

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

SAR EVALUATION REPORT

FOR

GSM/WCDMA/LTE + BT/BLE, DTS/UNII a/b/g/n/ac and NFC

MODEL NUMBER: SM-A165M/DS, SM-A165M

FCC ID: A3LSMA165M

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Testing Laboratory

TL-637

Revision History

Rev.	Date	Revisions	Revised By
V1	2024-09-13	Initial Issue	--
V2	9/23/2024	1. Revised UNII's Highest SAR value in Sec.1 2. Changed WCDMA Band II's Reduced tune-up power. -Revised Simultaneous Tx SAR value in Sec.1. -Revised WCDMA Band II SAR results in Sec.1.1. -Revised WCDMA Band II target power in Sec.6.3 & 6.4. -Added Dielectric Property & System check result in Sec.8. -Revised WCDMA Band II output power results in Sec.9.2. -Revised WCDMA Band II SAR results in Sec.10.3 & 12. -Revised Appendix B, C, G.	Gyurim Lee

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1. Attestation of Test Results

Applicant Name		SAMSUNG ELECTRONICS CO.,LTD.				
FCC ID		A3LSMA165M				
Model Number		SM-A165M/DS, SM-A165M				
Applicable Standards		FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures				
Exposure Category		SAR Limits (W/Kg)				
		Peak spatial-average (1g of tissue)			Product Specific 10g (10g of tissue)	
General population / Uncontrolled exposure		1.6			4.0	
RF Exposure Conditions		Equipment Class - The Highest <u>Reported</u> SAR (W/kg)				
		PCE	DTS	NII	DSS	DXX
Head		0.51	< 0.10	0.20	0.24	N/A
Body-worn		0.81	0.36	0.58	0.14	N/A
Hotspot		0.86	0.60	1.01	0.29	N/A
Product Specific 10g		2.88	N/A	1.38	N/A	< 0.10
Simultaneous TX	Head	0.94	0.60	0.94	0.94	N/A
	Body-worn	1.53	1.17	1.53	1.53	N/A
	Hotspot	1.57	1.41	1.57	1.49	N/A
	Product Specific 10g	3.14	N/A	3.14	N/A	3.14
Date Tested		2024-08-12 to 2024-09-23				
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	Gyurim Lee Laboratory Engineer UL Korea, Ltd. Suwon Laboratory

1.1. The Highest Reported SAR Results

Equipment Class	Band	Antenna	The Highest Reported SAR (W/kg) of RF exposure conditions			
			1g of tissue			10g of tissue
			Head Exposure	Body-worn Exposure	Hotspot Exposure	Product Specific Exposure
PCE	GSM 850	Main.1	0.508	0.542	0.556	N/A
	GSM 1900	Main.1	0.195	0.322	0.452	N/A
	WCDMA II	Main.1	0.284	0.530	0.635	1.719
	WCDMA Band IV	Main.1	0.273	0.694	0.856	2.875
	WCDMA Band V	Main.1	0.349	0.382	0.692	N/A
	LTE Band 2	Main.1	0.223	0.451	0.682	N/A
	LTE Band 12 (17)	Main.1	0.260	0.245	0.335	N/A
	LTE Band 13	Main.1	0.273	0.389	0.461	N/A
	LTE Band 26 (5)	Main.1	0.419	0.442	0.717	N/A
	LTE Band 41	Main.1	0.294	0.307	0.499	N/A
	LTE Band 66	Main.1	0.378	0.813	0.843	1.680
DTS	2.4GHz WLAN		0.091	0.357	0.600	N/A
NII	5GHz WLAN		0.196	0.575	1.008	1.376
DSS	Bluetooth		0.235	0.139	0.294	N/A
DXX	NFC		N/A	N/A	N/A	0.049

Note(s):

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

2. Test Specification, Methods and Procedures

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

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D04 Interim General RF Exposure Guidance v01
- 648474 D04 Handset SAR v01r03
- 690783 D01 SAR Listings on Grants v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D06 Hotspot Mode v02r01
- 941225 D07 UMPC Mini Tablet v01r02
- 971168 D01 Power Meas License Digital System v03r01

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

- [TCB workshop](#) October, 2014; RF Exposure Procedures Update (Overlapping LTE Bands)
- [TCB workshop](#) October, 2014; RF Exposure Procedures Update (Other LTE Considerations)
- [TCB workshop](#) October, 2016; RF Exposure Procedures (Bluetooth Duty Factor)
- [TCB workshop](#) October, 2016; RF Exposure Procedures (DUT Holder Perturbations)
- [TCB workshop](#) April, 2019; RF Exposure Procedures (Tissue Simulating Liquids (TSL))
- [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 2 Room	SAR 3 Room
SAR 4 Room	SAR 5 Room
SAR 7 Room	SAR 8 Room
SAR 9 Room	

