.075	0.584	0.667	0.576	0.742
	Front	0.273	0.137	0.188	0.068	0.410	0.461	0.341	0.529
	Edge 1		0.137	0.188	0.109				
	Edge 2	0.031				0.031	0.031	0.031	0.031
	Edge 3	0.710				0.710	0.710	0.710	0.710
	Edge 4	0.063	0.137	0.188	0.028	0.200	0.251	0.091	0.279
Product Specific 10-g (10-g SAR)	Rear	1.270		0.722			1.992		
	Front			0.722					
	Edge 1			0.722					
	Edge 2								
	Edge 3	1.814							
	Edge 4			0.722					

Note(s):

- Green value is estimated SAR value.

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.084	0.663	0.294	0.081	0.747	0.378	0.165	0.459
	Left Tilt	0.056	0.663	0.294	0.110	0.719	0.350	0.166	0.460
	Right Touch	0.117	0.663	0.294	0.159	0.780	0.411	0.276	0.570
	Right Tilt	0.051	0.565	0.163	0.155	0.616	0.214	0.206	0.369
Body-Worn (1-g SAR)	Rear	0.740	0.011	0.272	0.043	0.751	1.012	0.783	1.055
	Front	0.454	0.011	0.272	0.040	0.465	0.726	0.494	0.766
Hotspot (1-g SAR)	Rear	0.627	0.083	0.166	0.075	0.710	0.793	0.702	0.868
	Front	0.438	0.137	0.188	0.068	0.575	0.626	0.506	0.694
	Edge 1		0.137	0.188	0.109				
	Edge 2	0.082				0.082	0.082	0.082	0.082
	Edge 3	1.025				1.025	1.025	1.025	1.025
	Edge 4	0.078	0.137	0.188	0.028	0.215	0.266	0.106	0.294
Product Specific 10-g (10-g SAR)	Rear	1.115		0.722			1.837		
	Front	1.240		0.722			1.962		
	Edge 1			0.722					
	Edge 2								
	Edge 3	2.361							
	Edge 4			0.722					

Note(s):

- Green value is estimated SAR value.

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.259	0.663	0.294	0.081	0.922	0.553	0.340	0.634
	Left Tilt	0.167	0.663	0.294	0.110	0.830	0.461	0.277	0.571
	Right Touch	0.393	0.663	0.294	0.159	1.056	0.687	0.552	0.846
	Right Tilt	0.196	0.565	0.163	0.155	0.761	0.359	0.351	0.514
Body-Worn (1-g SAR)	Rear	0.438	0.011	0.272	0.043	0.449	0.710	0.481	0.753
	Front	0.321	0.011	0.272	0.040	0.332	0.593	0.361	0.633
Hotspot (1-g SAR)	Rear	0.930	0.083	0.166	0.075	1.013	1.096	1.005	1.171
	Front	0.509	0.137	0.188	0.068	0.646	0.697	0.577	0.765
	Edge 1		0.137	0.188	0.109				
	Edge 2	0.346							
	Edge 3	0.560							
	Edge 4	0.081	0.137	0.188	0.028	0.218	0.269	0.109	0.297

12.6. Sum of the SAR for LTE Band 2 Main Ant. 1 & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.050	0.663	0.294	0.081	0.713	0.344	0.131	0.425
	Left Tilt	0.035	0.663	0.294	0.110	0.698	0.329	0.145	0.439
	Right Touch	0.073	0.663	0.294	0.159	0.736	0.367	0.232	0.526
	Right Tilt	0.028	0.565	0.163	0.155	0.593	0.191	0.183	0.346
Body-Worn (1-g SAR)	Rear	0.667	0.011	0.272	0.043	0.678	0.939	0.710	0.982
	Front	0.418	0.011	0.272	0.040	0.429	0.690	0.458	0.730
Hotspot (1-g SAR)	Rear	0.579	0.083	0.166	0.075	0.662	0.745	0.654	0.820
	Front	0.295	0.137	0.188	0.068	0.432	0.483	0.363	0.551
	Edge 1		0.137	0.188	0.109				
	Edge 2	0.031							
	Edge 3	0.659							
	Edge 4	0.056	0.137	0.188	0.028	0.193	0.244	0.084	0.272
Product Specific 10-g (10-g SAR)	Rear	1.370		0.722			2.092		
	Front			0.722					
	Edge 1			0.722					
	Edge 2								
	Edge 3	1.626							
	Edge 4			0.722					

