FCC 47 CFR § 2.1093
IEEE Std 1528-2013

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

FOR

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

MODEL NUMBER: SM-T636B, SM-T638B

FCC ID: A3LSMT636B

REPORT NUMBER: 4790406759-S1V1

ISSUE DATE: 7/26/2022

Prepared for
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IAS ACCREDITED

Testing Laboratory

TL-637

Revision History

Rev.	Date	Revisions	Revised By
V1	7/26/2022	Initial Issue	--

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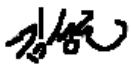
1. Attestation of Test Results

Applicant Name	SAMSUNG ELECTRONICS CO.,LTD.				
FCC ID	A3LSMT636B				
Model Number	SM-T636B, SM-T638B				
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)				
General population / Uncontrolled exposure	1.6				
RF Exposure Conditions	Equipment Class - The Highest Reported SAR (W/kg)				
	PCE	DTS	NII	DSS	NFC
Standalone	1.12	0.78	1.02	0.78	< 0.10
Simultaneous TX	1.59	1.59	1.59	1.59	1.59
Date Tested	6/13/2022 to 7/25/2022				
Test Results	Pass				

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

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

Approved & Released By:	Prepared By:
	
Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory	Sunghoon Kim Senior Laboratory Engineer 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
			Standalone
PCB	GSM 850	Main.1	0.901
	GSM 1900	Main.1	1.118
	WCDMA Band II	Main.1	1.055
	WCDMA Band IV	Main.1	1.001
	WCDMA Band V	Main.1	0.692
	LTE Band 2	Main.1	N/A
	LTE Band 4	Main.1	N/A
	LTE Band 5	Main.1	0.594
	LTE Band 12	Main.1	0.422
	LTE Band 13	Main.1	0.708
	LTE Band 17	Main.1	0.471
	LTE Band 25	Main.1	1.043
	LTE Band 26	Main.1	0.700
	LTE Band 41	Main.2	0.927
	LTE Band 66	Main.1	**1.120**
	NR Band n5	Main.1	0.540
	NR Band n66	Main.1	1.020
DTS	2.4GHz WLAN	WiFi/BT Ant.	**0.781**
UNII	5GHz WLAN	WiFi/BT Ant.	**1.018**
DSS	Bluetooth	WiFi/BT Ant.	**0.784**
NFC	13.56 MHz	NFC Ant.	**0.051**

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, IEC_IEEE STD 62209-1528 : 2020, ANSI C63.26-2015 the following FCC Published RF exposure KDB procedures:

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D04 Interim General RF Exposure Guidance v01
- 616217 D04 SAR for laptop and tablets v01r02
- 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
- 971168 D01 Power Meas License Digital System v03r01

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

- TCB workshop October, 2014; RF Exposure Procedures Update (Overlapping LTE Bands)
- TCB workshop October, 2014; RF Exposure Procedures Update (Other LTE Considerations)
- TCB workshop October, 2016; RF Exposure Procedures (Bluetooth Duty Factor)
- TCB workshop October, 2016; RF Exposure Procedures (DUT Holder Perturbations)
- TCB workshop May, 2017; RF Exposure Procedures (LTE Test Conditions)
- TCB workshop May, 2017; RF Exposure Procedures (LTE Band 41 Power Class 2)
- TCB workshop November, 2017; RF Exposure Procedures (LTE UL/DL Carrier Aggregation SAR)
- TCB workshop April, 2018; RF Exposure Procedures (LTE DL CA SAR Test Exclusion Update)
- TCB workshop April, 2019; RF Exposure Procedures (Tissue Simulating Liquids (TSL))
- TCB workshop April, 2022; RF Exposure Procedures (5G NR FR1 Measurement)
- TCB workshop April, 2022; RF Exposure Procedures (Sum-Peak Location Separation Ratio)

3. Facilities and Accreditation

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

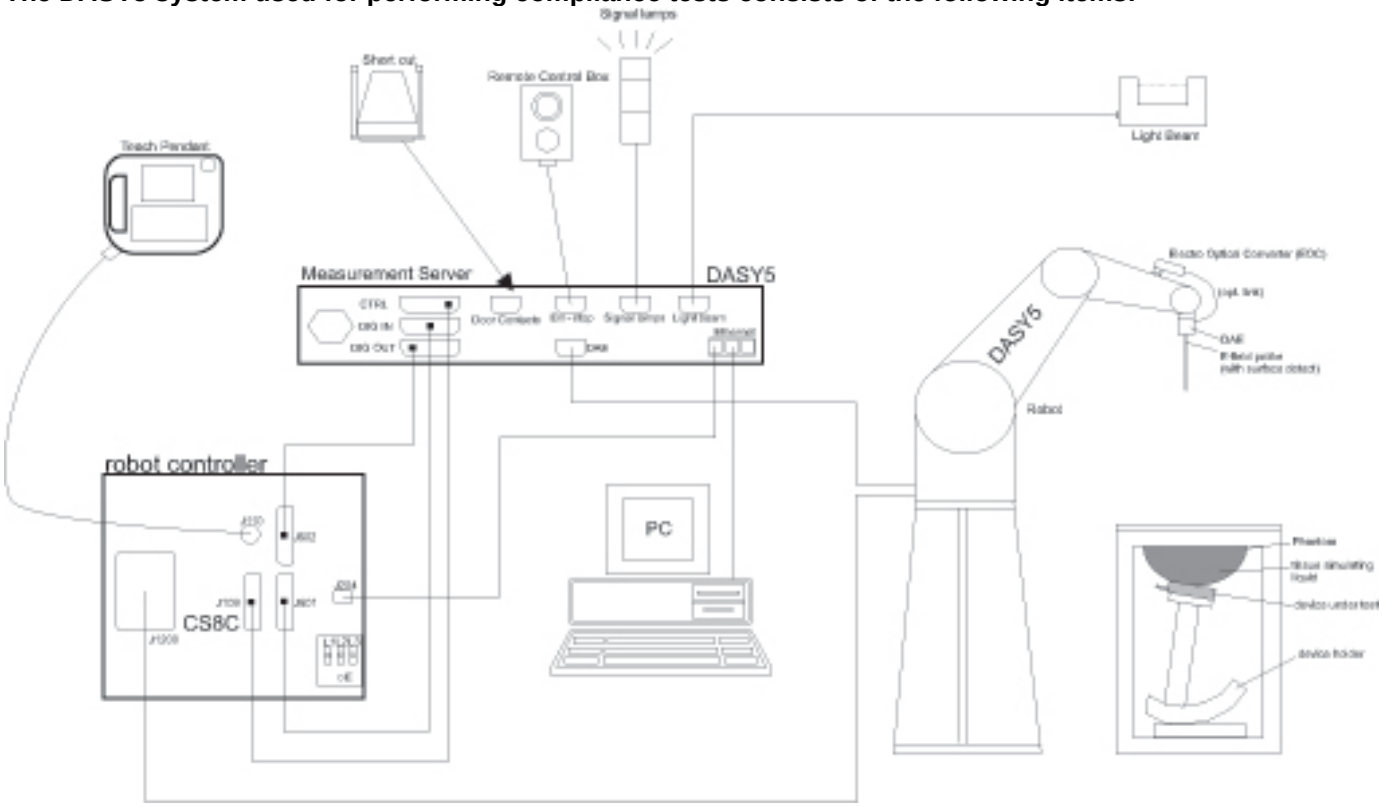
Suwon	
SAR 1 Room	SAR 6 Room
SAR 2 Room	SAR 7 Room
SAR 3 Room	SAR 8 Room
SAR 4 Room	SAR 9 Room
SAR 5 Room	

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

4. SAR Measurement System & Test Equipment

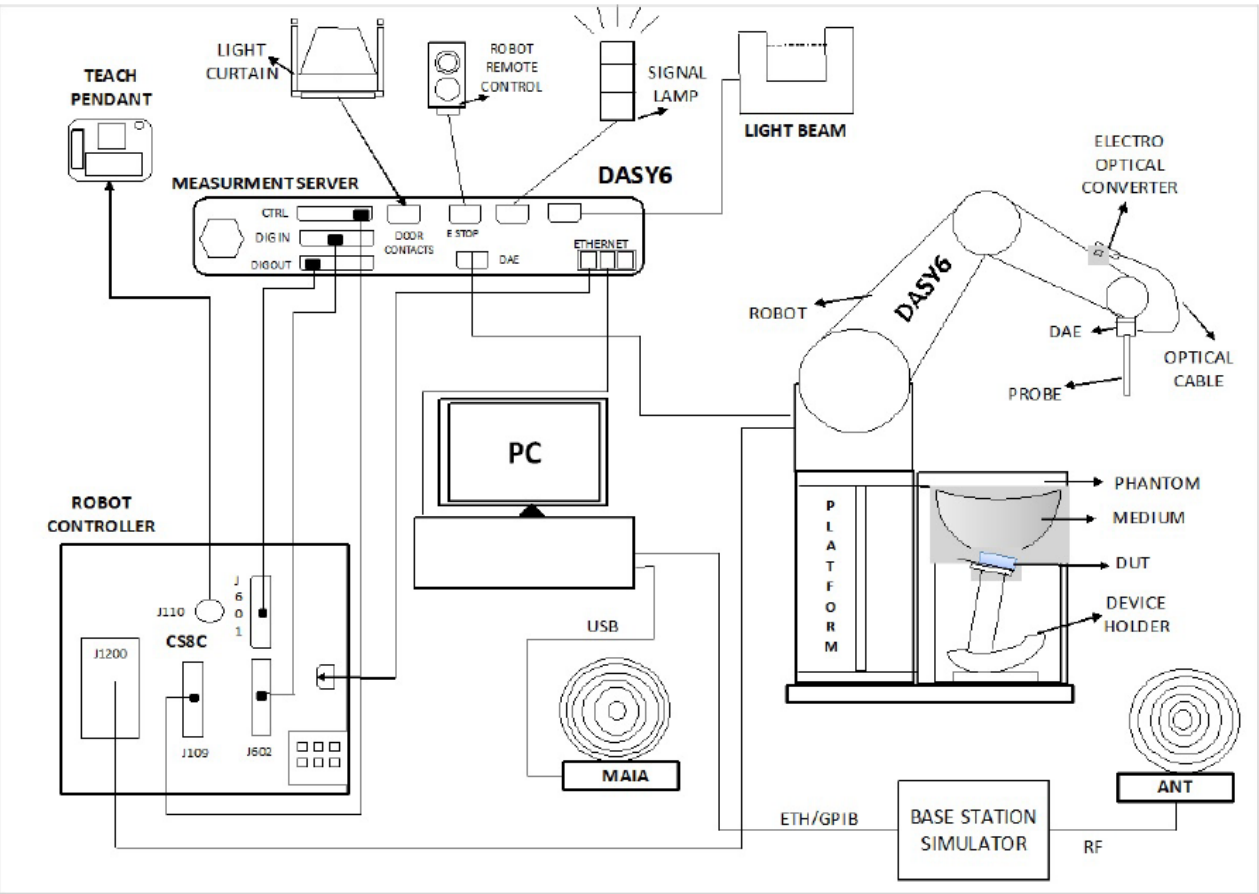
4.1. SAR Measurement System

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



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

The DASY6 & 8 system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win10 and the DASY6 or 8 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

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

Step 2: Area Scan

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

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

Step 3: Zoom Scan

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

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

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

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

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

Step 4: Power drift measurement

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

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
Network Analyzer	ROHDE & SCHWARZ	ZNB 20	102256	8-6-2022
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	**7-21-2022**
Dielectric Assessment Kit	SPEAG	DAKS-3.5	1133	3-28-2023
Dielectric Assessment Kit	SPEAG	DAKS_VNA R140	0060221	4-22-2023
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3851	8-4-2022
Thermometer	LKM	DTM3000	3862	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
MXG Analog Signal Generator	Keysight	N5181B	MY59100587	8-4-2022
MXG Analog Signal Generator	Keysight	N5173B	MY59101083	8-4-2022
Power Sensor	Keysight	U2000A	MY60180020	8-4-2022
Power Sensor	Agilent	U2000A	MY54260007	8-4-2022
Power Sensor	Agilent	U2000A	MY54260010	8-4-2022
Power Sensor	Keysight	U2000A	MY60490008	8-4-2022
Power Sensor	Keysight	U2000A	MY61060004	8-4-2022
Power Sensor	Keysight	U2000A	MY61010006	8-4-2022
Power Sensor	Keysight	U2000A	MY61010010	8-4-2022
Power Amplifier	EXODUS	AMP2027	1410025-AMP2027-10003	8-4-2022
Power Amplifier	EXODUS	AMP2027ADB	10002	8-4-2022
Directional Coupler	Agilent	772D	MY52180193	8-3-2022
Directional Coupler	H.P	778D	16133	8-3-2022
Directional Coupler	MINI-CIRCUITS	ZUDC20-183+	N/A	8-3-2022
Directional Coupler	MINI-CIRCUITS	ZUDC20-183+	N/A	8-3-2022
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	8-3-2022
Low Pass Filter	MINI-CIRCUITS	NLP-1200	VUU19301915	8-4-2022
Attenuator	KEYSIGHT	8491B/003	VE2017A0283	8-4-2022
Attenuator	KEYSIGHT	8491B/010	MY39271981	8-4-2022
Attenuator	KEYSIGHT	8491B/010	MY39272011	8-4-2022
Attenuator	KEYSIGHT	8491B/020	MY39271973	8-4-2022
Attenuator	MINI-CIRCUITS	BW-N3W5+	N/A	8-4-2022
Attenuator	MINI-CIRCUITS	BW-N10W5+	N/A	8-4-2022
Attenuator	MINI-CIRCUITS	BW-N10W5+	N/A	8-4-2022
Attenuator	MINI-CIRCUITS	BW-N20W5+	N/A	8-4-2022
Attenuator	MINI-CIRCUITS	BW-N20W5+	N/A	8-4-2022
E-Field Probe	SPEAG	EX3DV4	7651	5-30-2023
E-Field Probe	SPEAG	EX3DV4	7313	3-2-2023
E-Field Probe	SPEAG	EX3DV4	7314	5-31-2023
E-Field Probe	SPEAG	EX3DV4	7652	4-28-2023
E-Field Probe	SPEAG	EX3DV4	7376	7-30-2022
E-Field Probe	SPEAG	EX3DV4	7645	4-29-2023
E-Field Probe	SPEAG	EX3DV4	7646	3-29-2023
Data Acquisition Electronics	SPEAG	DAE4	1343	8-23-2022
Data Acquisition Electronics	SPEAG	DAE4	912	11-22-2022
Data Acquisition Electronics	SPEAG	DAE4	1671	5-31-2023
Data Acquisition Electronics	SPEAG	DAE4	1591	3-24-2023

Test Equipment (Continued)

Data Acquisition Electronics	SPEAG	DAE4	1670	6-7-2023
Data Acquisition Electronics	SPEAG	DAE4	1671	5-31-2023
Data Acquisition Electronics	SPEAG	DAE4	1447	3-25-2023
System Validation Dipole	SPEAG	CLA-13	1015	10-12-2022
System Validation Dipole	SPEAG	D750V3	1205	4-27-2023
System Validation Dipole	SPEAG	D835V2	4d174	3-17-2023
System Validation Dipole	SPEAG	D835V2	4d194	3-24-2023
System Validation Dipole	SPEAG	D1750V2	1125	2-24-2023
System Validation Dipole	SPEAG	D1900V2	5d190	11-24-2022
System Validation Dipole	SPEAG	D2450V2	939	7-21-2022
System Validation Dipole	SPEAG	D2450V2	960	3-24-2023
System Validation Dipole	SPEAG	D2600V2	1178	4-23-2023
System Validation Dipole	SPEAG	D5GHzV2	1184	12-3-2022
System Validation Dipole	SPEAG	D5GHzV2	1209	11-24-2022
Thermometer	Lutron	MHB-382SD	AH.91463	8-4-2022
Thermometer	Lutron	MHB-382SD	AH.50215	8-3-2022
Thermometer	Lutron	MHB-382SD	AH.50213	8-4-2022
Thermometer	Lutron	MHB-382SD	AH.45903	8-3-2022
Thermometer	Lutron	MHB-382SD	AK.18789	8-4-2022
Thermometer	Lutron	MHB-382SD	AK.12102	8-3-2022

Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	150313	8-3-2022
Base Station Simulator	R & S	CMW500	150314	8-4-2022
Base Station Simulator	R & S	CMW500	162790	8-3-2022
Base Station Simulator	R & S	CMW500	169803	5-27-2023
Base Station Simulator	R & S	CMW500	169801	8-3-2022
Base Station Simulator	R & S	CMW500	169799	8-3-2022
Base Station Simulator	R & S	CMW500	169800	8-3-2022
Base Station Simulator	R & S	CMW500	169797	8-3-2022
Base Station Simulator	R & S	CMW500	169798	8-3-2022
UXM 5G Wireless Test Platform	Keysight	E7515B	MY59150850	12-13-2022
UXM 5G Wireless Test Platform	Keysight	E7515B	MY58460570	12-13-2022
UXM 5G Wireless Test Platform	Keysight	E7515B	MY57510596	8-6-2022

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

Measurement Uncertainty of 100MHz to 6GHz

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

Measurement Uncertainty of 13MHz to 30MHz

Measurement uncertainty for 4 MHz to 30 MHz

(According to IEEE 62209-1528)

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

5.1. DECISION RULE

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

6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	Refer to Appendix A.
Back Cover	☒ Normal Battery cover
Battery Options	☒ Standard – Li-ion battery, Rating 3.8 V, 28.88Wh
Wireless Router (Hotspot)	Wi-Fi Hotspot mode permits the device to share its cellular data connection with other Wi-Fi-enabled devices. ☒ Mobile Hotspot (Wi-Fi 2.4 GHz) ☒ Mobile Hotspot (Wi-Fi 5.8 GHz)
Wi-Fi Direct	Wi-Fi Direct enabled devices transfer data directly between each other ☒ Wi-Fi Direct (Wi-Fi 2.4 GHz) ☒ Wi-Fi Direct (Wi-Fi 5.2 GHz_UNII-1, Wi-Fi 5.8 GHz_UNII-3)

Test Sample Information

No.	S/N	Notes	No.	S/N	Notes
1	63e00070ea347ece	Main Conducted	13	R32T5004ZCA	SAR
2	63e00078a3347ece	Main Conducted	14	R32T5004ZDW	SAR
3	63e00078fb347ece	Main Conducted	15	R32T5004ZNB	SAR
4	R32T5003S0N	Main Conducted	16	R32T500520H	SAR
5	R32T6004Z3N	Main Conducted	17	R32T500522W	SAR
6	R32T5003C8X	Wi-Fi & BT Conducted	18	R32T50051XM	SAR
7	64408c8918357ece	Wi-Fi & BT Conducted			
8	R32T5002NXE	SAR			
9	R32T5002PSN	SAR			
10	R32T5002NZH	SAR			
11	R32T5003BJL	SAR			
12	R32T5004Q1M	SAR			

6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK) GPRS (GMSK) EGPRS (8PSK)	GPRS Multi-Slot Class: ☐ Class 8 - 1 Up, 4 Down ☐ Class 10 - 2 Up, 4 Down ☐ Class 12 - 4 Up, 4 Down ☒ Class 33 - 4 Up, 5 Down	GSM Voice: 12.5% (E)GPRS: 1 Slot: 12.5% 2 Slots: 25% 3 Slots: 37.5% 4 Slots: 50%
	Does this device support DTM (Dual Transfer Mode)? ☐ Yes ☒ No			
W-CDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Category 24) HSUPA (Category 6) DC-HSDPA (Category 24) HSPA+ (DL only)		100%
LTE	FDD Band 2 FDD Band 4 FDD Band 5 FDD Band 12 FDD Band 13 FDD Band 17 FDD Band 25 FDD Band 26 TDD Band 41 FDD Band 66	QPSK 16QAM 64QAM 256QAM Rel. 16 Carrier Aggregation (1 Uplink and 4 Downlinks)		100% (FDD) 63.3% (TDD)
	Does this device support SV-LTE (1xRTT-LTE)? ☐ Yes ☒ No			
5G NR (Sub 6)	FDD Band n5 FDD Band n66	DFT-s-ODFM: ■ π/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-ODFM: ■QPSK, 16QAM, 64QAM, 256QAM		100%
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20) 802.11ax		SISO : 99.4% (802.11b) MIMO : 96.4% (802.11g)
	5 GHz	802.11a 802.11n (HT20) & (HT40) 802.11ac (VHT20) & (VHT40) & (VHT80) 802.11ax (HE20) & (HE40) & (HE80)		SISO & MIMO : 96.7% (802.11a) 94.5% (802.11ac (VHT80)
	Does this device support bands 5.60 ~ 5.65 GHz? ☒ Yes ☐ No			
	Does this device support Band gap channel(s)? ☒ Yes ☐ No			
Bluetooth	2.4 GHz	Version 5.2 LE		76.7% (DH5)
NFC	13.56 MHz	Type A/B/F		100%

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.

6.3. Time-Averaging feature

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

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

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

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

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

SAR Characterizations

Exposure condition		Standalone (Proximity Sensor off)	Standalone (Proximity Sensor On)	Pmax (Maximum tune-up Power) (dBm)
Averaging Volume		1g	1g	
test distance		16/16/0 mm - Main.1 14/11/0 mm - Main.2	0 mm	
DSI:		0	1	
RF Air Interface	Antenna	Plimit corresponding to 1.0 W/kg (SAR_design_target)		
GSM 850	Main.1	26.44	15.00	25.00
GSM 1900	Main.1	20.34	11.50	19.50
WCDMA Band II	Main.1	22.80	11.50	21.50
WCDMA Band IV	Main.1	23.26	12.00	22.00
WCDMA Band V	Main.1	26.60	14.00	24.00
LTE Band 2/25	Main.1	22.62	11.70	21.70
LTE Band 4/66	Main.1	23.95	12.00	22.00
LTE Band 5	Main.1	27.26	15.00	24.00
LTE Band 12	Main.1	28.75	14.00	24.00
LTE Band 13	Main.1	26.50	14.00	24.00
LTE Band 17	Main.1	28.75	16.00	24.00
LTE Band 26	Main.1	27.40	16.00	24.00
LTE Band 41	Main.2	23.98	12.00	21.50
NR n5	Main.1	27.68	16.00	24.00
NR n66	Main.1	24.29	11.50	22.80

Notes:

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

6.4. Maximum Allowed Output power

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

RF Air interface	Antenna	Mode	Time Slots	Maximum allowed output power (dBm)					
				Pmax		Plimit			
						DSI = 0 (Proximity Sensor Off)		DSI = 1 (Proximity sensor On)	
				Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM850	Main.1 Ant.	Voice	1	**33.50**	**24.47**	**33.50**	**24.47**	**24.00**	**14.97**
		GPRS	1	**33.50**	**24.47**	**33.50**	**24.47**	**24.00**	**14.97**
		GPRS	2	**32.00**	**25.98**	**32.00**	**25.98**	**21.00**	**14.98**
		GPRS	3	**30.00**	**25.74**	**30.00**	**25.74**	**19.00**	**14.74**
		GPRS	4	**29.00**	**25.99**	**29.00**	**25.99**	**19.00**	**15.99**
		EGPRS	1	**29.00**	**19.97**	**29.00**	**19.97**	**23.00**	**13.97**
		EGPRS	2	**27.00**	**20.98**	**27.00**	**20.98**	**21.00**	**14.98**
		EGPRS	3	**25.00**	**20.74**	**25.00**	**20.74**	**19.00**	**14.74**
		EGPRS	4	**23.00**	**19.99**	**23.00**	**19.99**	**18.00**	**14.99**
GSM1900	Main.1 Ant.	Voice	1	**29.50**	**20.47**	**29.50**	**20.47**	**21.00**	**11.97**
		GPRS	1	**29.50**	**20.47**	**29.50**	**20.47**	**21.50**	**12.47**
		GPRS	2	**26.50**	**20.48**	**26.50**	**20.48**	**18.00**	**11.98**
		GPRS	3	**24.00**	**19.74**	**24.00**	**19.74**	**16.00**	**11.74**
		GPRS	4	**23.00**	**19.99**	**23.00**	**19.99**	**15.00**	**11.99**
		EGPRS	1	**27.00**	**17.97**	**27.00**	**17.97**	**21.00**	**11.97**
		EGPRS	2	**25.00**	**18.98**	**25.00**	**18.98**	**18.00**	**11.98**
		EGPRS	3	**23.00**	**18.74**	**23.00**	**18.74**	**16.00**	**11.74**
		EGPRS	4	**21.00**	**17.99**	**21.00**	**17.99**	**15.00**	**11.99**

RF Air interface	Antenna	Mode	Maximum allowed output power (dBm)		
			Pmax	Plimit	
				DSI = 0 (Proximity Sensor Off)	DSI = 1 (Proximity sensor On)
W-CDMA Band V	Main.1 Ant.	R99	**25.00**	**25.00**	**15.00**
		HSDPA	**24.00**	**24.00**	**14.00**
		HSUPA	**24.00**	**24.00**	**14.00**
		DC-HSDPA	**24.00**	**24.00**	**14.00**
W-CDMA Band IV	Main.1 Ant.	R99	**23.00**	**23.00**	**13.00**
		HSDPA	**22.50**	**22.50**	**13.00**
		HSUPA	**22.50**	**22.50**	**13.00**
		DC-HSDPA	**22.50**	**22.50**	**13.00**
W-CDMA Band II	Main.1 Ant.	R99	**22.50**	**22.50**	**12.50**
		HSDPA	**22.00**	**22.00**	**12.00**
		HSUPA	**22.00**	**22.00**	**12.00**
		DC-HSDPA	**22.00**	**22.00**	**12.00**

Note(s):

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

RF Air interface	Antenna	Mode	Maximum allowed output power (dBm)		
			Pmax	Plimit	
				DSI = 0 (Proximity sensor Off)	DSI = 1 (Proximity sensor On)
LTE Band 2	Main.1 Ant.	QPSK	**22.70**	**22.70**	**12.70**
LTE Band 4	Main.1 Ant.	QPSK	**23.00**	**23.00**	**13.00**
LTE Band 5	Main.1 Ant.	QPSK	**25.00**	**25.00**	**16.00**
LTE Band 12	Main.1 Ant.	QPSK	**25.00**	**25.00**	**15.00**
LTE Band 13	Main.1 Ant.	QPSK	**25.00**	**25.00**	**15.00**
LTE Band 17	Main.1 Ant.	QPSK	**25.00**	**25.00**	**17.00**
LTE Band 25	Main.1 Ant.	QPSK	**22.70**	**22.70**	**12.70**
LTE Band 26	Main.1 Ant.	QPSK	**25.00**	**25.00**	**17.00**
LTE Band 41	Main.2 Ant.	QPSK	**24.50**	**24.50**	**15.00**
LTE Band 66	Main.1 Ant.	QPSK	**23.00**	**23.00**	**13.00**

RF Air interface	Antenna	Mode	Maximum allowed output power (dBm)		
			Pmax	Plimit	
				DSI = 0 (Proximity sensor Off)	DSI = 1 (Proximity sensor On)
NR Band n5	Main.1 Ant.	DFT-s-OFDM QPSK	**25.00**	**25.00**	**17.00**
NR Band n66	Main.1 Ant.	DFT-s-OFDM QPSK	**23.80**	**23.80**	**12.50**

Note(s):

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

2.4GHz WLAN max & reduced output power

RF Air interface	Band	Ch.	Max. RF Output Power (dBm)							
			802.11 mode							
			SISO : Antenna 1 & Antenna 2				MIMO : Antenna 1 + Antenna 2			
			b	g	n	ax	b	g	n	ax
WiFi 2.4 GHz	DTS	Ch.1 - 11	20.0	Ch.1 : 17 19.0 Ch.11 : 16	18.0 Ch.11 : 15	18.0 Ch.11 : 15		Ch.1 : 20 22.0 Ch.11 : 19	21.0 Ch.11 : 18	21.0 Ch.11 : 18
		Ch.12	9.0	9.0	9.0	9.0		9.0	9.0	9.0
		Ch.13	3.0	3.0	3.0	3.0		3.0	3.0	3.0

RF Air interface	Band	Ch.	Reduced. RF Output Power (dBm)							
			802.11 mode							
			SISO : Antenna 1 & Antenna 2				MIMO : Antenna 1 + Antenna 2			
			b	g	n	ax	b	g	n	ax
WiFi 2.4 GHz	DTS	Ch.1 - 11	11.0	11.0	11.0	11.0		14.0	14.0	14.0
		Ch.12	9.0	9.0	9.0	9.0		9.0	9.0	9.0
		Ch.13	3.0	3.0	3.0	3.0		3.0	3.0	3.0

5GHz WLAN max & reduced output power

RF Air interface	Band	Max. RF Output Power (dBm)							
		802.11 mode							
		SISO : Antenna 1 & Antenna 2				MIMO : Antenna 1 + Antenna 2			
		a	n	ac	ax	a	n	ac	ax
WiFi 5 GHz (BW : 20MHz)	UNII-1	18.0	17.0	17.0	17.0	21.0	20.0	20.0	20.0
	UNII-2A	18.0	17.0	17.0	17.0	21.0	20.0	20.0	20.0
	UNII-2C	18.0	17.0	17.0	17.0	21.0	20.0	20.0	20.0
	UNII-3	18.0	17.0	17.0	17.0	21.0	20.0	20.0	20.0
WiFi 5 GHz (BW : 40MHz)	UNII-1		17.0	15.0	17.0		20.0	18.0	20.0
	UNII-2A		17.0	15.0	17.0		20.0	18.0	20.0
	UNII-2C		17.0	15.0	17.0		20.0	18.0	20.0
	UNII-3		17.0	15.0	17.0		20.0	18.0	20.0
WiFi 5 GHz (BW : 80MHz)	UNII-1			14.0	15.0			17.0	18.0
	UNII-2A			14.0	16.0			17.0	19.0
	UNII-2C			14.0	16.0			17.0	19.0
	UNII-3			14.0	16.0			17.0	19.0

RF Air interface	Band	Reduced. RF Output Power (dBm)							
		802.11 mode							
		SISO : Antenna 1 & Antenna 2				MIMO : Antenna 1 + Antenna 2			
		a	n	ac	ax	a	n	ac	ax
WiFi 5 GHz (BW : 20MHz)	UNII-1	8.0	8.0	8.0	8.0	11.0	11.0	11.0	11.0
	UNII-2A	8.0	8.0	8.0	8.0	11.0	11.0	11.0	11.0
	UNII-2C	8.0	8.0	8.0	8.0	11.0	11.0	11.0	11.0
	UNII-3	8.0	8.0	8.0	8.0	11.0	11.0	11.0	11.0
WiFi 5 GHz (BW : 40MHz)	UNII-1		8.0	8.0	8.0		11.0	11.0	11.0
	UNII-2A		8.0	8.0	8.0		11.0	11.0	11.0
	UNII-2C		8.0	8.0	8.0		11.0	11.0	11.0
	UNII-3		8.0	8.0	8.0		11.0	11.0	11.0
WiFi 5 GHz (BW : 80MHz)	UNII-1			8.0	8.0			11.0	11.0
	UNII-2A			8.0	8.0			11.0	11.0
	UNII-2C			8.0	8.0			11.0	11.0
	UNII-3			8.0	8.0			11.0	11.0

Bluetooth max & reduced output power

RF Air interface	Band	Max. RF Output Power (dBm)					
		BT Antenna 1			BT Antenna 2		
		BDR	EDR	LE	BDR	EDR	LE
Bluetooth	DSS	19.0	17.5	9.5	19.0	17.5	

RF Air interface	Band	Reduced. RF Output Power (dBm)					
		BT Antenna 1			BT Antenna 2		
		BDR	EDR	LE	BDR	EDR	LE
Bluetooth	DSS	8.5	9.5	9.5	8.5	9.5	

Notes:

1. This device uses an independent fixed level power reduction mechanism for WLAN & Bluetooth operations during Proximity sensor active.
2. BLE is not support in BT Ant.2

6.5. Power Back-off Operation

This device supports power back-off modes using triggering proximity sensor. For full details on how power back-off mode operates, refer to the Operational Description.

Antenna	Technologies Supported	Proximity sensor	Power Back-off mode	Standalone Exposure Conditions				
				Rear	Edge 1	Edge 2	Edge 3	Edge 4
Main 1 Ant.	2G/3G/LTE/NR	Proximity sensor.3	Proximity sensor triggering	O	O			
Main 2 Ant.	LTE	Proximity sensor.2	Proximity sensor triggering	O	O			
WiFi/BT Ant.1	Wi-Fi 2.4GHz	Proximity sensor.1	Proximity sensor triggering	O	O			
	Wi-Fi 5GHz							
	Bluetooth							
WiFi/BT Ant.2	Wi-Fi 2.4GHz	Proximity sensor.4	Proximity sensor triggering	O			O	
	Wi-Fi 5GHz							
	Bluetooth							

Note(s):

Please refer to Section.9 for all power measurements, and Proximity sensor verification is mentioned at Appendix G.

DSI and Corresponding Exposure Scenarios

RF exposure Scenarios	DSI No.	Descroption	KDB guide For SAR test
Standalone exposure Without triggering sensor	0	■Proximity sensor is not triggered even if Device was touched to user's body or hands. ■Proximity sensor is not triggered due to triggering distance.	KDB 616217 D04
Standalone exposure With triggering sensor	1	■Proximity sensor is triggered, when Device was touched to user's body or hands.	KDB 616217 D04

6.6. General LTE SAR Test and Reporting Considerations

Item	Description						
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 2	Frequency range: 1850 - 1910 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	18700/ 1860	18675/ 1857.5	18650/ 1855	18625/ 1852.5	18615/ 1851.5	18607/ 1850.7
	Mid	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880
	High	19100/ 1900	19125/ 1902.5	19150/ 1905	19175/ 1907.5	19185/ 1908.5	19193/ 1909.3
	Band 4	Frequency range: 1710 - 1755 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20050/ 1720	20025/ 1717.5	20000/ 1715	19975/ 1712.5	19965/ 1711.5	19957/ 1710.7
	Mid	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5
	High	20300/ 1745	20325/ 1747.5	20350/ 1750	20375/ 1752.5	20385/ 1753.5	20393/ 1754.3
	Band 5	Frequency range: 824 - 849 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			20450/ 829	20425/ 826.5	20415/ 825.5	20407/ 824.7
	Mid			20525/ 836.5	20525/ 836.5	20525/ 836.5	20525/ 836.5
	High			20600/ 844	20625/ 846.5	20635/ 847.5	20643/ 848.3
	Band 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 25	Frequency range: 1850 - 1915 MHz					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low	26140/ 1860	26115/ 1857.5	26090/ 1855	26065/ 1852.5	26055/ 1851.5	26047/ 1850.7
Mid	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5
High	26590/ 1905	26615/ 1907.5	26640/ 1910	26665/ 1912.5	26675/ 1913.5	26683/ 1914.3

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)

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

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

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:

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

6.7. LTE (TDD) Considerations

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

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

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

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

Calculated Duty Cycle

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

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

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:
Calculated Duty Cycle = 5120 x [1/(15000 x 2048)] x 2 + 6 ms = 63.33%
where
T_s = 1/(15000 x 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.

6.8. 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: π/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM													
A-MPR (Additional MPR) disabled for SAR Testing?	Yes													
EN-DC Carrier Aggregation Possible Combinations														
LTE Anchor Bands for NR Band n5	LTE Band 2, 66													
LTE Anchor Bands for NR Band n66	LTE Band 5, 12													

Notes:

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

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.

7.1. Standalone SAR Test Exclusion Considerations

Tablet device's each positions (Rear/Edge1/Edge2/Edge3/Edge4) consider SAR test exclusion according to Appendix B.4 of KDB 447498 D04 Interim General RF exposure guide.
If Each antenna operate to between 0.3GHz to 6GHz, and Antenna to DUT surface's distance are within 20 cm to 40cm, then below Formula can use for SAR test exclusion;

$$P_{\text{th}}\ (\text{mW}) = ERP_{20\ \text{cm}}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases} \quad \text{(B.1)}$$

$$P_{\text{th}}\ (\text{mW}) = \begin{cases} ERP_{20\ \text{cm}}(d/20\ \text{cm})^{x} & d \le 20\ \text{cm} \\ ERP_{20\ \text{cm}} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases} \quad \text{(B.2)}$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ \text{cm}}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20\text{cm}}$ is per Formula (B.1).
The example values shown in Table B.2 are for illustration only.

7.2. Estimated SAR

When an antenna qualifies for test exemption in single transmitter/antenna mode of each test positions, its actual SAR value may not be available, because it was not required to be measured. In this case, the SAR contribution of that antenna to simultaneous transmission must be estimated relative to the SAR based exemption criteria, by multiplying the corresponding ratio by the SAR limit of 1.6 W/kg for 1-g SAR. This is referred to as estimated SAR.
For instance, a given antenna may qualify for a SAR-based exemption according to Appendix B.4 of KDB 447498 D04, with $P_{ant} < P_{th}$, where P_{ant} is maximum time-averaged power, and P_{th} is defined in Section 7.1. Then, per the preceding paragraph, the estimated SAR is computed as $SAR_{est} = 1.6 * P_{ant} / P_{th}$ [W/kg].

SAR Test Exclusion Calculation for WWAN

Antenna	Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
			dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Full Power, Proximity Sensor Off. A sensor triggering of 14 mm is included for both Rear and Edge 1																
Main 1	GSM 850 GPRS 4 Slots	848.8	29.00	397	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.523	0.410	
Main 1	GSM 1900 GPRS 2 Slots	1909.8	28.50	177	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.146	0.107	
Main 1	W-CDMA 2	1907.6	22.50	178	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.147	0.107	
Main 1	W-CDMA 4	1752.6	23.00	200	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.165	0.121	
Main 1	W-CDMA 5	846.6	25.00	316	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.417	0.327	
Main 1	LTE Band 5	844	25.00	316	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.418	0.328	
Main 1	LTE Band 12/17	707.5	25.00	316	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.485	0.388	
Main 1	LTE Band 13	782	25.00	316	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.446	0.353	
Main 1	LTE Band 25/2	1905	22.70	186	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.154	0.112	
Main 1	LTE Band 26	841.5	25.00	316	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.419	0.329	
Main 1	LTE Band 66/4	1770	23.00	200	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.165	0.121	
Main 2	LTE Band 41	2640	24.50	282	14	11	0	156	185		-Measure-	-Measure-	Measure	0.237	0.171	
Main 1	NR Band n5	839	25.00	316	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.420	0.330	
Main 1	NR Band n66	1760	23.80	240	16	16	0	156	185		-Measure-	-Measure-	-Measure-	0.198	0.145	
Second Stage Power Back-off, Proximity Sensor On																
Main 1	GSM 850 GPRS 4 Slots	848.8	19.00	50	0	0					-Measure-	-Measure-				
Main 1	GSM 1900 GPRS 4 Slots	1909.8	16.00	20	0	0					-Measure-	-Measure-				
Main 1	W-CDMA 2	1907.6	12.50	18	0	0					-Measure-	-Measure-				
Main 1	W-CDMA 4	1752.6	13.00	20	0	0					-Measure-	-Measure-				
Main 1	W-CDMA 5	846.6	15.00	32	0	0					-Measure-	-Measure-				
Main 1	LTE Band 5	844	16.00	40	0	0					-Measure-	-Measure-				
Main 1	LTE Band 12	707.5	15.00	32	0	0					-Measure-	-Measure-				
Main 1	LTE Band 13	782	15.00	32	0	0					-Measure-	-Measure-				
Main 1	LTE Band 17	710	17.00	50	0	0					-Measure-	-Measure-				
Main 1	LTE Band 25/2	1905	12.70	19	0	0					-Measure-	-Measure-				
Main 1	LTE Band 26	841.5	17.00	50	0	0					-Measure-	-Measure-				
Main 1	LTE Band 66/4	1770	13.00	20	0	0					-Measure-	-Measure-				
Main 2	LTE Band 41	2640	15.00	32	0	0					-Measure-	-Measure-				
Main 1	NR Band n5	839	17.00	50	0	0					-Measure-	-Measure-				
Main 1	NR Band n66	1760	12.50	18	0	0					-Measure-	-Measure-				

Note(s):

When some device surfaces (Rear/Edge1/Edge2/Edge3/Edge4) has Standalone SAR test Exclusion according to Section 7.1, Estimated SAR were calculated to the surfaces according to Section 7.2.