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

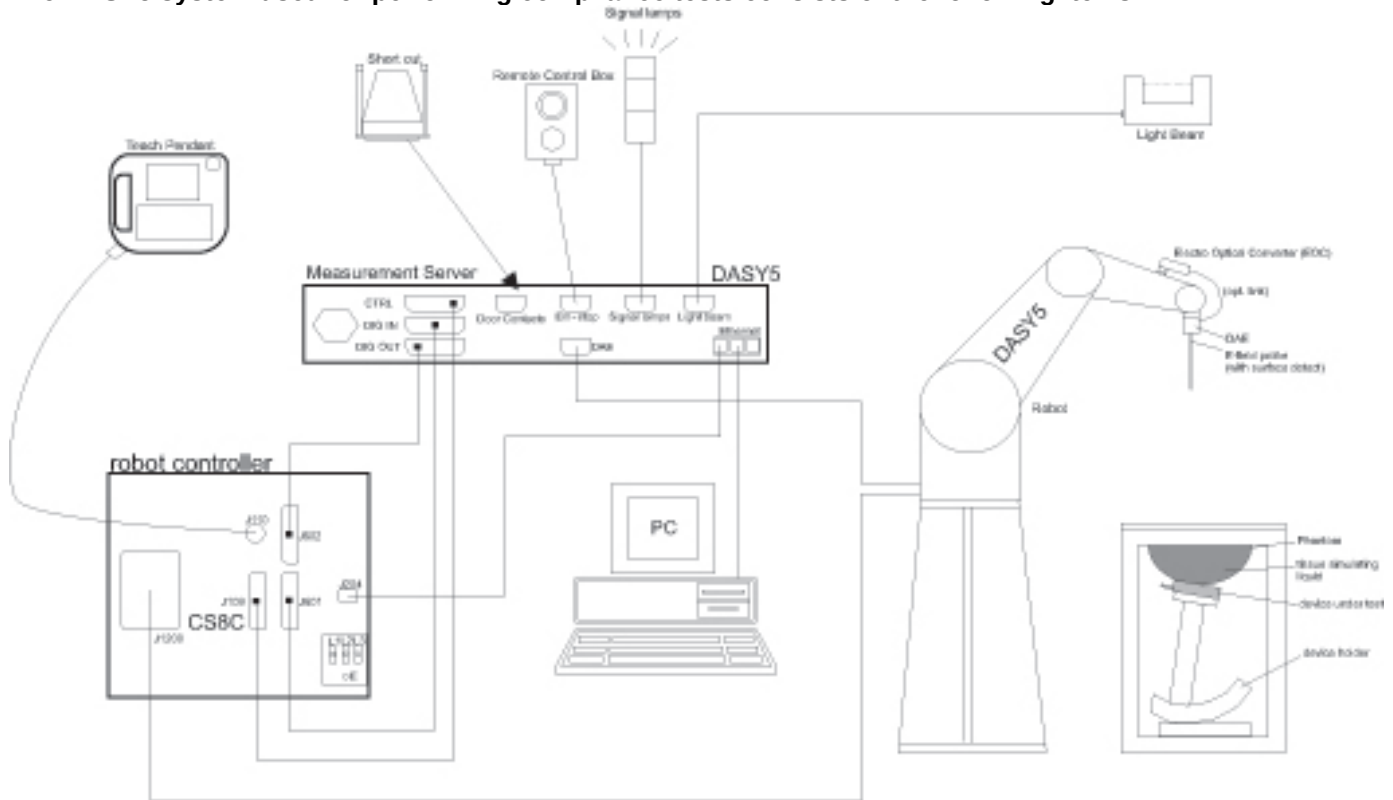
The full scope of accreditation can be viewed at;

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

4. SAR Measurement System & Test Equipment

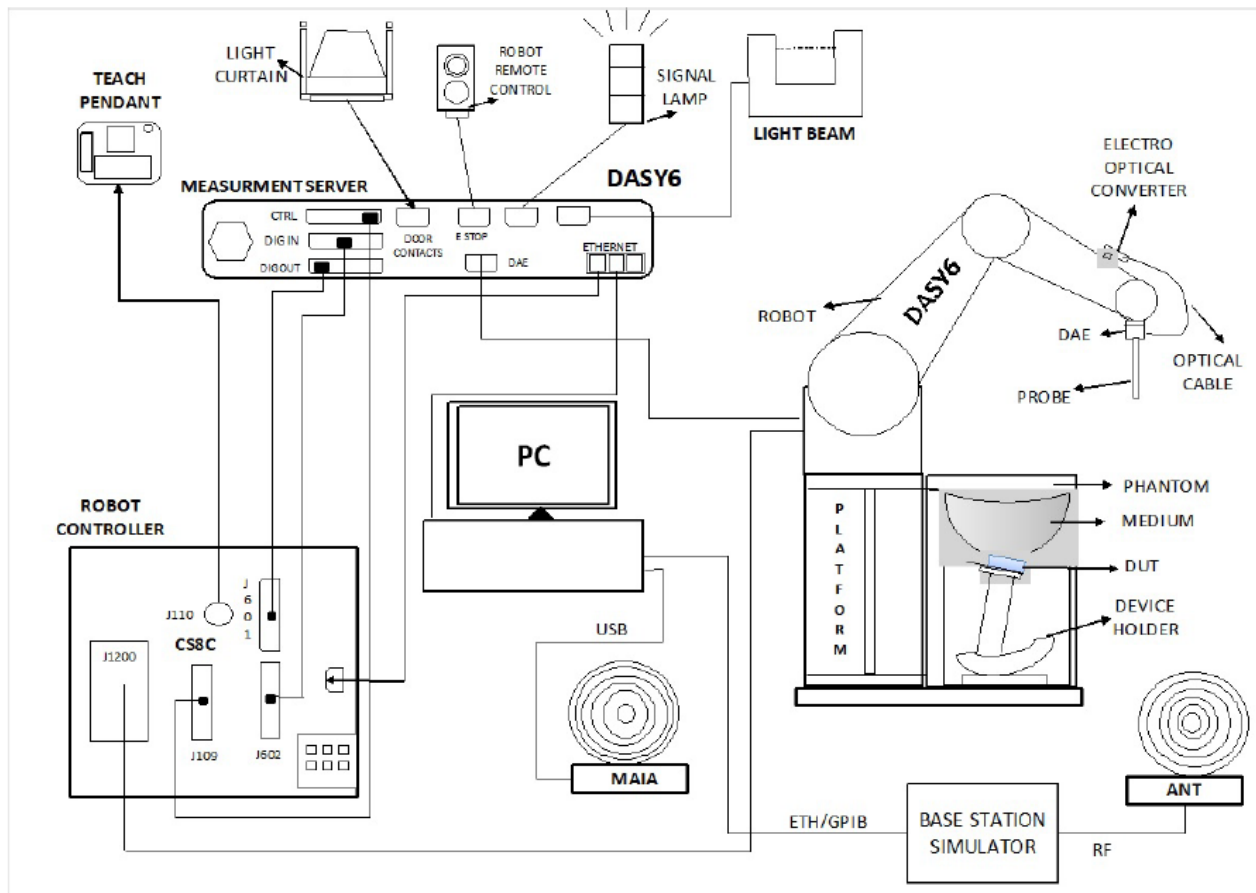
4.1. SAR Measurement System

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



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

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



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

4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

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

Step 2: Area Scan

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

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

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

Step 3: Zoom Scan

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

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

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

Step 4: Power drift measurement

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

4.3. Test Equipment

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

Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Agilent	E5071C	MY46522054	2025-07-24
Network Analyzer	ROHDE & SCHWARZ	ZNB 20	102256	2025-07-22
Dielectric Assessment Kit	SPEAG	DAK-12	1158	2024-09-20
Dielectric Assessment Kit	SPEAG	DAK-3.5	1133	2025-02-19
Dielectric Assessment Kit	SPEAG	DAK-3.5	1134	2025-04-22
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	2025-06-10
Vector Network Analyzer	SPEAG	DAKS_VNA R140	SN0050221	2025-04-15
Vector Network Analyzer	SPEAG	DAKS_VNA R140	SN0060221	2025-03-21
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Shorting block	SPEAG	DAK-12 Short	SM DAK 220 AD	N/A
Thermometer	LKM	DTM3000	3851	2025-07-23
Thermometer	LKM	DTM3000	3862	2025-07-23