Note(s):

1. Green value is estimated SAR value.

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.119	0.663	0.294	0.081	0.782	0.413	0.200	0.494
	Left Tilt	0.064	0.663	0.294	0.110	0.727	0.358	0.174	0.468
	Right Touch	0.172	0.663	0.294	0.159	0.835	0.466	0.331	0.625
	Right Tilt	0.078	0.565	0.163	0.155	0.643	0.241	0.233	0.396
Body-Worn (1-g SAR)	Rear	0.247	0.011	0.272	0.043	0.258	0.519	0.290	0.562
	Front	0.201	0.011	0.272	0.040	0.212	0.473	0.241	0.513
Hotspot (1-g SAR)	Rear	0.321	0.083	0.166	0.075	0.404	0.487	0.396	0.562
	Front	0.194	0.137	0.188	0.068	0.331	0.382	0.262	0.450
	Edge 1		0.137	0.188	0.109				
	Edge 2	0.191							
	Edge 3	0.156							
	Edge 4	0.113	0.137	0.188	0.028	0.250	0.301	0.141	0.329

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.213	0.663	0.294	0.081	0.876	0.507	0.294	0.588
	Left Tilt	0.111	0.663	0.294	0.110	0.774	0.405	0.221	0.515
	Right Touch	0.279	0.663	0.294	0.159	0.942	0.573	0.438	0.732
	Right Tilt	0.121	0.565	0.163	0.155	0.686	0.284	0.276	0.439
Body-Worn (1-g SAR)	Rear	0.308	0.011	0.272	0.043	0.319	0.580	0.351	0.623
	Front	0.278	0.011	0.272	0.040	0.289	0.550	0.318	0.590
Hotspot (1-g SAR)	Rear	0.735	0.083	0.166	0.075	0.818	0.901	0.810	0.976
	Front	0.332	0.137	0.188	0.068	0.469	0.520	0.400	0.588
	Edge 1		0.137	0.188	0.109				
	Edge 2	0.307							
	Edge 3	0.236							
	Edge 4	0.207	0.137	0.188	0.028	0.344	0.395	0.235	0.423

Note(s):

- Green value is estimated SAR value.

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.195	0.663	0.294	0.081	0.858	0.489	0.276	0.570
	Left Tilt	0.095	0.663	0.294	0.110	0.758	0.389	0.205	0.499
	Right Touch	0.259	0.663	0.294	0.159	0.922	0.553	0.418	0.712
	Right Tilt	0.101	0.565	0.163	0.155	0.666	0.264	0.256	0.419
Body-Worn (1-g SAR)	Rear	0.359	0.011	0.272	0.043	0.370	0.631	0.402	0.674
	Front	0.273	0.011	0.272	0.040	0.284	0.545	0.313	0.585
Hotspot (1-g SAR)	Rear	0.686	0.083	0.166	0.075	0.769	0.852	0.761	0.927
	Front	0.383	0.137	0.188	0.068	0.520	0.571	0.451	0.639
	Edge 1		0.137	0.188	0.109				
	Edge 2	0.337							
	Edge 3	0.324							
	Edge 4	0.126	0.137	0.188	0.028	0.263	0.314	0.154	0.342

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.133	0.663	0.294	0.081	0.796	0.427	0.214	0.508
	Left Tilt	0.046	0.663	0.294	0.110	0.709	0.340	0.156	0.450
	Right Touch	0.060	0.663	0.294	0.159	0.723	0.354	0.219	0.513
	Right Tilt	0.039	0.565	0.163	0.155	0.604	0.202	0.194	0.357
Body-Worn (1-g SAR)	Rear	0.198	0.011	0.272	0.043	0.209	0.470	0.241	0.513
	Front	0.136	0.011	0.272	0.040	0.147	0.408	0.176	0.448
Hotspot (1-g SAR)	Rear	0.182	0.083	0.166	0.075	0.265	0.348	0.257	0.423
	Front	0.117	0.137	0.188	0.068	0.254	0.305	0.185	0.373
	Edge 1		0.137	0.188	0.109				
	Edge 2								
	Edge 3	0.406							
	Edge 4	0.104	0.137	0.188	0.028	0.241	0.292	0.132	0.320

Note(s):

- Green value is estimated SAR value.