SAR Test Exclusion Calculation for WLAN/BT

Antenna	Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
			dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Full Power, Proximity Sensor Off. A sensor triggering of 14 mm is included for both Rear and Edge 1																
Ant.1	Bluetooth	2480	18.50	71	14	16	198	160	0		-Measure-	-Measure-	0.038	0.057	-Measure-	
Ant.1	Wi-Fi 2.4 GHz	2462	20.00	100	14	16	198	160	0		-Measure-	-Measure-	0.053	0.080	-Measure-	
Ant.1	Wi-Fi 5.2 GHz	5240	18.00	63	14	16	198	160	0		-Measure-	-Measure-	0.034	0.052	-Measure-	
Ant.1	Wi-Fi 5.3 GHz	5320	18.00	63	14	16	198	160	0		-Measure-	-Measure-	0.034	0.052	-Measure-	
Ant.1	Wi-Fi 5.5 GHz	5720	18.00	63	14	16	198	160	0		-Measure-	-Measure-	0.034	0.052	-Measure-	
Ant.1	Wi-Fi 5.8 GHz	5825	18.00	63	14	16	198	160	0		-Measure-	-Measure-	0.034	0.053	-Measure-	
Ant.2	Bluetooth	2480	18.50	71	14	157	201	13	0		-Measure-	0.059	0.037	-Measure-	-Measure-	
Ant.2	Wi-Fi 2.4 GHz	2462	20.00	100	14	157	201	13	0		-Measure-	0.083	0.052	-Measure-	-Measure-	
Ant.2	Wi-Fi 5.2 GHz	5240	18.00	63	14	157	201	13	0		-Measure-	0.054	0.033	-Measure-	-Measure-	
Ant.2	Wi-Fi 5.3 GHz	5320	18.00	63	14	157	201	13	0		-Measure-	0.054	0.033	-Measure-	-Measure-	
Ant.2	Wi-Fi 5.5 GHz	5720	18.00	63	14	157	201	13	0		-Measure-	0.055	0.033	-Measure-	-Measure-	
Ant.2	Wi-Fi 5.8 GHz	5825	18.00	63	14	157	201	13	0		-Measure-	0.055	0.033	-Measure-	-Measure-	
MIMO	Wi-Fi 2.4 GHz	2462	19.00	79	14	16	198	13	0		-Measure-	-Measure-	0.042	-Measure-	-Measure-	
MIMO	Wi-Fi 5.2 GHz	5240	18.00	63	14	16	198	13	0		-Measure-	-Measure-	0.034	-Measure-	-Measure-	
MIMO	Wi-Fi 5.3 GHz	5320	18.00	63	14	16	198	13	0		-Measure-	-Measure-	0.034	-Measure-	-Measure-	
MIMO	Wi-Fi 5.5 GHz	5720	18.00	63	14	16	198	13	0		-Measure-	-Measure-	0.034	-Measure-	-Measure-	
MIMO	Wi-Fi 5.8 GHz	5825	18.00	63	14	16	198	13	0		-Measure-	-Measure-	0.034	-Measure-	-Measure-	
Second Stage Power Back-off, Proximity Sensor On																
Ant.1	Bluetooth	2480	10.00	10	0	0					-Measure-	-Measure-				
Ant.1	Wi-Fi 2.4 GHz	2462	11.00	13	0	0					-Measure-	-Measure-				
Ant.1	Wi-Fi 5.2 GHz	5240	9.00	8	0	0					-Measure-	-Measure-				
Ant.1	Wi-Fi 5.3 GHz	5320	9.00	8	0	0					-Measure-	-Measure-				
Ant.1	Wi-Fi 5.5 GHz	5720	9.00	8	0	0					-Measure-	-Measure-				
Ant.1	Wi-Fi 5.8 GHz	5825	9.00	8	0	0					-Measure-	-Measure-				
Ant.2	Bluetooth	2480	10.00	10	0			0			-Measure-			-Measure-		
Ant.2	Wi-Fi 2.4 GHz	2462	11.00	13	0			0			-Measure-			-Measure-		
Ant.2	Wi-Fi 5.2 GHz	5240	9.00	8	0			0			-Measure-			-Measure-		
Ant.2	Wi-Fi 5.3 GHz	5320	9.00	8	0			0			-Measure-			-Measure-		
Ant.2	Wi-Fi 5.5 GHz	5720	9.00	8	0			0			-Measure-			-Measure-		
Ant.2	Wi-Fi 5.8 GHz	5825	9.00	8	0			0			-Measure-			-Measure-		
MIMO	Wi-Fi 2.4 GHz	2462	11.00	13	0	0		0			-Measure-	-Measure-		-Measure-		
MIMO	Wi-Fi 5.2 GHz	5240	9.00	8	0	0		0			-Measure-	-Measure-		-Measure-		
MIMO	Wi-Fi 5.3 GHz	5320	9.00	8	0	0		0			-Measure-	-Measure-		-Measure-		
MIMO	Wi-Fi 5.5 GHz	5720	9.00	8	0	0		0			-Measure-	-Measure-		-Measure-		
MIMO	Wi-Fi 5.8 GHz	5825	9.00	8	0	0		0			-Measure-	-Measure-		-Measure-		

Note(s):

When some device surfaces (Rear/Edge1/Edge2/Edge3/Edge4) has Standalone SAR test Exclusion according to Section 7.1, Estimated SAR were calculated to the surfaces according to Section 7.2.

7.3. Required Test configurations

The table below identifies the standalone test configurations required for this device accordant to the findings in SAR Test Exclusion Calculation table.

Antenna	Tx Interface	Proximity sensor (On/Off)	Rear	Edge 1 (Top Edge)	Edge 2 (Right Edge)	Edge 3 (Bottom Edge)	Edge 4 (Left Edge)
Main 1	GSM 850	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	GSM 1900	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	W-CDMA Band II	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	W-CDMA Band IV	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	W-CDMA Band V	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	LTE Band 5	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	LTE Band 12	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	LTE Band 13	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	LTE Band 17	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	LTE Band 25/2	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	LTE Band 26	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	LTE Band 66/4	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 2	LTE Band41	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	NR Band n5	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
Main 1	NR Band n66	OFF	Yes	Yes	Yes	No	No
		ON	Yes	Yes			
2.4GHz Ant.1	DTS & BT	OFF	Yes	Yes	No	No	Yes
		ON	Yes	Yes			
2.4GHz Ant.2	DTS & BT	OFF	Yes	No	No	Yes	Yes
		ON	YEs			Yes	
5GHz Ant.1	UNII	OFF	Yes	Yes	No	No	Yes
		ON	Yes	Yes			
5GHz Ant.2	UNII	OFF	Yes	No	No	Yes	Yes
		ON	Yes			Yes	
2.4GHz MIMO	DTS	OFF	Yes	Yes	No	Yes	Yes
		ON	Yes	Yes		Yes	
5GHz MIMO	UNII	OFF	Yes	Yes	No	Yes	Yes
		ON	Yes	Yes		Yes	
NFC Ant.	NFC	N/A	Yes	Yes	Yes	Yest	Yes

Note(s):

1. Yes = Testing is required. No = Testing is not required.
2. NFC SAR test is considered in all test positions.

8. Dielectric Property Measurements & System Check

8.1. Dielectric Property Measurements

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized.
The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The Tissue Dielectric parameters (100MHz to 6GHz) should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.
Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.
For The Tissue Dielectric parameters (4MHz to 30MHz). The parameters must be measured before 24 hours.

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

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head		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

2. Tissue Dielectric Parameters (4MHz to 30MHz)

Target Frequency (MHz)	Head	
	ε_r	σ (S/m)
4	55.0	0.75
13	55.0	0.75
30	55.0	0.75

IEC_IEEE Std 62209-1528 : 2020

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

Dielectric Property Measurements Results:

SAR 1 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2022-07-15	Head 1750	e'	38.6600	Relative Permittivity (ϵ_r):	38.66	40.08	-3.55	5
		e''	14.6600	Conductivity (σ):	1.43	1.37	4.20	5
	Head 1710	e'	38.7200	Relative Permittivity (ϵ_r):	38.72	40.15	-3.55	5
		e''	14.8000	Conductivity (σ):	1.41	1.35	4.52	5
	Head 1755	e'	38.6500	Relative Permittivity (ϵ_r):	38.65	40.08	-3.56	5
		e''	14.6400	Conductivity (σ):	1.43	1.37	4.14	5
2022-07-18	Head 1750	e'	39.4300	Relative Permittivity (ϵ_r):	39.43	40.08	-1.63	5
		e''	14.0100	Conductivity (σ):	1.36	1.37	-0.42	5
	Head 1710	e'	39.4800	Relative Permittivity (ϵ_r):	39.48	40.15	-1.66	5
		e''	14.1300	Conductivity (σ):	1.34	1.35	-0.22	5
	Head 1755	e'	39.4200	Relative Permittivity (ϵ_r):	39.42	40.08	-1.64	5
		e''	13.9900	Conductivity (σ):	1.37	1.37	-0.48	5

SAR 2 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2022-07-07	Head 5250	e'	35.8100	Relative Permittivity (ϵ_r):	35.81	35.93	-0.34	5
		e''	15.4700	Conductivity (σ):	4.52	4.70	-3.96	5
	Head 5260	e'	35.7700	Relative Permittivity (ϵ_r):	35.77	35.92	-0.42	5
		e''	15.4600	Conductivity (σ):	4.52	4.71	-4.05	5
	Head 5600	e'	35.1200	Relative Permittivity (ϵ_r):	35.12	35.53	-1.16	5
		e''	15.7600	Conductivity (σ):	4.91	5.06	-3.02	5
	Head 5800	e'	34.7200	Relative Permittivity (ϵ_r):	34.72	35.30	-1.64	5
		e''	15.8000	Conductivity (σ):	5.10	5.27	-3.31	5
	Head 5825	e'	34.7700	Relative Permittivity (ϵ_r):	34.77	35.30	-1.50	5
		e''	15.7000	Conductivity (σ):	5.09	5.27	-3.51	5
2022-07-11	Head 5250	e'	36.5000	Relative Permittivity (ϵ_r):	36.50	35.93	1.58	5
		e''	16.1600	Conductivity (σ):	4.72	4.70	0.32	5
	Head 5260	e'	36.4800	Relative Permittivity (ϵ_r):	36.48	35.92	1.55	5
		e''	16.1600	Conductivity (σ):	4.73	4.71	0.30	5
	Head 5600	e'	35.9700	Relative Permittivity (ϵ_r):	35.97	35.53	1.23	5
		e''	16.3000	Conductivity (σ):	5.08	5.06	0.30	5
	Head 5800	e'	35.6500	Relative Permittivity (ϵ_r):	35.65	35.30	0.99	5
		e''	16.4100	Conductivity (σ):	5.29	5.27	0.42	5
	Head 5825	e'	35.6200	Relative Permittivity (ϵ_r):	35.62	35.30	0.91	5
		e''	16.4200	Conductivity (σ):	5.32	5.27	0.92	5

SAR 3 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2022-06-27	Head 835	e'	41.5000	Relative Permittivity (ϵ_r):	41.50	41.50	0.00	5
		e''	19.4800	Conductivity (σ):	0.90	0.90	0.49	5
	Head 820	e'	41.5300	Relative Permittivity (ϵ_r):	41.53	41.60	-0.17	5
		e''	19.7000	Conductivity (σ):	0.90	0.90	-0.03	5
	Head 850	e'	41.4700	Relative Permittivity (ϵ_r):	41.47	41.50	-0.07	5
		e''	19.2700	Conductivity (σ):	0.91	0.92	-0.46	5
2022-07-11	Head 835	e'	40.7800	Relative Permittivity (ϵ_r):	40.78	41.50	-1.73	5
		e''	19.8200	Conductivity (σ):	0.92	0.90	2.25	5
	Head 820	e'	40.8200	Relative Permittivity (ϵ_r):	40.82	41.60	-1.88	5
		e''	20.0700	Conductivity (σ):	0.92	0.90	1.85	5
	Head 850	e'	40.7400	Relative Permittivity (ϵ_r):	40.74	41.50	-1.83	5
		e''	19.5800	Conductivity (σ):	0.93	0.92	1.14	5
2022-07-14	Head 1900	e'	38.6600	Relative Permittivity (ϵ_r):	38.66	40.00	-3.35	5
		e''	13.4200	Conductivity (σ):	1.42	1.40	1.27	5
	Head 1850	e'	38.6800	Relative Permittivity (ϵ_r):	38.68	40.00	-3.30	5
		e''	13.4700	Conductivity (σ):	1.39	1.40	-1.03	5
	Head 1910	e'	38.6500	Relative Permittivity (ϵ_r):	38.65	40.00	-3.38	5
		e''	13.4100	Conductivity (σ):	1.42	1.40	1.73	5
2022-07-18	Head 1900	e'	38.6100	Relative Permittivity (ϵ_r):	38.61	40.00	-3.48	5
		e''	13.6500	Conductivity (σ):	1.44	1.40	3.00	5
	Head 1850	e'	38.4900	Relative Permittivity (ϵ_r):	38.49	40.00	-3.78	5
		e''	13.6800	Conductivity (σ):	1.41	1.40	0.51	5
	Head 1910	e'	38.6300	Relative Permittivity (ϵ_r):	38.63	40.00	-3.42	5
		e''	13.6500	Conductivity (σ):	1.45	1.40	3.55	5
2022-07-19	Head 1750	e'	40.3800	Relative Permittivity (ϵ_r):	40.38	40.08	0.74	5
		e''	14.6700	Conductivity (σ):	1.43	1.37	4.27	5
	Head 1710	e'	40.5000	Relative Permittivity (ϵ_r):	40.50	40.15	0.88	5
		e''	14.7900	Conductivity (σ):	1.41	1.35	4.44	5
	Head 1755	e'	40.3600	Relative Permittivity (ϵ_r):	40.36	40.08	0.71	5
		e''	14.6500	Conductivity (σ):	1.43	1.37	4.21	5
2022-07-21	Head 1900	e'	39.0300	Relative Permittivity (ϵ_r):	39.03	40.00	-2.43	5
		e''	13.6100	Conductivity (σ):	1.44	1.40	2.70	5
	Head 1850	e'	38.8200	Relative Permittivity (ϵ_r):	38.82	40.00	-2.95	5
		e''	13.6400	Conductivity (σ):	1.40	1.40	0.22	5
	Head 1910	e'	39.1000	Relative Permittivity (ϵ_r):	39.10	40.00	-2.25	5
		e''	13.6100	Conductivity (σ):	1.45	1.40	3.24	5
2022-07-25	Head 1750	e'	38.9400	Relative Permittivity (ϵ_r):	38.94	40.08	-2.86	5
		e''	13.8500	Conductivity (σ):	1.35	1.37	-1.56	5
	Head 1710	e'	39.0200	Relative Permittivity (ϵ_r):	39.02	40.15	-2.81	5
		e''	13.8600	Conductivity (σ):	1.32	1.35	-2.12	5
	Head 1755	e'	38.9200	Relative Permittivity (ϵ_r):	38.92	40.08	-2.89	5
		e''	13.8400	Conductivity (σ):	1.35	1.37	-1.55	5

SAR 4 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2022-06-13	Head 2450	e'	39.0400	Relative Permittivity (ϵ_r):	39.04	39.20	-0.41	5
		e''	13.0900	Conductivity (σ):	1.78	1.80	-0.93	5
	Head 2400	e'	39.0800	Relative Permittivity (ϵ_r):	39.08	39.30	-0.55	5
		e''	13.1300	Conductivity (σ):	1.75	1.75	0.03	5
	Head 2480	e'	39.0100	Relative Permittivity (ϵ_r):	39.01	39.16	-0.39	5
		e''	13.1000	Conductivity (σ):	1.81	1.83	-1.42	5
2022-06-13	Head 2600	e'	38.8400	Relative Permittivity (ϵ_r):	38.84	39.01	-0.44	5
		e''	13.1800	Conductivity (σ):	1.91	1.96	-2.89	5
	Head 2500	e'	38.9800	Relative Permittivity (ϵ_r):	38.98	39.14	-0.40	5
		e''	13.1000	Conductivity (σ):	1.82	1.85	-1.78	5
	Head 2700	e'	38.6600	Relative Permittivity (ϵ_r):	38.66	38.88	-0.58	5
		e''	13.2500	Conductivity (σ):	1.99	2.07	-3.92	5
2022-06-16	Head 2600	e'	37.5900	Relative Permittivity (ϵ_r):	37.59	39.01	-3.64	5
		e''	13.6100	Conductivity (σ):	1.97	1.96	0.28	5
	Head 2500	e'	37.7700	Relative Permittivity (ϵ_r):	37.77	39.14	-3.49	5
		e''	13.5300	Conductivity (σ):	1.88	1.85	1.44	5
	Head 2700	e'	37.3000	Relative Permittivity (ϵ_r):	37.30	38.88	-4.08	5
		e''	13.4600	Conductivity (σ):	2.02	2.07	-2.39	5
2022-06-16	Head 5250	e'	36.6500	Relative Permittivity (ϵ_r):	36.65	35.93	1.99	5
		e''	15.8700	Conductivity (σ):	4.63	4.70	-1.48	5
	Head 5260	e'	36.6300	Relative Permittivity (ϵ_r):	36.63	35.92	1.97	5
		e''	15.8700	Conductivity (σ):	4.64	4.71	-1.50	5
	Head 5600	e'	36.4300	Relative Permittivity (ϵ_r):	36.43	35.53	2.52	5
		e''	15.9400	Conductivity (σ):	4.96	5.06	-1.91	5
	Head 5750	e'	36.1400	Relative Permittivity (ϵ_r):	36.14	35.36	2.20	5
		e''	15.9400	Conductivity (σ):	5.10	5.21	-2.25	5
	Head 5825	e'	35.9500	Relative Permittivity (ϵ_r):	35.95	35.30	1.84	5
		e''	16.0700	Conductivity (σ):	5.20	5.27	-1.24	5
2022-07-18	Head 2450	e'	39.2100	Relative Permittivity (ϵ_r):	39.21	39.20	0.03	5
		e''	12.8800	Conductivity (σ):	1.75	1.80	-2.52	5
	Head 2400	e'	39.3000	Relative Permittivity (ϵ_r):	39.30	39.30	0.01	5
		e''	12.8800	Conductivity (σ):	1.72	1.75	-1.88	5
	Head 2480	e'	39.1600	Relative Permittivity (ϵ_r):	39.16	39.16	-0.01	5
		e''	12.8900	Conductivity (σ):	1.78	1.83	-3.00	5
2022-07-22	Head 2450	e'	38.2400	Relative Permittivity (ϵ_r):	38.24	39.20	-2.45	5
		e''	13.3500	Conductivity (σ):	1.82	1.80	1.04	5
	Head 2400	e'	38.3600	Relative Permittivity (ϵ_r):	38.36	39.30	-2.38	5
		e''	13.3400	Conductivity (σ):	1.78	1.75	1.63	5
	Head 2480	e'	38.1900	Relative Permittivity (ϵ_r):	38.19	39.16	-2.48	5
		e''	13.3700	Conductivity (σ):	1.84	1.83	0.61	5

SAR 5 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2022-06-13	Head 750	e'	42.1000	Relative Permittivity (ϵ_r):	42.10	41.96	0.33	5
		e''	21.0900	Conductivity (σ):	0.88	0.89	-1.52	5
	Head 700	e'	42.3100	Relative Permittivity (ϵ_r):	42.31	42.22	0.22	5
		e''	22.0700	Conductivity (σ):	0.86	0.89	-3.40	5
	Head 790	e'	42.1300	Relative Permittivity (ϵ_r):	42.13	41.76	0.89	5
		e''	20.6200	Conductivity (σ):	0.91	0.90	1.07	5
2022-06-13	Head 835	e'	42.0500	Relative Permittivity (ϵ_r):	42.05	41.50	1.33	5
		e''	19.9800	Conductivity (σ):	0.93	0.90	3.07	5
	Head 820	e'	42.0900	Relative Permittivity (ϵ_r):	42.09	41.60	1.17	5
		e''	20.2100	Conductivity (σ):	0.92	0.90	2.56	5
	Head 850	e'	42.0100	Relative Permittivity (ϵ_r):	42.01	41.50	1.23	5
		e''	19.7300	Conductivity (σ):	0.93	0.92	1.91	5
2022-06-16	Head 750	e'	42.0500	Relative Permittivity (ϵ_r):	42.05	41.96	0.21	5
		e''	20.9300	Conductivity (σ):	0.87	0.89	-2.27	5
	Head 700	e'	42.2000	Relative Permittivity (ϵ_r):	42.20	42.22	-0.04	5
		e''	22.0200	Conductivity (σ):	0.86	0.89	-3.62	5
	Head 790	e'	41.9100	Relative Permittivity (ϵ_r):	41.91	41.76	0.37	5
		e''	20.1300	Conductivity (σ):	0.88	0.90	-1.33	5
2022-06-16	Head 835	e'	41.8200	Relative Permittivity (ϵ_r):	41.82	41.50	0.77	5
		e''	19.4000	Conductivity (σ):	0.90	0.90	0.08	5
	Head 820	e'	41.8400	Relative Permittivity (ϵ_r):	41.84	41.60	0.57	5
		e''	19.6300	Conductivity (σ):	0.90	0.90	-0.38	5
	Head 850	e'	41.8100	Relative Permittivity (ϵ_r):	41.81	41.50	0.75	5
		e''	19.1900	Conductivity (σ):	0.91	0.92	-0.88	5
2022-06-20	Head 5180	e'	36.2300	Relative Permittivity (ϵ_r):	36.23	36.01	0.60	5
		e''	15.7400	Conductivity (σ):	4.53	4.63	-2.10	5
	Head 5200	e'	36.1500	Relative Permittivity (ϵ_r):	36.15	35.99	0.44	5
		e''	15.7000	Conductivity (σ):	4.54	4.65	-2.40	5
	Head 5600	e'	35.3300	Relative Permittivity (ϵ_r):	35.33	35.53	-0.57	5
		e''	16.3700	Conductivity (σ):	5.10	5.06	0.73	5
	Head 5800	e'	34.9300	Relative Permittivity (ϵ_r):	34.93	35.30	-1.05	5
		e''	16.5700	Conductivity (σ):	5.34	5.27	1.40	5
	Head 5825	e'	34.9400	Relative Permittivity (ϵ_r):	34.94	35.30	-1.02	5
		e''	16.5800	Conductivity (σ):	5.37	5.27	1.90	5
2022-07-01	Head 750	e'	40.6600	Relative Permittivity (ϵ_r):	40.66	41.96	-3.10	5
		e''	21.1100	Conductivity (σ):	0.88	0.89	-1.43	5
	Head 700	e'	40.7000	Relative Permittivity (ϵ_r):	40.70	42.22	-3.60	5
		e''	22.2400	Conductivity (σ):	0.87	0.89	-2.65	5
	Head 790	e'	40.5400	Relative Permittivity (ϵ_r):	40.54	41.76	-2.91	5
		e''	20.3200	Conductivity (σ):	0.89	0.90	-0.40	5
2022-07-14	Head 5250	e'	35.5800	Relative Permittivity (ϵ_r):	35.58	35.93	-0.98	5
		e''	15.9700	Conductivity (σ):	4.66	4.70	-0.86	5
	Head 5260	e'	35.6000	Relative Permittivity (ϵ_r):	35.60	35.92	-0.90	5
		e''	16.0100	Conductivity (σ):	4.68	4.71	-0.63	5
	Head 5600	e'	35.0300	Relative Permittivity (ϵ_r):	35.03	35.53	-1.42	5
		e''	16.2500	Conductivity (σ):	5.06	5.06	-0.01	5
	Head 5800	e'	34.7900	Relative Permittivity (ϵ_r):	34.79	35.30	-1.44	5
		e''	16.4200	Conductivity (σ):	5.30	5.27	0.48	5
	Head 5825	e'	34.6800	Relative Permittivity (ϵ_r):	34.68	35.30	-1.76	5
		e''	16.3800	Conductivity (σ):	5.31	5.27	0.67	5
2022-07-18	Head 5250	e'	35.0700	Relative Permittivity (ϵ_r):	35.07	35.93	-2.40	5
		e''	15.7100	Conductivity (σ):	4.59	4.70	-2.47	5
	Head 5260	e'	35.0300	Relative Permittivity (ϵ_r):	35.03	35.92	-2.48	5
		e''	15.7900	Conductivity (σ):	4.62	4.71	-2.00	5
	Head 5600	e'	34.6800	Relative Permittivity (ϵ_r):	34.68	35.53	-2.40	5
		e''	15.9600	Conductivity (σ):	4.97	5.06	-1.79	5
	Head 5800	e'	34.2500	Relative Permittivity (ϵ_r):	34.25	35.30	-2.97	5
		e''	16.1700	Conductivity (σ):	5.21	5.27	-1.05	5
	Head 5825	e'	34.2100	Relative Permittivity (ϵ_r):	34.21	35.30	-3.09	5
		e''	16.1000	Conductivity (σ):	5.21	5.27	-1.05	5
2022-07-22	Head 5250	e'	35.3500	Relative Permittivity (ϵ_r):	35.35	35.93	-1.62	5
		e''	15.8800	Conductivity (σ):	4.64	4.70	-1.41	5
	Head 5260	e'	35.3200	Relative Permittivity (ϵ_r):	35.32	35.92	-1.68	5
		e''	15.9100	Conductivity (σ):	4.65	4.71	-1.25	5
	Head 5600	e'	34.6900	Relative Permittivity (ϵ_r):	34.69	35.53	-2.37	5
		e''	16.1800	Conductivity (σ):	5.04	5.06	-0.44	5
	Head 5800	e'	34.7300	Relative Permittivity (ϵ_r):	34.73	35.30	-1.61	5
		e''	16.0000	Conductivity (σ):	5.16	5.27	-2.09	5
	Head 5825	e'	34.6600	Relative Permittivity (ϵ_r):	34.66	35.30	-1.81	5
		e''	16.0400	Conductivity (σ):	5.20	5.27	-1.42	5

SAR 9 Room

Date	Freq. (MHz)				Measured	Target	Delta (%)	Limit ±(%)
2022-07-14	Head 13	e'	53.7100	Relative Permittivity (ϵ_r):	53.71	55	-2.35	5
		e''	1046.7700	Conductivity (σ):	0.76	0.75	0.89	5
	Head 12	e'	53.7700	Relative Permittivity (ϵ_r):	53.77	55	-2.24	5
		e''	1133.8700	Conductivity (σ):	0.76	0.75	0.87	5
	Head 14	e'	53.5900	Relative Permittivity (ϵ_r):	53.59	55	-2.56	5
		e''	971.9900	Conductivity (σ):	0.76	0.75	0.89	5
2022-07-18	Head 13	e'	53.7400	Relative Permittivity (εr):	53.74	55	-2.29	5
		e''	1033.6000	Conductivity (σ):	0.75	0.75	-0.38	5
	Head 12	e'	53.6800	Relative Permittivity (εr):	53.68	55	-2.40	5
		e''	1119.4800	Conductivity (σ):	0.75	0.75	-0.41	5
	Head 14	e'	53.6900	Relative Permittivity (εr):	53.69	55	-2.38	5
		e''	960.0300	Conductivity (σ):	0.75	0.75	-0.36	5

8.2. System Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification of 100MHZ to 6GHz frequency range should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are re-measured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.
For The System verification of 4MHz to 30MHz frequency range, The System verification must be performed before 24 hours.

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

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

System Performance Check Measurement Conditions (4MHz to 30MHz):

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements
- The DASY system with an E-Field Probe was used for the measurements.
- The CLA(Confined Loop Antennas) was mounted on the small tripod so that the CLA feed point was positioned below the center marking of the flat phantom section and the CLA was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 0 mm separation distance from CLA center to the Phantom surface.
- The CLA input power (forward power) was 100 mW.
- The results are normalized to 1 W input power.

Reference Target SAR Values

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

System Dipole	Serial No.	Cal. Date	Cal. Due Date	Target SAR Values (W/kg)	
				1g/10g	Head
D750V3	1205	4-27-2021	4-27-2023	1g	8.66
				10g	5.65
D835V2	4d174	3-17-2021	3-17-2023	1g	9.70
				10g	6.29
D835V2	4d194	3-24-2022	3-24-2023	1g	9.77
				10g	6.39
D1750V2	1125	2-24-2022	2-24-2023	1g	36.80
				10g	19.40
D1900V2	5d190	11-24-2020	11-24-2022	1g	40.10
				10g	20.70
D2450V2	939	7-21-2021	7-21-2023	1g	53.00
				10g	24.70
D2450V2	960	3-24-2022	3-24-2023	1g	51.90
				10g	24.00
D2600V2	1178	4-23-2021	4-23-2023	1g	56.60
				10g	25.40
D5GHzV2	1184	12-3-2020	12-3-2022	1g	79.10
				10g	22.70
				1g	82.40
				10g	23.30
				1g	79.90
				10g	22.60
D5GHzV2	1209	11-24-2021	11-24-2022	1g	78.00
				10g	22.40
				1g	80.90
				10g	23.10
				1g	79.00
				10g	22.40
CLA-13 (13MHz)	1015	10-12-2021	10-12-2022	1g	0.54
				10g	0.34

Note(s):

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

System Check Results

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

SAR 1 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
2022-07-15	D1750V2	1125	Head	1g	3.71	37.1	36.80	0.82	
				10g	1.96	19.6	19.40	1.03	
2022-07-18	D1750V2	1125	Head	1g	3.43	34.3	36.80	-6.79	1
				10g	1.81	18.1	19.40	-6.70	

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			
2022-07-07	D5GHzV2 (5600)	1209	Head	1g	8.69	86.9	80.90	7.42	2
				10g	2.48	24.8	23.10	7.36	
2022-07-07	D5GHzV2 (5800)	1209	Head	1g	8.13	81.3	79.00	2.91	
				10g	2.29	22.9	22.40	2.23	
2022-07-11	D5GHzV2 (5250)	1209	Head	1g	7.79	77.9	78.00	-0.13	
				10g	2.22	22.2	22.40	-0.89	
2022-07-11	D5GHzV2 (5600)	1209	Head	1g	8.36	83.6	80.90	3.34	
				10g	2.38	23.8	23.10	3.03	

SAR 3 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
2022-06-27	D835V2	4d194	Head	1g	0.97	9.7	9.77	-0.92	
				10g	0.63	6.3	6.39	-0.94	
2022-07-11	D835V2	4d194	Head	1g	1.02	10.2	9.77	4.40	3
				10g	0.66	6.6	6.39	3.13	
2022-07-14	D1900V2	5d190	Head	1g	3.73	37.3	40.10	-6.96	
				10g	1.92	19.2	20.70	-7.25	
2022-07-18	D1900V2	5d190	Head	1g	3.69	36.9	40.10	-7.98	4
				10g	1.90	19.0	20.70	-8.21	
2022-07-19	D1750V2	1125	Head	1g	3.62	36.2	36.80	-1.63	
				10g	1.93	19.3	19.40	-0.52	
2022-07-21	D1900V2	5d190	Head	1g	3.86	38.6	40.10	-3.74	
				10g	2.00	20.0	20.70	-3.38	
2022-07-25	D1750V2	1125	Head	1g	3.50	35.0	36.80	-4.89	
				10g	1.86	18.6	19.40	-4.12	

SAR 4 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
2022-06-13	D2450V2	939	Head	1g	5.24	52.4	53.00	-1.13	
				10g	2.45	24.5	24.70	-0.81	
2022-06-13	D2600V2	1178	Head	1g	5.79	57.9	56.60	2.30	
				10g	2.60	26.0	25.40	2.36	
2022-06-16	D2600V2	1178	Head	1g	6.07	60.7	56.60	7.24	5
				10g	2.72	27.2	25.40	7.09	
2022-06-16	D5GHzV2 (5250)	1184	Head	1g	7.83	78.3	79.10	-1.01	
				10g	2.28	22.8	22.70	0.44	
2022-06-16	D5GHzV2 (5600)	1184	Head	1g	8.07	80.7	82.40	-2.06	
				10g	2.34	23.4	23.30	0.43	
2022-06-16	D5GHzV2 (5750)	1184	Head	1g	7.66	76.6	79.90	-4.13	
				10g	2.22	22.2	22.60	-1.77	
2022-07-18	D2450V2	960	Head	1g	5.14	51.4	51.90	-0.96	
				10g	2.43	24.3	24.00	1.25	
2022-07-22	D2450V2	939	Head	1g	5.21	52.1	53.00	-1.70	6
				10g	2.48	24.8	24.70	0.40	

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			
2022-06-13	D750V3	1205	Head	1g	0.91	9.1	8.66	5.54	
				10g	0.61	6.1	5.65	8.67	
2022-06-13	D835V2	4d174	Head	1g	1.01	10.1	9.70	4.12	
				10g	0.67	6.7	6.29	7.15	
2022-06-16	D750V3	1205	Head	1g	0.89	8.9	8.66	2.54	
				10g	0.59	5.9	5.65	4.96	
2022-06-16	D835V2	4d174	Head	1g	0.97	9.7	9.70	0.00	
				10g	0.65	6.5	6.29	2.86	
2022-06-20	D5GHzV2 (5250)	1209	Head	1g	8.12	81.2	78.00	4.10	
				10g	2.33	23.3	22.40	4.02	
2022-06-20	D5GHzV2 (5600)	1209	Head	1g	7.66	76.6	80.90	-5.32	
				10g	2.14	21.4	23.10	-7.36	
2022-06-20	D5GHzV2 (5800)	1209	Head	1g	7.66	76.6	79.00	-3.04	
				10g	2.17	21.7	22.40	-3.13	
2022-07-01	D750V3	1205	Head	1g	0.93	9.3	8.66	7.04	7
				10g	0.61	6.1	5.65	7.08	
2022-07-14	D5GHzV2 (5250)	1209	Head	1g	7.32	73.2	78.00	-6.15	
				10g	2.10	21.0	22.40	-6.25	
2022-07-14	D5GHzV2 (5600)	1209	Head	1g	8.80	88.0	80.90	8.78	8
				10g	2.47	24.7	23.10	6.93	
2022-07-14	D5GHzV2 (5800)	1209	Head	1g	8.44	84.4	79.00	6.84	
				10g	2.39	23.9	22.40	6.70	
2022-07-18	D5GHzV2 (5250)	1209	Head	1g	7.71	77.1	78.00	-1.15	
				10g	2.22	22.2	22.40	-0.89	
2022-07-18	D5GHzV2 (5600)	1209	Head	1g	8.44	84.4	80.90	4.33	
				10g	2.38	23.8	23.10	3.03	
2022-07-18	D5GHzV2 (5800)	1209	Head	1g	8.35	83.5	79.00	5.70	
				10g	2.36	23.6	22.40	5.36	
2022-07-22	D5GHzV2 (5250)	1209	Head	1g	7.82	78.2	78.00	0.26	
				10g	2.24	22.4	22.40	0.00	
2022-07-22	D5GHzV2 (5600)	1209	Head	1g	8.79	87.9	80.90	8.65	
				10g	2.46	24.6	23.10	6.49	
2022-07-22	D5GHzV2 (5800)	1209	Head	1g	8.05	80.5	79.00	1.90	
				10g	2.28	22.8	22.40	1.79	

SAR 9 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
2022-07-14	CLA-13	1015	Head	1g	0.050	0.50	0.54	-7.92	9
				10g	0.031	0.31	0.34	-8.01	
2022-07-18	CLA-13	1015	Head	1g	0.053	0.53	0.54	-2.39	
				10g	0.033	0.33	0.34	-2.08	

9. Conducted Output Power Measurements

9.1. GSM

Per KDB 941225 D01 3G SAR Procedures:

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

GSM850 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Allowed Average Power (dBm)							
					DSI = 0				DSI = 1			
					Measured		Tune-up Limit		Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	128	824.2	32.72	23.69	33.50	24.47	22.50	13.47	24.00	14.97
			190	836.6	32.71	23.68			22.60	13.57		
			251	848.8	32.42	23.39			22.31	13.28		
GPRS (GMSK)	CS1	1	128	824.2	32.69	23.66	33.50	24.47	22.50	13.47	24.00	14.97
			190	836.6	32.58	23.55			22.61	13.58		
			251	848.8	32.28	23.25			22.30	13.27		
		2	128	824.2	31.44	25.42	32.00	25.98	19.42	13.40	21.00	14.98
			190	836.6	31.45	25.43			19.40	13.38		
			251	848.8	31.09	25.07			19.20	13.18		
		3	128	824.2	29.62	25.36	30.00	25.74	17.59	13.33	19.00	14.74
			190	836.6	29.53	25.27			17.63	13.37		
			251	848.8	29.09	24.83			17.43	13.17		
		4	128	824.2	27.52	24.51	29.00	**25.99**	17.90	14.89	19.00	**15.99**
			190	836.6	27.74	24.73			16.87	13.86		
			251	848.8	27.48	24.47			16.52	13.51		
EGPRS (8PSK)	MCS5	1	128	824.2	26.90	17.87	29.00	19.97	22.25	13.22	23.00	13.97
			190	836.6	27.33	18.30			22.47	13.44		
			251	848.8	26.90	17.87			22.19	13.16		
		2	128	824.2	25.35	19.33	27.00	20.98	19.10	13.08	21.00	14.98
			190	836.6	25.24	19.22			19.21	13.19		
			251	848.8	24.90	18.88			18.98	12.96		
		3	128	824.2	23.43	19.17	25.00	20.74	17.61	13.35	19.00	14.74
			190	836.6	23.37	19.11			17.61	13.35		
			251	848.8	22.83	18.57			17.49	13.23		
		4	128	824.2	22.46	19.45	23.00	19.99	16.26	13.25	18.00	14.99
			190	836.6	22.64	19.63			16.34	13.33		
			251	848.8	22.21	19.20			16.11	13.10		

Notes:

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

- GMSK (GPRS) mode with 4 time slots for Max power, based on the Tune-up Procedure. Refer to §6.3.
- 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.