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Keysight	N5181B	MY59100587	2025-07-25
MXG Analog Signal Generator	Keysight	N5173B	MY59101083	2025-07-23
MXG Analog Signal Generator	Agilent	E8257D	MY53400994	2025-07-24
Power Sensor	KEY SIGHT	U2000A	MY60180020	2025-07-25
Power Sensor	KEY SIGHT	U2000A	MY60490008	2025-07-23
Power Sensor	KEY SIGHT	U2000A	MY60160004	2025-07-23
Power Sensor	KEY SIGHT	U2000A	MY61010006	2025-07-23
Power Sensor	KEY SIGHT	U2000A	MY54260007	2025-07-25
Power Sensor	KEY SIGHT	U2004A USB Sensor	MY61200006	2025-01-03
Power Sensor	KEY SIGHT	U2004A USB Sensor	MY61280010	2025-01-03
Power Amplifier	EXODUS	AMP2027	1410025-AMP2027-10003	2025-02-14
Power Amplifier	MINI-CIRCUITS	TVA-R5-13A+	2111006	2025-01-03
Power Amplifier	EXODUS	AMP2027ADB	10002	2025-01-05
Power Amplifier	Sambo	BA00T60W2D	S3010-0001	2025-02-21
Directional Coupler	Agilent	772D	MY52180193	2025-07-25
Directional Coupler	H.P	778D	16133	2025-07-25
Directional Coupler	NARDA	4216-10	02835	2025-07-24
Directional Coupler	MINI-CIRCUITS	ZMDC-30-1+	SF569102123	2025-07-24
Directional Coupler	MINI-CIRCUITS	ZUDC20-183+	N/A	2025-07-24
Directional Coupler	MINI-CIRCUITS	ZUDC20-183+	N/A	2025-07-24
Directional Coupler	KRYTAR	100318010	215541	2025-01-04
Directional Coupler	KRYTAR	100318010	215542	2025-01-04
Directional Coupler	MINI-CIRCUITS	ZMDC10-83-S+	2316	2025-03-01
Directional Coupler	MINI-CIRCUITS	ZMDC10-83-S+	2316	2025-03-01
Low Pass Filter	FILTRON	L14012FL	1410003S	2025-07-24
Low Pass Filter	MICROLAB	LA-60N	3942	2025-07-24
Low Pass Filter	MICROLAB	LA-15N	3943	2025-07-24
Low Pass Filter	MINI-CIRCUITS	VLF-6000+	S0141	2025-07-23
Low Pass Filter	MINI-CIRCUITS	VLF-6000+	S0142	2025-07-24
Low Pass Filter	MINI-CIRCUITS	VLF-3000+	S0143	2025-07-24
Low Pass Filter	MINI-CIRCUITS	NLP-1200+	VUU19301915	2025-01-04
Low Pass Filter	MINI-CIRCUITS	NLP-1200+	VUU19301915	2025-01-04
Low Pass Filter	MINI-CIRCUITS	NLP-1200	VUU19301915	2025-07-24
Low Pass Filter	KRYTAR	WLKX10-11000-13640-21000-60TS	1	2025-07-23
Low Pass Filter	MINI-CIRCUITS	VLF-1500+	32333	2025-03-01
Low Pass Filter	MINI-CIRCUITS	VLF-1500+	32241	2025-03-01
Low Pass Filter	MINI-CIRCUITS	VLF-3000+	32226	2025-03-01
Attenuator	KEY SIGHT	BW-N10W5+	N/A	2025-07-23
Attenuator	KEY SIGHT	BW-N10W5+	N/A	2025-07-23
Attenuator	KEY SIGHT	BW-N20W5+	N/A	2025-07-23
Attenuator	KEY SIGHT	BW-N20W5+	N/A	2025-07-23
Attenuator	KEY SIGHT	BW-S3W10+	N/A	2025-01-04
Attenuator	KEY SIGHT	BW-S3W10+	N/A	2025-01-04
Attenuator	KEY SIGHT	BW-S3W10+	N/A	2025-01-04

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 date.

Attenuator	KEY SIGHT	8491B003	MY39272275	2025-07-23
Attenuator	KEY SIGHT	8491B/003	MY39272276	2025-07-23
Attenuator	KEY SIGHT	8491B/010	MY39271981	2025-07-24
Attenuator	KEY SIGHT	8491B/010	MY39272011	2025-07-24
Attenuator	KEY SIGHT	8491B010	MY39272293	2025-07-23
Attenuator	KEY SIGHT	8491B010	MY39272306	2025-07-24
Attenuator	KEY SIGHT	8491B020	MY39272300	2025-07-23
Attenuator	KEY SIGHT	8491B/020	MY39272302	2025-07-24
Attenuator	KEY SIGHT	8491B/020	MY39271973	2025-07-24
E-Field Probe	SPEAG	EX3DV4	7313	2025-02-21
E-Field Probe	SPEAG	EX3DV4	7314	2025-05-23
E-Field Probe	SPEAG	EX3DV4	7330	2025-01-22
E-Field Probe	SPEAG	EX3DV4	7645	2024-09-20
E-Field Probe	SPEAG	EX3DV4	7651	2025-03-18
E-Field Probe	SPEAG	EX3DV4	7646	2025-03-15
E-Field Probe	SPEAG	EX3DV4	7652	2025-04-22
Data Acquisition Electronics	SPEAG	DAE4	1494	2025-07-15
Data Acquisition Electronics	SPEAG	DAE4	1447	2025-03-13
Data Acquisition Electronics	SPEAG	DAE4	1591	2025-02-16
Data Acquisition Electronics	SPEAG	DAE4	1670	2025-05-15
Data Acquisition Electronics	SPEAG	DAE4	1671	2025-04-18
Data Acquisition Electronics	SPEAG	DAE4	1343	2025-07-12
Data Acquisition Electronics	SPEAG	DAE4	1668	2025-04-18
System Validation Dipole	SPEAG	CLA -13	1015	2025-08-22
System Validation Dipole	SPEAG	D750V3	1205	2025-04-18
System Validation Dipole	SPEAG	D750V3	1122	2025-02-22
System Validation Dipole	SPEAG	D835V2	4d194	2025-03-11
System Validation Dipole	SPEAG	D835V2	4d174	2024-09-21
System Validation Dipole	SPEAG	D1750V2	1125	2024-11-30
System Validation Dipole	SPEAG	D1900V2	5d190	2024-11-16
System Validation Dipole	SPEAG	D2450V2	960	2025-03-14
System Validation Dipole	SPEAG	D5GHzV2	1209	2025-02-28
System Validation Dipole	SPEAG	D5GHzV2	1325	2025-04-21
System Validation Dipole	SPEAG	D2600V2	1178	2025-04-25
System Validation Dipole	SPEAG	D2600V2	1097	2024-09-26
Thermometer	Lutron	MHB-382SD	AH.50215	2025-01-04
Thermometer	Lutron	MHB-382SD	AH.50213	2025-01-04
Thermometer	Lutron	MHB-382SD	AH.91463	2025-01-04
Thermometer	Lutron	MHB-382SD	AJ.42446	2025-07-24
Thermometer	Lutron	MHB-382SD	AK.12102	2025-07-24
Thermometer	Lutron	MHB-382SD	AK.12103	2025-07-24
Thermometer	Lutron	MHB-382SD	AK.12123	2025-01-04
Thermometer	Lutron	MHB-382SD	AK.18789	2025-07-24
Thermometer	Lutron	MHB-382SD	AJ.45903	2025-01-04

Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	150313	2025-07-24
Base Station Simulator	R & S	CMW500	150314	2025-07-24
Base Station Simulator	R & S	CMW500	162790	2025-07-25
Base Station Simulator	R & S	CMW500	169803	2025-03-25
Base Station Simulator	R & S	CMW500	169801	2025-01-03
Base Station Simulator	R & S	CMW500	169802	2025-01-03
Base Station Simulator	R & S	CMW500	169799	2025-07-25
Base Station Simulator	R & S	CMW500	169800	2025-07-24
Radio Communication Analyzer	Anritsu	MT8821C	6161094351	2024-11-30

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 $\leq 30\%$, for a confidence interval of $k = 2$. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

Measurement Uncertainty of 9MHz to 19MHz

Measurement uncertainty for 9 MHz to 19 MHz

(According to IEEE 62209-1528)

a	b	c		d	e f(d,k)	f	g	h = 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	1.0	2.3	Normal	1	1	1	1.0	2.3	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	12.16	12.23
Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence =								24.33	24.47	

5.1. DECISION RULE

Measurement Uncertainty is not applied when providing statements of conformity in accordance with IEC Guide 115:2023, 4.3.3.

6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	Refer to Appendix A.				
Back Cover	☒ The Back Cover is not removable.				
Battery Options	☒ The rechargeable battery is not user accessible				
Wireless Router (Hotspot)	Wi-Fi Hotspot mode permits the device to share its cellular data connection with other Wi-Fi-enabled devices. ☒ Mobile Hotspot (Wi-Fi 2.4 GHz) ☒ Mobile Hotspot (UNII-1_Ch 36 only, UNII-3)				
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 (UNII-1, UNII-3)				
Test Sample Information	No.	S/N	Notes	No.	S/N
	1	R38X7005LAP	Main Conducted	8	823DF62CCE347ECE
	2	R38X7005LFD	Main Conducted	9	R38X7005NNF
	3	R38X7005LEZ	Main Conducted	10	R38X7005NPM
	4	R38X7005L7H	SAR	11	R38X7005NRY
	5	R38X7005L1X	SAR	12	R38X7005NTR
	6	R38X7005L9K	SAR	13	R38X7005NQT
	7	823DF62CD7347ECE	SAR	14	R38X8009FQE

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/DC-HSDPA (Category 24, 64QAM) HSUPA (Category 6, QPSK) HSPA+ (DL only)		100%
LTE	FDD Band 2 FDD Band 4 FDD Band 5 FDD Band 12 FDD Band 13 FDD Band 17 FDD Band 26 TDD Band 41 Power Class 3 FDD Band 66	QPSK 16QAM 64QAM		100% (FDD) 63.3% (TDD) Power Class 3
	Does this device support SV-LTE (1xRTT-LTE)? ☐ Yes ☒ No			
Wi-Fi	2.4 GHz	802.11b, 802.11g, 802.11n (HT20)		99.55% (802.11b)
	5 GHz	802.11a / 802.11n (HT20/40) 802.11ac (VHT20/40/80)		98.45% (802.11a) 88.09% (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 5.3+LE		76.74% _{0(BDR)}
NFC	13.56 MHz	Type A/B/F/V		100%

Notes:

- The Bluetooth protocol is considered source-based averaging. For duty used in Wi-Fi/BT SAR testing, Please refer to section.9.

6.3. Nominal and Maximum Output power

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

GSM Bands

RF Air interface	Antenna	Mode	Time Slots	Max. RF Output Power (dBm)		Reduced. RF Output Power (Hotspot & Proximity sensor) (dBm)	
				Tune-up Limit	Frame Pwr	Tune-up Limit	Frame Pwr
GSM850	Main 1 Ant.	Voice	1	34.00	24.97	34.00	24.97
		GPRS	1	34.00	24.97	33.00	23.97
		GPRS	2	32.50	26.48	31.50	25.48
		GPRS	3	30.50	26.24	29.50	25.24
		GPRS	4	29.50	26.49	28.50	25.49
		EGPRS	1	28.00	18.97	27.00	17.97
		EGPRS	2	26.50	20.48	25.50	19.48
		EGPRS	3	24.50	20.24	23.50	19.24
GSM1900	Main 1 Ant.	EGPRS	4	23.50	20.49	22.50	19.49
		Voice	1	31.50	22.47	31.50	22.47
		GPRS	1	31.50	22.47	29.50	20.47
		GPRS	2	30.00	23.98	28.00	21.98
		GPRS	3	27.50	23.24	25.50	21.24
		GPRS	4	26.00	22.99	24.00	20.99
		EGPRS	1	27.00	17.97	25.00	15.97
		EGPRS	2	25.50	19.48	23.50	17.48
		EGPRS	3	23.50	19.24	21.50	17.24
		EGPRS	4	22.50	19.49	20.50	17.49

WCDMA Bands

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)	
				Hotspot back-off & Proximity sensor	
W-CDMA Band V	Main 1 Ant.	Rel.99 RMC	25.50		
W-CDMA Band IV	Main 1 Ant.	Rel.99 RMC	24.50	22.50	
W-CDMA Band II	Main 1 Ant.	Rel.99 RMC	24.50	21.50	