12.11. Sum of the SAR for LTE Band 66 Main Ant. 1 & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.070	0.663	0.294	0.081	0.733	0.364	0.151	0.445
	Left Tilt	0.029	0.663	0.294	0.110	0.692	0.323	0.139	0.433
	Right Touch	0.079	0.663	0.294	0.159	0.742	0.373	0.238	0.532
	Right Tilt	0.037	0.565	0.163	0.155	0.602	0.200	0.192	0.355
Body-Worn (1-g SAR)	Rear	0.853	0.011	0.272	0.043	0.864	1.125	0.896	1.168
	Front	0.348	0.011	0.272	0.040	0.359	0.620	0.388	0.660
Hotspot (1-g SAR)	Rear	1.156	0.083	0.166	0.075	1.239	1.322	1.231	1.397
	Front	0.518	0.137	0.188	0.068	0.655	0.706	0.586	0.774
	Edge 1		0.137	0.188	0.109				
	Edge 2	0.098							
	Edge 3	1.210							
	Edge 4	0.093	0.137	0.188	0.028	0.230	0.281	0.121	0.309
Product Specific 10-g (10-g SAR)	Rear	1.706		0.722			2.428		
	Front			0.722					
	Edge 1			0.722					
	Edge 2								
	Edge 3	1.670							
	Edge 4			0.722					

Note(s):

- Green value is estimated SAR value.

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.162	0.663	0.294	0.081	0.825	0.456	0.243	0.537
	Left Tilt	0.097	0.663	0.294	0.110	0.760	0.391	0.207	0.501
	Right Touch	0.220	0.663	0.294	0.159	0.883	0.514	0.379	0.673
	Right Tilt	0.108	0.565	0.163	0.155	0.673	0.271	0.263	0.426
Body-Worn (1-g SAR)	Rear	0.262	0.011	0.272	0.043	0.273	0.534	0.305	0.577
	Front	0.201	0.011	0.272	0.040	0.212	0.473	0.241	0.513
Hotspot (1-g SAR)	Rear	0.502	0.083	0.166	0.075	0.585	0.668	0.577	0.743
	Front	0.265	0.137	0.188	0.068	0.402	0.453	0.333	0.521
	Edge 1		0.137	0.188	0.109				
	Edge 2	0.189							
	Edge 3	0.159							
	Edge 4	0.112	0.137	0.188	0.028	0.249	0.300	0.140	0.328

12.13. Sum of the SAR for NR Band n66 Main Ant.1 & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.090	0.663	0.294	0.081	0.753	0.384	0.171	0.465
	Left Tilt	0.042	0.663	0.294	0.110	0.705	0.336	0.152	0.446
	Right Touch	0.087	0.663	0.294	0.159	0.750	0.381	0.246	0.540
	Right Tilt	0.039	0.565	0.163	0.155	0.604	0.202	0.194	0.357
Body-Worn (1-g SAR)	Rear	1.033	0.011	0.272	0.043	1.044	1.305	1.076	1.348
	Front	0.530	0.011	0.272	0.040	0.541	0.802	0.570	0.842
Hotspot (1-g SAR)	Rear	1.031	0.083	0.166	0.075	1.114	1.197	1.106	1.272
	Front	0.530	0.137	0.188	0.068	0.667	0.718	0.598	0.786
	Edge 1		0.137	0.188	0.109				
	Edge 2	0.089							
	Edge 3	1.144							
	Edge 4	0.074	0.137	0.188	0.028	0.211	0.262	0.102	0.290
Product Specific 10-g (10-g SAR)	Rear	1.416		0.722			2.138		
	Front			0.722					
	Edge 1			0.722					
	Edge 2								
	Edge 3	1.383							
	Edge 4			0.722					

Note(s):