GSM1900 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Allowed Average Power (dBm)							
					DSI = 0				DSI = 1			
					Measured		Tune-up Limit		Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	512	1850.2	27.77	18.74	29.50	20.47	19.98	10.95	21.00	11.97
			661	1880.0	28.01	18.98			19.93	10.90		
			810	1909.8	27.72	18.69			19.82	10.79		
GPRS (GMSK)	CS1	1	512	1850.2	27.75	18.72	29.50	20.47	19.98	10.95	21.50	**12.47**
			661	1880.0	27.94	18.91			20.01	10.98		
			810	1909.8	27.62	18.59			19.81	10.78		
		2	512	1850.2	25.51	19.49	26.50	**20.48**	17.10	11.08	18.00	11.98
			661	1880.0	25.50	19.48			16.71	10.69		
			810	1909.8	25.36	19.34			16.62	10.60		
		3	512	1850.2	23.30	19.04	24.00	19.74	15.17	10.91	16.50	12.24
			661	1880.0	23.79	19.53			15.06	10.80		
			810	1909.8	23.42	19.16			14.79	10.53		
		4	512	1850.2	22.31	19.30	23.00	19.99	13.91	10.90	15.00	11.99
			661	1880.0	22.62	19.61			13.94	10.93		
			810	1909.8	22.39	19.38			13.57	10.56		
EGPRS (8PSK)	MCS5	1	512	1850.2	24.53	15.50	27.00	17.97	20.29	11.26	21.00	11.97
			661	1880.0	24.76	15.73			20.21	11.18		
			810	1909.8	24.70	15.67			20.01	10.98		
		2	512	1850.2	23.08	17.06	25.00	18.98	16.77	10.75	18.00	11.98
			661	1880.0	23.00	16.98			16.79	10.77		
			810	1909.8	22.94	16.92			16.63	10.61		
		3	512	1850.2	21.16	16.90	23.00	18.74	15.07	10.81	16.00	11.74
			661	1880.0	20.88	16.62			15.00	10.74		
			810	1909.8	20.83	16.57			14.83	10.57		
		4	512	1850.2	20.15	17.14	21.00	17.99	13.82	10.81	15.00	11.99
			661	1880.0	19.97	16.96			13.87	10.86		
			810	1909.8	19.92	16.91			13.64	10.63		

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 1 time slot 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
	βc/βd	8/15

HSDPA Setup Procedures used to establish the test signals

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

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

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

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

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

DC-HSDPA Setup Procedures used to establish the test signals

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

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

Table E.5.0: Levels for HSDPA connection setup

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

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

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

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

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

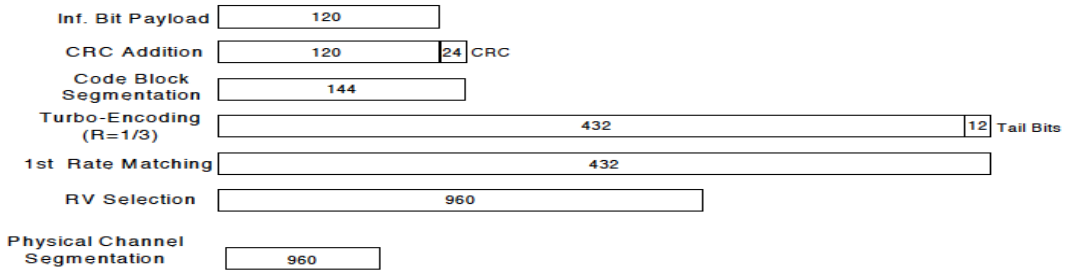


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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

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

HSPA+

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

W-CDMA Band II Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Allowed Average Power (dBm)					
				DSI = 0			DSI = 1		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	22.04	N/A	22.5	12.22	N/A	12.5
		9400	1880.0	22.16			12.30		
		9538	1907.6	22.07			12.17		
HSDPA	Subtest 1	9262	1852.4	21.60	0	22.0	11.68	0	12.0
		9400	1880.0	21.69			11.77		
		9538	1907.6	21.63			11.63		
	Subtest 2	9262	1852.4	21.60	0	22.0	11.65	0	12.0
		9400	1880.0	21.69			11.76		
		9538	1907.6	21.59			11.63		
	Subtest 3	9262	1852.4	20.56	0.5	21.5	10.75	0.5	11.5
		9400	1880.0	20.65			10.78		
		9538	1907.6	20.57			10.65		
	Subtest 4	9262	1852.4	20.58	0.5	21.5	10.70	0.5	11.5
		9400	1880.0	20.63			10.78		
		9538	1907.6	20.55			10.63		
HSUPA	Subtest 1	9262	1852.4	21.62	0	22.0	11.64	0	12.0
		9400	1880.0	21.71			11.76		
		9538	1907.6	21.65			11.65		
	Subtest 2	9262	1852.4	19.09	2	20.0	9.26	2	10.0
		9400	1880.0	19.17			9.32		
		9538	1907.6	19.11			9.20		
	Subtest 3	9262	1852.4	19.11	1	21.0	9.25	1	11.0
		9400	1880.0	19.20			9.33		
		9538	1907.6	19.16			9.19		
	Subtest 4	9262	1852.4	19.09	2	20.0	9.26	2	10.0
		9400	1880.0	19.20			9.33		
		9538	1907.6	19.11			9.21		
	Subtest 5	9262	1852.4	20.69	0	22.0	10.83	0	12.0
		9400	1880.0	20.84			10.95		
		9538	1907.6	20.75			10.79		
DC-HSDPA	Subtest 1	9262	1852.4	21.60	0	22.0	11.66	0	12.0
		9400	1880.0	21.71			11.79		
		9538	1907.6	21.62			11.67		
	Subtest 2	9262	1852.4	21.57	0	22.0	11.65	0	12.0
		9400	1880.0	21.67			11.77		
		9538	1907.6	21.59			11.65		
	Subtest 3	9262	1852.4	20.57	0.5	21.5	10.76	0.5	11.5
		9400	1880.0	20.64			10.81		
		9538	1907.6	20.57			10.67		
	Subtest 4	9262	1852.4	20.57	0.5	21.5	10.72	0.5	11.5
		9400	1880.0	20.65			10.79		
		9538	1907.6	20.61			10.66		

W-CDMA Band IV Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Allowed Average Power (dBm)					
				DSI = 0			DSI = 1		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	22.40	N/A	23.0	12.63	N/A	13.0
		1413	1732.6	22.37			12.53		
		1513	1752.6	22.66			12.84		
HSDPA	Subtest 1	1312	1712.4	21.99	0	22.5	12.14	0	13.0
		1413	1732.6	21.86			12.03		
		1513	1752.6	22.22			12.34		
	Subtest 2	1312	1712.4	22.00	0	22.5	12.13	0	13.0
		1413	1732.6	21.87			12.04		
		1513	1752.6	22.20			12.34		
	Subtest 3	1312	1712.4	21.02	0.5	22.0	11.13	0.5	12.5
		1413	1732.6	20.90			11.01		
		1513	1752.6	21.18			11.35		
	Subtest 4	1312	1712.4	21.03	0.5	22.0	11.17	0.5	12.5
		1413	1732.6	20.88			11.02		
		1513	1752.6	21.17			11.34		
HSUPA	Subtest 1	1312	1712.4	22.03	0	22.5	12.14	0	13.0
		1413	1732.6	21.93			12.02		
		1513	1752.6	22.25			12.32		
	Subtest 2	1312	1712.4	19.54	2	20.5	9.61	2	11.0
		1413	1732.6	19.41			9.51		
		1513	1752.6	19.74			9.84		
	Subtest 3	1312	1712.4	19.54	1	21.5	9.57	1	12.0
		1413	1732.6	19.51			9.53		
		1513	1752.6	19.69			9.84		
	Subtest 4	1312	1712.4	19.55	2	20.5	9.60	2	11.0
		1413	1732.6	19.42			9.54		
		1513	1752.6	19.70			9.83		
	Subtest 5	1312	1712.4	21.13	0	22.5	11.22	0	13.0
		1413	1732.6	21.04			11.10		
		1513	1752.6	21.31			11.41		
DC-HSDPA	Subtest 1	1312	1712.4	22.02	0	22.5	12.15	0	13.0
		1413	1732.6	21.91			12.07		
		1513	1752.6	22.24			12.37		
	Subtest 2	1312	1712.4	22.08	0	22.5	12.17	0	13.0
		1413	1732.6	21.89			12.04		
		1513	1752.6	22.21			12.37		
	Subtest 3	1312	1712.4	21.00	0.5	22.0	11.17	0.5	12.5
		1413	1732.6	20.92			11.04		
		1513	1752.6	21.20			11.36		
	Subtest 4	1312	1712.4	21.05	0.5	22.0	11.17	0.5	12.5
		1413	1732.6	20.90			11.03		
		1513	1752.6	21.17			11.35		

W-CDMA Band V Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Allowed Average Power (dBm)					
				DSI = 0			DSI = 1		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	4132	826.4	24.19	N/A	25.0	13.87	N/A	15.0
		4183	836.6	24.13			13.84		
		4233	846.6	23.91			13.61		
HSDPA	Subtest 1	4132	826.4	23.20	0	24.0	12.88	0	14.0
		4183	836.6	23.13			12.78		
		4233	846.6	22.90			12.62		
	Subtest 2	4132	826.4	23.22	0	24.0	12.90	0	14.0
		4183	836.6	23.12			12.78		
		4233	846.6	22.90			12.62		
	Subtest 3	4132	826.4	22.71	0.5	23.5	12.38	0.5	13.5
		4183	836.6	22.62			12.29		
		4233	846.6	22.41			12.12		
	Subtest 4	4132	826.4	22.74	0.5	23.5	12.36	0.5	13.5
		4183	836.6	22.64			12.28		
		4233	846.6	22.41			12.10		
HSUPA	Subtest 1	4132	826.4	23.19	0	24.0	12.85	0	14.0
		4183	836.6	23.13			12.75		
		4233	846.6	22.92			12.61		
	Subtest 2	4132	826.4	21.25	2	22.0	10.87	2	12.0
		4183	836.6	21.14			10.76		
		4233	846.6	20.93			10.61		
	Subtest 3	4132	826.4	22.23	1	23.0	11.86	1	13.0
		4183	836.6	22.13			11.76		
		4233	846.6	21.91			11.62		
	Subtest 4	4132	826.4	21.21	2	22.0	10.86	2	12.0
		4183	836.6	21.13			10.77		
		4233	846.6	20.92			10.61		
	Subtest 5	4132	826.4	22.76	0	24.0	12.86	0	14.0
		4183	836.6	22.71			12.76		
		4233	846.6	22.50			12.62		
DC-HSDPA	Subtest 1	4132	826.4	23.21	0	24.0	12.88	0	14.0
		4183	836.6	23.15			12.78		
		4233	846.6	22.94			12.63		
	Subtest 2	4132	826.4	23.21	0	24.0	12.88	0	14.0
		4183	836.6	23.14			12.78		
		4233	846.6	22.93			12.62		
	Subtest 3	4132	826.4	22.73	0.5	23.5	12.39	0.5	13.5
		4183	836.6	22.63			12.27		
		4233	846.6	22.42			12.11		
	Subtest 4	4132	826.4	22.75	0.5	23.5	12.37	0.5	13.5
		4183	836.6	22.63			12.29		
		4233	846.6	22.43			12.12		

9.3. LTE

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

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

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

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

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

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

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

Maximum Output Power (Tune-up Limit) for LTE

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

a) The maximum output power, including tolerance, for the smaller band must be ≤ the larger band to qualify for the SAR test exclusion.
b) The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.

- LTE Band 2 (1850 – 1910 MHz) is covered by LTE Band 25 (1850 – 1915 MHz)
- LTE Band 4 (1710 – 1755 MHz) is covered by LTE Band 66 (1710 – 1780 MHz)
- LTE Band 17 (704 – 716 MHz) is covered by LTE Band 12 (699 – 716 MHz) in DSI = 0

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

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

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

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

LTE Band 5 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)										
				DSI = 0					DSI = 1					
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				[redacted]	20525	[redacted]			[redacted]	20525	[redacted]		
				[redacted]	836.5 MHz	[redacted]			[redacted]	836.5 MHz	[redacted]		
10 MHz	QPSK	1	0	[redacted]	23.86	[redacted]	0.0	25.0	[redacted]	14.52	[redacted]	0.0	16.0
		1	25	[redacted]	23.91	[redacted]	0.0	25.0	[redacted]	14.55	[redacted]	0.0	16.0
		1	49	[redacted]	23.81	[redacted]	0.0	25.0	[redacted]	14.47	[redacted]	0.0	16.0
		25	0	[redacted]	22.86	[redacted]	1.0	24.0	[redacted]	14.58	[redacted]	0.0	16.0
		25	12	[redacted]	22.94	[redacted]	1.0	24.0	[redacted]	14.59	[redacted]	0.0	16.0
		25	25	[redacted]	22.87	[redacted]	1.0	24.0	[redacted]	14.58	[redacted]	0.0	16.0
		50	0	[redacted]	22.76	[redacted]	1.0	24.0	[redacted]	14.47	[redacted]	0.0	16.0
	16QAM	1	0	[redacted]	22.89	[redacted]	1.0	24.0	[redacted]	14.52	[redacted]	0.0	16.0
		1	25	[redacted]	22.80	[redacted]	1.0	24.0	[redacted]	14.43	[redacted]	0.0	16.0
		1	49	[redacted]	22.76	[redacted]	1.0	24.0	[redacted]	14.42	[redacted]	0.0	16.0
		25	0	[redacted]	21.91	[redacted]	2.0	23.0	[redacted]	14.58	[redacted]	0.0	16.0
		25	12	[redacted]	22.00	[redacted]	2.0	23.0	[redacted]	14.54	[redacted]	0.0	16.0
		25	25	[redacted]	21.95	[redacted]	2.0	23.0	[redacted]	14.56	[redacted]	0.0	16.0
		50	0	[redacted]	21.77	[redacted]	2.0	23.0	[redacted]	14.44	[redacted]	0.0	16.0
	64QAM	1	0	[redacted]	22.21	[redacted]	2.0	23.0	[redacted]	14.81	[redacted]	0.0	16.0
		1	25	[redacted]	22.26	[redacted]	2.0	23.0	[redacted]	14.74	[redacted]	0.0	16.0
		1	49	[redacted]	22.23	[redacted]	2.0	23.0	[redacted]	14.79	[redacted]	0.0	16.0
		25	0	[redacted]	20.95	[redacted]	3.0	22.0	[redacted]	14.62	[redacted]	0.0	16.0
		25	12	[redacted]	21.03	[redacted]	3.0	22.0	[redacted]	14.64	[redacted]	0.0	16.0
		25	25	[redacted]	20.96	[redacted]	3.0	22.0	[redacted]	14.64	[redacted]	0.0	16.0
		50	0	[redacted]	20.80	[redacted]	3.0	22.0	[redacted]	14.44	[redacted]	0.0	16.0
	256QAM	1	0	[redacted]	18.84	[redacted]	5.0	20.0	[redacted]	14.76	[redacted]	1.0	15.0
		1	25	[redacted]	19.03	[redacted]	5.0	20.0	[redacted]	14.94	[redacted]	1.0	15.0
		1	49	[redacted]	18.83	[redacted]	5.0	20.0	[redacted]	14.76	[redacted]	1.0	15.0
		25	0	[redacted]	18.58	[redacted]	5.0	20.0	[redacted]	14.52	[redacted]	1.0	15.0
		25	12	[redacted]	18.63	[redacted]	5.0	20.0	[redacted]	14.58	[redacted]	1.0	15.0
		25	25	[redacted]	18.63	[redacted]	5.0	20.0	[redacted]	14.56	[redacted]	1.0	15.0
		50	0	[redacted]	18.52	[redacted]	5.0	20.0	[redacted]	14.47	[redacted]	1.0	15.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20425	20525	20625			20425	20525	20625		
				826.5 MHz	836.5 MHz	846.5 MHz			826.5 MHz	836.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	23.93	23.76	23.74	0.0	25.0	14.56	14.60	14.46	0.0	16.0
		1	12	24.01	23.88	23.67	0.0	25.0	14.67	14.64	14.37	0.0	16.0
		1	24	23.96	23.84	23.70	0.0	25.0	14.58	14.61	14.38	0.0	16.0
		12	0	22.84	22.86	22.67	1.0	24.0	14.61	14.56	14.46	0.0	16.0
		12	7	23.01	22.97	22.70	1.0	24.0	14.71	14.68	14.51	0.0	16.0
		12	13	22.96	22.95	22.76	1.0	24.0	14.70	14.63	14.48	0.0	16.0
		25	0	22.93	22.91	22.68	1.0	24.0	14.65	14.56	14.44	0.0	16.0
	16QAM	1	0	23.31	22.84	22.92	1.0	24.0	14.70	14.69	15.01	0.0	16.0
		1	12	23.37	22.89	22.84	1.0	24.0	14.70	14.70	14.92	0.0	16.0
		1	24	23.33	22.92	22.88	1.0	24.0	14.70	14.66	14.93	0.0	16.0
		12	0	22.01	21.84	21.75	2.0	23.0	14.59	14.54	14.60	0.0	16.0
		12	7	22.16	22.00	21.80	2.0	23.0	14.74	14.65	14.62	0.0	16.0
		12	13	22.12	21.94	21.84	2.0	23.0	14.69	14.58	14.61	0.0	16.0
		25	0	22.00	21.89	21.71	2.0	23.0	14.62	14.54	14.49	0.0	16.0
	64QAM	1	0	22.04	21.76	22.07	2.0	23.0	14.62	14.80	14.72	0.0	16.0
		1	12	22.16	21.94	22.16	2.0	23.0	14.82	14.94	14.76	0.0	16.0
		1	24	22.11	21.85	22.11	2.0	23.0	14.68	14.85	14.63	0.0	16.0
		12	0	20.91	20.93	20.74	3.0	22.0	14.73	14.50	14.45	0.0	16.0
		12	7	21.04	21.06	20.76	3.0	22.0	14.80	14.57	14.47	0.0	16.0
		12	13	21.04	20.99	20.71	3.0	22.0	14.78	14.50	14.44	0.0	16.0
		25	0	20.95	20.90	20.66	3.0	22.0	14.68	14.49	14.41	0.0	16.0
	256QAM	1	0	18.60	18.54	18.57	5.0	20.0	14.94	14.92	14.84	1.0	15.0
		1	12	18.77	18.70	18.57	5.0	20.0	14.98	14.99	14.96	1.0	15.0
		1	24	18.65	18.62	18.54	5.0	20.0	14.99	14.97	14.83	1.0	15.0
		12	0	18.61	18.56	18.48	5.0	20.0	14.86	14.82	14.78	1.0	15.0
		12	7	18.75	18.63	18.54	5.0	20.0	15.00	14.90	14.85	1.0	15.0
		12	13	18.70	18.56	18.50	5.0	20.0	14.97	14.83	14.78	1.0	15.0
		25	0	18.70	18.56	18.46	5.0	20.0	14.94	14.81	14.75	1.0	15.0

LTE Band 5 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20415	20525	20635			20415	20525	20635		
				825.5 MHz	836.5 MHz	847.5 MHz			825.5 MHz	836.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	23.86	23.84	23.69	0.0	25.0	14.52	14.55	14.40	0.0	16.0
		1	8	23.81	23.77	23.63	0.0	25.0	14.51	14.51	14.37	0.0	16.0
		1	14	23.88	23.85	23.69	0.0	25.0	14.56	14.57	14.37	0.0	16.0
		8	0	22.94	22.89	22.72	1.0	24.0	14.66	14.61	14.42	0.0	16.0
		8	4	23.00	22.92	22.75	1.0	24.0	14.71	14.69	14.47	0.0	16.0
		8	7	22.97	22.96	22.77	1.0	24.0	14.70	14.68	14.48	0.0	16.0
		15	0	22.95	22.91	22.73	1.0	24.0	14.66	14.64	14.44	0.0	16.0
	16QAM	1	0	22.90	22.79	23.06	1.0	24.0	14.59	14.39	14.70	0.0	16.0
		1	8	22.86	22.75	22.94	1.0	24.0	14.59	14.43	14.69	0.0	16.0
		1	14	22.91	22.81	23.04	1.0	24.0	14.64	14.40	14.70	0.0	16.0
		8	0	22.00	21.99	21.75	2.0	23.0	14.70	14.60	14.39	0.0	16.0
		8	4	22.06	22.01	21.84	2.0	23.0	14.76	14.67	14.54	0.0	16.0
		8	7	22.08	22.06	21.85	2.0	23.0	14.75	14.69	14.55	0.0	16.0
		15	0	21.91	21.95	21.78	2.0	23.0	14.63	14.52	14.41	0.0	16.0
	64QAM	1	0	22.19	22.32	21.88	2.0	23.0	14.42	14.49	14.32	0.0	16.0
		1	8	22.13	22.40	21.86	2.0	23.0	14.48	14.60	14.40	0.0	16.0
		1	14	22.23	22.30	21.85	2.0	23.0	14.48	14.56	14.37	0.0	16.0
		8	0	20.92	20.99	20.81	3.0	22.0	14.71	14.57	14.41	0.0	16.0
		8	4	20.95	21.04	20.85	3.0	22.0	14.72	14.57	14.52	0.0	16.0
		8	7	20.94	21.06	20.82	3.0	22.0	14.76	14.59	14.51	0.0	16.0
		15	0	21.05	20.94	20.82	3.0	22.0	14.65	14.61	14.45	0.0	16.0
	256QAM	1	0	18.41	18.91	18.39	5.0	20.0	14.84	14.81	14.66	1.0	15.0
		1	8	18.46	19.00	18.52	5.0	20.0	14.98	14.96	14.82	1.0	15.0
		1	14	18.43	18.99	18.43	5.0	20.0	14.92	14.89	14.72	1.0	15.0
		8	0	18.59	18.64	18.46	5.0	20.0	14.96	14.92	14.73	1.0	15.0
		8	4	18.65	18.64	18.65	5.0	20.0	14.97	14.99	14.92	1.0	15.0
		8	7	18.65	18.65	18.64	5.0	20.0	14.98	14.98	14.90	1.0	15.0
		15	0	18.75	18.59	18.45	5.0	20.0	14.94	14.88	14.73	1.0	15.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				20407	20525	20643			20407	20525	20643		
				824.7 MHz	836.5 MHz	848.3 MHz			824.7 MHz	836.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	23.85	23.85	23.55	0.0	25.0	14.44	14.58	14.34	0.0	16.0
		1	3	23.94	23.77	23.61	0.0	25.0	14.52	14.64	14.33	0.0	16.0
		1	5	23.86	23.74	23.56	0.0	25.0	14.50	14.56	14.28	0.0	16.0
		3	0	23.84	23.78	23.54	0.0	25.0	14.49	14.49	14.33	0.0	16.0
		3	1	23.86	23.88	23.58	0.0	25.0	14.54	14.56	14.37	0.0	16.0
		3	3	23.85	23.88	23.59	0.0	25.0	14.50	14.54	14.36	0.0	16.0
		6	0	22.85	22.86	22.62	1.0	24.0	14.58	14.59	14.37	0.0	16.0
	16QAM	1	0	22.95	23.26	22.63	1.0	24.0	14.50	14.59	14.68	0.0	16.0
		1	3	23.08	23.34	22.64	1.0	24.0	14.63	14.70	14.70	0.0	16.0
		1	5	23.04	23.29	22.59	1.0	24.0	14.56	14.63	14.68	0.0	16.0
		3	0	22.94	23.05	22.84	1.0	24.0	14.75	14.54	14.57	0.0	16.0
		3	1	22.96	23.05	22.81	1.0	24.0	14.77	14.53	14.55	0.0	16.0
		3	3	22.90	23.12	22.82	1.0	24.0	14.82	14.63	14.54	0.0	16.0
		6	0	22.04	21.77	21.82	2.0	23.0	14.76	14.60	14.25	0.0	16.0
	64QAM	1	0	22.18	21.96	21.86	2.0	23.0	14.65	14.63	14.37	0.0	16.0
		1	3	22.33	22.02	21.89	2.0	23.0	14.83	14.72	14.43	0.0	16.0
		1	5	22.24	21.96	21.89	2.0	23.0	14.74	14.66	14.33	0.0	16.0
		3	0	22.16	21.98	21.64	2.0	23.0	14.70	14.49	14.47	0.0	16.0
		3	1	22.17	22.04	21.69	2.0	23.0	14.71	14.59	14.58	0.0	16.0
		3	3	22.18	22.04	21.68	2.0	23.0	14.67	14.55	14.58	0.0	16.0
		6	0	20.86	21.16	20.73	3.0	22.0	14.60	14.49	14.46	0.0	16.0
	256QAM	1	0	18.61	18.52	18.46	5.0	20.0	14.78	14.83	14.74	1.0	15.0
		1	3	18.83	18.63	18.60	5.0	20.0	14.97	14.94	14.85	1.0	15.0
		1	5	18.68	18.63	18.48	5.0	20.0	14.83	14.92	14.73	1.0	15.0
		3	0	18.56	18.51	18.30	5.0	20.0	14.88	14.71	14.61	1.0	15.0
		3	1	18.61	18.49	18.37	5.0	20.0	14.87	14.76	14.69	1.0	15.0
		3	3	18.57	18.55	18.28	5.0	20.0	14.90	14.71	14.62	1.0	15.0
		6	0	18.54	18.54	18.31	5.0	20.0	14.91	14.67	14.63	1.0	15.0

LTE Band 12 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)								
				DSI = 0					DSI = 1			
				Measured Pwr (dBm)		MPR	Tune-up Limit		Measured Pwr (dBm)		MPR	Tune-up Limit
				23095					23095			
				707.5 MHz					707.5 MHz			
10 MHz	QPSK	1	0	23.18		0.0	25.0		13.11		0.0	15.0
		1	25	23.19		0.0	25.0		12.98		0.0	15.0
		1	49	23.22		0.0	25.0		13.12		0.0	15.0
		25	0	22.28		1.0	24.0		13.11		0.0	15.0
		25	12	22.34		1.0	24.0		13.20		0.0	15.0
		25	25	22.26		1.0	24.0		13.09		0.0	15.0
		50	0	22.26		1.0	24.0		13.13		0.0	15.0
	16QAM	1	0	22.26		1.0	24.0		13.15		0.0	15.0
		1	25	22.17		1.0	24.0		13.00		0.0	15.0
		1	49	22.19		1.0	24.0		13.12		0.0	15.0
		25	0	21.30		2.0	23.0		13.12		0.0	15.0
		25	12	21.39		2.0	23.0		13.25		0.0	15.0
		25	25	21.30		2.0	23.0		13.16		0.0	15.0
		50	0	21.27		2.0	23.0		13.12		0.0	15.0
	64QAM	1	0	21.74		2.0	23.0		13.34		0.0	15.0
		1	25	21.64		2.0	23.0		13.24		0.0	15.0
		1	49	21.73		2.0	23.0		13.30		0.0	15.0
		25	0	20.34		3.0	22.0		13.02		0.0	15.0
		25	12	20.39		3.0	22.0		13.10		0.0	15.0
		25	25	20.33		3.0	22.0		13.05		0.0	15.0
		50	0	20.33		3.0	22.0		12.99		0.0	15.0
	256QAM	1	0	18.66		5.0	20.0		13.30		0.0	15.0
		1	25	18.80		5.0	20.0		13.49		0.0	15.0
		1	49	18.77		5.0	20.0		13.45		0.0	15.0
		25	0	18.41		5.0	20.0		13.09		0.0	15.0
		25	12	18.51		5.0	20.0		13.16		0.0	15.0
		25	25	18.48		5.0	20.0		13.11		0.0	15.0
		50	0	18.41		5.0	20.0		13.06		0.0	15.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				23035	23095	23155			23035	23095	23155		
				701.5 MHz	707.5 MHz	713.5 MHz			701.5 MHz	707.5 MHz	713.5 MHz		
5 MHz	QPSK	1	0	23.39	23.23	23.38	0.0	25.0	13.33	13.20	13.17	0.0	15.0
		1	12	23.30	23.24	23.33	0.0	25.0	13.24	13.15	13.16	0.0	15.0
		1	24	23.24	23.17	23.28	0.0	25.0	13.16	13.13	13.20	0.0	15.0
		12	0	22.41	22.33	22.29	1.0	24.0	13.37	13.21	13.18	0.0	15.0
		12	7	22.46	22.36	22.40	1.0	24.0	13.33	13.22	13.26	0.0	15.0
		12	13	22.37	22.31	22.35	1.0	24.0	13.30	13.19	13.28	0.0	15.0
		25	0	22.40	22.34	22.40	1.0	24.0	13.28	13.20	13.21	0.0	15.0
	16QAM	1	0	22.84	22.30	22.49	1.0	24.0	13.45	13.37	13.41	0.0	15.0
		1	12	22.85	22.24	22.43	1.0	24.0	13.28	13.26	13.44	0.0	15.0
		1	24	22.78	22.32	22.45	1.0	24.0	13.32	13.32	13.35	0.0	15.0
		12	0	21.61	21.36	21.37	2.0	23.0	13.42	13.27	13.39	0.0	15.0
		12	7	21.59	21.37	21.48	2.0	23.0	13.40	13.27	13.35	0.0	15.0
		12	13	21.56	21.31	21.43	2.0	23.0	13.32	13.24	13.39	0.0	15.0
		25	0	21.48	21.25	21.39	2.0	23.0	13.27	13.22	13.22	0.0	15.0
	64QAM	1	0	21.70	21.27	21.74	2.0	23.0	13.45	13.25	13.32	0.0	15.0
		1	12	21.60	21.29	21.79	2.0	23.0	13.39	13.30	13.43	0.0	15.0
		1	24	21.50	21.19	21.68	2.0	23.0	13.13	13.20	13.33	0.0	15.0
		12	0	20.56	20.42	20.34	3.0	22.0	13.15	13.02	13.06	0.0	15.0
		12	7	20.55	20.40	20.44	3.0	22.0	13.14	13.04	13.09	0.0	15.0
		12	13	20.48	20.41	20.41	3.0	22.0	13.09	13.04	13.13	0.0	15.0
		25	0	20.50	20.31	20.39	3.0	22.0	13.02	13.01	13.11	0.0	15.0
	256QAM	1	0	18.56	18.49	18.48	5.0	20.0	13.63	13.52	13.41	0.0	15.0
		1	12	18.66	18.42	18.54	5.0	20.0	13.50	13.42	13.62	0.0	15.0
		1	24	18.34	18.44	18.53	5.0	20.0	13.49	13.46	13.46	0.0	15.0
		12	0	18.49	18.41	18.38	5.0	20.0	13.56	13.42	13.42	0.0	15.0
		12	7	18.51	18.41	18.40	5.0	20.0	13.55	13.42	13.43	0.0	15.0
		12	13	18.45	18.36	18.43	5.0	20.0	13.48	13.43	13.45	0.0	15.0
		25	0	18.42	18.35	18.45	5.0	20.0	13.42	13.40	13.48	0.0	15.0

LTE Band 12 Measured Results_(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				23025	23095	23165			23025	23095	23165		
				700.5 MHz	707.5 MHz	714.5 MHz			700.5 MHz	707.5 MHz	714.5 MHz		
3 MHz	QPSK	1	0	23.29	23.17	23.32	0.0	25.0	13.29	13.15	13.26	0.0	15.0
		1	8	23.15	23.04	23.24	0.0	25.0	13.13	13.00	13.18	0.0	15.0
		1	14	23.21	23.14	23.29	0.0	25.0	13.16	13.14	13.24	0.0	15.0
		8	0	22.36	22.25	22.27	1.0	24.0	13.30	13.20	13.21	0.0	15.0
		8	4	22.35	22.24	22.28	1.0	24.0	13.29	13.21	13.24	0.0	15.0
		8	7	22.31	22.31	22.37	1.0	24.0	13.23	13.24	13.32	0.0	15.0
		15	0	22.27	22.26	22.28	1.0	24.0	13.25	13.20	13.28	0.0	15.0
	16QAM	1	0	22.43	22.15	22.72	1.0	24.0	13.42	13.11	13.57	0.0	15.0
		1	8	22.34	22.05	22.64	1.0	24.0	13.26	12.96	13.46	0.0	15.0
		1	14	22.27	22.10	22.64	1.0	24.0	13.26	12.98	13.57	0.0	15.0
		8	0	21.38	21.37	21.30	2.0	23.0	13.33	13.29	13.26	0.0	15.0
		8	4	21.33	21.40	21.36	2.0	23.0	13.35	13.30	13.34	0.0	15.0
		8	7	21.37	21.40	21.47	2.0	23.0	13.31	13.33	13.37	0.0	15.0
		15	0	21.26	21.32	21.32	2.0	23.0	13.22	13.27	13.34	0.0	15.0
	64QAM	1	0	21.87	21.75	21.38	2.0	23.0	13.18	13.05	13.04	0.0	15.0
		1	8	21.65	21.82	21.45	2.0	23.0	13.24	13.10	13.23	0.0	15.0
		1	14	21.62	21.73	21.50	2.0	23.0	13.08	12.99	13.11	0.0	15.0
		8	0	20.44	20.40	20.40	3.0	22.0	13.21	13.09	13.12	0.0	15.0
		8	4	20.35	20.42	20.41	3.0	22.0	13.21	13.08	13.15	0.0	15.0
		8	7	20.36	20.42	20.47	3.0	22.0	13.22	13.11	13.22	0.0	15.0
		15	0	20.47	20.33	20.37	3.0	22.0	13.21	13.10	13.15	0.0	15.0
	256QAM	1	0	18.53	18.76	18.43	5.0	20.0	13.56	13.68	13.43	0.0	15.0
		1	8	18.55	18.68	18.52	5.0	20.0	13.59	13.66	13.55	0.0	15.0
		1	14	18.45	18.67	18.45	5.0	20.0	13.47	13.67	13.46	0.0	15.0
		8	0	18.58	18.47	18.50	5.0	20.0	13.62	13.44	13.48	0.0	15.0
		8	4	18.64	18.46	18.56	5.0	20.0	13.67	13.49	13.55	0.0	15.0
		8	7	18.66	18.45	18.64	5.0	20.0	13.66	13.50	13.64	0.0	15.0
		15	0	18.52	18.44	18.41	5.0	20.0	13.55	13.45	13.39	0.0	15.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				23017	23095	23173			23017	23095	23173		
				699.7 MHz	707.5 MHz	715.3 MHz			699.7 MHz	707.5 MHz	715.3 MHz		
1.4 MHz	QPSK	1	0	23.24	23.07	23.10	0.0	25.0	13.22	13.01	13.07	0.0	15.0
		1	3	23.30	23.06	23.14	0.0	25.0	13.23	13.05	13.13	0.0	15.0
		1	5	23.22	23.03	23.14	0.0	25.0	13.23	13.02	13.13	0.0	15.0
		3	0	23.16	23.07	23.10	0.0	25.0	13.15	13.06	13.07	0.0	15.0
		3	1	23.24	23.10	23.16	0.0	25.0	13.20	13.13	13.14	0.0	15.0
		3	3	23.22	23.06	23.14	0.0	25.0	13.18	13.09	13.11	0.0	15.0
		6	0	22.30	22.17	22.26	1.0	24.0	13.24	13.09	13.13	0.0	15.0
	16QAM	1	0	22.37	22.54	22.12	1.0	24.0	13.37	13.42	13.11	0.0	15.0
		1	3	22.49	22.57	22.24	1.0	24.0	13.45	13.42	13.25	0.0	15.0
		1	5	22.34	22.53	22.17	1.0	24.0	13.38	13.40	13.16	0.0	15.0
		3	0	22.26	22.34	22.37	1.0	24.0	13.23	13.32	13.33	0.0	15.0
		3	1	22.26	22.38	22.40	1.0	24.0	13.26	13.27	13.34	0.0	15.0
		3	3	22.30	22.32	22.42	1.0	24.0	13.31	13.27	13.43	0.0	15.0
		6	0	21.45	21.09	21.47	2.0	23.0	13.38	12.98	13.29	0.0	15.0
	64QAM	1	0	21.89	21.27	21.42	2.0	23.0	13.08	12.99	13.19	0.0	15.0
		1	3	21.99	21.34	21.60	2.0	23.0	13.14	13.04	13.24	0.0	15.0
		1	5	21.87	21.21	21.51	2.0	23.0	13.06	12.95	13.22	0.0	15.0
		3	0	21.65	21.31	21.20	2.0	23.0	13.18	13.08	13.09	0.0	15.0
		3	1	21.73	21.37	21.21	2.0	23.0	13.30	13.21	13.05	0.0	15.0
		3	3	21.68	21.38	21.28	2.0	23.0	13.33	13.19	13.11	0.0	15.0
		6	0	20.37	20.54	20.41	3.0	22.0	13.20	13.07	13.07	0.0	15.0
	256QAM	1	0	18.57	18.39	18.44	5.0	20.0	13.54	13.36	13.39	0.0	15.0
		1	3	18.68	18.50	18.52	5.0	20.0	13.53	13.50	13.48	0.0	15.0
		1	5	18.51	18.33	18.50	5.0	20.0	13.43	13.36	13.45	0.0	15.0
		3	0	18.38	18.18	18.27	5.0	20.0	13.40	13.21	13.27	0.0	15.0
		3	1	18.40	18.28	18.31	5.0	20.0	13.40	13.32	13.32	0.0	15.0
		3	3	18.29	18.24	18.32	5.0	20.0	13.31	13.24	13.30	0.0	15.0
		6	0	18.39	18.22	18.27	5.0	20.0	13.35	13.21	13.27	0.0	15.0

LTE Band 13 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)					
				DSI = 0			DSI =1		
				Measured Pwr (dBm)	MPR	Tune-up Limit	Measured Pwr (dBm)	MPR	Tune-up Limit
				23230 / 782 MHz			23230 / 782 MHz		
10 MHz	QPSK	1	0	23.56	0.0	25.0	13.63	0.0	15.0
		1	25	23.61	0.0	25.0	13.65	0.0	15.0
		1	49	23.51	0.0	25.0	13.34	0.0	15.0
		25	0	22.65	1.0	24.0	13.64	0.0	15.0
		25	12	22.65	1.0	24.0	13.68	0.0	15.0
		25	25	22.69	1.0	24.0	13.69	0.0	15.0
		50	0	22.54	1.0	24.0	13.55	0.0	15.0
	16QAM	1	0	22.69	1.0	24.0	13.77	0.0	15.0
		1	25	22.65	1.0	24.0	13.62	0.0	15.0
		1	49	22.59	1.0	24.0	13.40	0.0	15.0
		25	0	21.74	2.0	23.0	13.89	0.0	15.0
		25	12	21.71	2.0	23.0	13.74	0.0	15.0
		25	25	21.80	2.0	23.0	13.68	0.0	15.0
		50	0	21.60	2.0	23.0	13.61	0.0	15.0
	64QAM	1	0	21.98	2.0	23.0	13.72	0.0	15.0
		1	25	22.00	2.0	23.0	13.79	0.0	15.0
		1	49	21.93	2.0	23.0	13.63	0.0	15.0
		25	0	20.72	3.0	22.0	13.62	0.0	15.0
		25	12	20.74	3.0	22.0	13.60	0.0	15.0
		25	25	20.80	3.0	22.0	13.52	0.0	15.0
		50	0	20.67	3.0	22.0	13.47	0.0	15.0
	256QAM	1	0	18.36	5.0	20.0	13.65	1.0	14.0
		1	25	18.62	5.0	20.0	13.98	1.0	14.0
		1	49	18.29	5.0	20.0	13.68	1.0	14.0
		25	0	18.71	5.0	20.0	13.44	1.0	14.0
		25	12	18.84	5.0	20.0	13.54	1.0	14.0
		25	25	18.74	5.0	20.0	13.45	1.0	14.0
		50	0	18.74	5.0	20.0	13.46	1.0	14.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm) 23230 / 782 MHz	MPR	Tune-up Limit	Measured Pwr (dBm) 23230 / 782 MHz	MPR	Tune-up Limit
5 MHz	QPSK	1	0	23.60	0.0	25.0	13.69	0.0	15.0
		1	12	23.64	0.0	25.0	13.59	0.0	15.0
		1	24	23.62	0.0	25.0	13.57	0.0	15.0
		12	0	22.58	1.0	24.0	13.64	0.0	15.0
		12	7	22.67	1.0	24.0	13.62	0.0	15.0
		12	13	22.66	1.0	24.0	13.56	0.0	15.0
		25	0	22.63	1.0	24.0	13.58	0.0	15.0
	16QAM	1	0	23.18	1.0	24.0	13.85	0.0	15.0
		1	12	23.21	1.0	24.0	13.76	0.0	15.0
		1	24	23.14	1.0	24.0	13.71	0.0	15.0
		12	0	21.70	2.0	23.0	13.71	0.0	15.0
		12	7	21.80	2.0	23.0	13.70	0.0	15.0
		12	13	21.83	2.0	23.0	13.64	0.0	15.0
		25	0	21.68	2.0	23.0	13.62	0.0	15.0
	64QAM	1	0	22.04	2.0	23.0	13.77	0.0	15.0
		1	12	22.10	2.0	23.0	13.82	0.0	15.0
		1	24	22.06	2.0	23.0	13.63	0.0	15.0
		12	0	20.64	3.0	22.0	13.47	0.0	15.0
		12	7	20.68	3.0	22.0	13.47	0.0	15.0
		12	13	20.76	3.0	22.0	13.40	0.0	15.0
		25	0	20.61	3.0	22.0	13.45	0.0	15.0
	256QAM	1	0	18.47	5.0	20.0	13.44	1.0	14.0
		1	12	18.62	5.0	20.0	13.55	1.0	14.0
		1	24	18.43	5.0	20.0	13.39	1.0	14.0
		12	0	18.80	5.0	20.0	13.77	1.0	14.0
		12	7	18.79	5.0	20.0	13.74	1.0	14.0
		12	13	18.76	5.0	20.0	13.73	1.0	14.0
		25	0	18.82	5.0	20.0	13.75	1.0	14.0