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)				Reduced. RF Output Power (dBm)			
			Subtest 1	Subtest 2	Subtest 3	Subtest 4	Hotspot back-off & Proximity sensor			
W-CDMA Band V	Main 1 Ant.	HSDPA/DC-HSDPA	24.50	24.50	24.00	24.00				
W-CDMA Band IV	Main 1 Ant.	HSDPA/DC-HSDPA	23.50	23.50	23.00	23.00	21.50	21.50	21.00	21.00
W-CDMA Band II	Main 1 Ant.	HSDPA/DC-HSDPA	23.50	23.50	23.00	23.00	20.50	20.50	20.00	20.00

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)					Reduced. RF Output Power (dBm)				
			Subtest 1	Subtest 2	Subtest 3	Subtest 4	Subtest 5	Hotspot back-off & Proximity sensor				
W-CDMA Band V	Main 1 Ant.	HSUPA	22.50	22.50	23.50	22.00	23.50					
W-CDMA Band IV	Main 1 Ant.	HSUPA	21.50	21.50	22.50	21.00	22.50	19.50	19.50	20.50	19.00	20.50
W-CDMA Band II	Main 1 Ant.	HSUPA	21.50	21.50	22.50	21.00	22.50	18.50	18.50	19.50	18.00	19.50

LTE Bands

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)
				Hotspot back-off & Proximity sensor
LTE Band 2	Main.1	QPSK	24.00	22.00
LTE Band 4		QPSK	25.00	22.00
LTE Band 5		QPSK	25.50	
LTE Band 12		QPSK	25.00	
LTE Band 13		QPSK	25.00	
LTE Band 17		QPSK	25.00	
LTE Band 26		QPSK	25.50	
LTE Band 41		QPSK	24.00	22.00
LTE Band 66		QPSK	25.00	22.00

WLAN/BT output power**Maximum Power**

RF Air interface	Band	802.11 mode				
		2.4GHz SISO (Sub.2-2) / 5GHz SISO (Sub.2-3)				
		a	b	g	n	ac
WiFi 2.4 GHz	DTS	Ch 1	20	19	17.5	
		Ch 2 - 10	20	19	18	
		Ch 11	20	16	15	
		Ch 12	8	8	8	
		Ch 13	6	6	6	
WiFi 5 GHz (BW : 20MHz)	UNII-1	17			16	17
	UNII-2A	17			16	17
	UNII-2C	17			16	17
	UNII-2C (Ch.140)	16			15	15
	UNII-3	17			16	17
WiFi 5 GHz (BW : 40MHz)	UNII-1				15	15
	UNII-2A				15	15
	UNII-2C				15	15
	UNII-2C (Ch.102)				14	14
	UNII-3				15	15
WiFi 5 GHz (BW : 80MHz)	UNII-1					13
	UNII-2A					13
	UNII-2C					13
	UNII-3					13

Reduced Power

RF Air interface	Band	802.11 mode				
		2.4GHz SISO (Sub.2-2) / 5GHz SISO (Sub.2-3)				
		a	b	g	n	ac
WiFi 2.4 GHz	DTS	Ch 1	12	12	12	
		Ch 2 - 10	12	12	12	
		Ch 11	12	12	12	
		Ch 12	8	8	8	
		Ch 13	6	6	6	
WiFi 5 GHz (BW : 20MHz)	UNII-1	11			11	11
	UNII-2A	11			11	11
	UNII-2C	11			11	11
	UNII-2C (Ch.140)	11			11	11
	UNII-3	11			11	11
WiFi 5 GHz (BW : 40MHz)	UNII-1				11	11
	UNII-2A				11	11
	UNII-2C				11	11
	UNII-2C (Ch.102)				11	11
	UNII-3				11	11
WiFi 5 GHz (BW : 80MHz)	UNII-1					11
	UNII-2A					11
	UNII-2C					11
	UNII-3					11

BT(Bluetooth) Max power

RF Air interface	Max. Output Power (dBm)
	Sub.2-2
Bluetooth (BDR) (1Mbps)	17
Bluetooth (EDR)	13
Bluetooth LE	8
Bluetooth LE (2M)	8

Note(s):

1. This device uses an independent fixed level power reduction mechanism for WLAN mode operations during RCV operation. Detailed descriptions of the power reduction mechanism are included in the operational description..

6.4. Power Back-off Operation

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

Power Back-off mode	Technologies Supported	Exposure Conditions Active			
		Head	Body-worn	Hotspot	Product Specific 10-g
WWAN (Hotspot)	GSM 850/1900 W-CDMA B2/4 LTE B2/4/41/66	N/A	N/A	✓	N/A
WWAN (Proximity sensor)	GSM 850/1900 W-CDMA B2/4 LTE B2/4/41/66	N/A	N/A	N/A	✓
WLAN (RCV)	Wi-Fi 2.4GHz Wi-Fi 5GHz	✓	N/A	N/A	N/A

Note(s):

- Back-off priority: RCV → Hotspot → Proximity sensor

Product Specific 10g Adjusted SAR Calculation

Wireless technologies	Max Tune-up Limit (dBm)	Reduced Tune-Up Limit (dBm)	Power Factor	Reported SAR Limit (W/kg)
GSM850	26.3	25.3	1.26	0.953
GSM1900	23.8	21.8	1.58	0.757
W-CDMA B2	24.5	21.5	2.00	0.601
W-CDMA B4	24.5	22.5	1.58	0.757
LTE B2	24.0	22.0	1.58	0.757
LTE B4	25.0	22.0	2.00	0.601
LTE B41	24.0	22.0	1.58	0.757
LTE B66	25.0	22.0	2.00	0.601

Note(s):

- Tune-up limit powers for GSM 850, GSM 1900 are frame power(dBm).
- Hotspot mode supports power reduction. When the measured SAR is scaled to the maximum tune-up limit, the adjusted SAR is < 1.2 W/kg. Therefore, Extremity SAR testing is not required for this band in accordance with KDB 648474 §2.5 b. Refer to §10 for Reported SAR results. If the Reported SAR 1g value in §10 is less than the Reported SAR Limit listed above, then Extremity SAR is not required.
- LTE 50% RB is scaled up to the Max Tune-Up Limit with MPR included.
- For Reported SAR limit in above table, it was calculated using Max tune-up Limit & Reduced Tune-up limit & Reported SAR 1.2 W/kg.
(Reported SAR Limit = 1.2 W/kg / Power factor, Power factor = $10^{((\text{Max tune-up limit} - \text{Reduced tune-up limit})/10)}$)

6.5. General LTE SAR Test and Reporting Considerations

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

General LTE SAR Test and Reporting Considerations (Continued)

Item	Description							
Frequency range, Channel Bandwidth, Numbers and Frequencies	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
Refer to Appendix A.								
LTE transmitter and antenna implementation								
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:

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

6.6. LTE (TDD) Considerations

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

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

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

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
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 $\times (T_s) \times \# \text{ of S} + \# \text{ of U}$

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

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

where

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

Note(s):

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

7. RF Exposure Conditions (Test Configurations)

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

Wireless technologies	RF Exposure Conditions	Antennaa	DUT-to-User Separation	Test Positions			
				Right Touch	Right Tilt	Left Touch	Left Tilt
WWAN & WLAN/BT	Head	All WWAN/WLAN/BT Antennas (Main.1/Sub.2-2/Sub.2-3)	0 mm	Yes	Yes	Yes	Yes

Wireless technologies	RF Exposure Conditions	Antennaa	DUT-to-User Separation	Test Positions					
				Rear	Front	Top	Left	Bottom	Right
WWAN	Body-worn	Main.1	15 mm	Yes	Yes	No	No	No	No
	Hotspot	Main.1	10 mm	Yes	Yes	No	Yes	Yes	Yes
	Product Specific 10-g	Main.1	0 mm	Refer to note 2 & 3.					
WLAN/BT	Body-worn	All WLAN/BT Antennas (Sub.2-2/Sub.2-3)	15 mm	Yes	Yes	No	No	No	No
	Hotspot	All WLAN/BT Antennas (Sub.2-2/Sub.2-3)	10 mm	Yes	Yes	Yes	Yes	No	No
	Product Specific 10-g	All WLAN/BT Antennas (Sub.2-2/Sub.2-3)	0 mm	Refer to note 2 and 4.					
NFC	Product Specific 10-g	NFC Ant.	0 mm	Yes	Yes	Yes	Yes	No	No

Notes:

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

8. Dielectric Property Measurements & System Check

8.1. Dielectric Property Measurements

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

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The Tissue Dielectric parameters (100MHz to 6GHz) should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

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

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

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

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

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

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

IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

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

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

IEC_IEEE Std 62209-1528 : 2020

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

Dielectric Property Measurements Results:**SAR 2 Room**

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2024-08-12	Head 750	e'	41.2100	Relative Permittivity (ϵ_r):	40.58	41.96	-3.29	5
		e''	21.4000	Conductivity (σ):	0.91	0.89	1.89	5
	Head 660	e'	41.5400	Relative Permittivity (ϵ_r):	40.88	42.42	-3.64	5
		e''	23.4700	Conductivity (σ):	0.88	0.89	-0.58	5
	Head 800	e'	41.0700	Relative Permittivity (ϵ_r):	40.45	41.71	-3.01	5
		e''	20.4700	Conductivity (σ):	0.93	0.90	3.58	5
2024-08-12	Head 2600	e'	37.8500	Relative Permittivity (ϵ_r):	37.62	39.01	-3.57	5
		e''	13.5600	Conductivity (σ):	1.96	1.96	-0.11	5
	Head 2495	e'	38.0100	Relative Permittivity (ϵ_r):	37.78	39.14	-3.48	5
		e''	13.5000	Conductivity (σ):	1.88	1.85	1.48	5
	Head 2700	e'	37.6700	Relative Permittivity (ϵ_r):	37.44	38.88	-3.72	5
		e''	13.6500	Conductivity (σ):	2.04	2.07	-1.37	5
2024-08-16	Head 750	e'	41.2200	Relative Permittivity (ϵ_r):	40.58	41.96	-3.29	5
		e''	22.3300	Conductivity (σ):	0.91	0.89	1.89	5
	Head 660	e'	41.4600	Relative Permittivity (ϵ_r):	40.88	42.42	-3.64	5
		e''	24.5800	Conductivity (σ):	0.88	0.89	-0.58	5
	Head 800	e'	41.1000	Relative Permittivity (ϵ_r):	40.45	41.71	-3.01	5
		e''	21.2900	Conductivity (σ):	0.93	0.90	3.58	5
2024-08-20	Head 2600	e'	40.2800	Relative Permittivity (ϵ_r):	37.62	39.01	-3.57	5
		e''	13.1100	Conductivity (σ):	1.96	1.96	-0.11	5
	Head 2495	e'	40.3600	Relative Permittivity (ϵ_r):	37.78	39.14	-3.48	5
		e''	13.1000	Conductivity (σ):	1.88	1.85	1.48	5
	Head 2700	e'	40.2000	Relative Permittivity (ϵ_r):	37.44	38.88	-3.72	5
		e''	13.2700	Conductivity (σ):	2.04	2.07	-1.37	5

SAR 3 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2024-08-13	Head 1750	e'	41.0000	Relative Permittivity (ϵ_r):	41.00	40.08	2.28	5
		e''	14.1300	Conductivity (σ):	1.37	1.37	0.43	5
	Head 1710	e'	41.1100	Relative Permittivity (ϵ_r):	41.11	40.15	2.40	5
		e''	14.2200	Conductivity (σ):	1.35	1.35	0.42	5
	Head 1780	e'	40.9400	Relative Permittivity (ϵ_r):	40.94	40.04	2.25	5
		e''	14.0500	Conductivity (σ):	1.39	1.39	0.34	5
2024-08-13	Head 1900	e'	40.8600	Relative Permittivity (ϵ_r):	40.86	40.00	2.15	5
		e''	13.8000	Conductivity (σ):	1.46	1.40	4.14	5
	Head 1850	e'	40.8800	Relative Permittivity (ϵ_r):	40.88	40.00	2.20	5
		e''	13.8600	Conductivity (σ):	1.43	1.40	1.84	5
	Head 1915	e'	40.8500	Relative Permittivity (ϵ_r):	40.85	40.00	2.13	5
		e''	13.8000	Conductivity (σ):	1.47	1.40	4.96	5
2024-08-19	Head 1750	e'	41.3900	Relative Permittivity (ϵ_r):	41.39	40.08	3.26	5
		e''	14.0400	Conductivity (σ):	1.37	1.37	-0.20	5
	Head 1710	e'	41.4700	Relative Permittivity (ϵ_r):	41.47	40.15	3.30	5
		e''	14.1100	Conductivity (σ):	1.34	1.35	-0.36	5
	Head 1780	e'	41.3100	Relative Permittivity (ϵ_r):	41.31	40.04	3.18	5
		e''	13.9700	Conductivity (σ):	1.38	1.39	-0.23	5
2024-08-19	Head 1900	e'	41.1900	Relative Permittivity (ϵ_r):	41.19	40.00	2.97	5
		e''	13.6700	Conductivity (σ):	1.44	1.40	3.16	5
	Head 1850	e'	41.2200	Relative Permittivity (ϵ_r):	41.22	40.00	3.05	5
		e''	13.7700	Conductivity (σ):	1.42	1.40	1.18	5
	Head 1915	e'	41.1800	Relative Permittivity (ϵ_r):	41.18	40.00	2.95	5
		e''	13.6500	Conductivity (σ):	1.45	1.40	3.82	5