1. Green value is estimated SAR value.

12.14. Sum of the SAR for ENDC(LTE B2 Sub Ant. 2 + NR Bn5) & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)					Sum of SAR (W/kg)			
		W W A N		DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1								
		1-a LTE	1-b NR	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.363	0.162	0.663	0.294	0.081	1.188	0.819	0.606	0.900
	Left Tilt	0.422	0.097	0.663	0.294	0.110	1.182	0.813	0.629	0.923
	Right Touch	0.633	0.220	0.663	0.294	0.159	1.516	1.147	1.012	1.306
	Right Tilt	0.634	0.108	0.565	0.163	0.155	1.307	0.905	0.897	1.060
Body-Worn (1-g SAR)	Rear	0.187	0.262	0.011	0.272	0.043	0.460	0.721	0.492	0.764
	Front	0.136	0.201	0.011	0.272	0.040	0.348	0.609	0.377	0.649
Hotspot (1-g SAR)	Rear	0.198	0.502	0.083	0.166	0.075	0.783	0.866	0.775	0.941
	Front	0.144	0.265	0.137	0.188	0.068	0.546	0.597	0.477	0.665
	Edge 1	0.324		0.137	0.188	0.109	0.461	0.512	0.433	0.621
	Edge 2		0.189							
	Edge 3		0.159							
	Edge 4	0.044	0.112	0.137	0.188	0.028	0.293	0.344	0.184	0.372

12.15. Sum of the SAR for ENDC(LTE B66 Sub Ant. 2 + NR Bn5) & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)					Sum of SAR (W/kg)			
		W W A N		DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1								
		1-a LTE	1-b NR	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.349	0.162	0.663	0.294	0.081	1.174	0.805	0.592	0.886
	Left Tilt	0.388	0.097	0.663	0.294	0.110	1.148	0.779	0.595	0.889
	Right Touch	0.524	0.220	0.663	0.294	0.159	1.407	1.038	0.903	1.197
	Right Tilt	0.572	0.108	0.565	0.163	0.155	1.245	0.843	0.835	0.998
Body-Worn (1-g SAR)	Rear	0.433	0.262	0.011	0.272	0.043	0.706	0.967	0.738	1.010
	Front	0.285	0.201	0.011	0.272	0.040	0.497	0.758	0.526	0.798
Hotspot (1-g SAR)	Rear	0.474	0.502	0.083	0.166	0.075	1.059	1.142	1.051	1.217
	Front	0.295	0.265	0.137	0.188	0.068	0.697	0.748	0.628	0.816
	Edge 1	0.593		0.137	0.188	0.109	0.730	0.781	0.702	0.890
	Edge 2		0.189							
	Edge 3		0.159							
	Edge 4	0.098	0.112	0.137	0.188	0.028	0.347	0.398	0.238	0.426

Note(s):

1. Green value is estimated SAR value.

12.16. Sum of the SAR for ENDC(LTE B2 Main Ant. 1 + NR Bn66 Sub Ant. 2) & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)					Sum of SAR (W/kg)			
		WWAN		DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1								
		1-a LTE	1-b NR	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.050	0.556	0.663	0.294	0.081	1.269	0.900	0.687	0.981
	Left Tilt	0.035	0.601	0.663	0.294	0.110	1.299	0.930	0.746	1.040
	Right Touch	0.073	0.759	0.663	0.294	0.159	1.495	1.126	0.991	1.285
	Right Tilt	0.028	0.925	0.565	0.163	0.155	1.518	1.116	1.108	1.271
Body-Worn (1-g SAR)	Rear	0.667	0.576	0.011	0.272	0.043	1.254	1.515	1.286	1.558
	Front	0.418	0.404	0.011	0.272	0.040	0.833	1.094	0.862	1.134
Hotspot (1-g SAR)	Rear	0.579	0.571	0.083	0.166	0.075	1.233	1.316	1.225	1.391
	Front	0.295	0.482	0.137	0.188	0.068	0.914	0.965	0.845	1.033
	Edge 1		0.790	0.137	0.188	0.109				
	Edge 2	0.031					0.031	0.031	0.031	0.031
	Edge 3	0.659					0.659	0.659	0.659	0.659
	Edge 4	0.056	0.156	0.137	0.188	0.028	0.349	0.400	0.240	0.428
Product Specific 10-g (10-g SAR)	Rear	1.370			0.722			2.092		
	Front				0.722					
	Edge 1		3.172		0.722			3.894		
	Edge 2									
	Edge 3	1.626								
	Edge 4				0.722					

Note(s):

- Green value is estimated SAR value.