LTE Band 17 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)					
				DSI = 0			DSI = 1		
				Measured Pwr (dBm) 23790 / 710 MHz	MPR	Tune-up Limit	Measured Pwr (dBm) 23790 / 710 MHz	MPR	Tune-up Limit
10 MHz	QPSK	1	0	23.27	0.0	25.0	14.95	0.0	17.0
		1	25	23.24	0.0	25.0	14.96	0.0	17.0
		1	49	23.32	0.0	25.0	15.06	0.0	17.0
		25	0	22.29	1.0	24.0	15.03	0.0	17.0
		25	12	22.35	1.0	24.0	15.14	0.0	17.0
		25	25	22.33	1.0	24.0	15.11	0.0	17.0
		50	0	22.37	1.0	24.0	15.14	0.0	17.0
	16QAM	1	0	22.27	1.0	24.0	14.98	0.0	17.0
		1	25	22.23	1.0	24.0	14.98	0.0	17.0
		1	49	22.26	1.0	24.0	15.04	0.0	17.0
		25	0	21.29	2.0	23.0	15.03	0.0	17.0
		25	12	21.40	2.0	23.0	15.16	0.0	17.0
		25	25	21.35	2.0	23.0	15.11	0.0	17.0
		50	0	21.33	2.0	23.0	15.10	0.0	17.0
	64QAM	1	0	21.77	2.0	23.0	15.30	0.0	17.0
		1	25	21.79	2.0	23.0	15.33	0.0	17.0
		1	49	21.84	2.0	23.0	15.41	0.0	17.0
		25	0	20.40	3.0	22.0	15.12	0.0	17.0
		25	12	20.46	3.0	22.0	15.20	0.0	17.0
		25	25	20.42	3.0	22.0	15.18	0.0	17.0
		50	0	20.42	3.0	22.0	15.14	0.0	17.0
	256QAM	1	0	18.18	5.0	20.0	15.55	1.0	16.0
		1	25	18.23	5.0	20.0	15.57	1.0	16.0
		1	49	18.33	5.0	20.0	15.60	1.0	16.0
		25	0	18.46	5.0	20.0	15.15	1.0	16.0
		25	12	18.56	5.0	20.0	15.21	1.0	16.0
		25	25	18.50	5.0	20.0	15.18	1.0	16.0
		50	0	18.55	5.0	20.0	15.16	1.0	16.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm) 23790 / 710 MHz	MPR	Tune-up Limit	Measured Pwr (dBm) 23790 / 710 MHz	MPR	Tune-up Limit
5 MHz	QPSK	1	0	23.24	0.0	25.0	15.03	0.0	17.0
		1	12	23.24	0.0	25.0	15.13	0.0	17.0
		1	24	23.23	0.0	25.0	15.07	0.0	17.0
		12	0	22.28	1.0	24.0	15.07	0.0	17.0
		12	7	22.39	1.0	24.0	15.18	0.0	17.0
		12	13	22.32	1.0	24.0	15.16	0.0	17.0
		25	0	22.34	1.0	24.0	15.11	0.0	17.0
	16QAM	1	0	22.79	1.0	24.0	15.21	0.0	17.0
		1	12	22.85	1.0	24.0	15.13	0.0	17.0
		1	24	22.83	1.0	24.0	15.21	0.0	17.0
		12	0	21.45	2.0	23.0	15.08	0.0	17.0
		12	7	21.49	2.0	23.0	15.16	0.0	17.0
		12	13	21.49	2.0	23.0	15.16	0.0	17.0
		25	0	21.37	2.0	23.0	15.06	0.0	17.0
	64QAM	1	0	21.68	2.0	23.0	15.19	0.0	17.0
		1	12	21.83	2.0	23.0	15.35	0.0	17.0
		1	24	21.79	2.0	23.0	15.21	0.0	17.0
		12	0	20.33	3.0	22.0	15.18	0.0	17.0
		12	7	20.42	3.0	22.0	15.27	0.0	17.0
		12	13	20.42	3.0	22.0	15.28	0.0	17.0
		25	0	20.32	3.0	22.0	15.16	0.0	17.0
	256QAM	1	0	18.09	5.0	20.0	15.07	1.0	16.0
		1	12	18.26	5.0	20.0	15.20	1.0	16.0
		1	24	18.17	5.0	20.0	15.14	1.0	16.0
		12	0	18.39	5.0	20.0	15.37	1.0	16.0
		12	7	18.52	5.0	20.0	15.49	1.0	16.0
		12	13	18.48	5.0	20.0	15.46	1.0	16.0
		25	0	18.51	5.0	20.0	15.47	1.0	16.0

LTE Band 25 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)									
				DSI = 0					DSI = 1				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26140	26365	26590			26140	26365	26590		
				1860 MHz	1882.5 MHz	1905 MHz			1860 MHz	1882.5 MHz	1905 MHz		
20 MHz	QPSK	1	0	22.02	22.00	21.98	0.0	22.7	12.14	12.07	12.06	0.0	12.7
		1	49	21.91	22.01	21.90	0.0	22.7	12.10	12.03	12.05	0.0	12.7
		1	99	21.97	22.00	21.87	0.0	22.7	12.10	12.09	12.10	0.0	12.7
		50	0	20.92	21.02	21.01	1.0	21.7	12.18	12.07	12.08	0.0	12.7
		50	24	21.06	21.05	21.02	1.0	21.7	12.30	12.13	12.13	0.0	12.7
		50	50	20.99	21.00	20.98	1.0	21.7	12.21	12.11	12.14	0.0	12.7
		100	0	20.92	20.92	20.93	1.0	21.7	12.13	12.04	12.08	0.0	12.7
	16QAM	1	0	21.33	21.54	21.44	1.0	21.7	12.53	12.48	12.49	0.0	12.7
		1	49	21.33	21.57	21.38	1.0	21.7	12.54	12.45	12.48	0.0	12.7
		1	99	21.37	21.56	21.45	1.0	21.7	12.55	12.51	12.53	0.0	12.7
		50	0	19.88	20.07	20.02	2.0	20.7	12.19	12.05	12.10	0.0	12.7
		50	24	19.98	20.07	20.03	2.0	20.7	12.21	12.12	12.16	0.0	12.7
		50	50	19.97	20.05	19.99	2.0	20.7	12.14	12.11	12.17	0.0	12.7
		100	0	19.93	19.99	19.92	2.0	20.7	12.09	12.02	12.06	0.0	12.7
	64QAM	1	0	20.52	20.39	20.45	2.0	20.7	12.55	12.34	12.48	0.0	12.7
		1	49	20.58	20.45	20.41	2.0	20.7	12.51	12.37	12.45	0.0	12.7
		1	99	20.69	20.25	20.30	2.0	20.7	12.56	12.40	12.56	0.0	12.7
		50	0	18.96	19.07	19.12	3.0	19.7	12.32	12.10	12.17	0.0	12.7
		50	24	19.04	19.07	19.10	3.0	19.7	12.30	12.16	12.24	0.0	12.7
		50	50	19.03	19.05	19.06	3.0	19.7	12.32	12.17	12.28	0.0	12.7
		100	0	18.90	18.99	18.95	3.0	19.7	12.16	12.07	12.14	0.0	12.7
	256QAM	1	0	16.65	16.57	16.85	5.0	17.7	11.82	11.67	11.90	0.0	12.7
		1	49	17.17	17.07	17.21	5.0	17.7	12.31	12.13	12.26	0.0	12.7
		1	99	16.95	16.72	16.88	5.0	17.7	12.12	11.83	11.96	0.0	12.7
		50	0	16.80	16.95	16.88	5.0	17.7	11.97	12.05	12.00	0.0	12.7
		50	24	17.06	17.11	17.04	5.0	17.7	12.20	12.18	12.12	0.0	12.7
		50	50	17.02	17.07	17.01	5.0	17.7	12.17	12.16	12.09	0.0	12.7
		100	0	16.95	17.02	16.96	5.0	17.7	12.08	12.10	12.02	0.0	12.7
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26115	26365	26615			26115	26365	26615		
				1857.5 MHz	1882.5 MHz	1907.5 MHz			1857.5 MHz	1882.5 MHz	1907.5 MHz		
15 MHz	QPSK	1	0	21.62	22.03	22.01	0.0	22.7	11.89	12.16	12.12	0.0	12.7
		1	37	21.92	22.00	21.88	0.0	22.7	12.11	12.13	12.06	0.0	12.7
		1	74	21.84	21.97	21.86	0.0	22.7	12.09	12.18	12.07	0.0	12.7
		36	0	20.82	20.93	20.88	1.0	21.7	12.03	12.09	12.02	0.0	12.7
		36	20	20.98	21.05	21.00	1.0	21.7	12.25	12.19	12.13	0.0	12.7
		36	39	20.97	21.03	20.95	1.0	21.7	12.24	12.24	12.14	0.0	12.7
		75	0	20.89	20.97	20.91	1.0	21.7	12.15	12.13	12.08	0.0	12.7
	16QAM	1	0	21.17	21.02	21.38	1.0	21.7	12.24	12.14	12.52	0.0	12.7
		1	37	21.49	21.04	21.38	1.0	21.7	12.59	12.16	12.46	0.0	12.7
		1	74	21.40	21.00	21.26	1.0	21.7	12.48	12.17	12.53	0.0	12.7
		36	0	19.77	19.93	19.91	2.0	20.7	12.07	12.10	12.01	0.0	12.7
		36	20	19.96	20.03	20.03	2.0	20.7	12.28	12.18	12.10	0.0	12.7
		36	39	19.97	20.01	20.03	2.0	20.7	12.26	12.25	12.09	0.0	12.7
		75	0	19.93	19.97	19.93	2.0	20.7	12.19	12.11	12.08	0.0	12.7
	64QAM	1	0	20.24	20.38	20.16	2.0	20.7	12.24	12.43	12.19	0.0	12.7
		1	37	20.64	20.42	20.13	2.0	20.7	12.55	12.46	12.07	0.0	12.7
		1	74	20.54	20.36	20.03	2.0	20.7	12.52	12.51	12.15	0.0	12.7
		36	0	18.86	18.96	18.98	3.0	19.7	12.04	12.16	12.15	0.0	12.7
		36	20	19.04	19.09	19.07	3.0	19.7	12.23	12.26	12.24	0.0	12.7
		36	39	19.04	19.08	19.06	3.0	19.7	12.24	12.31	12.25	0.0	12.7
		75	0	19.01	19.00	18.98	3.0	19.7	12.16	12.15	12.14	0.0	12.7
	256QAM	1	0	16.97	17.17	16.62	5.0	17.7	12.06	11.67	11.66	0.0	12.7
		1	37	17.30	17.50	16.87	5.0	17.7	12.38	12.01	11.88	0.0	12.7
		1	74	17.26	17.33	16.68	5.0	17.7	12.38	11.90	11.73	0.0	12.7
		36	0	16.84	17.02	16.95	5.0	17.7	11.96	12.06	12.02	0.0	12.7
		36	20	17.03	17.12	17.02	5.0	17.7	12.19	12.16	12.12	0.0	12.7
		36	39	17.06	17.11	17.03	5.0	17.7	12.18	12.14	12.10	0.0	12.7
		75	0	17.00	17.05	16.97	5.0	17.7	12.13	12.08	12.05	0.0	12.7

LTE Band 25 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26090	26365	26640			26090	26365	26640		
				1855 MHz	1882.5 MHz	1910 MHz			1855 MHz	1882.5 MHz	1910 MHz		
10 MHz	QPSK	1	0	21.71	21.76	21.94	0.0	22.7	11.92	11.93	12.06	0.0	12.7
		1	25	21.95	22.07	21.91	0.0	22.7	12.19	12.18	12.08	0.0	12.7
		1	49	21.78	21.84	21.93	0.0	22.7	12.03	11.98	12.05	0.0	12.7
		25	0	20.91	21.04	20.98	1.0	21.7	12.13	12.16	12.01	0.0	12.7
		25	12	21.10	21.15	21.08	1.0	21.7	12.30	12.25	12.12	0.0	12.7
		25	25	21.04	21.16	21.01	1.0	21.7	12.25	12.29	12.18	0.0	12.7
		50	0	21.02	21.08	21.00	1.0	21.7	12.24	12.15	12.06	0.0	12.7
	16QAM	1	0	21.18	20.94	20.95	1.0	21.7	12.31	11.91	12.21	0.0	12.7
		1	25	21.43	21.21	20.91	1.0	21.7	12.62	12.19	12.18	0.0	12.7
		1	49	21.27	20.96	20.90	1.0	21.7	12.45	11.96	12.15	0.0	12.7
		25	0	19.96	20.12	20.01	2.0	20.7	12.19	12.20	12.16	0.0	12.7
		25	12	20.13	20.23	20.12	2.0	20.7	12.34	12.30	12.23	0.0	12.7
		25	25	20.13	20.25	20.06	2.0	20.7	12.33	12.29	12.28	0.0	12.7
		50	0	20.04	20.13	20.01	2.0	20.7	12.26	12.19	12.11	0.0	12.7
	64QAM	1	0	20.11	19.88	20.28	2.0	20.7	11.83	12.26	12.15	0.0	12.7
		1	25	20.43	20.20	20.27	2.0	20.7	12.01	12.55	12.22	0.0	12.7
		1	49	20.22	20.17	20.26	2.0	20.7	11.92	12.35	12.27	0.0	12.7
		25	0	18.98	19.16	19.04	3.0	19.7	12.22	12.24	12.16	0.0	12.7
		25	12	19.18	19.24	19.16	3.0	19.7	12.42	12.34	12.28	0.0	12.7
		25	25	19.12	19.25	19.10	3.0	19.7	12.38	12.39	12.32	0.0	12.7
		50	0	19.06	19.10	19.01	3.0	19.7	12.29	12.26	12.17	0.0	12.7
	256QAM	1	0	17.27	16.73	16.88	5.0	17.7	11.93	12.49	11.76	0.0	12.7
		1	25	17.62	17.05	17.08	5.0	17.7	12.24	12.42	11.94	0.0	12.7
		1	49	17.36	16.82	16.87	5.0	17.7	12.06	12.43	11.76	0.0	12.7
		25	0	16.99	17.10	17.04	5.0	17.7	12.17	12.25	12.15	0.0	12.7
		25	12	17.16	17.24	17.18	5.0	17.7	12.38	12.33	12.31	0.0	12.7
		25	25	17.10	17.24	17.12	5.0	17.7	12.32	12.36	12.23	0.0	12.7
		50	0	17.06	17.08	17.04	5.0	17.7	12.22	12.23	12.18	0.0	12.7
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26065	26365	26665			26065	26365	26665		
				1852.5 MHz	1882.5 MHz	1912.5 MHz			1852.5 MHz	1882.5 MHz	1912.5 MHz		
5 MHz	QPSK	1	0	21.91	22.15	21.94	0.0	22.7	12.06	12.25	12.18	0.0	12.7
		1	12	21.99	22.22	21.91	0.0	22.7	12.13	12.27	12.18	0.0	12.7
		1	24	22.01	22.23	21.97	0.0	22.7	12.17	12.37	12.21	0.0	12.7
		12	0	21.05	21.06	21.03	1.0	21.7	12.22	12.18	12.17	0.0	12.7
		12	7	21.11	21.14	21.11	1.0	21.7	12.30	12.25	12.24	0.0	12.7
		12	13	21.10	21.22	21.08	1.0	21.7	12.27	12.34	12.22	0.0	12.7
		25	0	21.06	21.14	21.04	1.0	21.7	12.25	12.24	12.21	0.0	12.7
	16QAM	1	0	21.13	21.25	21.51	1.0	21.7	12.67	12.39	12.33	0.0	12.7
		1	12	21.16	21.27	21.53	1.0	21.7	12.55	12.43	12.27	0.0	12.7
		1	24	21.24	21.33	21.49	1.0	21.7	12.46	12.49	12.38	0.0	12.7
		12	0	20.08	20.16	20.16	2.0	20.7	12.38	12.27	12.22	0.0	12.7
		12	7	20.14	20.24	20.21	2.0	20.7	12.43	12.33	12.29	0.0	12.7
		12	13	20.15	20.30	20.21	2.0	20.7	12.44	12.40	12.28	0.0	12.7
		25	0	20.03	20.16	20.09	2.0	20.7	12.33	12.29	12.14	0.0	12.7
	64QAM	1	0	20.14	19.99	20.50	2.0	20.7	12.28	12.46	12.53	0.0	12.7
		1	12	20.28	20.19	20.48	2.0	20.7	12.51	12.62	12.66	0.0	12.7
		1	24	20.32	20.17	20.42	2.0	20.7	12.48	12.62	12.51	0.0	12.7
		12	0	19.14	19.17	19.05	3.0	19.7	12.41	12.19	12.20	0.0	12.7
		12	7	19.14	19.26	19.07	3.0	19.7	12.44	12.23	12.26	0.0	12.7
		12	13	19.17	19.31	19.11	3.0	19.7	12.45	12.28	12.28	0.0	12.7
		25	0	19.12	19.13	19.00	3.0	19.7	12.31	12.27	12.21	0.0	12.7
	256QAM	1	0	16.96	16.85	17.14	5.0	17.7	12.12	12.34	12.27	0.0	12.7
		1	12	17.15	17.02	17.14	5.0	17.7	12.32	12.45	12.30	0.0	12.7
		1	24	17.18	16.97	17.22	5.0	17.7	12.32	12.49	12.35	0.0	12.7
		12	0	17.08	17.11	17.04	5.0	17.7	12.19	12.25	12.15	0.0	12.7
		12	7	17.12	17.19	17.10	5.0	17.7	12.23	12.31	12.24	0.0	12.7
		12	13	17.13	17.23	17.09	5.0	17.7	12.27	12.36	12.25	0.0	12.7
		25	0	17.14	17.20	17.05	5.0	17.7	12.23	12.29	12.16	0.0	12.7

LTE Band 25 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26055	26365	26675			26055	26365	26675		
				1851.5 MHz	1882.5 MHz	1913.5 MHz			1851.5 MHz	1882.5 MHz	1913.5 MHz		
3 MHz	QPSK	1	0	21.88	22.01	21.97	0.0	22.7	12.17	12.14	12.07	0.0	12.7
		1	8	21.79	22.03	21.94	0.0	22.7	12.20	12.14	12.00	0.0	12.7
		1	14	21.92	22.14	22.02	0.0	22.7	12.22	12.30	12.14	0.0	12.7
		8	0	21.00	21.08	20.99	1.0	21.7	12.22	12.23	12.13	0.0	12.7
		8	4	21.06	21.12	21.03	1.0	21.7	12.24	12.32	12.21	0.0	12.7
		8	7	21.10	21.21	21.07	1.0	21.7	12.29	12.35	12.24	0.0	12.7
		15	0	21.03	21.11	21.03	1.0	21.7	12.24	12.24	12.19	0.0	12.7
	16QAM	1	0	21.05	20.98	21.38	1.0	21.7	12.54	12.15	12.24	0.0	12.7
		1	8	21.04	21.07	21.33	1.0	21.7	12.52	12.17	12.20	0.0	12.7
		1	14	21.11	21.05	21.45	1.0	21.7	12.60	12.28	12.26	0.0	12.7
		8	0	20.01	20.20	20.05	2.0	20.7	12.26	12.31	12.24	0.0	12.7
		8	4	20.12	20.21	20.13	2.0	20.7	12.33	12.47	12.25	0.0	12.7
		8	7	20.16	20.33	20.15	2.0	20.7	12.35	12.48	12.32	0.0	12.7
		15	0	20.00	20.12	20.10	2.0	20.7	12.29	12.28	12.17	0.0	12.7
	64QAM	1	0	20.43	20.56	20.07	2.0	20.7	12.14	12.50	12.21	0.0	12.7
		1	8	20.34	20.56	20.14	2.0	20.7	12.14	12.52	12.34	0.0	12.7
		1	14	20.47	20.55	20.17	2.0	20.7	12.20	12.65	12.26	0.0	12.7
		8	0	19.03	19.21	19.09	3.0	19.7	12.34	12.43	12.23	0.0	12.7
		8	4	19.05	19.27	19.11	3.0	19.7	12.36	12.57	12.29	0.0	12.7
		8	7	19.05	19.34	19.11	3.0	19.7	12.39	12.53	12.33	0.0	12.7
		15	0	19.12	19.15	19.10	3.0	19.7	12.27	12.30	12.34	0.0	12.7
	256QAM	1	0	17.01	17.56	16.84	5.0	17.7	12.22	12.33	12.36	0.0	12.7
		1	8	17.15	17.66	16.86	5.0	17.7	12.31	12.42	12.47	0.0	12.7
		1	14	17.10	17.70	16.89	5.0	17.7	12.28	12.48	12.42	0.0	12.7
		8	0	17.14	17.17	16.95	5.0	17.7	12.29	12.33	12.26	0.0	12.7
		8	4	17.23	17.21	17.04	5.0	17.7	12.37	12.32	12.24	0.0	12.7
		8	7	17.25	17.29	17.04	5.0	17.7	12.40	12.41	12.26	0.0	12.7
		15	0	17.14	17.22	17.17	5.0	17.7	12.29	12.30	12.25	0.0	12.7

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26047	26365	26683			26047	26365	26683		
				1850.7 MHz	1882.5 MHz	1914.3 MHz			1850.7 MHz	1882.5 MHz	1914.3 MHz		
1.4 MHz	QPSK	1	0	21.81	22.05	21.78	0.0	22.7	12.10	12.08	11.99	0.0	12.7
		1	3	21.88	22.09	21.82	0.0	22.7	12.14	12.17	12.07	0.0	12.7
		1	5	21.86	22.07	21.81	0.0	22.7	12.15	12.13	12.03	0.0	12.7
		3	0	21.78	21.96	21.85	0.0	22.7	12.02	12.10	12.04	0.0	12.7
		3	1	21.86	22.03	21.90	0.0	22.7	12.10	12.17	12.11	0.0	12.7
		3	3	21.88	22.01	21.91	0.0	22.7	12.11	12.15	12.12	0.0	12.7
		6	0	20.92	21.09	20.96	1.0	21.7	12.12	12.26	12.13	0.0	12.7
	16QAM	1	0	20.88	21.19	21.34	1.0	21.7	12.26	12.21	12.44	0.0	12.7
		1	3	21.05	21.24	21.35	1.0	21.7	12.37	12.31	12.46	0.0	12.7
		1	5	20.97	21.21	21.35	1.0	21.7	12.29	12.26	12.45	0.0	12.7
		3	0	21.11	21.06	21.12	1.0	21.7	12.21	12.42	12.31	0.0	12.7
		3	1	21.13	21.20	21.10	1.0	21.7	12.18	12.44	12.30	0.0	12.7
		3	3	21.18	21.22	21.13	1.0	21.7	12.32	12.43	12.31	0.0	12.7
		6	0	20.16	20.24	19.83	2.0	20.7	12.29	12.41	12.00	0.0	12.7
	64QAM	1	0	20.59	20.14	20.03	2.0	20.7	11.99	12.47	12.22	0.0	12.7
		1	3	20.70	20.17	20.09	2.0	20.7	12.20	12.62	12.29	0.0	12.7
		1	5	20.60	20.11	20.05	2.0	20.7	12.18	12.53	12.21	0.0	12.7
		3	0	20.25	20.20	20.06	2.0	20.7	12.07	12.33	12.29	0.0	12.7
		3	1	20.31	20.24	20.14	2.0	20.7	12.04	12.44	12.40	0.0	12.7
		3	3	20.32	20.25	20.14	2.0	20.7	12.06	12.32	12.43	0.0	12.7
		6	0	18.97	19.41	19.31	3.0	19.7	12.22	12.36	12.29	0.0	12.7
	256QAM	1	0	17.17	17.30	17.50	5.0	17.7	12.29	12.35	12.03	0.0	12.7
		1	3	17.28	17.43	16.81	5.0	17.7	12.42	12.46	12.25	0.0	12.7
		1	5	17.17	17.34	16.87	5.0	17.7	12.33	12.39	12.14	0.0	12.7
		3	0	16.92	17.07	16.86	5.0	17.7	12.08	12.19	12.11	0.0	12.7
		3	1	17.01	17.14	16.86	5.0	17.7	12.18	12.26	12.13	0.0	12.7
		3	3	16.93	17.10	16.92	5.0	17.7	12.08	12.21	12.16	0.0	12.7
		6	0	16.94	17.09	17.11	5.0	17.7	12.08	12.19	12.13	0.0	12.7

LTE Band 26 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)								
				DSI = 0					DSI = 1			
				Measured Pwr (dBm)		MPR	Tune-up Limit	Measured Pwr (dBm)		MPR	Tune-up Limit
				[redacted]	26865			[redacted]	26865		
				[redacted]	831.5 MHz			[redacted]	831.5 MHz		
15 MHz	QPSK	1	0	[redacted]	23.60	0.0	25.0	[redacted]	15.40	0.0	17.0
		1	37	[redacted]	23.70	0.0	25.0	[redacted]	15.54	0.0	17.0
		1	74	[redacted]	23.62	0.0	25.0	[redacted]	15.30	0.0	17.0
		36	0	[redacted]	22.62	0.0	24.0	[redacted]	15.32	0.0	17.0
		36	20	[redacted]	22.71	1.0	24.0	[redacted]	15.40	0.0	17.0
		36	39	[redacted]	22.67	1.0	24.0	[redacted]	15.34	0.0	17.0
		75	0	[redacted]	22.63	1.0	24.0	[redacted]	15.34	0.0	17.0
	16QAM	1	0	[redacted]	22.97	1.0	24.0	[redacted]	15.69	0.0	17.0
		1	37	[redacted]	23.00	1.0	24.0	[redacted]	15.68	0.0	17.0
		1	74	[redacted]	23.01	1.0	24.0	[redacted]	15.61	0.0	17.0
		36	0	[redacted]	21.59	2.0	23.0	[redacted]	15.28	0.0	17.0
		36	20	[redacted]	21.70	2.0	23.0	[redacted]	15.33	0.0	17.0
		36	39	[redacted]	21.63	2.0	23.0	[redacted]	15.30	0.0	17.0
		75	0	[redacted]	21.62	2.0	23.0	[redacted]	15.30	0.0	17.0
	64QAM	1	0	[redacted]	22.06	2.0	23.0	[redacted]	15.32	0.0	17.0
		1	37	[redacted]	22.12	2.0	23.0	[redacted]	15.65	0.0	17.0
		1	74	[redacted]	21.99	2.0	23.0	[redacted]	15.51	0.0	17.0
		36	0	[redacted]	20.71	3.0	22.0	[redacted]	15.39	0.0	17.0
		36	20	[redacted]	20.82	3.0	22.0	[redacted]	15.45	0.0	17.0
		36	39	[redacted]	20.76	3.0	22.0	[redacted]	15.39	0.0	17.0
		75	0	[redacted]	20.72	3.0	22.0	[redacted]	15.36	0.0	17.0
	256QAM	1	0	[redacted]	18.63	5.0	20.0	[redacted]	15.59	1.0	16.0
		1	37	[redacted]	18.99	5.0	20.0	[redacted]	15.98	1.0	16.0
		1	74	[redacted]	18.76	5.0	20.0	[redacted]	15.71	1.0	16.0
		36	0	[redacted]	18.61	5.0	20.0	[redacted]	15.58	1.0	16.0
		36	20	[redacted]	18.72	5.0	20.0	[redacted]	15.69	1.0	16.0
		36	39	[redacted]	18.66	5.0	20.0	[redacted]	15.61	1.0	16.0
		75	0	[redacted]	18.63	5.0	20.0	[redacted]	15.60	1.0	16.0

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26740	26865	26990			26740	26865	26990		
				819 MHz	831.5 MHz	844 MHz			819 MHz	831.5 MHz	844 MHz		
10 MHz	QPSK	1	0	23.82	23.85	23.80	0.0	25.0	15.50	15.47	15.46	0.0	17.0
		1	25	23.90	23.87	23.69	0.0	25.0	15.44	15.52	15.35	0.0	17.0
		1	49	23.81	23.78	23.65	0.0	25.0	15.49	15.51	15.31	0.0	17.0
		25	0	23.74	22.79	22.67	1.0	24.0	15.47	15.42	15.34	0.0	17.0
		25	12	22.86	22.91	22.78	1.0	24.0	15.59	15.56	15.41	0.0	17.0
		25	25	22.79	22.83	22.69	1.0	24.0	15.52	15.51	15.32	0.0	17.0
		50	0	22.80	22.81	22.69	1.0	24.0	15.50	15.47	15.35	0.0	17.0
	16QAM	1	0	23.21	22.82	22.79	1.0	24.0	15.63	15.45	15.85	0.0	17.0
		1	25	23.17	22.89	22.72	1.0	24.0	15.50	15.52	15.74	0.0	17.0
		1	49	23.22	22.84	22.60	1.0	24.0	15.54	15.45	15.68	0.0	17.0
		25	0	21.85	21.93	21.72	2.0	23.0	15.54	15.47	15.36	0.0	17.0
		25	12	21.95	22.04	21.85	2.0	23.0	15.65	15.58	15.46	0.0	17.0
		25	25	21.89	21.97	21.75	2.0	23.0	15.58	15.55	15.38	0.0	17.0
		50	0	21.81	21.86	21.70	2.0	23.0	15.50	15.49	15.37	0.0	17.0
	64QAM	1	0	22.30	22.35	22.11	2.0	23.0	15.86	15.69	15.84	0.0	17.0
		1	25	22.07	22.34	22.05	2.0	23.0	15.68	15.78	15.72	0.0	17.0
		1	49	22.09	22.25	22.04	2.0	23.0	15.71	15.68	15.66	0.0	17.0
		25	0	20.84	20.89	20.84	3.0	22.0	15.54	15.57	15.41	0.0	17.0
		25	12	20.93	21.05	20.91	3.0	22.0	15.61	15.67	15.50	0.0	17.0
		25	25	20.88	20.94	20.85	3.0	22.0	15.52	15.60	15.39	0.0	17.0
		50	0	20.81	20.90	20.80	3.0	22.0	15.49	15.54	15.39	0.0	17.0
	256QAM	1	0	18.59	18.31	18.93	5.0	20.0	15.34	15.28	15.93	1.0	16.0
		1	25	18.86	18.78	19.17	5.0	20.0	15.58	15.72	15.49	1.0	16.0
		1	49	18.61	18.45	18.99	5.0	20.0	15.41	15.41	15.96	1.0	16.0
		25	0	18.85	18.82	18.73	5.0	20.0	15.77	15.81	15.74	1.0	16.0
		25	12	18.96	18.95	18.82	5.0	20.0	15.89	15.96	15.83	1.0	16.0
		25	25	18.86	18.85	18.73	5.0	20.0	15.82	15.88	15.72	1.0	16.0
		50	0	18.82	18.82	18.69	5.0	20.0	15.76	15.80	15.72	1.0	16.0

LTE Band 26 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26715	26865	27015			26715	26865	27015		
				816.5 MHz	831.5 MHz	846.5 MHz			816.5 MHz	831.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	23.82	23.88	23.73	0.0	25.0	15.52	15.66	15.35	0.0	17.0
		1	12	23.85	23.91	23.64	0.0	25.0	15.58	15.66	15.39	0.0	17.0
		1	24	23.79	23.88	23.69	0.0	25.0	15.52	15.63	15.28	0.0	17.0
		12	0	22.87	22.91	22.68	1.0	24.0	15.59	15.51	15.32	0.0	17.0
		12	7	22.94	22.99	22.75	1.0	24.0	15.64	15.59	15.42	0.0	17.0
		12	13	22.89	22.94	22.72	1.0	24.0	15.62	15.55	15.37	0.0	17.0
		25	0	22.86	22.88	22.73	1.0	24.0	15.56	15.56	15.34	0.0	17.0
	16QAM	1	0	23.20	22.93	22.89	1.0	24.0	15.67	15.80	15.88	0.0	17.0
		1	12	23.32	22.93	22.80	1.0	24.0	15.69	15.75	15.83	0.0	17.0
		1	24	23.24	22.97	22.83	1.0	24.0	15.68	15.74	15.83	0.0	17.0
		12	0	22.01	21.90	21.78	2.0	23.0	15.59	15.58	15.47	0.0	17.0
		12	7	22.08	21.99	21.84	2.0	23.0	15.69	15.69	15.53	0.0	17.0
		12	13	22.02	21.93	21.78	2.0	23.0	15.65	15.62	15.51	0.0	17.0
		25	0	21.93	21.85	21.76	2.0	23.0	15.53	15.57	15.41	0.0	17.0
	64QAM	1	0	22.08	21.88	22.10	2.0	23.0	15.47	15.82	15.70	0.0	17.0
		1	12	22.13	21.97	22.07	2.0	23.0	15.61	15.92	15.65	0.0	17.0
		1	24	22.05	21.92	22.05	2.0	23.0	15.46	15.83	15.61	0.0	17.0
		12	0	20.95	20.97	20.73	3.0	22.0	15.66	15.63	15.32	0.0	17.0
		12	7	20.96	21.01	20.74	3.0	22.0	15.72	15.67	15.34	0.0	17.0
		12	13	20.94	20.96	20.72	3.0	22.0	15.63	15.63	15.33	0.0	17.0
		25	0	20.89	20.90	20.68	3.0	22.0	15.58	15.58	15.29	0.0	17.0
	256QAM	1	0	18.88	18.51	18.74	5.0	20.0	15.91	15.88	15.65	1.0	16.0
		1	12	19.00	18.75	18.78	5.0	20.0	15.98	15.99	15.82	1.0	16.0
		1	24	18.88	18.54	18.75	5.0	20.0	15.92	15.92	15.70	1.0	16.0
		12	0	18.89	18.85	18.66	5.0	20.0	15.86	15.85	15.67	1.0	16.0
		12	7	18.95	18.93	18.75	5.0	20.0	15.92	15.94	15.76	1.0	16.0
		12	13	18.89	18.88	18.69	5.0	20.0	15.90	15.88	15.72	1.0	16.0
		25	0	18.87	18.90	18.65	5.0	20.0	15.87	15.85	15.71	1.0	16.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26705	26865	27025			26705	26865	27025		
				815.5 MHz	831.5 MHz	847.5 MHz			815.5 MHz	831.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	23.78	23.91	23.70	0.0	25.0	15.52	15.56	15.35	0.0	17.0
		1	8	23.70	23.89	23.62	0.0	25.0	15.46	15.49	15.26	0.0	17.0
		1	14	23.75	23.97	23.67	0.0	25.0	15.52	15.59	15.28	0.0	17.0
		8	0	22.87	22.89	22.68	1.0	24.0	15.62	15.57	15.31	0.0	17.0
		8	4	22.87	22.93	22.74	1.0	24.0	15.66	15.58	15.36	0.0	17.0
		8	7	22.89	22.95	22.73	1.0	24.0	15.67	15.63	15.35	0.0	17.0
		15	0	22.86	22.91	22.72	1.0	24.0	15.63	15.57	15.33	0.0	17.0
	16QAM	1	0	22.81	22.90	23.06	1.0	24.0	15.64	15.46	15.66	0.0	17.0
		1	8	22.77	22.77	22.94	1.0	24.0	15.60	15.48	15.58	0.0	17.0
		1	14	22.82	22.88	23.06	1.0	24.0	15.61	15.47	15.68	0.0	17.0
		8	0	21.95	21.96	21.74	2.0	23.0	15.66	15.66	15.34	0.0	17.0
		8	4	21.97	22.03	21.81	2.0	23.0	15.72	15.70	15.43	0.0	17.0
		8	7	22.00	22.02	21.82	2.0	23.0	15.72	15.72	15.44	0.0	17.0
		15	0	21.84	21.95	21.74	2.0	23.0	15.60	15.62	15.36	0.0	17.0
	64QAM	1	0	22.20	22.28	21.86	2.0	23.0	15.92	15.85	15.44	0.0	17.0
		1	8	22.10	22.43	21.78	2.0	23.0	16.02	15.83	15.41	0.0	17.0
		1	14	22.16	22.37	21.80	2.0	23.0	15.91	15.91	15.44	0.0	17.0
		8	0	20.87	20.98	20.76	3.0	22.0	15.65	15.56	15.37	0.0	17.0
		8	4	20.89	21.04	20.76	3.0	22.0	15.75	15.56	15.39	0.0	17.0
		8	7	20.87	21.03	20.79	3.0	22.0	15.74	15.56	15.40	0.0	17.0
		15	0	20.92	20.92	20.76	3.0	22.0	15.65	15.59	15.41	0.0	17.0
	256QAM	1	0	18.87	19.22	18.67	5.0	20.0	15.87	15.71	15.67	1.0	16.0
		1	8	18.94	19.35	18.72	5.0	20.0	15.95	15.86	15.76	1.0	16.0
		1	14	18.87	19.30	18.65	5.0	20.0	15.87	15.83	15.69	1.0	16.0
		8	0	19.03	18.97	18.78	5.0	20.0	15.98	15.96	15.78	1.0	16.0
		8	4	19.08	18.99	18.84	5.0	20.0	15.86	15.97	15.87	1.0	16.0
		8	7	19.09	19.01	18.87	5.0	20.0	15.89	15.98	15.88	1.0	16.0
		15	0	18.95	18.92	18.74	5.0	20.0	15.93	15.89	15.78	1.0	16.0

LTE Band 26 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				26697	26865	27033			26697	26865	27033		
				814.7 MHz	831.5 MHz	848.3 MHz			814.7 MHz	831.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	23.81	23.78	23.49	0.0	25.0	15.47	15.52	15.20	0.0	17.0
		1	3	23.90	23.84	23.58	0.0	25.0	15.48	15.60	15.20	0.0	17.0
		1	5	23.82	23.82	23.51	0.0	25.0	15.47	15.54	15.20	0.0	17.0
		3	0	23.81	23.84	23.51	0.0	25.0	15.44	15.45	15.23	0.0	17.0
		3	1	23.86	23.92	23.57	0.0	25.0	15.51	15.54	15.25	0.0	17.0
		3	3	23.87	23.92	23.53	0.0	25.0	15.49	15.53	15.30	0.0	17.0
		6	0	22.80	22.83	22.58	1.0	24.0	15.55	15.52	15.29	0.0	17.0
	16QAM	1	0	22.92	23.31	22.50	1.0	24.0	15.51	15.66	15.58	0.0	17.0
		1	3	23.02	23.44	22.58	1.0	24.0	15.59	15.75	15.59	0.0	17.0
		1	5	22.96	23.36	22.54	1.0	24.0	15.55	15.72	15.55	0.0	17.0
		3	0	22.74	23.04	22.80	1.0	24.0	15.71	15.59	15.45	0.0	17.0
		3	1	22.76	23.04	22.89	1.0	24.0	15.75	15.59	15.45	0.0	17.0
		3	3	22.80	23.08	22.78	1.0	24.0	15.77	15.66	15.44	0.0	17.0
		6	0	21.98	21.73	21.77	2.0	23.0	15.74	15.63	15.15	0.0	17.0
	64QAM	1	0	22.17	21.98	21.78	2.0	23.0	15.70	15.61	15.42	0.0	17.0
		1	3	22.31	22.15	21.87	2.0	23.0	15.82	15.75	15.73	0.0	17.0
		1	5	22.25	22.04	21.83	2.0	23.0	15.73	15.68	15.63	0.0	17.0
		3	0	22.12	22.01	21.62	2.0	23.0	15.56	15.57	15.57	0.0	17.0
		3	1	22.16	22.05	21.69	2.0	23.0	15.53	15.66	15.60	0.0	17.0
		3	3	22.15	22.11	21.64	2.0	23.0	15.52	15.74	15.58	0.0	17.0
		6	0	20.83	21.14	20.71	3.0	22.0	15.67	15.79	15.22	0.0	17.0
	256QAM	1	0	18.97	18.89	18.60	5.0	20.0	15.90	15.90	15.67	1.0	16.0
		1	3	19.06	19.08	18.73	5.0	20.0	15.96	15.92	15.76	1.0	16.0
		1	5	18.95	18.96	18.62	5.0	20.0	15.92	15.96	15.62	1.0	16.0
		3	0	18.81	18.74	18.62	5.0	20.0	15.76	15.76	15.56	1.0	16.0
		3	1	18.86	18.81	18.69	5.0	20.0	15.82	15.81	15.60	1.0	16.0
		3	3	18.80	18.85	18.64	5.0	20.0	15.80	15.90	15.54	1.0	16.0
		6	0	18.81	18.75	18.65	5.0	20.0	15.74	15.73	15.49	1.0	16.0