SAR 4 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
2024-08-21	Head 835	e'	42.7400	Relative Permittivity (ϵ_r):	42.74	41.50	2.99	5
		e''	19.9900	Conductivity (σ):	0.93	0.90	3.12	5
	Head 810	e'	42.8300	Relative Permittivity (ϵ_r):	42.83	41.65	2.82	5
		e''	20.4300	Conductivity (σ):	0.92	0.90	2.50	5
	Head 850	e'	42.7000	Relative Permittivity (ϵ_r):	42.70	41.50	2.89	5
		e''	19.7500	Conductivity (σ):	0.93	0.92	2.02	5
2024-08-26	Head 2450	e'	39.8900	Relative Permittivity (ϵ_r):	39.89	39.20	1.76	5
		e''	13.3900	Conductivity (σ):	1.82	1.80	1.34	5
	Head 2400	e'	40.0200	Relative Permittivity (ϵ_r):	40.02	39.30	1.84	5
		e''	13.3200	Conductivity (σ):	1.78	1.75	1.48	5
	Head 2500	e'	39.8100	Relative Permittivity (ϵ_r):	39.81	39.14	1.72	5
		e''	13.3100	Conductivity (σ):	1.85	1.85	-0.21	5

SAR 5 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2024-08-26	Head 5180	e'	36.6600	Relative Permittivity (ϵ_r):	36.66	36.01	1.80	5
		e''	15.5800	Conductivity (σ):	4.49	4.63	-3.09	5
	Head 5200	e'	36.6100	Relative Permittivity (ϵ_r):	36.61	35.99	1.72	5
		e''	15.6300	Conductivity (σ):	4.52	4.65	-2.83	5
	Head 5600	e'	35.9200	Relative Permittivity (ϵ_r):	35.92	35.53	1.09	5
		e''	15.6900	Conductivity (σ):	4.89	5.06	-3.45	5
	Head 5800	e'	35.6500	Relative Permittivity (ϵ_r):	35.65	35.30	0.99	5
		e''	15.7400	Conductivity (σ):	5.08	5.27	-3.68	5
	Head 5825	e'	35.6300	Relative Permittivity (ϵ_r):	35.63	35.30	0.93	5
		e''	15.7800	Conductivity (σ):	5.11	5.27	-3.02	5
2024-08-30	Head 5180	e'	36.6300	Relative Permittivity (ϵ_r):	36.63	36.01	1.71	5
		e''	15.3400	Conductivity (σ):	4.42	4.63	-4.58	5
	Head 5200	e'	36.5800	Relative Permittivity (ϵ_r):	36.58	35.99	1.64	5
		e''	15.3800	Conductivity (σ):	4.45	4.65	-4.39	5
	Head 5600	e'	35.9100	Relative Permittivity (ϵ_r):	35.91	35.53	1.06	5
		e''	15.7100	Conductivity (σ):	4.89	5.06	-3.33	5
	Head 5800	e'	35.5100	Relative Permittivity (ϵ_r):	35.51	35.30	0.59	5
		e''	15.7700	Conductivity (σ):	5.09	5.27	-3.50	5
	Head 5825	e'	35.4900	Relative Permittivity (ϵ_r):	35.49	35.30	0.54	5
		e''	15.8200	Conductivity (σ):	5.12	5.27	-2.77	5
2024-09-02	Head 5180	e'	37.6000	Relative Permittivity (ϵ_r):	37.60	36.01	4.41	5
		e''	15.7500	Conductivity (σ):	4.54	4.63	-2.03	5
	Head 5200	e'	37.5300	Relative Permittivity (ϵ_r):	37.53	35.99	4.28	5
		e''	15.7900	Conductivity (σ):	4.57	4.65	-1.84	5
	Head 5600	e'	36.6800	Relative Permittivity (ϵ_r):	36.68	35.53	3.23	5
		e''	16.0100	Conductivity (σ):	4.99	5.06	-1.48	5
	Head 5800	e'	36.4100	Relative Permittivity (ϵ_r):	36.41	35.30	3.14	5
		e''	16.0000	Conductivity (σ):	5.16	5.27	-2.09	5
	Head 5825	e'	36.3700	Relative Permittivity (ϵ_r):	36.37	35.30	3.03	5
		e''	16.0500	Conductivity (σ):	5.20	5.27	-1.36	5

SAR 7 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2024-08-19	Head 2600	e'	38.4700	Relative Permittivity (ϵ_r):	38.47	39.01	-1.39	5
		e''	13.2800	Conductivity (σ):	1.92	1.96	-2.16	5
	Head 2495	e'	38.6600	Relative Permittivity (ϵ_r):	38.66	39.14	-1.23	5
		e''	13.0900	Conductivity (σ):	1.82	1.85	-1.77	5
	Head 2700	e'	38.2300	Relative Permittivity (ϵ_r):	38.23	38.88	-1.68	5
		e''	13.4200	Conductivity (σ):	2.01	2.07	-2.68	5
2024-08-21	Head 835	e'	41.8300	Relative Permittivity (ϵ_r):	41.83	41.50	0.80	5
		e''	19.2400	Conductivity (σ):	0.89	0.90	-0.75	5
	Head 810	e'	41.8900	Relative Permittivity (ϵ_r):	41.89	41.65	0.57	5
		e''	19.6700	Conductivity (σ):	0.89	0.90	-1.31	5
	Head 850	e'	41.7800	Relative Permittivity (ϵ_r):	41.78	41.50	0.67	5
		e''	19.0000	Conductivity (σ):	0.90	0.92	-1.86	5
2024-09-02	Head 13	e'	55.7500	Relative Permittivity (ϵ_r):	55.75	55.00	1.36	5
		e''	992.1800	Conductivity (σ):	0.72	0.75	-4.37	5
	Head 12	e'	55.7400	Relative Permittivity (ϵ_r):	55.74	55.00	1.35	5
		e''	1075.5500	Conductivity (σ):	0.72	0.75	-4.31	5
	Head 14	e'	55.7600	Relative Permittivity (ϵ_r):	55.76	55.00	1.38	5
		e''	921.2900	Conductivity (σ):	0.72	0.75	-4.38	5