12.17. Sum of the SAR for ENDC(LTE B5 + NR Bn66 Sub Ant. 2) & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)					Sum of SAR (W/kg)			
		WWAN		DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT Ant.1
		1								
		1-a LTE	1-b NR	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	Left Touch	0.195	0.556	0.663	0.294	0.081	1.414	1.045	0.832	1.126
	Left Tilt	0.095	0.601	0.663	0.294	0.110	1.359	0.990	0.806	1.100
	Right Touch	0.259	0.759	0.663	0.294	0.159	1.681	1.312	1.177	1.471
	Right Tilt	0.101	0.925	0.565	0.163	0.155	1.591	1.189	1.181	1.344
Body-Worn (1-g SAR)	Rear	0.359	0.576	0.011	0.272	0.043	0.946	1.207	0.978	1.250
	Front	0.273	0.404	0.011	0.272	0.040	0.688	0.949	0.717	0.989
Hotspot (1-g SAR)	Rear	0.686	0.571	0.083	0.166	0.075	1.340	1.423	1.332	1.498
	Front	0.383	0.482	0.137	0.188	0.068	1.002	1.053	0.933	1.121
	Edge 1		0.790	0.137	0.188	0.109				
	Edge 2	0.337					0.337	0.337	0.337	0.337
	Edge 3	0.324					0.324	0.324	0.324	0.324
	Edge 4	0.126	0.156	0.137	0.188	0.028	0.419	0.470	0.310	0.498
Product Specific 10-g (10-g SAR)	Rear				0.722					
	Front				0.722					
	Edge 1		3.172		0.722			3.894		
	Edge 2									
	Edge 3									
	Edge 4				0.722					

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)					Sum of SAR (W/kg) (1-g or 10-g)	Calculated Distance (mm)	1-g SPLSR (≤0.04) or 10-g SPLSR (≤0.10)	Volume Scan (Yes/No) <i>Note.3</i>	
		WWAN		DTS	UNII	BT					
		1-a	1-b								2
Head (1-g SAR)	Right Touch	0.259	0.759	0.663			1 + 2				
		0.259	0.759				1-a + 1-b	1.018	87.70	0.01	No
		0.259		0.663			1-a + 2	0.922	80.40	0.01	No
			0.759	0.663			1-b + 2	1.422	16.70	0.10	Yes
Hybrid SPLSR <i>Note.4</i>		0.259	1.37			1-a + (1-b + 2)	1.629	78.00	0.03	No	

Note(s):

- Green value is estimated SAR value.
- SPLSR Hotspot Combination Step.1) Perform enlarged zoom scan (Volume scan) on the co-located antenna pair to determine 1g/10g aggregate SAR. Refer to the Sec.12.21 for detailed Volume Scan Result.
- SPLSR Hotspot Combination Step.2) Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair. Hybrid SPLSR procedure was applied for the spatially separated main bands and unlicensed bands for Multi-band Combined results.
- LTE Band 5 is subset of LTE Band 26, So LTE Band 26 was used to do Simultaneous transmission analysis.

12.18. Volume Scan Results

RF Exposure	Test Position	Configuration	Band	Original Measured SAR (W/kg)	Volume Scan Result	Plot No.	Multi-Band Combined factor	Multi-Band Combined Result	Plot No.
Head	Right Touch	UNII MIMO + Bluetooth Ant 1	NR Band n66	0.846	0.620	1	1.091	1.370	3-4
			DTS	0.587	0.628	2	1.130		

Note(s):

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

Conclusion:

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

Appendixes

Refer to separated files for the following appendixes.

4790160849-S1 FCC Report SAR_App A_Photos & Ant. Locations

4790160849-S1 FCC Report SAR_App B_Highest SAR Test Plots

4790160849-S1 FCC Report SAR_App C_System Check Plots

4790160849-S1 FCC Report SAR_App D_SAR Tissue Ingredients

4790160849-S1 FCC Report SAR_App E_Probe Cal. Certificates

4790160849-S1 FCC Report SAR_App F_Dipole Cal. Certificates

4790160849-S1 FCC Report SAR_App G_Proximity Sensor feature

4790160849-S1 FCC Report SAR_App H_LTE Carrier Aggregation

4790160849-S1 FCC Report SAR_App I_SPLSR criteria plots

4790160849-S1 FCC Report SAR_App J_Volume Scan Results

END OF REPORT