LTE Band 41 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)													
				DSI = 0							DSI = 1						
				Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	22.60	22.88	22.32	22.16	22.15	0.0	24.5	14.19	14.18	13.52	13.39	13.49	0.0	15.0
		1	49	22.58	22.89	22.53	22.36	22.36	0.0	24.5	14.22	14.07	13.82	13.67	13.94	0.0	15.0
		1	99	22.93	22.63	22.13	22.13	22.30	0.0	24.5	14.33	14.30	13.53	13.33	13.91	0.0	15.0
		50	0	21.55	21.85	21.52	21.41	21.25	1.0	23.5	14.20	14.17	13.78	13.57	13.76	0.0	15.0
		50	24	21.64	21.88	21.60	21.46	21.43	1.0	23.5	14.28	14.12	13.91	13.67	13.94	0.0	15.0
		50	50	21.92	21.88	21.46	21.24	21.46	1.0	23.5	14.31	14.30	13.76	13.66	14.04	0.0	15.0
		100	0	21.56	21.75	21.50	21.33	21.34	1.0	23.5	14.23	14.01	13.81	13.58	13.86	0.0	15.0
	16QAM	1	0	21.69	21.90	21.48	21.25	21.06	1.0	23.5	14.11	14.21	13.52	13.43	13.49	0.0	15.0
		1	49	21.71	21.87	21.68	21.48	21.52	1.0	23.5	14.15	14.12	13.86	13.73	13.98	0.0	15.0
		1	99	21.79	21.91	21.30	21.11	21.44	1.0	23.5	14.21	14.09	13.57	13.41	13.98	0.0	15.0
		50	0	20.61	20.84	20.62	20.43	20.34	2.0	22.5	14.13	14.14	13.74	13.57	13.72	0.0	15.0
		50	24	20.70	20.85	20.69	20.47	20.50	2.0	22.5	14.23	14.09	13.86	13.64	13.90	0.0	15.0
		50	50	20.69	20.92	20.49	20.28	20.50	2.0	22.5	14.23	14.03	13.77	13.52	14.00	0.0	15.0
		100	0	20.59	20.73	20.54	20.36	20.38	2.0	22.5	14.14	13.98	13.74	13.50	13.80	0.0	15.0
	64QAM	1	0	20.54	21.30	20.74	20.64	20.33	2.0	22.5	14.55	14.50	13.51	13.68	13.75	0.0	15.0
		1	49	20.59	21.36	20.95	20.78	20.77	2.0	22.5	14.57	14.38	14.16	13.94	14.28	0.0	15.0
		1	99	20.67	21.39	20.59	20.41	20.74	2.0	22.5	14.57	14.33	13.80	13.72	14.26	0.0	15.0
		50	0	19.60	19.88	19.56	19.42	19.31	3.0	21.5	14.17	14.12	13.71	13.53	13.70	0.0	15.0
		50	24	19.69	19.89	19.67	19.51	19.49	3.0	21.5	14.24	14.08	13.84	13.64	13.89	0.0	15.0
		50	50	19.70	19.98	19.50	19.30	19.50	3.0	21.5	14.27	14.01	13.76	13.52	13.99	0.0	15.0
		100	0	19.59	19.80	19.52	19.38	19.37	3.0	21.5	14.11	13.95	13.70	13.49	13.79	0.0	15.0
	256QAM	1	0	17.23	17.53	17.41	17.25	17.03	5.0	19.5	13.22	13.51	13.11	12.49	12.28	1.0	14.0
		1	49	17.72	18.01	17.64	17.42	17.46	5.0	19.5	13.72	13.98	13.34	12.66	12.73	1.0	14.0
		1	99	17.57	17.66	17.21	17.03	17.39	5.0	19.5	13.57	13.64	12.89	12.31	12.60	1.0	14.0
		50	0	17.45	17.75	17.51	17.38	17.25	5.0	19.5	13.16	13.49	13.23	12.65	12.54	1.0	14.0
		50	24	17.73	17.88	17.63	17.45	17.46	5.0	19.5	13.41	13.59	13.31	12.76	12.71	1.0	14.0
		50	50	17.69	17.89	17.47	17.27	17.46	5.0	19.5	13.41	13.54	13.17	12.54	12.73	1.0	14.0
		100	0	17.64	17.80	17.54	17.37	17.40	5.0	19.5	13.30	13.47	13.26	12.64	12.66	1.0	14.0
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		
15 MHz	QPSK	1	0	22.59	22.64	22.44	22.26	22.04	0.0	24.5	14.20	13.87	13.65	13.54	13.59	0.0	15.0
		1	37	22.59	22.87	22.53	22.30	22.33	0.0	24.5	14.18	14.02	13.83	13.62	13.89	0.0	15.0
		1	74	22.68	22.71	22.32	22.08	22.33	0.0	24.5	14.25	13.80	13.69	13.51	13.92	0.0	15.0
		36	0	21.60	21.82	21.62	21.43	21.34	1.0	23.5	14.24	14.13	13.86	13.65	13.82	0.0	15.0
		36	20	21.71	21.91	21.65	21.49	21.46	1.0	23.5	14.31	14.16	13.95	13.70	13.94	0.0	15.0
		36	39	21.70	21.94	21.53	21.32	21.48	1.0	23.5	14.33	14.02	13.94	13.72	14.05	0.0	15.0
		75	0	21.62	21.83	21.59	21.39	21.37	1.0	23.5	14.22	14.09	13.88	13.62	13.88	0.0	15.0
	16QAM	1	0	21.72	21.64	21.43	21.24	21.07	1.0	23.5	14.27	13.84	13.62	13.51	13.52	0.0	15.0
		1	37	21.79	21.86	21.53	21.32	21.32	1.0	23.5	14.25	13.96	13.78	13.60	13.82	0.0	15.0
		1	74	21.81	21.71	21.36	21.13	21.36	1.0	23.5	14.27	13.75	13.64	13.47	13.85	0.0	15.0
		36	0	20.63	20.79	20.61	20.41	20.32	2.0	22.5	14.20	14.04	13.78	13.58	13.74	0.0	15.0
		36	20	20.71	20.87	20.65	20.47	20.43	2.0	22.5	14.28	14.09	13.85	13.63	13.87	0.0	15.0
		36	39	20.74	20.95	20.54	20.32	20.47	2.0	22.5	14.27	13.96	13.83	13.60	13.95	0.0	15.0
		75	0	20.65	20.88	20.60	20.40	20.42	2.0	22.5	14.19	14.05	13.79	13.56	13.82	0.0	15.0
	64QAM	1	0	20.49	20.60	20.36	20.23	20.14	2.0	22.5	13.76	13.80	13.89	13.05	13.42	0.0	15.0
		1	37	20.60	20.88	20.57	20.29	20.31	2.0	22.5	13.74	13.87	14.05	13.15	13.74	0.0	15.0
		1	74	20.62	20.71	20.33	20.08	20.27	2.0	22.5	13.85	13.64	13.88	13.04	13.80	0.0	15.0
		36	0	19.67	19.91	19.67	19.48	19.40	3.0	21.5	14.24	14.00	13.82	13.62	13.72	0.0	15.0
		36	20	19.76	19.96	19.74	19.52	19.52	3.0	21.5	14.30	14.05	13.89	13.68	13.84	0.0	15.0
		36	39	19.79	20.03	19.64	19.37	19.55	3.0	21.5	14.32	13.92	13.89	13.63	13.94	0.0	15.0
		75	0	19.67	19.86	19.61	19.41	19.41	3.0	21.5	14.22	14.04	13.80	13.55	13.82	0.0	15.0
	256QAM	1	0	17.45	17.76	17.62	16.96	16.83	5.0	19.5	13.11	13.40	13.30	12.66	12.49	1.0	14.0
		1	37	17.74	18.05	17.71	17.01	17.09	5.0	19.5	13.40	13.69	13.44	12.66	12.74	1.0	14.0
		1	74	17.72	17.89	17.46	16.83	17.03	5.0	19.5	13.37	13.51	13.18	12.48	12.68	1.0	14.0
		36	0	17.56	17.83	17.66	17.03	16.93	5.0	19.5	13.18	13.51	13.24	12.69	12.58	1.0	14.0
		36	20	17.72	17.93	17.70	17.07	17.09	5.0	19.5	13.40	13.58	13.35	12.74	12.71	1.0	14.0
		36	39	17.75	17.98	17.60	16.95	17.11	5.0	19.5	13.41	13.62	13.21	12.62	12.74	1.0	14.0
		75	0	17.69	17.89	17.66	17.06	17.02	5.0	19.5	13.35	13.53	13.29	12.68	12.70	1.0	14.0

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	22.76	22.71	22.51	22.27	22.24	0.0	24.5	14.29	13.97	13.75	13.58	13.73	0.0	15.0
		1	25	22.73	23.06	22.65	22.46	22.51	0.0	24.5	14.33	14.20	14.01	13.83	13.98	0.0	15.0
		1	49	22.79	22.83	22.37	22.21	22.23	0.0	24.5	14.37	13.89	13.69	13.61	13.77	0.0	15.0
		25	0	21.78	21.99	21.72	21.55	21.50	1.0	23.5	14.38	14.27	14.03	13.77	13.98	0.0	15.0
		25	12	21.87	22.11	21.80	21.66	21.61	1.0	23.5	14.46	14.34	14.12	13.88	14.06	0.0	15.0
		25	25	21.84	22.12	21.66	21.45	21.53	1.0	23.5	14.46	14.16	14.00	13.86	14.08	0.0	15.0
		50	0	21.77	22.03	21.73	21.56	21.50	1.0	23.5	14.35	14.27	14.02	13.77	13.98	0.0	15.0
	16QAM	1	0	21.88	21.86	21.49	21.29	21.44	1.0	23.5	14.41	13.98	13.70	13.60	13.65	0.0	15.0
		1	25	21.92	22.14	21.69	21.44	21.66	1.0	23.5	14.40	14.15	13.92	13.81	13.98	0.0	15.0
		1	49	21.93	21.93	21.49	21.23	21.40	1.0	23.5	14.47	13.91	13.68	13.66	13.80	0.0	15.0
		25	0	20.76	21.04	20.78	20.55	20.52	2.0	22.5	14.39	14.25	13.97	13.67	13.93	0.0	15.0
		25	12	20.87	21.15	20.84	20.64	20.62	2.0	22.5	14.42	14.32	14.04	13.78	14.03	0.0	15.0
		25	25	20.88	21.12	20.66	20.43	20.56	2.0	22.5	14.41	14.14	13.95	13.71	13.96	0.0	15.0
		50	0	20.83	21.05	20.79	20.58	20.58	2.0	22.5	14.31	14.20	13.92	13.69	13.91	0.0	15.0
	64QAM	1	0	20.60	20.68	20.52	20.24	20.20	2.0	22.5	13.83	14.03	14.09	13.01	13.72	0.0	15.0
		1	25	20.72	21.02	20.68	20.34	20.44	2.0	22.5	13.95	14.32	14.30	13.31	14.06	0.0	15.0
		1	49	20.80	20.84	20.28	20.15	20.10	2.0	22.5	13.90	13.97	13.94	13.13	13.88	0.0	15.0
		25	0	19.77	20.07	19.82	19.55	19.55	3.0	21.5	14.37	14.17	13.87	13.70	13.82	0.0	15.0
		25	12	19.89	20.12	19.85	19.64	19.58	3.0	21.5	14.42	14.23	14.01	13.81	13.93	0.0	15.0
		25	25	19.88	20.15	19.70	19.51	19.55	3.0	21.5	14.38	14.04	13.88	13.73	13.88	0.0	15.0
		50	0	19.80	20.08	19.78	19.58	19.51	3.0	21.5	14.27	14.15	13.89	13.67	13.87	0.0	15.0
	256QAM	1	0	17.68	18.03	17.79	17.17	17.05	5.0	19.5	13.07	13.60	13.46	13.14	13.07	1.0	14.0
		1	25	18.02	18.31	17.96	17.26	17.31	5.0	19.5	13.38	13.92	13.59	13.31	13.33	1.0	14.0
		1	49	17.86	18.14	17.67	17.04	17.03	5.0	19.5	13.23	13.72	13.22	13.06	13.00	1.0	14.0
		25	0	17.70	18.02	17.75	17.14	17.14	5.0	19.5	13.32	13.63	13.39	13.19	13.17	1.0	14.0
		25	12	17.84	18.14	17.87	17.24	17.18	5.0	19.5	13.52	13.76	13.49	13.30	13.24	1.0	14.0
		25	25	17.78	18.10	17.65	17.08	17.10	5.0	19.5	13.45	13.73	13.28	13.14	13.14	1.0	14.0
		50	0	17.83	18.08	17.80	17.18	17.17	5.0	19.5	13.44	13.68	13.42	13.25	13.17	1.0	14.0

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		
5 MHz	QPSK	1	0	22.68	22.94	22.69	22.05	22.05	0.0	24.5	14.25	14.27	13.95	13.67	14.01	0.0	15.0
		1	12	22.65	23.00	22.65	22.01	22.07	0.0	24.5	14.21	14.21	13.95	13.73	14.06	0.0	15.0
		1	24	22.70	22.97	22.55	22.00	22.04	0.0	24.5	14.30	14.23	13.91	13.72	14.02	0.0	15.0
		12	0	21.75	22.08	21.82	21.23	21.20	1.0	23.5	14.41	14.37	14.07	13.80	14.06	0.0	15.0
		12	7	21.86	22.11	21.83	21.20	21.24	1.0	23.5	14.41	14.39	14.07	13.83	14.10	0.0	15.0
		12	13	21.84	22.20	21.80	21.15	21.23	1.0	23.5	14.44	14.26	14.05	13.82	14.15	0.0	15.0
		25	0	21.81	22.10	21.79	21.23	21.17	1.0	23.5	14.41	14.34	14.02	13.81	14.05	0.0	15.0
	16QAM	1	0	21.64	21.95	21.66	21.05	21.24	1.0	23.5	14.21	14.15	14.02	13.64	13.93	0.0	15.0
		1	12	21.61	21.95	21.60	21.00	21.27	1.0	23.5	14.19	14.21	14.04	13.61	13.98	0.0	15.0
		1	24	21.68	21.98	21.55	21.02	21.23	1.0	23.5	14.24	14.14	14.00	13.64	13.99	0.0	15.0
		12	0	20.76	21.12	20.82	20.24	20.18	2.0	22.5	14.34	14.26	13.99	13.74	13.95	0.0	15.0
		12	7	20.85	21.14	20.85	20.23	20.28	2.0	22.5	14.39	14.25	14.02	13.77	13.98	0.0	15.0
		12	13	20.88	21.19	20.80	20.15	20.26	2.0	22.5	14.33	14.20	14.04	13.76	14.02	0.0	15.0
		25	0	20.85	21.10	20.80	20.24	20.20	2.0	22.5	14.35	14.27	13.98	13.77	13.98	0.0	15.0
	64QAM	1	0	20.66	20.97	21.33	20.71	20.65	2.0	22.5	14.74	13.96	14.12	14.09	13.67	0.0	15.0
		1	12	20.78	21.14	21.27	20.63	20.71	2.0	22.5	14.58	14.00	14.14	14.15	13.81	0.0	15.0
		1	24	20.72	21.02	21.18	20.62	20.58	2.0	22.5	14.62	13.83	14.07	14.11	13.73	0.0	15.0
		12	0	19.81	20.14	19.85	19.26	19.23	3.0	21.5	14.40	14.23	13.90	13.82	13.96	0.0	15.0
		12	7	19.93	20.20	19.90	19.29	19.24	3.0	21.5	14.44	14.25	13.91	13.87	14.01	0.0	15.0
		12	13	19.92	20.25	19.83	19.17	19.23	3.0	21.5	14.44	14.26	13.91	13.84	14.04	0.0	15.0
		25	0	19.88	20.13	19.77	19.13	19.14	3.0	21.5	14.30	14.25	13.84	13.65	13.98	0.0	15.0
	256QAM	1	0	18.00	18.33	17.91	17.32	17.26	5.0	19.5	13.64	13.92	13.73	13.39	13.34	1.0	14.0
		1	12	18.16	18.51	17.96	17.29	17.33	5.0	19.5	13.81	13.84	13.82	13.43	13.45	1.0	14.0
		1	24	18.11	18.44	17.81	17.23	17.19	5.0	19.5	13.75	13.85	13.65	13.34	13.30	1.0	14.0
		12	0	17.76	18.08	17.84	17.20	17.21	5.0	19.5	13.35	13.71	13.46	13.15	13.11	1.0	14.0
		12	7	17.84	18.12	17.85	17.22	17.22	5.0	19.5	13.48	13.75	13.49	13.19	13.13	1.0	14.0
		12	13	17.84	18.16	17.81	17.14	17.21	5.0	19.5	13.44	13.80	13.42	13.08	13.11	1.0	14.0
		25	0	17.81	18.09	17.75	17.17	17.15	5.0	19.5	13.46	13.72	13.44	13.17	13.10	1.0	14.0

LTE Band 66 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)										
				DSI = 0					DSI = 1					
				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	22.04	22.19	22.33	0.0	23	11.68	11.75	12.06	0.0	13
		1	49	22.49	22.48	22.16	0.0	23	12.07	12.02	12.01	0.0	13
		1	99	22.13	22.21	22.05	0.0	23	11.75	11.76	12.01	0.0	13
		50	0	21.37	21.47	21.26	1.0	22	11.96	12.01	12.02	0.0	13
		50	24	21.52	21.51	21.30	1.0	22	12.17	12.06	12.16	0.0	13
		50	50	21.45	21.39	21.12	1.0	22	12.03	12.05	12.06	0.0	13
		100	0	21.43	21.42	21.20	1.0	22	12.08	11.99	12.07	0.0	13
	16QAM	1	0	21.57	21.61	21.65	1.0	22	12.18	12.17	12.47	0.0	13
		1	49	21.85	21.88	21.56	1.0	22	12.51	12.47	12.42	0.0	13
		1	99	21.68	21.60	21.50	1.0	22	12.30	12.20	12.39	0.0	13
		50	0	20.38	20.46	20.25	2.0	21	11.98	12.00	11.99	0.0	13
		50	24	20.54	20.50	20.29	2.0	21	12.11	12.08	12.12	0.0	13
		50	50	20.47	20.39	20.07	2.0	21	12.02	12.05	12.00	0.0	13
		100	0	20.43	20.44	20.21	2.0	21	12.04	11.97	12.05	0.0	13
	64QAM	1	0	20.51	20.54	20.75	2.0	21	12.02	12.34	12.34	0.0	13
		1	49	20.84	20.96	20.63	2.0	21	12.39	12.32	12.37	0.0	13
		1	99	20.66	20.60	20.38	2.0	21	12.44	12.46	12.28	0.0	13
		50	0	19.46	19.55	19.41	3.0	20	12.03	12.03	12.01	0.0	13
		50	24	19.61	19.61	19.39	3.0	20	12.10	12.09	12.15	0.0	13
		50	50	19.54	19.50	19.18	3.0	20	12.09	12.09	12.07	0.0	13
		100	0	19.49	19.49	19.25	3.0	20	11.99	12.00	12.10	0.0	13
	256QAM	1	0	17.31	17.41	17.23	5.0	18	11.93	11.94	11.62	0.0	13
		1	49	17.69	17.77	17.44	5.0	18	12.25	12.28	11.98	0.0	13
		1	99	17.54	17.41	17.09	5.0	18	12.01	12.03	11.70	0.0	13
		50	0	17.42	17.48	17.28	5.0	18	12.04	12.03	12.00	0.0	13
		50	24	17.56	17.56	17.33	5.0	18	12.13	12.13	12.08	0.0	13
		50	50	17.49	17.45	17.14	5.0	18	12.07	12.10	12.03	0.0	13
		100	0	17.46	17.44	17.23	5.0	18	12.00	11.99	11.96	0.0	13
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132047	132322	132597			132047	132322	132597		
				1717.5 MHz	1745 MHz	1772.5 MHz			1717.5 MHz	1745 MHz	1772.5 MHz		
15 MHz	QPSK	1	0	22.18	22.30	22.21	0.0	23	11.83	11.85	12.08	0.0	13
		1	37	22.29	22.44	22.06	0.0	23	11.94	11.94	12.03	0.0	13
		1	74	22.19	22.21	21.96	0.0	23	11.84	11.83	12.04	0.0	13
		36	0	21.32	21.44	21.24	1.0	22	11.94	12.05	12.08	0.0	13
		36	20	21.43	21.43	21.24	1.0	22	12.07	12.05	12.09	0.0	13
		36	39	21.36	21.37	21.07	1.0	22	12.03	12.08	12.10	0.0	13
		75	0	21.37	21.39	21.18	1.0	22	11.98	11.98	12.03	0.0	13
	16QAM	1	0	21.63	21.27	21.17	1.0	22	12.22	11.82	12.47	0.0	13
		1	37	21.78	21.38	21.07	1.0	22	12.35	11.95	12.50	0.0	13
		1	74	21.68	21.18	21.00	1.0	22	12.22	11.79	12.41	0.0	13
		36	0	20.32	20.42	20.23	2.0	21	11.90	12.02	12.07	0.0	13
		36	20	20.38	20.43	20.24	2.0	21	11.97	12.01	12.08	0.0	13
		36	39	20.36	20.39	20.08	2.0	21	11.94	12.03	12.12	0.0	13
		75	0	20.36	20.41	20.19	2.0	21	11.98	12.01	12.00	0.0	13
	64QAM	1	0	20.50	20.69	20.53	2.0	21	12.34	12.17	12.21	0.0	13
		1	37	20.73	20.84	20.41	2.0	21	12.55	12.30	12.15	0.0	13
		1	74	20.62	20.63	20.27	2.0	21	12.46	12.21	12.16	0.0	13
		36	0	19.34	19.44	19.35	3.0	20	11.95	12.05	12.15	0.0	13
		36	20	19.40	19.46	19.31	3.0	20	12.04	12.07	12.14	0.0	13
		36	39	19.38	19.39	19.16	3.0	20	11.99	12.11	12.17	0.0	13
		75	0	19.38	19.44	19.24	3.0	20	12.05	12.01	12.05	0.0	13
	256QAM	1	0	17.47	17.55	17.55	5.0	18	12.05	12.34	11.72	0.0	13
		1	37	17.64	17.70	17.58	5.0	18	12.20	12.45	11.88	0.0	13
		1	74	17.57	17.53	17.38	5.0	18	12.11	12.35	11.74	0.0	13
		36	0	17.32	17.44	17.28	5.0	18	11.91	12.04	12.02	0.0	13
		36	20	17.43	17.45	17.29	5.0	18	12.02	12.08	12.03	0.0	13
		36	39	17.41	17.39	17.16	5.0	18	11.99	12.08	12.06	0.0	13
		75	0	17.41	17.42	17.25	5.0	18	12.00	12.03	11.99	0.0	13

LTE Band 66 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	22.16	22.27	22.08	0.0	23	11.68	11.82	11.91	0.0	13
		1	25	22.40	22.51	22.29	0.0	23	12.01	12.08	12.16	0.0	13
		1	49	22.29	22.26	22.04	0.0	23	11.80	11.87	11.93	0.0	13
		25	0	21.39	21.45	21.30	1.0	22	11.96	12.05	12.10	0.0	13
		25	12	21.56	21.54	21.35	1.0	22	12.11	12.12	12.14	0.0	13
		25	25	21.47	21.45	21.19	1.0	22	12.03	12.12	12.15	0.0	13
		50	0	21.47	21.44	21.29	1.0	22	12.04	12.05	12.08	0.0	13
	16QAM	1	0	21.13	21.22	21.00	1.0	22	11.81	11.79	12.26	0.0	13
		1	25	21.43	21.53	21.21	1.0	22	12.07	12.09	12.53	0.0	13
		1	49	21.20	21.21	20.93	1.0	22	11.84	11.88	12.39	0.0	13
		25	0	20.43	20.53	20.32	2.0	21	12.06	12.09	12.14	0.0	13
		25	12	20.60	20.60	20.43	2.0	21	12.19	12.16	12.23	0.0	13
		25	25	20.48	20.47	20.22	2.0	21	12.10	12.15	12.19	0.0	13
		50	0	20.47	20.46	20.27	2.0	21	12.07	12.06	12.10	0.0	13
	64QAM	1	0	20.02	20.16	19.97	2.0	21	11.96	12.21	11.96	0.0	13
		1	25	20.35	20.43	20.15	2.0	21	12.27	12.57	12.29	0.0	13
		1	49	20.15	20.15	19.83	2.0	21	12.02	12.31	12.09	0.0	13
		25	0	19.46	19.59	19.40	3.0	20	12.08	12.15	12.21	0.0	13
		25	12	19.64	19.65	19.45	3.0	20	12.19	12.22	12.27	0.0	13
		25	25	19.55	19.56	19.30	3.0	20	12.10	12.19	12.25	0.0	13
		50	0	19.47	19.50	19.30	3.0	20	12.06	12.12	12.16	0.0	13
	256QAM	1	0	17.22	17.33	17.14	5.0	18	11.79	12.40	11.74	0.0	13
		1	25	17.60	17.69	17.38	5.0	18	12.14	12.24	11.97	0.0	13
		1	49	17.37	17.37	17.06	5.0	18	11.92	12.52	11.78	0.0	13
		25	0	17.50	17.59	17.40	5.0	18	12.07	12.16	12.17	0.0	13
		25	12	17.68	17.71	17.50	5.0	18	12.21	12.23	12.29	0.0	13
		25	25	17.58	17.60	17.29	5.0	18	12.15	12.20	12.14	0.0	13
		50	0	17.52	17.56	17.34	5.0	18	12.10	12.12	12.13	0.0	13

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131997	132322	132647			131997	132322	132647		
				1712.5 MHz	1745 MHz	1777.5 MHz			1712.5 MHz	1745 MHz	1777.5 MHz		
5 MHz	QPSK	1	0	22.47	22.62	22.37	0.0	23	12.05	12.20	12.13	0.0	13
		1	12	22.51	22.59	22.29	0.0	23	12.11	12.16	12.11	0.0	13
		1	24	22.43	22.50	22.16	0.0	23	12.00	12.12	12.05	0.0	13
		12	0	21.55	21.53	21.31	1.0	22	12.11	12.12	12.23	0.0	13
		12	7	21.56	21.57	21.30	1.0	22	12.17	12.14	12.27	0.0	13
		12	13	21.52	21.49	21.25	1.0	22	12.12	12.16	12.15	0.0	13
		25	0	21.51	21.57	21.29	1.0	22	12.12	12.12	12.22	0.0	13
	16QAM	1	0	21.58	21.73	21.42	1.0	22	12.25	12.31	12.32	0.0	13
		1	12	21.57	21.71	21.34	1.0	22	12.22	12.30	12.31	0.0	13
		1	24	21.56	21.62	21.29	1.0	22	12.20	12.27	12.61	0.0	13
		12	0	20.60	20.63	20.39	2.0	21	12.11	12.21	12.39	0.0	13
		12	7	20.62	20.68	20.42	2.0	21	12.20	12.22	12.40	0.0	13
		12	13	20.53	20.60	20.31	2.0	21	12.12	12.22	12.33	0.0	13
		25	0	20.46	20.58	20.30	2.0	21	12.07	12.12	12.24	0.0	13
	64QAM	1	0	20.67	20.82	20.48	2.0	21	12.30	12.07	12.63	0.0	13
		1	12	20.75	20.95	20.61	2.0	21	12.37	12.23	12.59	0.0	13
		1	24	20.69	20.74	20.38	2.0	21	12.27	12.05	12.46	0.0	13
		12	0	19.71	19.73	19.48	3.0	20	12.12	12.20	12.27	0.0	13
		12	7	19.69	19.73	19.49	3.0	20	12.22	12.19	12.28	0.0	13
		12	13	19.65	19.69	19.43	3.0	20	12.18	12.22	12.15	0.0	13
		25	0	19.53	19.58	19.32	3.0	20	12.14	12.11	12.21	0.0	13
	256QAM	1	0	17.50	17.64	17.38	5.0	18	12.08	11.87	12.21	0.0	13
		1	12	17.63	17.77	17.43	5.0	18	12.23	12.02	12.29	0.0	13
		1	24	17.52	17.54	17.22	5.0	18	12.10	11.86	12.25	0.0	13
		12	0	17.63	17.63	17.38	5.0	18	12.11	12.17	12.14	0.0	13
		12	7	17.62	17.66	17.40	5.0	18	12.19	12.16	12.25	0.0	13
		12	13	17.55	17.58	17.31	5.0	18	12.12	12.21	12.15	0.0	13
		25	0	17.59	17.60	17.39	5.0	18	12.13	12.21	12.08	0.0	13

LTE Band 66 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	22.45	22.60	22.31	0.0	23	12.01	12.13	12.18	0.0	13
		1	8	22.43	22.47	22.15	0.0	23	11.92	12.06	12.14	0.0	13
		1	14	22.42	22.51	22.18	0.0	23	11.96	12.09	12.10	0.0	13
		8	0	21.55	21.57	21.29	1.0	22	12.14	12.15	12.17	0.0	13
		8	4	21.52	21.66	21.29	1.0	22	12.14	12.24	12.15	0.0	13
		8	7	21.54	21.57	21.30	1.0	22	12.13	12.23	12.16	0.0	13
		15	0	21.53	21.56	21.29	1.0	22	12.13	12.12	12.13	0.0	13
	16QAM	1	0	21.48	21.56	21.24	1.0	22	12.22	12.06	12.54	0.0	13
		1	8	21.41	21.51	21.15	1.0	22	12.13	12.05	12.52	0.0	13
		1	14	21.41	21.41	21.07	1.0	22	12.09	11.94	12.47	0.0	13
		8	0	20.63	20.66	20.37	2.0	21	12.19	12.25	12.18	0.0	13
		8	4	20.67	20.75	20.42	2.0	21	12.16	12.36	12.23	0.0	13
		8	7	20.66	20.70	20.41	2.0	21	12.18	12.35	12.20	0.0	13
		15	0	20.56	20.57	20.31	2.0	21	12.07	12.15	12.15	0.0	13
	64QAM	1	0	20.43	20.49	20.27	2.0	21	12.42	12.55	12.28	0.0	13
		1	8	20.41	20.48	20.12	2.0	21	12.32	12.27	12.28	0.0	13
		1	14	20.36	20.37	20.01	2.0	21	12.33	12.51	12.27	0.0	13
		8	0	19.63	19.68	19.40	3.0	20	12.13	12.21	12.24	0.0	13
		8	4	19.66	19.72	19.41	3.0	20	12.10	12.33	12.22	0.0	13
		8	7	19.63	19.65	19.38	3.0	20	12.10	12.33	12.20	0.0	13
		15	0	19.55	19.57	19.33	3.0	20	12.16	12.15	12.23	0.0	13
	256QAM	1	0	17.50	17.61	17.34	5.0	18	12.10	12.56	12.02	0.0	13
		1	8	17.62	17.72	17.32	5.0	18	12.17	12.61	11.95	0.0	13
		1	14	17.51	17.52	17.15	5.0	18	12.08	12.54	11.90	0.0	13
		8	0	17.71	17.70	17.46	5.0	18	12.25	12.27	12.11	0.0	13
		8	4	17.75	17.85	17.51	5.0	18	12.28	12.34	12.13	0.0	13
		8	7	17.75	17.74	17.50	5.0	18	12.30	12.30	12.16	0.0	13
		15	0	17.63	17.66	17.38	5.0	18	12.18	12.18	12.22	0.0	13

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131979	132322	132665			131979	132322	132665		
				1710.7 MHz	1745 MHz	1779.3 MHz			1710.7 MHz	1745 MHz	1779.3 MHz		
1.4 MHz	QPSK	1	0	22.49	22.51	22.18	0.0	23	11.99	12.05	12.16	0.0	13
		1	3	22.52	22.54	22.20	0.0	23	11.97	12.10	12.16	0.0	13
		1	5	22.41	22.46	22.12	0.0	23	11.94	11.99	12.09	0.0	13
		3	0	22.37	22.49	22.14	0.0	23	12.04	12.02	12.04	0.0	13
		3	1	22.42	22.51	22.18	0.0	23	12.04	12.08	12.12	0.0	13
		3	3	22.40	22.49	22.13	0.0	23	12.03	12.04	12.08	0.0	13
		6	0	21.47	21.54	21.22	1.0	22	12.02	12.09	12.13	0.0	13
	16QAM	1	0	21.61	21.53	21.18	1.0	22	12.38	12.16	12.26	0.0	13
		1	3	21.66	21.62	21.23	1.0	22	12.40	12.24	12.35	0.0	13
		1	5	21.57	21.54	21.10	1.0	22	12.46	12.10	12.19	0.0	13
		3	0	21.51	21.75	21.41	1.0	22	12.22	12.31	12.20	0.0	13
		3	1	21.53	21.73	21.48	1.0	22	12.21	12.30	12.17	0.0	13
		3	3	21.57	21.74	21.48	1.0	22	12.21	12.35	12.26	0.0	13
		6	0	20.65	20.73	20.39	2.0	21	11.90	12.31	12.28	0.0	13
	64QAM	1	0	20.33	20.87	20.33	2.0	21	12.34	12.35	12.34	0.0	13
		1	3	20.48	20.86	20.34	2.0	21	12.33	12.41	12.42	0.0	13
		1	5	20.38	20.72	20.20	2.0	21	12.07	12.34	12.34	0.0	13
		3	0	20.36	20.66	20.43	2.0	21	12.14	12.15	12.14	0.0	13
		3	1	20.34	20.63	20.54	2.0	21	12.21	12.14	12.15	0.0	13
		3	3	20.41	20.67	20.53	2.0	21	12.20	12.14	12.12	0.0	13
		6	0	19.44	19.64	19.36	3.0	20	12.35	12.20	12.23	0.0	13
	256QAM	1	0	17.46	17.76	17.06	5.0	18	11.24	11.93	11.93	0.0	13
		1	3	17.64	17.88	17.19	5.0	18	11.90	12.02	11.95	0.0	13
		1	5	17.52	17.75	17.15	5.0	18	11.87	11.94	11.90	0.0	13
		3	0	17.59	17.56	17.18	5.0	18	11.90	12.03	11.97	0.0	13
		3	1	17.59	17.61	17.14	5.0	18	11.92	12.00	11.94	0.0	13
		3	3	17.59	17.56	17.16	5.0	18	11.97	12.03	12.01	0.0	13
		6	0	17.58	17.56	17.39	5.0	18	12.12	12.22	12.15	0.0	13

9.4. NR (Sub 6GHz)

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

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

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

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

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

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

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

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

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

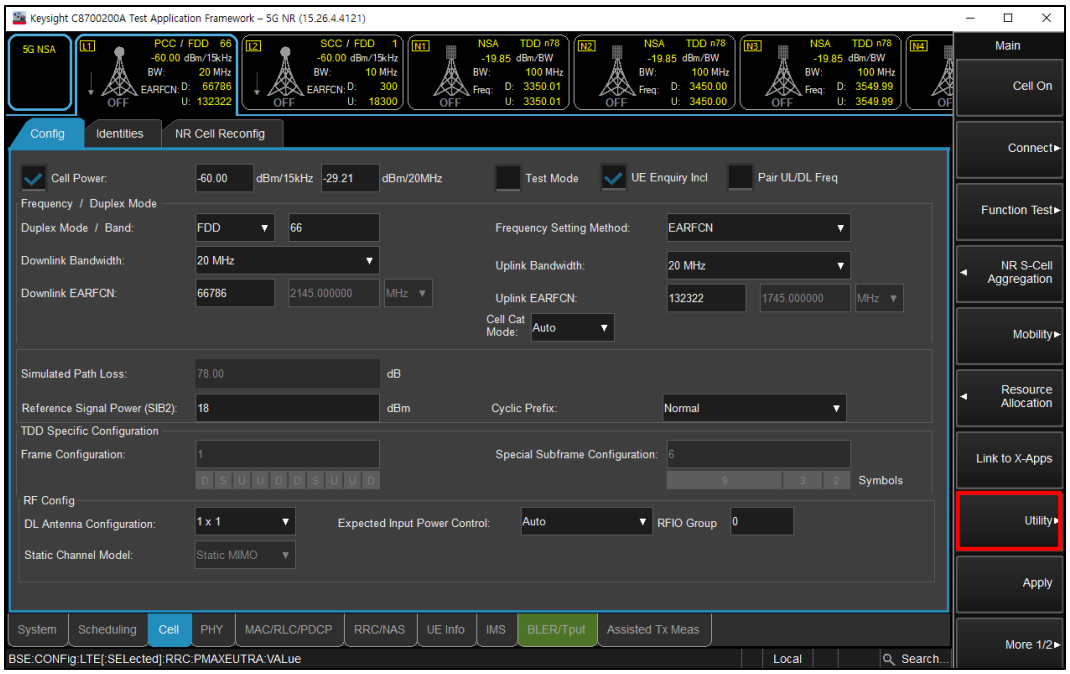
Uplink RB allocations were used to Table 6.1-1 of the 3GPP TS 138.521-1.

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

Procedures used to establish power measurement for NR Bands

Switching to NSA mode or SA mode

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

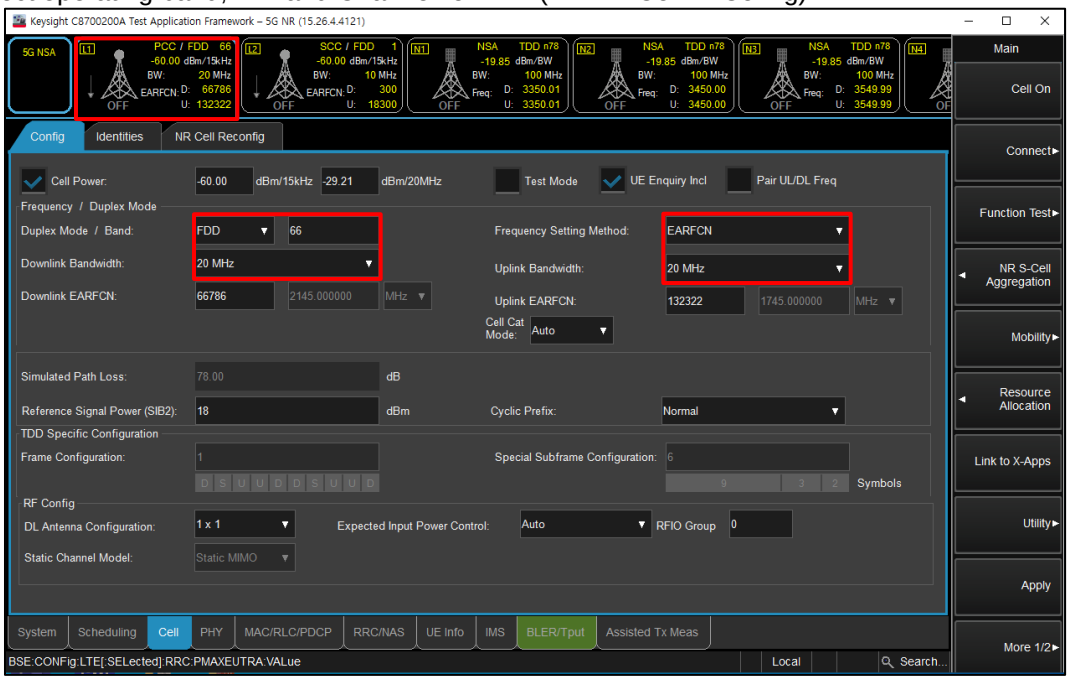


(Figure 1-1)

(Figure 1-2)

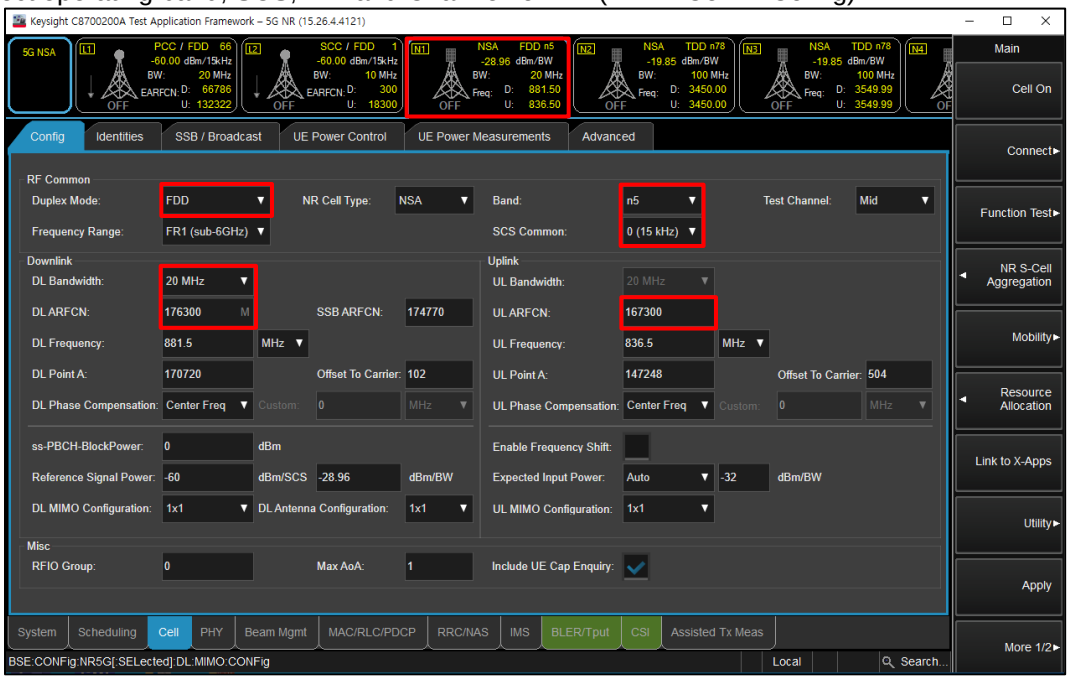
NSA Mode

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



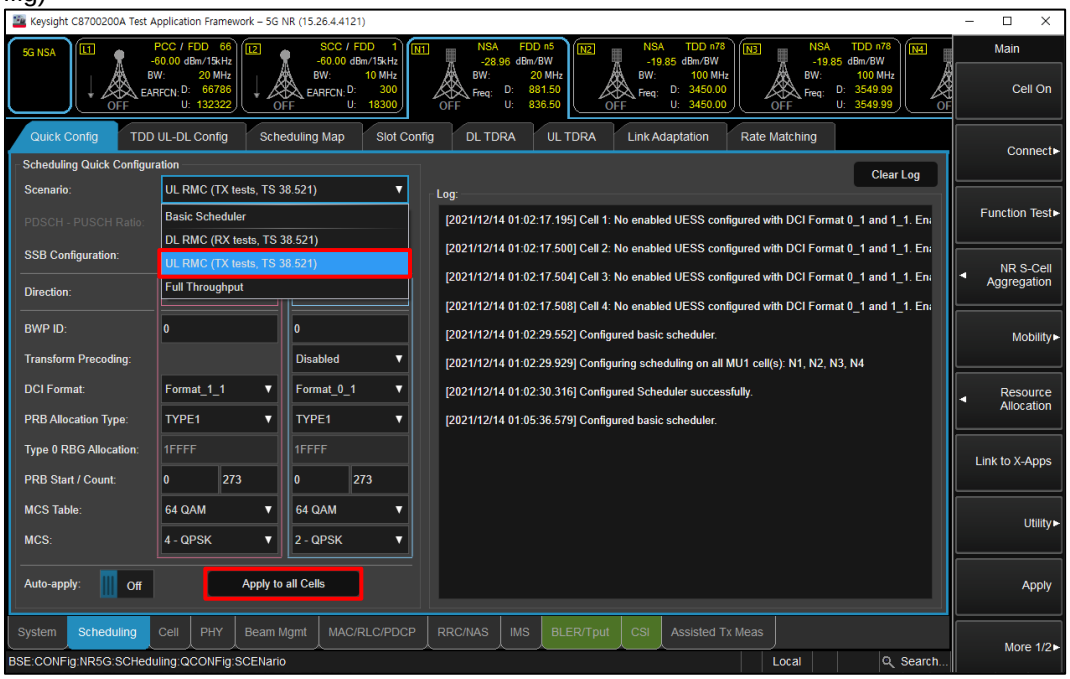
(Figure 2-1)

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



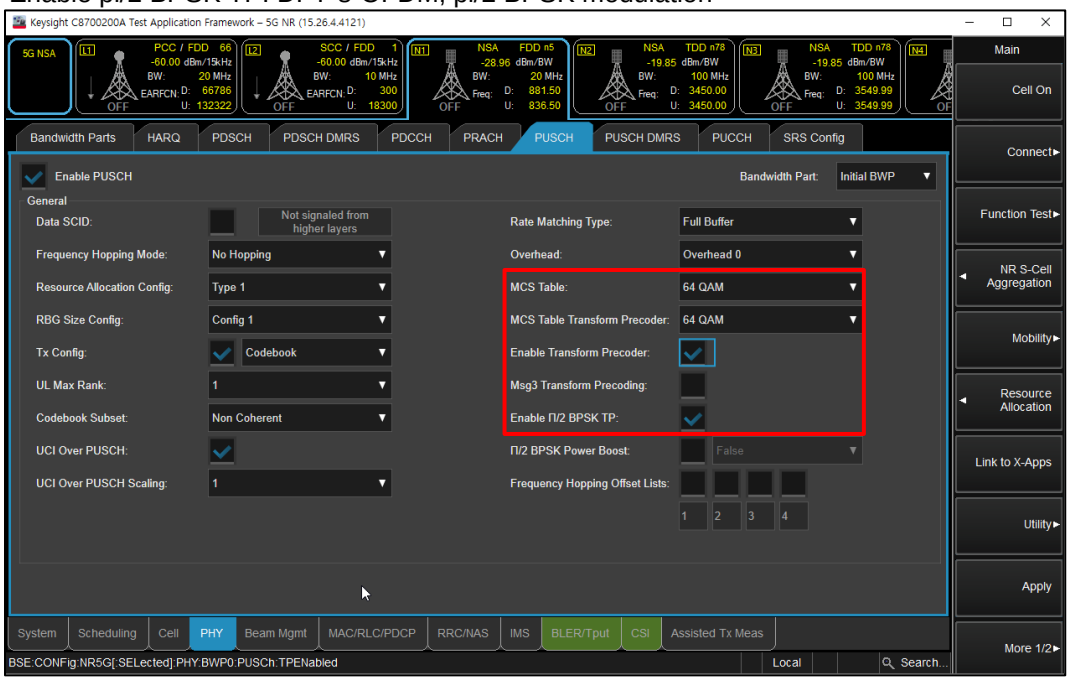
(Figure 2-2)

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



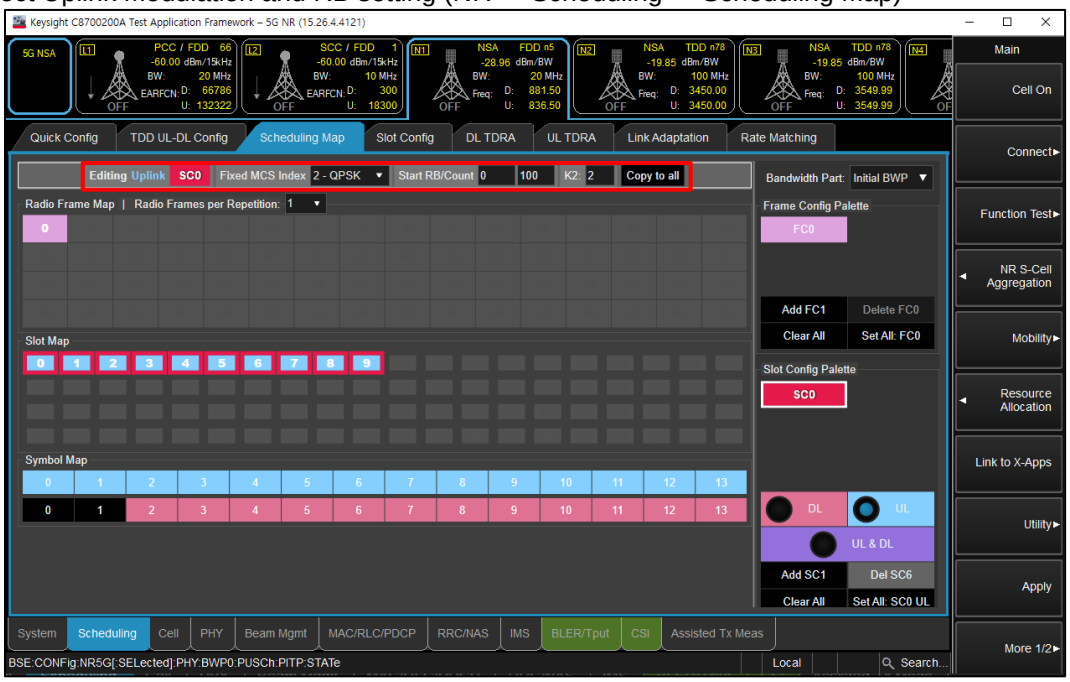
(Figure 2-3)

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



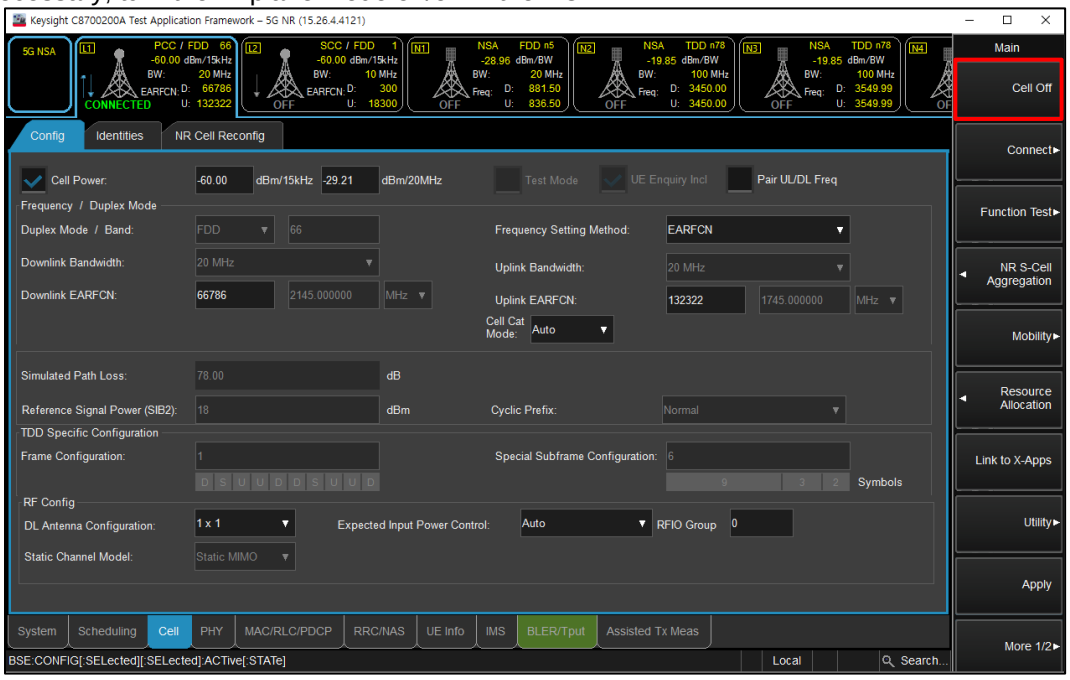
(Figure 2-4)

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



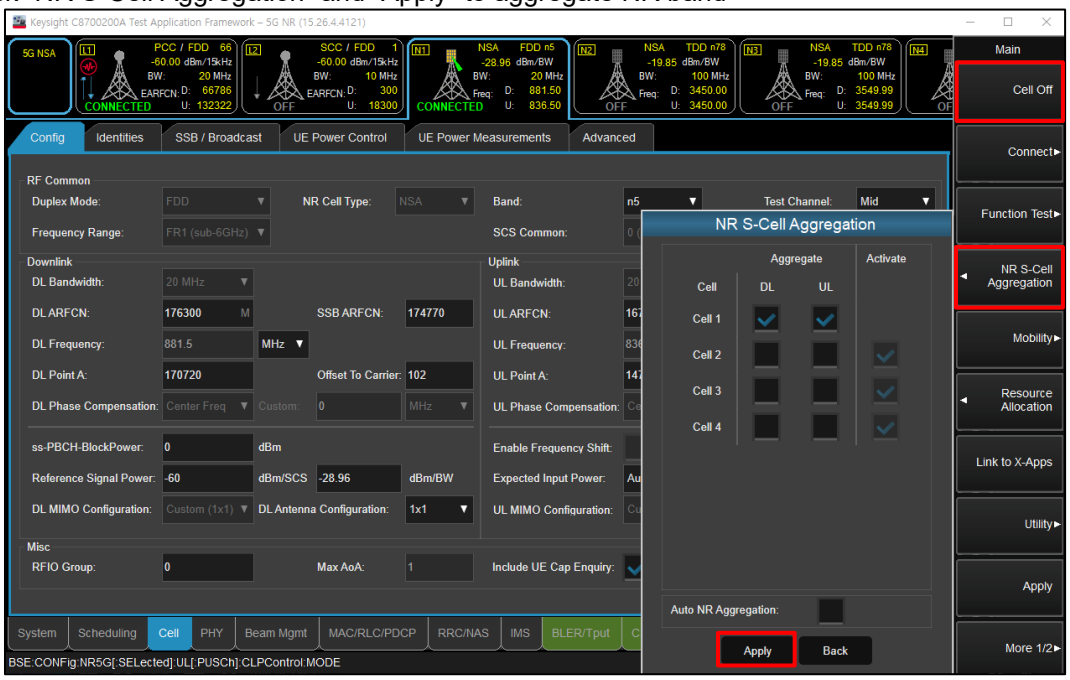
(Figure 2-5)

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



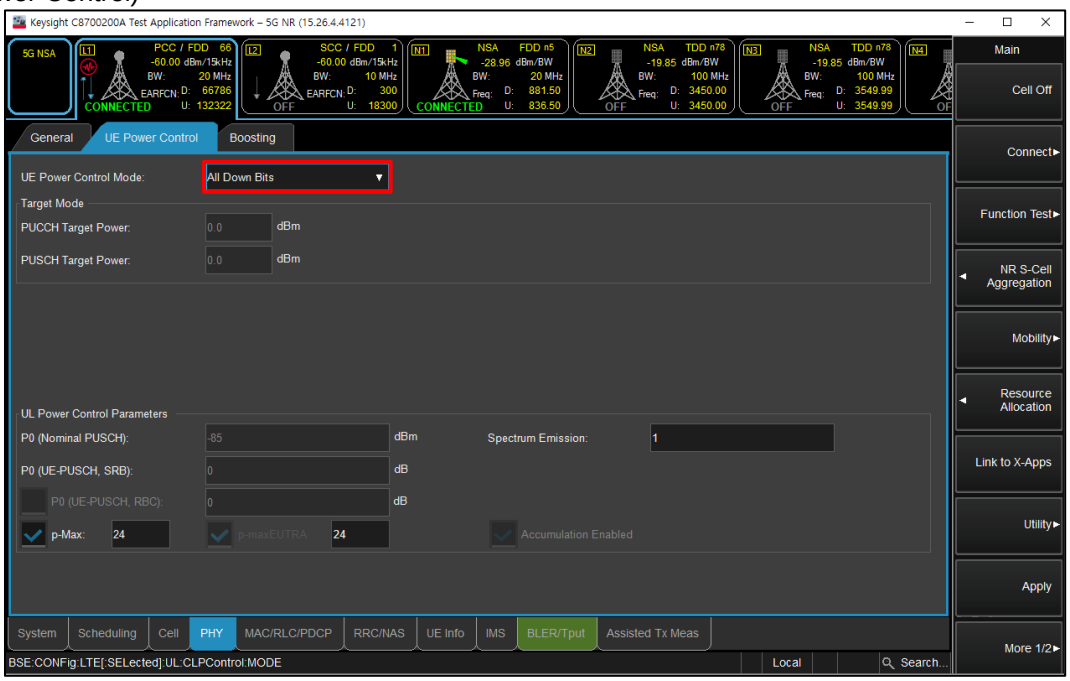
(Figure 2-6)

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



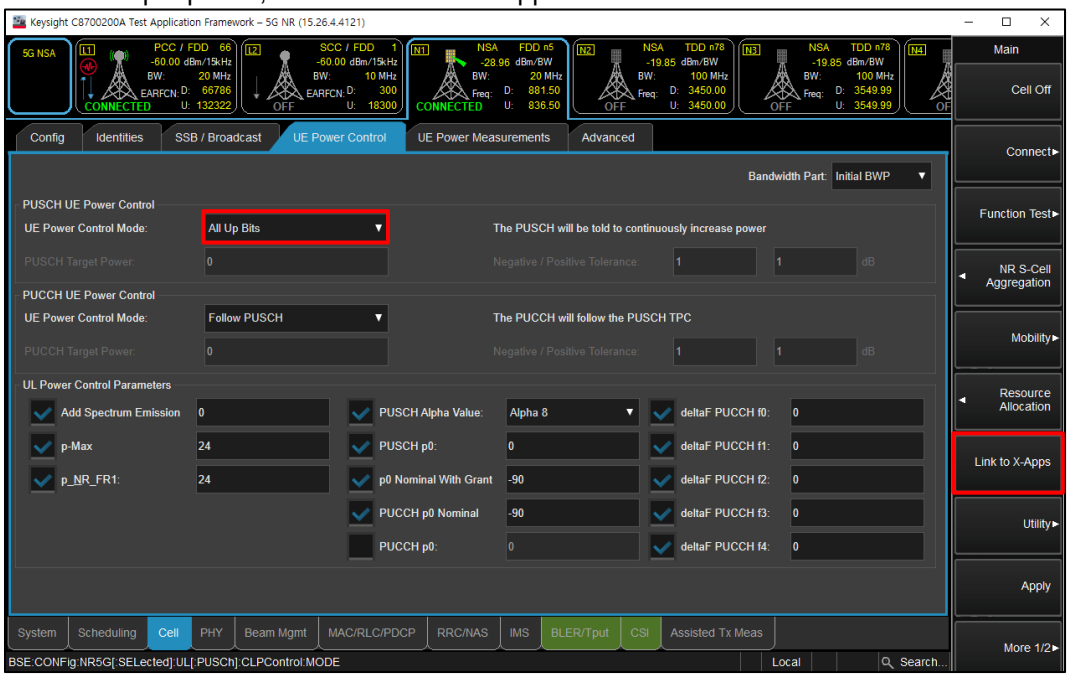
(Figure 2-7)

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



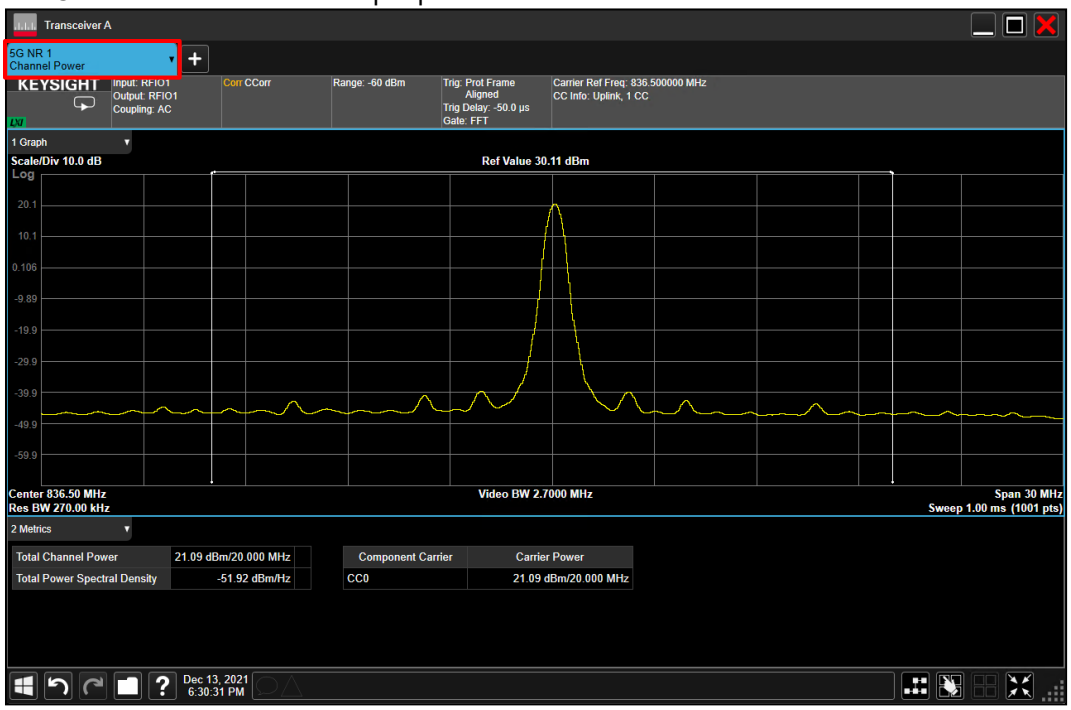
(Figure 2-8)

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



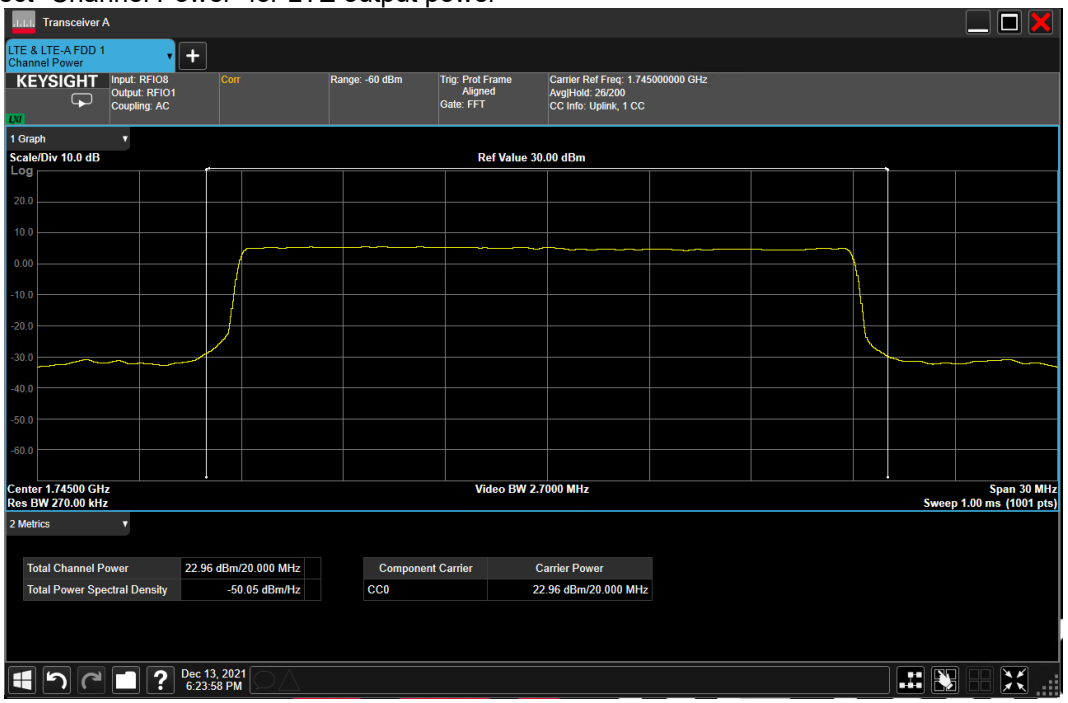
(Figure 2-9)

- Select “Channel Power” for NR output power



(Figure 2-10)

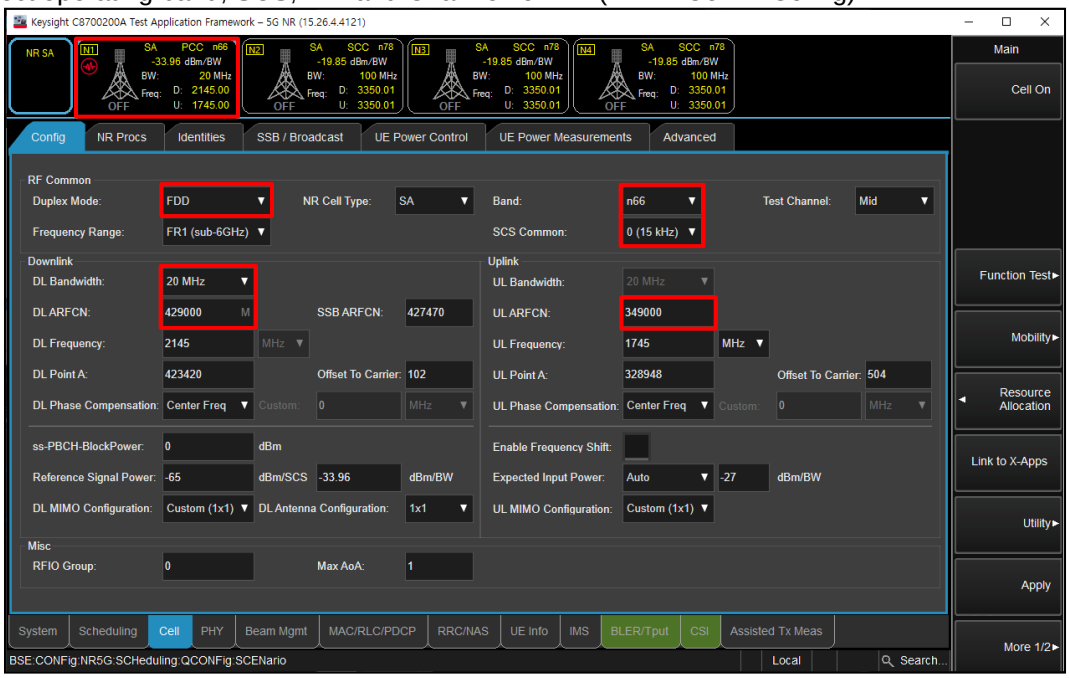
- Select “Channel Power” for LTE output power



(Figure 2-11)

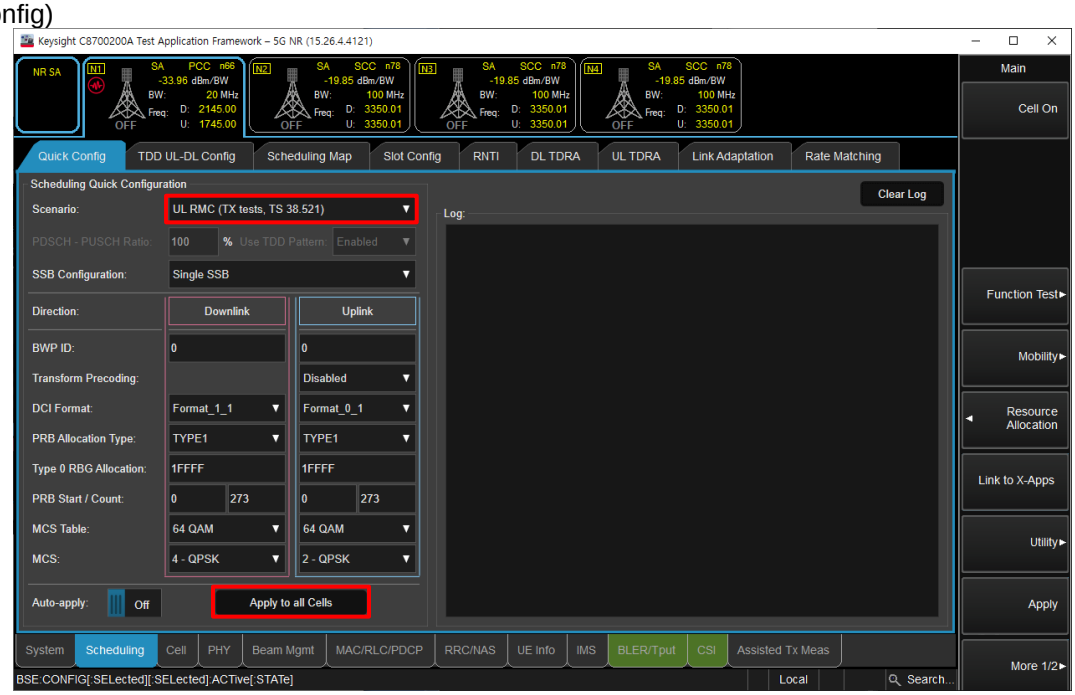
SA Mode

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



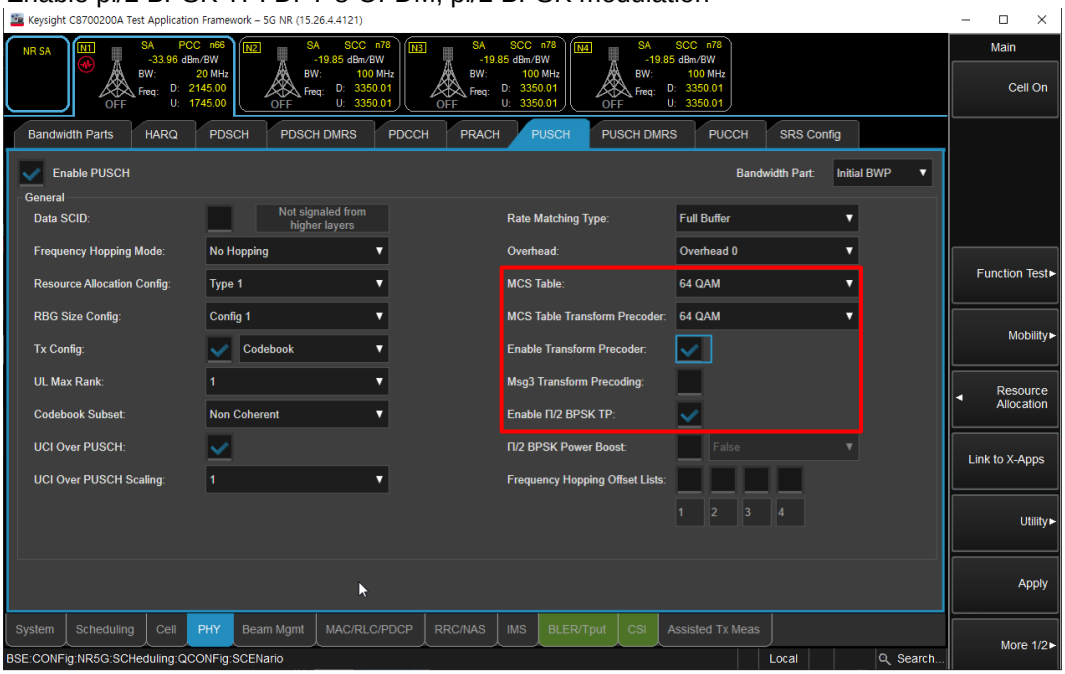
(Figure 3-1)

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



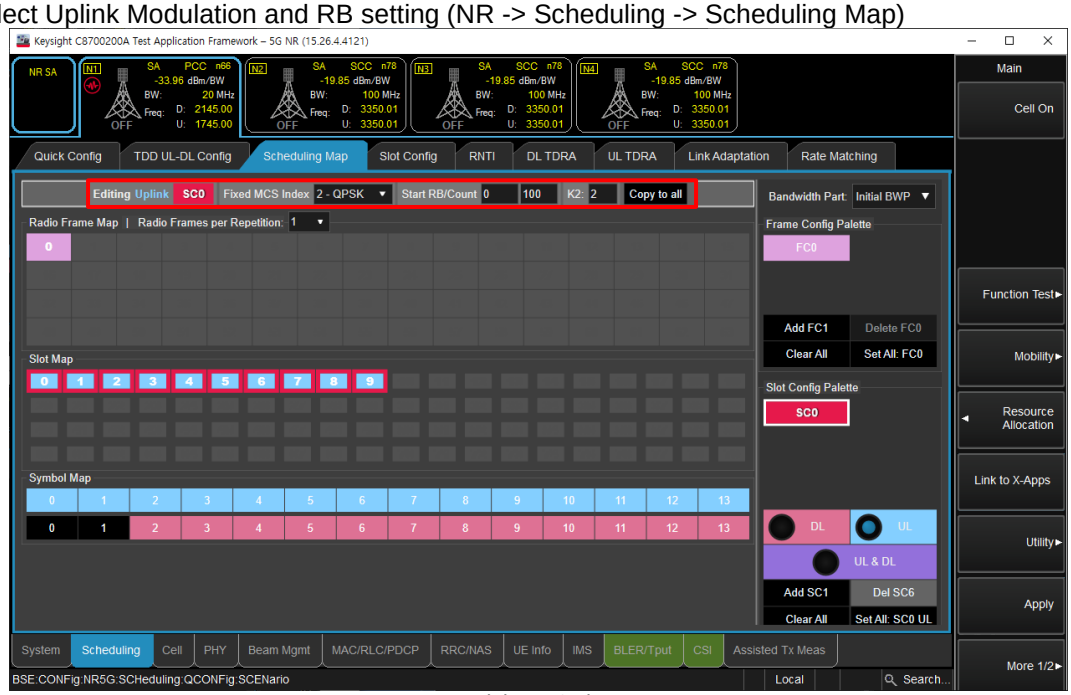
(Figure 3-2)

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



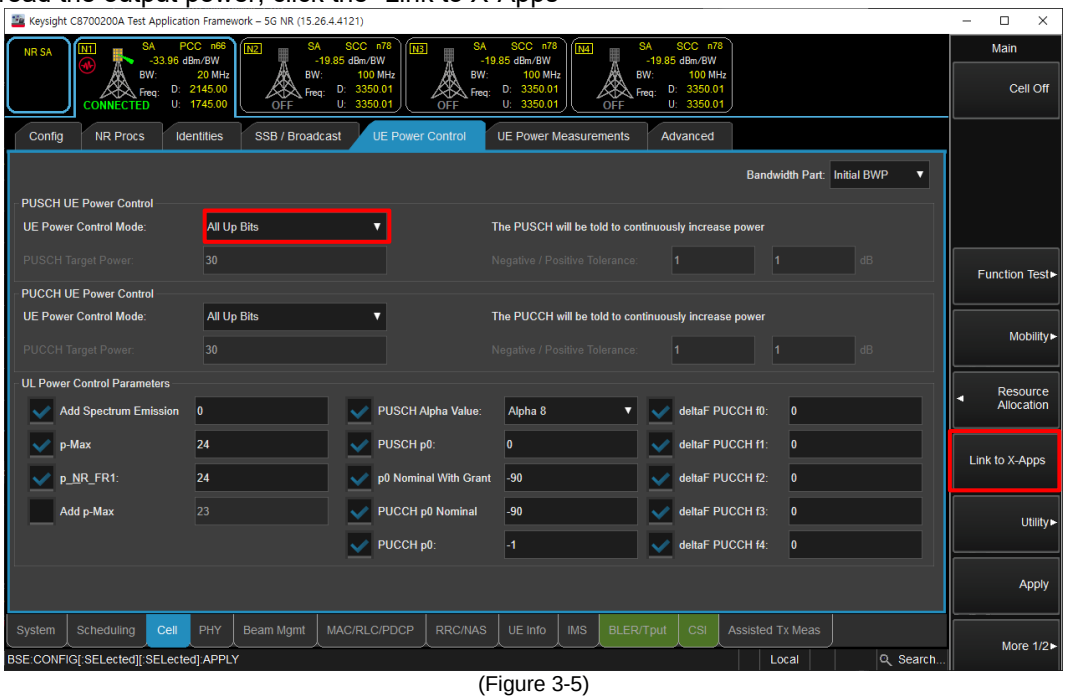
(Figure 3-3)

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



(Figure 3-4)

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



(Figure 3-5)

- Select “Channel Power”

(Figure 3-6)

NR Band n5 Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)					
					DSI = 0			DSI = 1		
					Measured Pwr (dBm)	MPR	Tune-up Limit	Measured Pwr (dBm)	MPR	Tune-up Limit
					167300			167300		
					836.5 MHz			836.5 MHz		
20 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.97	0.0	25.0	15.75	0.0	17.0
			1	53	23.68	0.0	25.0	15.70	0.0	17.0
			1	104	23.49	0.0	25.0	15.50	0.0	17.0
			50	0	23.29	0.5	24.5	15.80	0.0	17.0
			50	28	23.71	0.0	25.0	15.77	0.0	17.0
			50	56	23.15	0.5	24.5	15.63	0.0	17.0
			100	0	23.28	0.5	24.5	15.76	0.0	17.0
		QPSK	1	1	24.10	0.0	25.0	15.90	0.0	17.0
			1	53	23.66	0.0	25.0	15.75	0.0	17.0
			1	104	23.58	0.0	25.0	15.56	0.0	17.0
			50	0	22.75	1.0	24.0	15.78	0.0	17.0
			50	28	23.74	0.0	25.0	15.79	0.0	17.0
			50	56	22.65	1.0	24.0	15.65	0.0	17.0
			100	0	22.76	1.0	24.0	15.75	0.0	17.0
		16QAM	1	1	23.19	1.0	24.0	15.81	0.0	17.0
		64QAM	1	1	21.47	2.5	22.5	15.97	0.0	17.0
		256QAM	1	1	19.39	4.5	20.5	15.69	0.0	17.0
	CP-OFDM	QPSK	1	1	22.56	1.5	23.5	15.90	0.0	17.0
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)	MPR	Tune-up Limit	Measured Pwr (dBm)	MPR	Tune-up Limit
					167300			167300		
					836.5 MHz			836.5 MHz		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.92	0.0	25.0	15.38	0.0	17.0
			1	40	23.81	0.0	25.0	15.28	0.0	17.0
			1	77	23.54	0.0	25.0	15.17	0.0	17.0
			36	0	23.34	0.5	24.5	15.41	0.0	17.0
			36	22	23.77	0.0	25.0	15.38	0.0	17.0
			36	43	23.16	0.5	24.5	15.28	0.0	17.0
			75	0	23.26	0.5	24.5	15.38	0.0	17.0
		QPSK	1	1	23.69	0.0	25.0	15.48	0.0	17.0
			1	40	23.68	0.0	25.0	15.43	0.0	17.0
			1	77	23.46	0.0	25.0	15.29	0.0	17.0
			36	0	22.80	1.0	24.0	15.41	0.0	17.0
			36	22	23.80	0.0	25.0	15.39	0.0	17.0
			36	43	22.68	1.0	24.0	15.29	0.0	17.0
			75	0	22.78	1.0	24.0	15.37	0.0	17.0
		16QAM	1	1	23.16	1.0	24.0	15.42	0.0	17.0
		64QAM	1	1	21.49	2.5	22.5	15.59	0.0	17.0
		256QAM	1	1	19.44	4.5	20.5	14.99	0.0	17.0
	CP-OFDM	QPSK	1	1	22.51	1.5	23.5	15.51	0.0	17.0

NR Band n5 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
					[redacted]	167300	[redacted]			[redacted]	167300	[redacted]		
					[redacted]	836.5 MHz	[redacted]			[redacted]	836.5 MHz	[redacted]		
10 MHz	DFT-s-OFDM	π/2 BPSK	1	1	[redacted]	23.77	[redacted]	0.0	25.0	[redacted]	15.48	[redacted]	0.0	17.0
			1	26	[redacted]	23.78	[redacted]	0.0	25.0	[redacted]	15.44	[redacted]	0.0	17.0
			1	50	[redacted]	23.69	[redacted]	0.0	25.0	[redacted]	15.32	[redacted]	0.0	17.0
			25	0	[redacted]	23.32	[redacted]	0.5	24.5	[redacted]	15.57	[redacted]	0.0	17.0
			25	14	[redacted]	23.83	[redacted]	0.0	25.0	[redacted]	15.56	[redacted]	0.0	17.0
			25	27	[redacted]	23.27	[redacted]	0.5	24.5	[redacted]	15.50	[redacted]	0.0	17.0
			50	0	[redacted]	23.35	[redacted]	0.5	24.5	[redacted]	15.59	[redacted]	0.0	17.0
		QPSK	1	1	[redacted]	23.95	[redacted]	0.0	25.0	[redacted]	15.58	[redacted]	0.0	17.0
			1	26	[redacted]	23.83	[redacted]	0.0	25.0	[redacted]	15.53	[redacted]	0.0	17.0
			1	50	[redacted]	23.67	[redacted]	0.0	25.0	[redacted]	15.42	[redacted]	0.0	17.0
			25	0	[redacted]	22.85	[redacted]	1.0	24.0	[redacted]	15.62	[redacted]	0.0	17.0
			25	14	[redacted]	23.85	[redacted]	0.0	25.0	[redacted]	15.57	[redacted]	0.0	17.0
			25	27	[redacted]	22.77	[redacted]	1.0	24.0	[redacted]	15.50	[redacted]	0.0	17.0
			50	0	[redacted]	22.84	[redacted]	1.0	24.0	[redacted]	15.51	[redacted]	0.0	17.0
		16QAM	1	1	[redacted]	23.13	[redacted]	1.0	24.0	[redacted]	15.56	[redacted]	0.0	17.0
		64QAM	1	1	[redacted]	21.49	[redacted]	2.5	22.5	[redacted]	15.71	[redacted]	0.0	17.0
		256QAM	1	1	[redacted]	19.35	[redacted]	4.5	20.5	[redacted]	15.08	[redacted]	0.0	17.0
	CP-OFDM	QPSK	1	1	[redacted]	22.32	[redacted]	1.5	23.5	[redacted]	15.56	[redacted]	0.0	17.0

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					165300	167300	169300			165300	167300	169300		
					826.5 MHz	836.5 MHz	846.5 MHz			826.5 MHz	836.5 MHz	846.5 MHz		
5 MHz	DFT-s-OFDM	π/2 BPSK	1	1	23.94	23.87	23.72	0.0	25.0	15.74	15.56	15.43	0.0	17.0
			1	13	24.02	23.75	23.69	0.0	25.0	15.60	15.45	15.30	0.0	17.0
			1	23	23.97	23.71	23.78	0.0	25.0	15.68	15.51	15.33	0.0	17.0
			12	0	23.99	23.31	23.13	0.5	24.5	15.75	15.58	15.37	0.0	17.0
			12	7	23.98	23.76	23.61	0.0	25.0	15.69	15.51	15.37	0.0	17.0
			12	13	23.49	23.30	23.21	0.5	24.5	15.71	15.56	15.33	0.0	17.0
			25	0	23.55	23.31	23.18	0.5	24.5	15.69	15.56	15.36	0.0	17.0
		QPSK	1	1	24.21	23.93	23.53	0.0	25.0	15.76	15.67	15.51	0.0	17.0
			1	13	24.20	23.71	23.65	0.0	25.0	15.70	15.54	15.40	0.0	17.0
			1	23	23.96	23.86	23.67	0.0	25.0	15.72	15.60	15.40	0.0	17.0
			12	0	23.05	22.86	22.70	1.0	24.0	15.75	15.58	15.39	0.0	17.0
			12	7	24.01	23.78	23.64	0.0	25.0	15.68	15.56	15.38	0.0	17.0
			12	13	22.97	22.79	22.70	1.0	24.0	15.72	15.55	15.38	0.0	17.0
			25	0	23.06	22.81	22.71	1.0	24.0	15.71	15.57	15.39	0.0	17.0
		16QAM	1	1	23.04	23.18	22.71	1.0	24.0	15.72	15.60	15.42	0.0	17.0
		64QAM	1	1	21.59	21.55	21.37	2.5	22.5	15.95	15.83	15.64	0.0	17.0
		256QAM	1	1	19.60	19.34	19.34	4.5	20.5	15.35	15.16	14.97	0.0	17.0
	CP-OFDM	QPSK	1	1	22.56	22.55	22.01	1.5	23.5	15.76	15.62	15.44	0.0	17.0

NR Band n66 Measured Results

BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Maximum Allowed Average Power (dBm)										
					DSI = 0					DSI = 1					
					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	22.33	22.82	22.36	0.0	23.8	11.47	11.83	11.88	0.0	12.5
			1	53	22.31	22.79	22.34	0.0	23.8	11.50	11.86	11.77	0.0	12.5
			1	104	22.43	22.85	22.48	0.0	23.8	11.59	11.94	11.86	0.0	12.5
			50	0	21.44	21.95	21.48	0.5	23.3	11.58	12.04	11.96	0.0	12.5
			50	28	22.48	22.95	22.54	0.0	23.8	11.66	12.07	12.01	0.0	12.5
			50	56	21.51	21.95	21.51	0.5	23.3	11.68	12.06	11.98	0.0	12.5
			100	0	21.52	21.98	21.54	0.5	23.3	11.62	12.05	11.98	0.0	12.5
		QPSK	1	1	22.43	22.90	22.52	0.0	23.8	11.64	11.90	11.99	0.0	12.5
			1	53	22.44	22.94	22.48	0.0	23.8	11.88	12.08	11.90	0.0	12.5
			1	104	22.58	22.93	22.55	0.0	23.8	11.74	12.00	11.99	0.0	12.5
			50	0	21.47	21.98	21.48	1.0	22.8	11.60	12.00	11.93	0.0	12.5
			50	28	22.55	22.99	22.51	0.0	23.8	11.89	12.08	11.99	0.0	12.5
			50	56	21.52	21.98	21.57	1.0	22.8	11.64	12.05	11.96	0.0	12.5
			100	0	21.48	22.00	21.54	1.0	22.8	11.66	12.06	11.98	0.0	12.5
		16QAM	1	1	21.47	21.94	21.50	1.0	22.8	11.53	11.88	11.85	0.0	12.5
		64QAM	1	1	20.02	20.40	20.03	2.5	21.3	11.75	12.06	12.15	0.0	12.5
		256QAM	1	1	17.21	17.71	17.24	4.5	19.3	11.04	11.39	11.46	0.0	12.5
	CP-OFDM	QPSK	1	1	20.79	21.28	20.80	1.5	22.3	11.56	11.88	11.96	0.0	12.5
BW (MHz)	Modulation	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
					343500	349000	354500			343500	349000	354500		
					1717.5 MHz	1745 MHz	1772.5 MHz			1717.5 MHz	1745 MHz	1772.5 MHz		
15 MHz	DFT-s-OFDM	π/2 BPSK	1	1	22.46	22.78	22.48	0.0	23.8	11.96	11.61	11.61	0.0	12.5
			1	40	22.59	22.69	22.61	0.0	23.8	11.67	11.63	11.64	0.0	12.5
			1	77	22.68	22.83	22.80	0.0	23.8	11.75	11.75	11.75	0.0	12.5
			36	0	21.72	21.95	21.75	0.5	23.3	11.84	11.84	11.87	0.0	12.5
			36	22	22.72	22.89	22.75	0.0	23.8	11.83	11.86	11.85	0.0	12.5
			36	43	21.74	21.96	21.78	0.5	23.3	11.83	11.87	11.86	0.0	12.5
			75	0	21.72	21.90	21.76	0.5	23.3	11.80	11.86	11.84	0.0	12.5
		QPSK	1	1	22.64	22.88	22.60	0.0	23.8	11.72	11.75	11.73	0.0	12.5
			1	40	22.67	22.85	22.66	0.0	23.8	11.75	11.80	11.79	0.0	12.5
			1	77	22.79	22.92	22.77	0.0	23.8	11.87	11.90	11.88	0.0	12.5
			36	0	21.77	22.00	21.76	1.0	22.8	11.87	11.86	11.85	0.0	12.5
			36	22	22.75	22.94	22.75	0.0	23.8	11.84	11.83	11.81	0.0	12.5
			36	43	21.75	21.96	21.75	1.0	22.8	11.85	11.86	11.84	0.0	12.5
			75	0	21.74	21.96	21.77	1.0	22.8	11.83	11.84	11.84	0.0	12.5
		16QAM	1	1	21.60	21.93	21.61	1.0	22.8	11.65	11.65	11.63	0.0	12.5
		64QAM	1	1	20.25	20.50	20.25	2.5	21.3	11.82	11.86	11.86	0.0	12.5
		256QAM	1	1	17.48	17.66	17.46	4.5	19.3	11.19	11.16	11.15	0.0	12.5
	CP-OFDM	QPSK	1	1	21.02	21.28	21.05	1.5	22.3	11.69	11.66	11.70	0.0	12.5

NR Band n66 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	22.40	22.61	22.56	0.0	23.8	11.52	11.76	11.88	0.0	12.5
			1	26	22.43	22.73	22.72	0.0	23.8	11.52	11.88	11.96	0.0	12.5
			1	50	22.50	22.75	22.76	0.0	23.8	11.55	11.87	11.89	0.0	12.5
			25	0	21.51	21.69	21.69	0.5	23.3	11.57	11.79	12.02	0.0	12.5
			25	14	22.54	22.86	22.87	0.0	23.8	11.63	12.00	12.04	0.0	12.5
			25	27	21.55	21.85	21.84	0.5	23.3	11.60	11.94	12.07	0.0	12.5
			50	0	21.48	21.86	21.85	0.5	23.3	11.61	11.96	12.00	0.0	12.5
		QPSK	1	1	22.48	22.69	22.67	0.0	23.8	11.61	11.81	12.01	0.0	12.5
			1	26	22.53	22.86	22.88	0.0	23.8	11.62	11.98	12.02	0.0	12.5
			1	50	22.51	22.84	22.87	0.0	23.8	11.60	11.94	12.04	0.0	12.5
			25	0	21.46	21.76	21.76	1.0	22.8	11.56	11.85	12.00	0.0	12.5
			25	14	22.52	22.85	22.85	0.0	23.8	11.63	11.85	12.03	0.0	12.5
			25	27	21.50	21.84	21.86	1.0	22.8	11.57	11.94	12.05	0.0	12.5
			50	0	21.52	21.86	21.85	1.0	22.8	11.62	11.96	12.00	0.0	12.5
		16QAM	1	1	21.49	21.73	21.72	1.0	22.8	11.55	11.77	11.93	0.0	12.5
		64QAM	1	1	20.14	20.41	20.46	2.5	21.3	11.73	12.04	12.14	0.0	12.5
		256QAM	1	1	17.39	17.61	17.63	4.5	19.3	11.05	11.32	11.53	0.0	12.5
	CP-OFDM	QPSK	1	1	20.88	21.15	21.03	1.5	22.3	11.52	11.74	11.94	0.0	12.5

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	22.39	22.59	22.69	0.0	23.8	11.74	11.70	11.75	0.0	12.5
			1	13	22.44	22.75	22.80	0.0	23.8	11.88	11.84	11.87	0.0	12.5
			1	23	22.45	22.72	22.76	0.0	23.8	11.85	11.81	11.84	0.0	12.5
			12	0	21.52	21.80	21.85	0.5	23.3	11.93	11.96	11.95	0.0	12.5
			12	7	22.50	22.80	22.87	0.0	23.8	11.90	11.94	11.93	0.0	12.5
			12	13	21.50	21.82	21.84	0.5	23.3	11.96	11.97	11.92	0.0	12.5
			25	0	21.52	21.84	21.89	0.5	23.3	11.98	11.99	11.93	0.0	12.5
		QPSK	1	1	22.50	22.74	22.81	0.0	23.8	11.86	11.83	11.79	0.0	12.5
			1	13	22.56	22.82	22.86	0.0	23.8	11.98	11.97	11.97	0.0	12.5
			1	23	22.52	22.80	22.83	0.0	23.8	11.93	11.95	11.96	0.0	12.5
			12	0	21.53	21.80	21.83	1.0	22.8	11.93	11.93	11.95	0.0	12.5
			12	7	22.51	22.81	22.87	0.0	23.8	11.89	11.95	11.92	0.0	12.5
			12	13	21.53	21.88	21.87	1.0	22.8	11.97	11.97	11.93	0.0	12.5
			25	0	21.54	21.82	21.86	1.0	22.8	11.95	11.98	11.92	0.0	12.5
		16QAM	1	1	21.53	21.76	21.88	1.0	22.8	11.75	11.75	11.77	0.0	12.5
		64QAM	1	1	20.17	20.40	20.42	2.5	21.3	11.99	12.00	11.94	0.0	12.5
		256QAM	1	1	17.43	17.66	17.58	4.5	19.3	11.33	11.34	11.34	0.0	12.5
	CP-OFDM	QPSK	1	1	20.89	21.11	21.07	1.5	22.3	11.75	11.77	11.78	0.0	12.5

9.5. Wi-Fi 2.4 GHz (DTS Band)

WLAN output power results

SISO power Results

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Max.Average Power (dBm)			Reduced Average Power		
					Meas. Avg Pwr	Max. Tune-up Limit	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi 2.4G SISO Ant.1	802.11b	1 Mbps	1	2412.0	19.70	20.0	Yes	10.67	11.0	Yes
			6	2437.0	19.69			10.47		
			11	2462.0	19.64			10.73		
			12	2467.0	Not Required	9.0	No	Not Required	9.0	No
			13	2472.0		3.0			3.0	
	802.11g	6 Mbps	1 - 13	2412 - 2472	Not Required	19.0	No	Not Required	11.0	No
	802.11n	6.5 Mbps	1 - 13	2412 - 2472	Not Required	18.0	No	Not Required	11.0	No
	802.11ax	7.3 Mbps	1 - 13	2412 - 2472	Not Required	18.0	No	Not Required	11.0	No
Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Max.Average Power (dBm)			Reduced Average Power		
					Meas. Avg Pwr	Max. Tune-up Limit	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi 2.4G SISO Ant.2	802.11b	1 Mbps	1	2412.0	19.05	20.0	Yes	10.61	11.0	Yes
			6	2437.0	19.10			10.62		
			11	2462.0	19.09			10.79		
			12	2467.0	Not Required	9.0	No	Not Required	9.0	No
			13	2472.0		3.0			3.0	
	802.11g	6 Mbps	1 - 13	2412 - 2472	Not Required	19.0	No	Not Required	11.0	No
	802.11n	6.5 Mbps	1 - 13	2412 - 2472	Not Required	18.0	No	Not Required	11.0	No
	802.11ax	7.3 Mbps	1 - 13	2412 - 2472	Not Required	18.0	No	Not Required	11.0	No

MIMO power Results

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Max.Average Power (dBm)			Reduced Average Power		
					Meas. Avg Pwr	Max. Tune-up Limit	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi 2.4G MIMO Ant.1	802.11g	6 Mbps	1	2412.0	16.62	17.0	Yes	10.25	11.0	Yes
			6	2437.0	18.55	19.0		10.45		
			11	2462.0	15.14	16.0		10.51		
			12	2467.0	Not Required	9.0	No	Not Required	9.0	No
			13	2472.0		3.0			3.0	
	802.11n	6.5 Mbps	1 - 13	2412 - 2472	Not Required	18.0	No	Not Required	11.0	No
	802.11ax	7.3 Mbps	1 - 13	2412 - 2472	Not Required	18.0	No	Not Required	11.0	No
Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	Max.Average Power (dBm)			Reduced Average Power		
					Meas. Avg Pwr	Max. Tune-up Limit	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi 2.4G MIMO Ant.2	802.11g	6 Mbps	1	2412.0	16.76	17.0	Yes	10.11	11.0	Yes
			6	2437.0	18.42	19.0		10.61		
			11	2462.0	15.67	16.0		10.59		
			12	2467.0	Not Required	9.0	No	Not Required	9.0	No
			13	2472.0		3.0			3.0	
	802.11n	6.5 Mbps	1 - 13	2412 - 2472	Not Required	18.0	No	Not Required	11.0	No
	802.11ax	7.3 Mbps	1 - 13	2412 - 2472	Not Required	18.0	No	Not Required	11.0	No

Note(s):

1. SAR is not required for 802.11g/n modes when the adjusted SAR for 802.11b is < 1.2 W/kg.
2. For “Not required”, SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11n/g/ax mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.
3. 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.
4. DTS MIMO SAR tested for satisfy simultaneous transmission analysis.

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

WLAN SISO Ant.1 output power Results

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode power					
						Max. Average Power			Reduced Average Power		
						Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi 5GHz SISO Ant.1	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	17.48	18.0	Yes	Not Required	8.0	No
				56	5280.0	17.43					
				60	5300.0	17.43					
				64	5320.0	17.44					
		802.11n (HT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	8.0	No
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	14.0	No	7.61	8.0	Yes
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE40)	14.6 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE80)	36 Mbps	Not Required			16.0	No	Not Required	8.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	17.60	18.0	Yes	Not Required	8.0	No
				120	5600.0	17.59					
				124	5620.0	17.58					
				144	5720.0	17.59					
		802.11n (HT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	8.0	No
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	14.0	No	7.37	8.0	Yes
				122	5610.0	Not Required			7.51		
				138	5690.0	Not Required			7.66		
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE40)	14.6 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE80)	36 Mbps	Not Required			16.0	No	Not Required	8.0	No
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	17.49	18.0	Yes	Not Required	8.0	No
				157	5785.0	17.24					
				165	5825.0	17.64					
		802.11n (HT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	8.0	No
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	14.0	No	7.34	8.0	Yes
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE40)	14.6 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE80)	36 Mbps	Not Required			16.0	No	Not Required	8.0	No

Note(s):

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

WLAN SISO Ant.2 output power Results

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode power					
						Max. Average Power			Reduced Average Power		
						Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi 5GHz SISO Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	17.59	18.0	Yes	Not Required	8.0	No
				56	5280.0	17.29					
				60	5300.0	17.40					
				64	5320.0	17.30					
		802.11n (HT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	8.0	No
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	14.0	No	7.44	8.0	Yes
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE40)	14.6 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE80)	36 Mbps	Not Required			16.0	No	Not Required	8.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	17.59	18.0	Yes	Not Required	8.0	No
				120	5600.0	17.32					
				124	5620.0	17.58					
				144	5720.0	17.77					
		802.11n (HT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	8.0	No
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	14.0	No	7.28	8.0	Yes
				122	5610.0	Not Required			7.42		
				138	5690.0	Not Required			7.41		
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE40)	14.6 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE80)	36 Mbps	Not Required			16.0	No	Not Required	8.0	No
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	17.22	18.0	Yes	Not Required	8.0	No
				157	5785.0	17.34					
				165	5825.0	17.43					
		802.11n (HT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	8.0	No
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	14.0	No	7.69	8.0	Yes
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE40)	14.6 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE80)	36 Mbps	Not Required			16.0	No	Not Required	8.0	No

Note(s):

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

WLAN MIMO Ant.1 output power Results

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode power					
						Max. Average Power			Reduced Average Power		
						Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi 5GHz MIMO Ant.1	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	17.26	18.0	Yes	Not Required	8.0	No
				56	5280.0	17.42					
				60	5300.0	17.39					
				64	5320.0	17.62					
		802.11n (HT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	8.0	No
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	14.0	No	7.71	8.0	Yes
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE40)	14.6 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE80)	36 Mbps	Not Required			16.0	No	Not Required	8.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	17.37	18.0	Yes	Not Required	8.0	No
				120	5600.0	17.83					
				124	5620.0	17.70					
				144	5720.0	17.65					
		802.11n (HT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	8.0	No
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	14.0	No	7.52	8.0	Yes
				122	5610.0	Not Required			7.57		
				138	5690.0	Not Required			7.87		
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE40)	14.6 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE80)	36 Mbps	Not Required			16.0	No	Not Required	8.0	No
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	17.10	18.0	Yes	Not Required	8.0	No
				157	5785.0	16.86					
				165	5825.0	17.26					
		802.11n (HT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	8.0	No
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	14.0	No	7.54	8.0	Yes
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE40)	14.6 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE80)	36 Mbps	Not Required			16.0	No	Not Required	8.0	No

Note(s):

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

WLAN MIMO Ant.2 output power Results

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode power					
						Max. Average Power			Reduced Average Power		
						Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi 5GHz MIMO Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260.0	17.58	18.0	Yes	Not Required	8.0	No
				56	5280.0	17.46					
				60	5300.0	17.58					
				64	5320.0	17.48					
		802.11n (HT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	8.0	No
		802.11ac (VHT80)	29.3 Mbps	58	5290.0	Not Required	14.0	No	6.87	8.0	Yes
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE40)	14.6 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE80)	36 Mbps	Not Required			16.0	No	Not Required	8.0	No
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500.0	17.24	18.0	Yes	Not Required	8.0	No
				120	5600.0	16.98					
				124	5620.0	17.14					
				144	5720.0	17.68					
		802.11n (HT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	8.0	No
		802.11ac (VHT80)	29.3 Mbps	106	5530.0	Not Required	14.0	No	6.97	8.0	Yes
				122	5610.0	Not Required			6.09		
				138	5690.0	Not Required			6.11		
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE40)	14.6 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE80)	36 Mbps	Not Required			16.0	No	Not Required	8.0	No
	5.8 (U-NII 3)	802.11a	6 Mbps	149	5745.0	17.86	18.0	Yes	Not Required	8.0	No
				157	5785.0	17.42					
				165	5825.0	17.46					
		802.11n (HT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11n (HT40)	13.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT20)	6.5 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ac (VHT40)	13.5 Mbps	Not Required			15.0	No	Not Required	8.0	No
		802.11ac (VHT80)	29.3 Mbps	155	5775.0	Not Required	14.0	No	7.34	8.0	Yes
		802.11ax (HE20)	7.3 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE40)	14.6 Mbps	Not Required			17.0	No	Not Required	8.0	No
		802.11ax (HE80)	36 Mbps	Not Required			16.0	No	Not Required	8.0	No

Note(s):

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

9.7. Bluetooth

Bluetooth output power 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 Ant.1	BDR	0	2402	18.50	19.0	7.73	8.5
			39	2441	18.70		7.96	
			78	2480	17.01		7.00	
		EDR	0	2402	16.95	17.5	8.86	9.5
			39	2441	17.14		9.09	
			78	2480	15.33		7.07	
		LE	0	2402	9.02	9.5	9.02	9.5
			19	2440	9.33		9.33	
			39	2480	8.46		8.46	
	BT Ant.2	BDR	0	2402	17.51	19.0	6.27	8.5
			39	2441	17.97		7.30	
			78	2480	16.33		6.47	
		EDR	0	2402	16.02	17.5	8.04	9.5
			39	2441	16.40		8.41	
			78	2480	14.67		6.55	

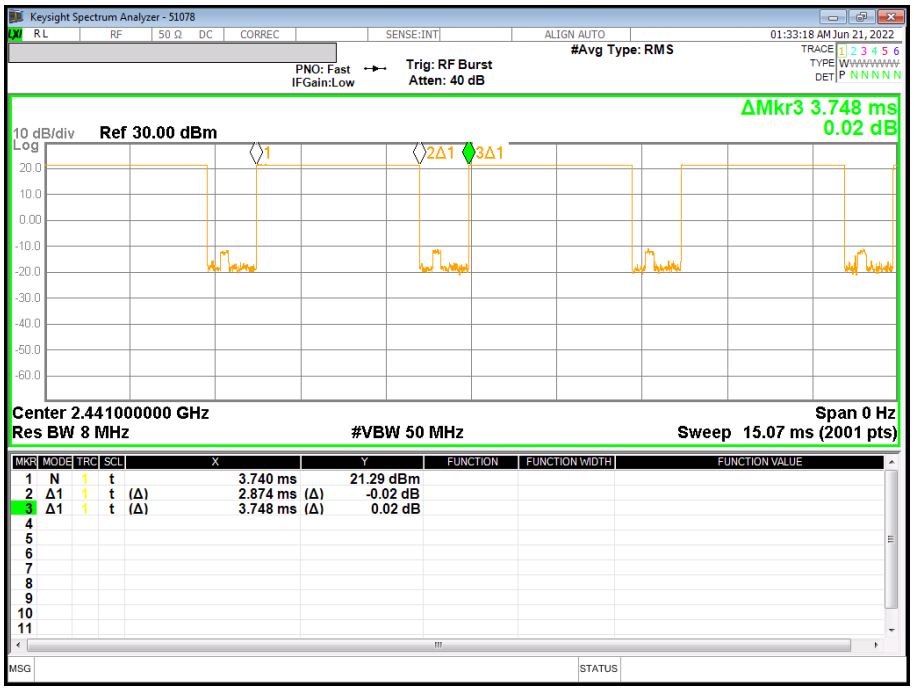
Note(s):

BT SAR are tested at the highest output power of all modes. So Max power SAR is tested using BDR mode, and Reduced power SAR is tested using EDR mode.

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
GFSK & EDR	DH5	2.874	3.748	76.7%	1.30

Duty Cycle plots



10. Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

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

KDB 447498 D01 General RF Exposure Guidance:

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

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

KDB 648474 D04 Handset SAR:

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

KDB 648474 D04 Handset SAR (Phablet Only):

For smart phones, with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm.
When hotspot mode does not apply, 10-g extremity SAR is required for all surfaces and edges with an antenna located at ≤ 25mm From that surface or edge in direct contact with a flat phantom, to address interactive hand use exposure conditions. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, Including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

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

KDB 941225 D01 SAR test for 3G devices:

When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

KDB 941225 D05 SAR for LTE Devices:

SAR test reduction is applied using the following criteria:

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

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	DSI Status	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.	Standalone	GPRS 4 Slots	DSI = 0	16	Rear	190	836.6	29.00	27.74	0.319	0.426	
				16	Edge 1	190	836.6	29.00	27.74	0.166	0.222	
				0	Edge 2	128	824.4	29.00	27.52	0.505	0.710	
						190	836.6	29.00	27.74	0.674	0.901	1
						251	848.8	29.00	27.48	0.602	0.854	
		GPRS 4 Slots	DSI = 1	0	Rear	128	824.4	19.00	17.90	0.216	0.278	
				0	Edge 1	128	824.4	19.00	17.90	0.096	0.124	

10.2. GSM 1900

Antenna	RF Exposure Conditions	Mode	DSI Status	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.	Standalone	GPRS 2 Slots	DSI = 0	16	Rear	512	1850.2	26.50	25.51	0.802	1.007	
						661	1880.0	26.50	25.50	0.714	0.899	
						810	1909.8	26.50	25.36	0.831	1.080	
				16	Edge 1	512	1850.2	26.50	25.51	0.771	0.968	
						661	1880.0	26.50	25.50	0.720	0.906	
						810	1909.8	26.50	25.36	0.839	1.091	
				0	Edge 2	661	1880.0	26.50	25.50	0.270	0.340	
		GPRS 1 Slots	DIS = 1	0	Rear	512	1850.2	21.50	19.98	0.762	1.081	
						661	1880.0	21.50	20.01	0.793	1.118	2
						810	1909.8	21.50	19.81	0.717	1.058	
				0	Edge 1	661	1880.0	21.50	20.01	0.544	0.767	

10.3. WCDMA Band II

Antenna	RF Exposure Conditions	Mode	DSI Status	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.	Standalone	Rel 99 RMC	DSI = 0	16	Rear	9262	1852.4	22.50	22.04	0.678	0.754	
						9400	1880.0	22.50	22.16	0.740	0.800	
						9538	1907.6	22.50	22.07	0.826	0.912	
				16	Edge 1	9262	1852.4	22.50	22.04	0.751	0.835	
						9400	1880.0	22.50	22.16	0.863	0.933	
						9538	1907.6	22.50	22.07	0.866	0.956	
				0	Edge 2	9400	1880.0	22.50	22.16	0.378	0.409	
		Rel 99 RMC	DSI = 1	0	Rear	9262	1852.4	12.50	12.22	0.989	1.055	3
						9400	1880.0	12.50	12.30	0.964	1.009	
						9538	1907.6	12.50	12.17	0.904	0.975	
				0	Edge 1	9400	1880.0	12.50	12.30	0.726	0.761	

10.4. WCDMA Band IV

Antenna	RF Exposure Conditions	Mode	DSI Status	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.	Standalone	Rel 99 RMC	DSI = 0	16	Rear	1312	1712.4	23.00	22.40	0.753	0.865	
						1413	1732.6	23.00	22.37	0.814	0.941	
						1513	1752.6	23.00	22.66	0.857	0.927	
				16	Edge 1	1312	1712.4	23.00	22.40	0.682	0.783	
						1413	1732.6	23.00	22.37	0.759	0.877	
						1513	1752.6	23.00	22.66	0.819	0.886	
				0	Edge 2	1413	1732.6	23.00	22.37	0.516	0.597	
		Rel 99 RMC	DSI = 1	0	Rear	1312	1712.4	13.00	12.63	0.876	0.954	
						1413	1732.6	13.00	12.53	0.898	1.001	4
						1513	1752.6	13.00	12.84	0.890	0.923	
				0	Edge 1	1413	1732.6	13.00	12.53	0.683	0.761	

10.5. WCDMA Band V

Antenna	RF Exposure Conditions	Mode	DSI Status	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.	Standalone	Rel 99 RMC	DSI = 0	16	Rear	4183	836.6	25.00	24.13	0.407	0.497	
				16	Edge 1	4183	836.6	25.00	24.13	0.120	0.147	
				0	Edge 2	4183	836.6	25.00	24.13	0.566	0.692	5
		Rel 99 RMC	DSI = 1	0	Rear	4183	836.6	15.00	13.84	0.317	0.414	
				0	Edge 1	4183	836.6	15.00	13.84	0.157	0.205	

10.6. LTE Band 5 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI Status	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	DSI = 0	16	Rear	20525	836.5	1	25	25.00	23.91	0.317	0.407	
								25	12	24.00	22.94	0.254	0.324	
				16	Edge 1	20525	836.5	1	25	25.00	23.91	0.133	0.171	
								25	12	24.00	22.94	0.110	0.140	
				0	Edge 2	20525	836.5	1	25	25.00	23.91	0.462	0.594	6
								25	12	24.00	22.94	0.377	0.481	
		QPSK	DSI = 1	0	Rear	20525	836.5	1	25	16.00	14.55	0.301	0.420	
								25	12	16.00	14.59	0.315	0.436	
				0	Edge 1	20525	836.5	1	25	16.00	14.55	0.178	0.249	
								25	12	16.00	14.59	0.189	0.261	

10.7. LTE Band 12 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI Status	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	DSI = 0	16	Rear	23095	707.5	1	49	25.00	23.22	0.170	0.256	
								25	12	24.00	22.34	0.123	0.180	
				16	Edge 1	23095	707.5	1	49	25.00	23.22	0.063	0.095	
								25	12	24.00	22.34	0.054	0.080	
				0	Edge 2	23095	707.5	1	49	25.00	23.22	0.280	0.422	7
								25	12	24.00	22.34	0.226	0.331	
		QPSK	DSI = 1	0	Rear	23095	707.5	1	49	15.00	13.12	0.220	0.339	
								25	12	15.00	13.20	0.231	0.350	
				0	Edge 1	23095	707.5	1	49	15.00	13.12	0.126	0.194	
								25	12	15.00	13.20	0.151	0.229	

LTE Band 17's (DSI=1) SAR results

Antenna	RF Exposure Conditions	Mode	DSI Status	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	DSI = 1	0	Rear	23790	710.0	1	49	17.00	15.06	0.299	0.467	
								25	12	17.00	15.14	0.307	0.471	8
				0	Edge 1	23790	710.0	1	49	17.00	15.06	0.175	0.274	
								25	12	17.00	15.14	0.180	0.276	

Note(s):

LTE Band 17 is not cover to LTE Band 12 in (DSI =1) condition. So SAR test required at LTE Band 17's (DSI =1) condition.

10.8. LTE Band 13 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI Status	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	DSI = 0	16	Rear	23230	782.0	1	25	25.00	23.61	0.253	0.348	
								25	25	24.00	22.69	0.199	0.269	
				16	Edge 1	23230	782.0	1	25	25.00	23.61	0.120	0.165	
								25	25	24.00	22.69	0.102	0.138	
				0	Edge 2	23230	782.0	1	25	25.00	23.61	0.514	0.708	9
								25	25	24.00	22.69	0.405	0.548	
		QPSK	DSI = 1	0	Rear	23230	782.0	1	25	15.00	13.65	0.206	0.281	
								25	25	15.00	13.69	0.211	0.285	
				0	Edge 1	23230	782.0	1	25	15.00	13.65	0.167	0.228	
								25	25	15.00	13.69	0.173	0.234	

10.9. LTE Band 25 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI Status	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	DSI = 0	16	Rear	26140	1860.0	1	0	22.70	22.02	0.787	0.920	
								50	24	21.70	21.06	0.639	0.740	
						26365	1882.5	1	0	22.70	22.00	0.775	0.911	
						26590	1905.0	1	0	22.70	21.98	0.688	0.812	
				16	Edge 1	26140	1860.0	1	0	22.70	22.02	0.871	1.019	
								50	24	21.70	21.06	0.730	0.846	
								100	0	21.70	20.93	0.715	0.854	
						26365	1882.5	1	0	22.70	22.00	0.888	1.043	10
								50	24	21.70	21.05	0.688	0.799	
						26590	1905.0	1	0	22.70	21.98	0.798	0.942	
								50	24	21.70	21.02	0.587	0.686	
				0	Edge 2	26140	1860.0	1	0	22.70	22.02	0.384	0.449	
								50	24	21.70	21.06	0.312	0.362	
		QPSK	DSI = 1	0	Rear	26140	1860.0	1	0	12.70	12.14	0.696	0.792	
								50	24	12.70	12.30	0.698	0.765	
				0	Edge 1	26140	1860.0	1	0	12.70	12.14	0.800	0.910	
								50	24	12.70	12.30	0.827	0.907	
								100	0	12.70	12.13	0.805	0.918	
						26365	1882.5	1	0	12.70	12.07	0.783	0.905	
								50	24	12.70	12.13	0.770	0.878	
						26590	1905.0	1	0	12.70	12.06	0.704	0.816	
								50	24	12.70	12.13	0.665	0.758	

10.10. LTE Band 26 (15MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI Status	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	DSI = 0	16	Rear	26865	831.5	1	37	25.00	23.70	0.203	0.274	
								36	20	24.00	22.71	0.165	0.222	
				16	Edge 1	26865	831.5	1	37	25.00	23.70	0.115	0.155	
								36	20	24.00	22.71	0.095	0.128	
				0	Edge 2	26865	831.5	1	37	25.00	23.70	0.427	0.576	
								36	20	24.00	22.71	0.348	0.468	
		QPSK	DSI = 1	0	Rear	26865	831.5	1	37	17.00	15.54	0.463	0.648	
								36	20	17.00	15.40	0.484	0.700	11
				0	Edge 1	26865	831.5	1	37	17.00	15.54	0.227	0.318	
								36	20	17.00	15.40	0.236	0.341	

10.11. LTE Band 41 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI Status	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Standalone	QPSK	DSI = 0	14	Rear	39750	2506.0	1	99	24.50	22.93	0.495	0.711	
								50	50	23.50	21.92	0.394	0.567	
				11	Edge 1	39750	2506.0	1	99	24.50	22.93	0.301	0.432	
								50	50	23.50	21.92	0.245	0.353	
				0	Edge 2	39750	2506.0	1	99	24.50	22.93	0.224	0.322	
								50	50	23.50	21.92	0.173	0.249	
		QPSK	DSI = 1	0	Rear	39750	2506.0	1	99	15.00	14.33	0.793	0.925	
								50	50	15.00	14.31	0.791	0.927	12
								100	0	15.00	14.23	0.764	0.912	
						40185	2549.5	1	99	15.00	14.30	0.660	0.775	
								50	50	15.00	14.30	0.648	0.761	
						40620	2593.0	1	99	15.00	13.53	0.548	0.769	
								50	50	15.00	13.76	0.579	0.770	
						41055	2636.5	1	99	15.00	13.33	0.523	0.768	
								50	50	15.00	13.66	0.571	0.777	
						41490	2680.0	1	99	15.00	13.91	0.599	0.770	
								50	50	15.00	14.04	0.629	0.785	
				0	Edge 1	39750	2506.0	1	99	15.00	14.33	0.150	0.175	
								50	50	15.00	14.31	0.154	0.181	

10.12. LTE Band 66 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	DSI Status	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Standalone	QPSK	DSI = 0	16	Rear	132072	1720.0	1	49	23.00	22.49	0.751	0.845	
								50	24	22.00	21.52	0.623	0.696	
						132322	1745.0	1	49	23.00	22.48	0.874	0.985	
						132572	1770.0	1	49	23.00	22.16	0.923	1.120	13
				16	Edge 1	132072	1720.0	1	49	23.00	22.49	0.684	0.769	
								50	24	22.00	21.52	0.568	0.634	
				0	Edge 2	132072	1720.0	1	49	23.00	22.49	0.467	0.525	
								50	24	22.00	21.52	0.377	0.421	
		QPSK	DSI = 1	0	Rear	132072	1720.0	1	49	13.00	12.07	0.776	0.961	
								50	24	13.00	12.17	0.803	0.972	
								100	0	13.00	12.08	0.792	0.979	
						132322	1745.0	1	49	13.00	12.02	0.775	0.971	
								50	24	13.00	12.06	0.811	1.007	
						132572	1770.0	1	49	13.00	12.01	0.769	0.966	
								50	24	13.00	12.16	0.789	0.957	
				0	Edge 1	132072	1720.0	1	49	13.00	12.07	0.541	0.670	
								50	24	13.00	12.17	0.557	0.674	

10.13. NR Band n5 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	DSI Status	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Note.	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
Main 1 Ant.	Standalone	DFT-s-OFDM	QPSK	DSI = 0	16	Rear	167300	836.5	1	1	25.00	24.10	0.221	0.272		
									50	28	24.00	23.74	0.243	0.258		
					16	Edge 1	167300	836.5	1	1	25.00	24.10	0.113	0.139		
									50	28	24.00	23.74	0.114	0.121		
					0	Edge 2	167300	836.5	1	1	25.00	24.10	0.439	0.540		14
									50	28	24.00	23.74	0.449	0.477		
		CP-OFDM	QPSK	DSI = 0	0	Edge 2	167300	836.5	1	1	23.50	22.56	0.261	0.324	1	
		DFT-s-OFDM	QPSK	DSI = 1	0	Rear	167300	836.5	1	1	17.00	15.90	0.417	0.537		
									50	28	17.00	15.79	0.371	0.490		
					0	Edge 1	167300	836.5	1	1	17.00	15.90	0.235	0.303		
									50	28	17.00	15.79	0.242	0.320		
		CP-OFDM	QPSK	DSI = 1	0	Rear	167300	836.5	1	1	17.00	15.90	0.352	0.453	1	

Note(s):

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

10.14. NR Band n66 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Modulation	Mode	DSI Status	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Note.	Plot No.
											Tune-up limit	Meas.	Meas.	Scaled		
Main 1 Ant.	Standalone	DFT-s-OFDM	QPSK	DSI = 0	16	Rear	344000	1720.0	1	53	23.80	22.44	0.647	0.885		
									50	28	23.80	22.55	0.640	0.853		
							349000	1745.0	1	53	23.80	22.94	0.732	0.892		
									50	28	23.80	22.99	0.741	0.893		
									100	0	23.80	22.00	0.541	0.819		
							354000	1770.0	1	53	23.80	22.48	0.741	1.004		
									50	28	23.80	22.51	0.758	1.020		15
					16	Edge 1	349000	1745.0	1	53	23.80	22.94	0.492	0.600		
									50	28	23.80	22.99	0.525	0.633		
					0	Edge 2	349000	1745.0	1	53	23.80	22.94	0.330	0.402		
									50	28	23.80	22.99	0.329	0.396		
		CP-OFDM	QPSK	DSI = 0	0	Rear	354000	1770.0	1	1	21.50	21.28	0.522	0.549		
		DFT-s-OFDM	QPSK	DSI = 1	0	Rear	344000	1720.0	1	53	12.50	11.88	0.794	0.916		
									50	28	12.50	11.89	0.788	0.907		
							349000	1745.0	1	53	12.50	12.08	0.763	0.840		
									50	28	12.50	12.08	0.826	0.910		
									100	0	12.50	12.06	0.791	0.875		
							354000	1770.0	1	53	12.50	11.90	0.757	0.869		
									50	28	12.50	11.99	0.818	0.920		
					0	Edge 1	349000	1745.0	1	53	12.50	12.08	0.584	0.643		
									50	28	12.50	12.08	0.601	0.662		
		CP-OFDM	QPSK	DSI = 1	0	Rear	354000	1770.0	1	1	12.50	11.88	0.781	0.901		

Note(s):

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

10.15. Wi-Fi (DTS Band)

DTS SISO Results

Frequency Band	Antenna	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Note.	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
2.4GHz	WLAN SISO Ant.1	802.11b 1 Mbps	Standanloe	Off	14	Rear	1	2412.0	99.4%	20.00	19.70	0.212	0.229		
					16	Edge 1	1	2412.0	99.4%	20.00	19.70	0.131	0.141		
					0	Edge 4	1	2412.0	99.4%	20.00	19.70	0.233	0.251		
				On	0	Rear	11	2462.0	99.4%	11.00	10.73	0.440	0.471		16
					0	Edge 1	11	2462.0	99.4%	11.00	10.73	0.142	0.152		
	WLAN SISO Ant.2	802.11b 1 Mbps	Standanloe	Off	14	Rear	6	2437.0	99.4%	20.00	19.10	0.533	0.660		
					0	Edge 1	6	2437.0	99.4%	20.00	19.10	<0.001	<0.001	1	
					13	Edge 3	6	2437.0	99.4%	20.00	19.10	0.631	0.781		17
					0	Edge 4	6	2437.0	99.4%	20.00	19.10	0.117	0.145		
				On	0	Rear	11	2462.0	99.4%	11.00	10.79	0.252	0.266		
					0	Edge 3	11	2462.0	99.4%	11.00	10.79	0.390	0.412		

DTS MIMO Results

Frequency Band	Antenna	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Note.	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
2.4GHz	WLAN MIMO Ant.1	802.11g 6 Mbps	Standanloe	Off	14	Rear	6	2437.0	96.4%	19.00	18.55				
					16	Edge 1	6	2437.0	96.4%	19.00	18.55	0.122	0.140		
					13	Edge 3	6	2437.0	96.4%	19.00	18.55				
					0	Edge 4	6	2437.0	96.4%	19.00	18.55	0.194	0.223		
				On	0	Rear	6	2437.0	96.4%	11.00	10.45	0.359	0.423		
					0	Edge 1	6	2437.0	96.4%	11.00	10.45	0.114	0.134		
					0	Edge 3	6	2437.0	96.4%	11.00	10.45				
	WLAN MIMO Ant.2	802.11g 6 Mbps	Standanloe	Off	14	Rear	6	2437.0	96.4%	19.00	18.42	0.633	0.751		18
					16	Edge 1	6	2437.0	96.4%	19.00	18.42				
					13	Edge 3	6	2437.0	96.4%	19.00	18.42	0.628	0.745		
					0	Edge 4	6	2437.0	96.4%	19.00	18.42				
				On	0	Rear	6	2437.0	96.4%	11.00	10.61	0.416	0.472		
					0	Edge 1	6	2437.0	96.4%	11.00	10.61				
					0	Edge 3	6	2437.0	96.4%	11.00	10.61	0.572	0.649		

Note(s):

1. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
2. 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.
3. DTS MIMO SAR additionally evaluated due to satisfy simultaneous transmission criteria.

10.16. Wi-Fi (U-NII Bands)

U-NII 2A SISO Results

Frequency Band	Antenna	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
5.3 GHz U-NII 2A	WLAN SISO Ant.1	802.11a 6 Mbps	Standalone	Off	14	Rear	52	5260.0	96.7%	18.00	17.48	0.263	0.307		
					16	Edge 1	52	5260.0	96.7%	18.00	17.48	0.539	0.629		
					0	Edge 4	52	5260.0	96.7%	18.00	17.48	0.167	0.195		
		802.11ac VHT80 29.3 Mbps	Standalone	On	0	Rear	58	5290.0	94.5%	8.00	7.61	0.456	0.528		
					0	Edge 1	58	5290.0	94.5%	8.00	7.61	0.576	0.667		19
	WLAN SISO Ant.2	802.11a 6 Mbps	Standalone	Off	14	Rear	52	5260.0	96.7%	18.00	17.59	0.361	0.410		
					13	Edge 3	52	5260.0	96.7%	18.00	17.59	0.098	0.111		
					0	Edge 4	52	5260.0	96.7%	18.00	17.59	0.158	0.180		
		802.11ac VHT80 29.3 Mbps	Standalone	On	0	Rear	58	5290.0	94.5%	8.00	7.44	0.553	0.665		20
					0	Edge 3	58	5290.0	94.5%	8.00	7.44	0.118	0.142		

U-NII 2A MIMO Results

Frequency Band	Antenna	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
5.3 GHz U-NII 2A	WLAN MIMO Ant.1	802.11a 6 Mbps	Standalone	Off	14	Rear	64	5320.0	96.7%	18.00	17.62	0.483	0.545		
					16	Edge 1	60	5300.0	96.7%	18.00	17.39	0.681	0.811	1	
							64	5320.0	96.7%	18.00	17.62	0.741	0.837		21
					13	Edge 3	64	5320.0	96.7%	18.00	17.62				
					0	Edge 4	64	5320.0	96.7%	18.00	17.62	0.135	0.152		
		802.11ac VHT80 29.3 Mbps	Standalone	On	0	Rear	58	5290.0	94.5%	8.00	7.71	0.444	0.502		
					0	Edge 1	58	5290.0	94.5%	8.00	7.71	0.544	0.615		
					0	Edge 3	58	5290.0	94.5%	8.00	7.71				
	WLAN MIMO Ant.2	802.11a 6 Mbps	Standalone	Off	14	Rear	64	5320.0	96.7%	18.00	17.48	0.297	0.346		
					16	Edge 1	60	5300.0	96.7%	18.00	17.58				
							64	5320.0	96.7%	18.00	17.48				
					13	Edge 3	64	5320.0	96.7%	18.00	17.48	0.135	0.157		
					0	Edge 4	64	5320.0	96.7%	18.00	17.48	0.129	0.150		
		802.11ac VHT80 29.3 Mbps	Standalone	On	0	Rear	58	5290.0	94.5%	8.00	6.87	0.454	0.623		
					0	Edge 1	58	5290.0	94.5%	8.00	6.87				
					0	Edge 3	58	5290.0	94.5%	8.00	6.87	0.095	0.130		

Note(s):

1. 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). If second channel SAR is not over 1.2 or 3.0 W/kg (1-g or 10-g respectively), remain channels SAR test are not required.
2. UNII MIMO SAR additionally evaluated due to satisfy simultaneous transmission criteria.

Wi-Fi (U-NII Bands) (Continued)

U-NII 2C SISO Results

Frequency Band	Antenna	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
5.5 GHz U-NII 2C	WLAN SISO Ant.1	802.11a 6 Mbps	Standalone	Off	14	Rear	100	5500.0	96.7%	18.00	17.60	0.432	0.490		
					16	Edge 1	100	5500.0	96.7%	18.00	17.60	0.785	0.891		22
							120	5600.0	96.7%	18.00	17.59	0.761	0.865	1	
					0	Edge 4	100	5500.0	96.7%	18.00	17.60	0.081	0.092		
		802.11ac VHT80 29.3 Mbps	Standalone	On	0	Rear	138	5690.0	94.5%	8.00	7.66	0.609	0.697		
					0	Edge 1	138	5690.0	94.5%	8.00	7.66	0.490	0.561		
	WLAN SISO Ant.2	802.11a 6 Mbps	Standalone	Off	14	Rear	144	5720.0	96.7%	18.00	17.77	0.708	0.772		23
					13	Edge 3	144	5720.0	96.7%	18.00	17.77	0.184	0.201		
					0	Edge 4	144	5720.0	96.7%	18.00	17.77	0.489	0.533		
		802.11ac VHT80 29.3 Mbps	Standalone	On	0	Rear	122	5610.0	94.5%	8.00	7.42	0.584	0.706		
					0	Edge 3	122	5610.0	94.5%	8.00	7.42	0.162	0.196		

U-NII 2C MIMO Results

Frequency Band	Antenna	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
5.5 GHz U-NII 2C	WLAN MIMO Ant.1	802.11a 6 Mbps	Standalone	Off	14	Rear	120	5600.0	96.7%	18.00	17.83	0.511	0.550		
					16	Edge 1	120	5600.0	96.7%	18.00	17.83	0.885	0.952		
							124	5620.0	96.7%	18.00	17.70	0.918	1.018	1	24
					13	Edge 3	120	5600.0	96.7%	18.00	17.83				
					0	Edge 4	120	5600.0	96.7%	18.00	17.83				
		802.11ac VHT80 29.3 Mbps	Standalone	On	0	Rear	138	5690.0	94.5%	8.00	7.87	0.685	0.747		
					0	Edge 1	138	5690.0	94.5%	8.00	7.87	0.374	0.408		
					0	Edge 3	138	5690.0	94.5%	8.00	7.87				
	WLAN MIMO Ant.2	802.11a 6 Mbps	Standalone	Off	14	Rear	120	5600.0	96.7%	18.00	16.98	0.426	0.557		
					16	Edge 1	120	5600.0	96.7%	18.00	16.98				
							124	5620.0	96.7%	18.00	17.14				
					13	Edge 3	120	5600.0	96.7%	18.00	16.98	0.109	0.143		
					0	Edge 4	120	5600.0	96.7%	18.00	16.98	0.200	0.262		
		802.11ac VHT80 29.3 Mbps	Standalone	On	0	Rear	138	5690.0	94.5%	8.00	6.11				
					0	Edge 1	138	5690.0	94.5%	8.00	6.11				
					0	Edge 3	138	5690.0	94.5%	8.00	6.11	0.105	0.172		

Note(s):

1. 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). If second channel SAR is not over 1.2 or 3.0 W/kg (1-g or 10-g respectively), remain channels SAR test are not required.
2. UNII MIMO SAR additionally evaluated due to satisfy simultaneous transmission criteria.

Wi-Fi (U-NII Bands) (Continued)

U-NII 3 SISO Results

Frequency Band	Antenna	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
5.8 GHz U-NII 3	WLAN SISO Ant.1	802.11a 6 Mbps	Standalone	Off	14	Rear	165	5825.0	96.7%	18.00	17.64	0.560	0.629		
					16	Edge 1	165	5825.0	96.7%	18.00	17.64	0.654	0.735		
					0	Edge 4	165	5825.0	96.7%	18.00	17.64	0.447	0.502		
		802.11ac VHT80 29.3 Mbps	Standalone	On	0	Rear	155	5775.0	94.5%	8.00	7.34	0.681	0.839		25
					0	Edge 1	155	5775.0	94.5%	8.00	7.34	0.511	0.629		
	WLAN SISO Ant.2	802.11a 6 Mbps	Standalone	Off	14	Rear	165	5825.0	96.7%	18.00	17.43	0.602	0.710		26
					13	Edge 3	165	5825.0	96.7%	18.00	17.43	0.109	0.129		
					0	Edge 4	165	5825.0	96.7%	18.00	17.43	0.396	0.467		
		802.11ac VHT80 29.3 Mbps	Standalone	On	0	Rear	155	5775.0	94.5%	8.00	7.69	0.606	0.688		
					0	Edge 3	155	5775.0	94.5%	8.00	7.69	0.148	0.168		

U-NII 3 MIMO Results

Frequency Band	Antenna	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Note	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
5.8 GHz U-NII 3	WLAN MIMO Ant.1	802.11a 6 Mbps	Standalone	Off	14	Rear	149	5745.0	96.7%	18.00	17.10	0.608	0.774		
					16	Edge 1	149	5745.0	96.7%	18.00	17.10	0.572	0.728		
					13	Edge 3	149	5745.0	96.7%	18.00	17.10				
					0	Edge 4	149	5745.0	96.7%	18.00	17.10	0.353	0.449		
		802.11ac VHT80 29.3 Mbps	Standalone	On	0	Rear	155	5775.0	94.5%	8.00	7.54	0.699	0.822		27
					0	Edge 1	155	5775.0	94.5%	8.00	7.54	0.371	0.436		
					0	Edge 3	155	5775.0	94.5%	8.00	7.54				
	WLAN MIMO Ant.2	802.11a 6 Mbps	Standalone	Off	14	Rear	149	5745.0	96.7%	18.00	17.86	0.578	0.618		
					16	Edge 1	149	5745.0	96.7%	18.00	17.86				
					13	Edge 3	149	5745.0	96.7%	18.00	17.86	0.154	0.165		
					0	Edge 4	149	5745.0	96.7%	18.00	17.86	0.376	0.402		
		802.11ac VHT80 29.3 Mbps	Standalone	On	0	Rear	155	5775.0	94.5%	8.00	7.34	0.612	0.754		
					0	Edge 1	155	5775.0	94.5%	8.00	7.34				
					0	Edge 3	155	5775.0	94.5%	8.00	7.34	0.128	0.158		

Note(s):

1. 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). If second channel SAR is not over 1.2 or 3.0 W/kg (1-g or 10-g respectively), remain channels SAR test are not required.
2. UNII MIMO SAR additionally evaluated due to satisfy simultaneous transmission criteria.

10.17. Bluetooth

Frequency Band	Antenna	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Note.	Plot No.
										Tune-up limit	Meas.	Meas.	Scaled		
2.4GHz	BT SISO Ant.1	GFSK (BDR)	Standanloe	Off	14	Rear	39	2441.0	76.7%	19.00	18.70	0.130	0.182		
					16	Edge 1	39	2441.0	76.7%	19.00	18.70	0.056	0.078		
					0	Edge 4	39	2441.0	76.7%	19.00	18.70	0.136	0.190		
		EDR	Standanloe	On	0	Rear	39	2441.0	76.7%	9.50	9.09	0.517	0.741		28
					0	Edge 1	39	2441.0	76.7%	9.50	9.09	0.147	0.211		
	BT SISO Ant.2	GFSK (BDR)	Standanloe	Off	14	Rear	39	2441.0	76.7%	19.00	17.97	0.273	0.451		
					0	Edge 1	39	2441.0	76.7%	18.50	17.97	0.001	0.001	1	
					13	Edge 3	39	2441.0	76.7%	19.00	17.97	0.234	0.387		
					0	Edge 4	39	2441.0	76.7%	19.00	17.97	0.046	0.076		
		EDR	Standanloe	On	0	Rear	39	2441.0	76.7%	9.50	8.41	0.315	0.528		
					0	Edge 3	39	2441.0	76.7%	9.50	8.41	0.468	0.784		29

Note(s):

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

10.18. NFC

Antenna	Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Test setup		Freq. (MHz)	1-g SAR (W/kg)	Plot No.
					Type	Bitrate		Meas.	
NFC	PBRS	Standalone	0	Rear	A	106	13.6	0.051	30
					A	212	13.6	0.042	
					A	423	13.6	0.040	
					B	106	13.6	0.047	
					F	106	13.6	0.000	
				Edge 1	A	106	13.6	0.000	
				Edge 2	A	106	13.6	0.000	
				Edge 3	A	106	13.6	0.000	
				Edge 4	A	106	13.6	0.002	

11. SAR Measurement Variability

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

1) Repeated measurement is not required when the original highest measured SAR is <0.8 or 2 W/kg (1-g or 10-g respectively); steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.8 or 2 W/kg (1-g or 10-g respectively), repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 or 3.6 W/kg (~ 10% from the 1-g or 10-g respective SAR limit).
4) Perform a third repeated measurement only if the original, first, or second repeated measurement is ≥ 1.5 or 3.75 W/kg (1-g or 10-g respectively) and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Peak spatial-average (1g of tissue)

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Repeated Measured SAR (W/kg)	Largest to Smallest SAR Ratio
1750	WCDMA Band IV	Standalone	Rear	No	0.898	N/A	N/A
	LTE Band 66	Standalone	Rear	Yes	0.923	0.877	1.05
	NR Band n66	Standalone	Rear	No	0.826	N/A	N/A
1900	GSM 1900	Standalone	Edge 1	No	0.839	N/A	N/A
	WCDMA Band II	Standalone	Rear	Yes	0.989	0.980	1.01
	LTE Band 25	Standalone	Rear	No	0.888	N/A	N/A
5600	UNII	Standalone	Edge 1	Yes	0.918	0.902	1.02

Note(s):

1. In above table, Only some bands above 0.8 or 2.0 W/kg (1-g or 10-g Measured SAR) were listed.

2. 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
Standalone	1	WWAN (2G/3G/LTE/NR) + DTS MIMO
	2	WWAN (2G/3G/LTE/NR) + UNII Ant.2
	3	WWAN (2G/3G/LTE/NR) + UNII MIMO
	4	WWAN (2G/3G/LTE/NR) + BT Ant.1
	5	WWAN (2G/3G/LTE/NR) + BT Ant.2
	6	WWAN (2G/3G/LTE/NR) + DTS Ant.2 + BT Ant.1
	7	WWAN (2G/3G/LTE/NR) + UNII MIMO + BT Ant.1
	8	WWAN (2G/3G/LTE/NR) + UNII MIMO + BT Ant.2
	9	WWAN (2G/3G/LTE/NR) + DTS MIMO + UNII MIMO
	10	WWAN (2G/3G/LTE/NR) + DTS Ant.2 + UNII MIMO + BT Ant.1
	11	WWAN (2G/3G/LTE/NR) + DTS MIMO
	12	ENDC(LTE+NR) + UNII Ant.2
	13	ENDC(LTE+NR) + UNII MIMO
	14	ENDC(LTE+NR) + BT Ant.1
	15	ENDC(LTE+NR) + BT Ant.2
	16	ENDC(LTE+NR) + DTS Ant.2 + BT Ant.1
	17	ENDC(LTE+NR) + UNII MIMO + BT Ant.1
	18	ENDC(LTE+NR) + UNII MIMO + BT Ant.2
	19	ENDC(LTE+NR) + DTS MIMO + UNII MIMO
	20	ENDC(LTE+NR) + DTS Ant.2 + UNII MIMO + BT Ant.1
	21	All scenarios (1 - 21) + NFC

Notes:

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

Note(s):

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

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 Separation Ratio (SPLSR)

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

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

Where:

SAR_1 is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

SAR_2 is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

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

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

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

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

When an individual antenna transmits at on two bands simultaneously, the sum of the highest *reported* SAR for the frequency bands should be used to determine SAR_1.or SAR_2. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

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

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

Sum to Peak Location Separation Ratio

Instead of doing a small volume scan over a co-located antenna pair (Hybrid SPLSR guide), Simultaneous transmission SAR test exclusion may algebraically sum the SAR values of the co-located pair and use that value in SPLSR calculation;

-In the calculation Separation distance must use the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.

12.1. Sum of the SAR for WWAN & Wi-Fi & BT & NFC in (Rear) position

Standanlone highest SAR results

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)									
			WWAN	WiFi & BT & NFC								
				DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	NFC
			1	2	3	4	5	6	7	8	9	10
Standalone	GSM 850	Rear	0.426	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	GSM 1900	Rear	1.118	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	WCDMA Band II	Rear	1.055	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	WCDMA Band IV	Rear	1.001	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	WCDMA Band V	Rear	0.497	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	LTE Band 5	Rear	0.436	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	LTE Band 12/17	Rear	0.471	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	LTE Band 13	Rear	0.348	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	LTE Band 25	Rear	0.920	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	LTE Band 26	Rear	0.700	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	LTE Band 41	Rear	0.927	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	LTE Band 66	Rear	1.120	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	NR Band n5	Rear	0.537	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051
	NR Band n66	Rear	1.020	0.471	0.660	0.751	0.839	0.722	0.822	0.741	0.528	0.051

Simultaneous transmission SUM SAR results

RF Exposure	Test Position	Test Position	Sum of SAR (W/kg)									
			WWAN + DTS MIMO + NFC	WWAN + UNII Ant.2 + NFC	WWAN + UNII MIMO + NFC	WWAN + BT Ant.1 + NFC	WWAN + BT Ant.2 + NFC	WWAN + DTS Ant.2 + BT Ant.1 + NFC	WWAN + UNII MIMO + BT Ant.1 + NFC	WWAN + UNII MIMO + BT Ant.2 + NFC	WWAN + DTS MIMO + UNII MIMO + NFC	WWAN + DTS Ant.2 + UNII MIMO + BT Ant.1 + NFC
			1+4+10	1+6+10	1+7+10	1+8+10	1+9+10	1+3+8+10	1+7+8+10	1+7+9+10	1+4+7+10	1+3+7+8+10
Simultaneous Tx	GSM 850	Rear	1.228	1.199	1.299	1.218	1.005	1.878	2.040	1.827	2.050	2.700
	GSM 1900	Rear	1.920	1.891	1.991	1.910	1.697	2.570	2.732	2.519	2.742	3.392
	WCDMA Band II	Rear	1.857	1.828	1.928	1.847	1.634	2.507	2.669	2.456	2.679	3.329
	WCDMA Band IV	Rear	1.803	1.774	1.874	1.793	1.580	2.453	2.615	2.402	2.625	3.275
	WCDMA Band V	Rear	1.299	1.270	1.370	1.289	1.076	1.949	2.111	1.898	2.121	2.771
	LTE Band 5	Rear	1.238	1.209	1.309	1.228	1.015	1.888	2.050	1.837	2.060	2.710
	LTE Band 12/17	Rear	1.273	1.244	1.344	1.263	1.050	1.923	2.085	1.872	2.095	2.745
	LTE Band 13	Rear	1.150	1.121	1.221	1.140	0.927	1.800	1.962	1.749	1.972	2.622
	LTE Band 25	Rear	1.722	1.693	1.793	1.712	1.499	2.372	2.534	2.321	2.544	3.194
	LTE Band 26	Rear	1.502	1.473	1.573	1.492	1.279	2.152	2.314	2.101	2.324	2.974
	LTE Band 41	Rear	1.729	1.700	1.800	1.719	1.506	2.379	2.541	2.328	2.551	3.201
	LTE Band 66	Rear	1.922	1.893	1.993	1.912	1.699	2.572	2.734	2.521	2.744	3.394
	NR Band n5	Rear	1.339	1.310	1.410	1.329	1.116	1.989	2.151	1.938	2.161	2.811
	NR Band n66	Rear	1.822	1.793	1.893	1.812	1.599	2.472	2.634	2.421	2.644	3.294

Note(s):

If some simultaneous transmission scenarios are over FCC limit(Red values in table), SPLSR criteria was performed in Appendix I. According to the results of Appendix I, all combination exceeding the FCC limit of above table satisfied the SPLSR criteria. Please refer to Appendix I.

12.2. Sum of the SAR for WWAN & Wi-Fi & BT & NFC in (Edge.1) position

Standanlone highest SAR results

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)									
			WWAN	WiFi & BT & NFC								
				DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	NFC
			1	2	3	4	5	6	7	8	9	10
Standalone	GSM 850	Edge 1	0.222	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	GSM 1900	Edge 1	1.091	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	WCDMA Band II	Edge 1	0.956	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	WCDMA Band IV	Edge 1	0.886	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	WCDMA Band V	Edge 1	0.205	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	LTE Band 5	Edge 1	0.261	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	LTE Band 12/17	Edge 1	0.276	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	LTE Band 13	Edge 1	0.234	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	LTE Band 25	Edge 1	1.043	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	LTE Band 26	Edge 1	0.341	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	LTE Band 41	Edge 1	0.432	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	LTE Band 66	Edge 1	0.769	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	NR Band n5	Edge 1	0.320	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000
	NR Band n66	Edge 1	0.662	0.152	0.001	0.140	0.891	0.055	1.018	0.211	0.001	0.000

Simultaneous transmission SUM SAR results

RF Exposure	Test Position	Test Position	Sum of SAR (W/kg)									
			WWAN + DTS MIMO + NFC	WWAN + UNII Ant.2 + NFC	WWAN + UNII MIMO + NFC	WWAN + BT Ant.1 + NFC	WWAN + BT Ant.2 + NFC	WWAN + DTS Ant.2 + BT Ant.1 + NFC	WWAN + UNII MIMO + BT Ant.1 + NFC	WWAN + UNII MIMO + BT Ant.2 + NFC	WWAN + DTS MIMO + UNII MIMO + NFC	WWAN + DTS Ant.2 + UNII MIMO + BT Ant.1 + NFC
			1+4+10	1+6+10	1+7+10	1+8+10	1+9+10	1+3+8+10	1+7+8+10	1+7+9+10	1+4+7+10	1+3+7+8+10
Simultaneous Tx	GSM 850	Edge 1	0.362	0.277	1.240	0.433	0.223	0.434	1.451	1.241	1.380	1.452
	GSM 1900	Edge 1	1.231	1.146	2.109	1.302	1.092	1.303	2.320	2.110	2.249	2.321
	WCDMA Band II	Edge 1	1.096	1.011	1.974	1.167	0.957	1.168	2.185	1.975	2.114	2.186
	WCDMA Band IV	Edge 1	1.026	0.941	1.904	1.097	0.887	1.098	2.115	1.905	2.044	2.116
	WCDMA Band V	Edge 1	0.345	0.260	1.223	0.416	0.206	0.417	1.434	1.224	1.363	1.435
	LTE Band 5	Edge 1	0.401	0.316	1.279	0.472	0.262	0.473	1.490	1.280	1.419	1.491
	LTE Band 12/17	Edge 1	0.416	0.331	1.294	0.487	0.277	0.488	1.505	1.295	1.434	1.506
	LTE Band 13	Edge 1	0.374	0.289	1.252	0.445	0.235	0.446	1.463	1.253	1.392	1.464
	LTE Band 25	Edge 1	1.183	1.098	2.061	1.254	1.044	1.255	2.272	2.062	2.201	2.273
	LTE Band 26	Edge 1	0.481	0.396	1.359	0.552	0.342	0.553	1.570	1.360	1.499	1.571
	LTE Band 41	Edge 1	0.572	0.487	1.450	0.643	0.433	0.644	1.661	1.451	1.590	1.662
	LTE Band 66	Edge 1	0.909	0.824	1.787	0.980	0.770	0.981	1.998	1.788	1.927	1.999
	NR Band n5	Edge 1	0.460	0.375	1.338	0.531	0.321	0.532	1.549	1.339	1.478	1.550
	NR Band n66	Edge 1	0.802	0.717	1.680	0.873	0.663	0.874	1.891	1.681	1.820	1.892

Note(s):

If some simultaneous transmission scenarios are over FCC limit(Red values in table), SPLSR criteria was performed in Appendix I. According to the results of Appendix I, all combination exceeding the FCC limit of above table satisfied the SPLSR criteria. Please refer to Appendix I.

12.3. Sum of the SAR for WWAN & Wi-Fi & BT & NFC in (Edge.2) position

Standanlone highest SAR results

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)									
			WWAN	WiFi & BT & NFC								
				DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	NFC
			1	2	3	4	5	6	7	8	9	10
Standalone	GSM 850	Edge 2	0.901	0.053	0.052	0.105	0.034	0.033	0.067	0.038	0.037	0.000
	GSM 1900	Edge 2	0.340	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000
	WCDMA Band II	Edge 2	0.409	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000
	WCDMA Band IV	Edge 2	0.597	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000
	WCDMA Band V	Edge 2	0.692	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000
	LTE Band 5	Edge 2	0.594	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000
	LTE Band 12/17	Edge 2	0.422	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000
	LTE Band 13	Edge 2	0.708	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000
	LTE Band 25	Edge 2	0.449	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000
	LTE Band 26	Edge 2	0.576	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000
	LTE Band 41	Edge 2	0.322	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000
	LTE Band 66	Edge 2	0.525	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000
	NR Band n5	Edge 2	0.540	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000
	NR Band n66	Edge 2	0.402	0.053	0.052	0.136	0.034	0.033	0.089	0.038	0.037	0.000

Simultaneous transmission SUM SAR results

RF Exposure	Test Position	Test Position	Sum of SAR (W/kg)									
			WWAN + DTS MIMO + NFC	WWAN + UNII Ant.2 + NFC	WWAN + UNII MIMO + NFC	WWAN + BT Ant.1 + NFC	WWAN + BT Ant.2 + NFC	WWAN + DTS Ant.2 + BT Ant.1 + NFC	WWAN + UNII MIMO + BT Ant.1 + NFC	WWAN + UNII MIMO + BT Ant.2 + NFC	WWAN + DTS MIMO + UNII MIMO + NFC	WWAN + DTS Ant.2 + UNII MIMO + BT Ant.1 + NFC
			1+4+10	1+6+10	1+7+10	1+8+10	1+9+10	1+3+8+10	1+7+8+10	1+7+9+10	1+4+7+10	1+3+7+8+10
Simultaneous Tx	GSM 850	Edge 2	1.006	0.934	0.968	0.939	0.938	0.991	1.006	1.005	1.073	1.058
	GSM 1900	Edge 2	0.476	0.373	0.429	0.378	0.377	0.430	0.467	0.466	0.565	0.519
	WCDMA Band II	Edge 2	0.545	0.442	0.498	0.447	0.446	0.499	0.536	0.535	0.634	0.588
	WCDMA Band IV	Edge 2	0.733	0.630	0.686	0.635	0.634	0.687	0.724	0.723	0.822	0.776
	WCDMA Band V	Edge 2	0.828	0.725	0.781	0.730	0.729	0.782	0.819	0.818	0.917	0.871
	LTE Band 5	Edge 2	0.730	0.627	0.683	0.632	0.631	0.684	0.721	0.720	0.819	0.773
	LTE Band 12/17	Edge 2	0.558	0.455	0.511	0.460	0.459	0.512	0.549	0.548	0.647	0.601
	LTE Band 13	Edge 2	0.844	0.741	0.797	0.746	0.745	0.798	0.835	0.834	0.933	0.887
	LTE Band 25	Edge 2	0.585	0.482	0.538	0.487	0.486	0.539	0.576	0.575	0.674	0.628
	LTE Band 26	Edge 2	0.712	0.609	0.665	0.614	0.613	0.666	0.703	0.702	0.801	0.755
	LTE Band 41	Edge 2	0.458	0.355	0.411	0.360	0.359	0.412	0.449	0.448	0.547	0.501
	LTE Band 66	Edge 2	0.661	0.558	0.614	0.563	0.562	0.615	0.652	0.651	0.750	0.704
	NR Band n5	Edge 2	0.676	0.573	0.629	0.578	0.577	0.630	0.667	0.666	0.765	0.719
	NR Band n66	Edge 2	0.538	0.435	0.491	0.440	0.439	0.492	0.529	0.528	0.627	0.581

Note(s):

1. Green value is estimated SAR according to calculate of KDB 447498 D04. Please refer to Section.7.
2. Blue value is sum SAR of each DTS Ant.1 & DTS Ant.2 or UNII Ant.1 & UNII Ant.2.
3. All Sum results are below FCC limit (1.6 W/kg). So additional evaluation are not required.

12.4. Sum of the SAR for WWAN & Wi-Fi & BT & NFC in (Edge.3) position

Standanlone highest SAR results

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)									
			WWAN	WiFi & BT & NFC								
				DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	NFC
			1	2	3	4	5	6	7	8	9	10
Standalone	GSM 850	Edge 3	0.523	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	GSM 1900	Edge 3	0.146	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	WCDMA Band II	Edge 3	0.147	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	WCDMA Band IV	Edge 3	0.165	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	WCDMA Band V	Edge 3	0.417	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	LTE Band 5	Edge 3	0.418	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	LTE Band 12/17	Edge 3	0.485	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	LTE Band 13	Edge 3	0.446	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	LTE Band 25	Edge 3	0.154	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	LTE Band 26	Edge 3	0.419	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	LTE Band 41	Edge 3	0.237	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	LTE Band 66	Edge 3	0.165	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	NR Band n5	Edge 3	0.420	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000
	NR Band n66	Edge 3	0.198	0.080	0.781	0.745	0.053	0.201	0.172	0.057	0.784	0.000

Simultaneous transmission SUM SAR results

RF Exposure	Test Position	Test Position	Sum of SAR (W/kg)									
			WWAN + DTS MIMO + NFC	WWAN + UNII Ant.2 + NFC	WWAN + UNII MIMO + NFC	WWAN + BT Ant.1 + NFC	WWAN + BT Ant.2 + NFC	WWAN + DTS Ant.2 + BT Ant.1 + NFC	WWAN + UNII MIMO + BT Ant.1 + NFC	WWAN + UNII MIMO + BT Ant.2 + NFC	WWAN + DTS MIMO + UNII MIMO + NFC	WWAN + DTS Ant.2 + UNII MIMO + BT Ant.1 + NFC
			1+4+10	1+6+10	1+7+10	1+8+10	1+9+10	1+3+8+10	1+7+8+10	1+7+9+10	1+4+7+10	1+3+7+8+10
Simultaneous Tx	GSM 850	Edge 3	1.268	0.724	0.695	0.580	1.307	1.361	0.752	1.479	1.440	1.533
	GSM 1900	Edge 3	0.891	0.347	0.318	0.203	0.930	0.984	0.375	1.102	1.063	1.156
	WCDMA Band II	Edge 3	0.892	0.348	0.319	0.204	0.931	0.985	0.376	1.103	1.064	1.157
	WCDMA Band IV	Edge 3	0.910	0.366	0.337	0.222	0.949	1.003	0.394	1.121	1.082	1.175
	WCDMA Band V	Edge 3	1.162	0.618	0.589	0.474	1.201	1.255	0.646	1.373	1.334	1.427
	LTE Band 5	Edge 3	1.163	0.619	0.590	0.475	1.202	1.256	0.647	1.374	1.335	1.428
	LTE Band 12/17	Edge 3	1.230	0.686	0.657	0.542	1.269	1.323	0.714	1.441	1.402	1.495
	LTE Band 13	Edge 3	1.191	0.647	0.618	0.503	1.230	1.284	0.675	1.402	1.363	1.456
	LTE Band 25	Edge 3	0.899	0.355	0.326	0.211	0.938	0.992	0.383	1.110	1.071	1.164
	LTE Band 26	Edge 3	1.164	0.620	0.591	0.476	1.203	1.257	0.648	1.375	1.336	1.429
	LTE Band 41	Edge 3	0.982	0.438	0.409	0.294	1.021	1.075	0.466	1.193	1.154	1.247
	LTE Band 66	Edge 3	0.910	0.366	0.337	0.222	0.949	1.003	0.394	1.121	1.082	1.175
	NR Band n5	Edge 3	1.165	0.621	0.592	0.477	1.204	1.258	0.649	1.376	1.337	1.430
	NR Band n66	Edge 3	0.943	0.399	0.370	0.255	0.982	1.036	0.427	1.154	1.115	1.208

Note(s):

1. Green value is estimated SAR according to calculate of KDB 447498 D04. Please refer to Section.7.
2. All Sum results are below FCC limit (1.6 W/kg). So additional evaluation are not required.

12.5. Sum of the SAR for WWAN & Wi-Fi & BT & NFC in (Edge.4) position

Standanlone highest SAR results

RF Exposure	WWAN Bands	Test Position	Standalone SAR (W/kg)									
			WWAN	WiFi & BT & NFC								
				DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	BT Ant.2	NFC
			1	2	3	4	5	6	7	8	9	10
Standalone	GSM 850	Edge 4	0.410	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	GSM 1900	Edge 4	0.107	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	WCDMA Band II	Edge 4	0.107	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	WCDMA Band IV	Edge 4	0.121	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	WCDMA Band V	Edge 4	0.327	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	LTE Band 5	Edge 4	0.328	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	LTE Band 12/17	Edge 4	0.388	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	LTE Band 13	Edge 4	0.353	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	LTE Band 25	Edge 4	0.112	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	LTE Band 26	Edge 4	0.329	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	LTE Band 41	Edge 4	0.171	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	LTE Band 66	Edge 4	0.121	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	NR Band n5	Edge 4	0.330	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002
	NR Band n66	Edge 4	0.145	0.251	0.145	0.223	0.502	0.533	0.449	0.190	0.076	0.002

Simultaneous transmission SUM SAR results

RF Exposure	Test Position	Test Position	Sum of SAR (W/kg)									
			WWAN + DTS MIMO + NFC	WWAN + UNII Ant.2 + NFC	WWAN + UNII MIMO + NFC	WWAN + BT Ant.1 + NFC	WWAN + BT Ant.2 + NFC	WWAN + DTS Ant.2 + BT Ant.1 + NFC	WWAN + UNII MIMO + BT Ant.1 + NFC	WWAN + UNII MIMO + BT Ant.2 + NFC	WWAN + DTS MIMO + UNII MIMO + NFC	WWAN + DTS Ant.2 + UNII MIMO + BT Ant.1 + NFC
			1+4+10	1+6+10	1+7+10	1+8+10	1+9+10	1+3+8+10	1+7+8+10	1+7+9+10	1+4+7+10	1+3+7+8+10
Simultaneous Tx	GSM 850	Edge 4	0.635	0.945	0.861	0.602	0.488	0.747	1.051	0.937	1.084	1.196
	GSM 1900	Edge 4	0.332	0.642	0.558	0.299	0.185	0.444	0.748	0.634	0.781	0.893
	WCDMA Band II	Edge 4	0.332	0.642	0.558	0.299	0.185	0.444	0.748	0.634	0.781	0.893
	WCDMA Band IV	Edge 4	0.346	0.656	0.572	0.313	0.199	0.458	0.762	0.648	0.795	0.907
	WCDMA Band V	Edge 4	0.552	0.862	0.778	0.519	0.405	0.664	0.968	0.854	1.001	1.113
	LTE Band 5	Edge 4	0.553	0.863	0.779	0.520	0.406	0.665	0.969	0.855	1.002	1.114
	LTE Band 12/17	Edge 4	0.613	0.923	0.839	0.580	0.466	0.725	1.029	0.915	1.062	1.174
	LTE Band 13	Edge 4	0.578	0.888	0.804	0.545	0.431	0.690	0.994	0.880	1.027	1.139
	LTE Band 25	Edge 4	0.337	0.647	0.563	0.304	0.190	0.449	0.753	0.639	0.786	0.898
	LTE Band 26	Edge 4	0.554	0.864	0.780	0.521	0.407	0.666	0.970	0.856	1.003	1.115
	LTE Band 41	Edge 4	0.396	0.706	0.622	0.363	0.249	0.508	0.812	0.698	0.845	0.957
	LTE Band 66	Edge 4	0.346	0.656	0.572	0.313	0.199	0.458	0.762	0.648	0.795	0.907
	NR Band n5	Edge 4	0.555	0.865	0.781	0.522	0.408	0.667	0.971	0.857	1.004	1.116
	NR Band n66	Edge 4	0.370	0.680	0.596	0.337	0.223	0.482	0.786	0.672	0.819	0.931

Note(s):

1. Green value is estimated SAR according to calculate of KDB 447498 D04. Please refer to Section.7.
2. All Sum results are below FCC limit (1.6 W/kg). So additional evaluation are not required.

Conclusion:

Simultaneous Transmission SAR analysis results is satisfied the FCC Limit requirement according to follow procedures with "Sum of SAR" or "SPLSR" or "Sum-Peak Location Separation Ratio"

Appendixes

Refer to separated files for the following appendixes.

4790406759-S1 FCC Report SAR_App A_Photos & Ant. Locations

4790406759-S1 FCC Report SAR_App B_Highest SAR Test Plots

4790406759-S1 FCC Report SAR_App C_System Check Plots

4790406759-S1 FCC Report SAR_App D_SAR Tissue Ingredients

4790406759-S1 FCC Report SAR_App E_Probe Cal. Certificates

4790406759-S1 FCC Report SAR_App F_Dipole Cal. Certificates

4790406759-S1 FCC Report SAR_App G_Proximity Sensor feature

4790406759-S1 FCC Report SAR_App H_LTE Carrier Aggregation

4790406759-S1 FCC Report SAR_App I_SPLSR criteria

END OF REPORT