SAR 8 Room

Date	Freq. (MHz)		Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)
2024-08-20	Head 750	e'	42.4100	Relative Permittivity (ε _r):	42.41	41.96	1.07	5
		e''	21.0300	Conductivity (σ):	0.88	0.89	-1.80	5
	Head 660	e'	42.5900	Relative Permittivity (ε _r):	42.59	42.42	0.39	5
		e''	23.0600	Conductivity (σ):	0.85	0.89	-4.50	5
	Head 800	e'	42.2700	Relative Permittivity (ε _r):	42.27	41.71	1.35	5
		e''	20.1200	Conductivity (σ):	0.89	0.90	-0.22	5
2024-08-27	Head 750	e'	43.8700	Relative Permittivity (ε _r):	43.87	41.96	4.55	5
		e''	21.7300	Conductivity (σ):	0.91	0.89	1.47	5
	Head 660	e'	44.2400	Relative Permittivity (ε _r):	44.24	42.42	4.28	5
		e''	23.9000	Conductivity (σ):	0.88	0.89	-1.02	5
	Head 800	e'	43.5500	Relative Permittivity (ε _r):	43.55	41.71	4.42	5
		e''	20.7100	Conductivity (σ):	0.92	0.90	2.71	5
2024-08-27	Head 5200	e'	36.4400	Relative Permittivity (ε _r):	36.44	35.99	1.25	5
		e''	15.6400	Conductivity (σ):	4.52	4.65	-2.77	5
	Head 5250	e'	36.3600	Relative Permittivity (ε _r):	36.36	35.93	1.19	5
		e''	15.6800	Conductivity (σ):	4.58	4.70	-2.66	5
	Head 5600	e'	35.7400	Relative Permittivity (ε _r):	35.74	35.53	0.58	5
		e''	15.9800	Conductivity (σ):	4.98	5.06	-1.67	5
	Head 5800	e'	35.4000	Relative Permittivity (ε _r):	35.40	35.30	0.28	5
		e''	16.1400	Conductivity (σ):	5.21	5.27	-1.23	5
	Head 5925	e'	35.2000	Relative Permittivity (ε _r):	35.20	35.20	0.00	5
		e''	16.2300	Conductivity (σ):	5.35	5.40	-0.98	5
2024-09-05	Head 5200	e'	36.1287	Relative Permittivity (ε _r):	36.13	35.99	0.38	5
		e''	15.6984	Conductivity (σ):	4.54	4.65	-2.41	5
	Head 5250	e'	36.0129	Relative Permittivity (ε _r):	36.01	35.93	0.22	5
		e''	15.7333	Conductivity (σ):	4.59	4.70	-2.33	5
	Head 5600	e'	35.3214	Relative Permittivity (ε _r):	35.32	35.53	-0.60	5
		e''	16.0191	Conductivity (σ):	4.99	5.06	-1.43	5
	Head 5800	e'	34.9604	Relative Permittivity (ε _r):	34.96	35.30	-0.96	5
		e''	16.2074	Conductivity (σ):	5.23	5.27	-0.82	5
	Head 5925	e'	34.7153	Relative Permittivity (ε _r):	34.72	35.20	-1.38	5
		e''	16.3005	Conductivity (σ):	5.37	5.40	-0.55	5
2024-09-10	Head 5200	e'	35.5100	Relative Permittivity (ε _r):	35.51	35.99	-1.33	5
		e''	16.0500	Conductivity (σ):	4.64	4.65	-0.22	5
	Head 5250	e'	35.3300	Relative Permittivity (ε _r):	35.33	35.93	-1.68	5
		e''	16.2500	Conductivity (σ):	4.74	4.70	0.88	5
	Head 5600	e'	34.8500	Relative Permittivity (ε _r):	34.85	35.53	-1.92	5
		e''	16.3900	Conductivity (σ):	5.10	5.06	0.85	5
	Head 5800	e'	34.4000	Relative Permittivity (ε _r):	34.40	35.30	-2.55	5
		e''	16.6200	Conductivity (σ):	5.36	5.27	1.71	5
	Head 5925	e'	34.1100	Relative Permittivity (ε _r):	34.11	35.20	-3.10	5
		e''	16.3600	Conductivity (σ):	5.39	5.40	-0.19	5
2024-09-12	Head 5200	e'	36.1900	Relative Permittivity (ε _r):	36.19	35.99	0.56	5
		e''	15.8700	Conductivity (σ):	4.59	4.65	-1.34	5
	Head 5250	e'	35.9600	Relative Permittivity (ε _r):	35.96	35.93	0.07	5
		e''	15.9600	Conductivity (σ):	4.66	4.70	-0.92	5
	Head 5600	e'	35.5300	Relative Permittivity (ε _r):	35.53	35.53	-0.01	5
		e''	16.1400	Conductivity (σ):	5.03	5.06	-0.68	5
	Head 5800	e'	35.1900	Relative Permittivity (ε _r):	35.19	35.30	-0.31	5
		e''	16.3700	Conductivity (σ):	5.28	5.27	0.18	5
	Head 5925	e'	34.8500	Relative Permittivity (ε _r):	34.85	35.20	-0.99	5
		e''	16.1000	Conductivity (σ):	5.30	5.40	-1.78	5
2024-09-19	Head 1900	e'	39.6700	Relative Permittivity (ε _r):	39.67	40.00	-0.82	5
		e''	13.6200	Conductivity (σ):	1.44	1.40	2.78	5
	Head 1850	e'	39.6400	Relative Permittivity (ε _r):	39.64	40.00	-0.90	5
		e''	13.6900	Conductivity (σ):	1.41	1.40	0.59	5
	Head 1915	e'	39.6700	Relative Permittivity (ε _r):	39.67	40.00	-0.82	5
		e''	13.6200	Conductivity (σ):	1.45	1.40	3.59	5

SAR 9 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2024-08-20	Head 1750	e'	39.4500	Relative Permittivity (ϵ_r):	39.45	40.08	-1.58	5
		e''	13.5000	Conductivity (σ):	1.31	1.37	-4.04	5
	Head 1695	e'	39.5500	Relative Permittivity (ϵ_r):	39.55	40.17	-1.54	5
		e''	13.6600	Conductivity (σ):	1.29	1.34	-3.78	5
	Head 1780	e'	39.4100	Relative Permittivity (ϵ_r):	39.41	40.04	-1.57	5
		e''	13.4100	Conductivity (σ):	1.33	1.39	-4.23	5
2024-08-20	Head 1900	e'	39.3800	Relative Permittivity (ϵ_r):	39.38	40.00	-1.55	5
		e''	13.1200	Conductivity (σ):	1.39	1.40	-0.99	5
	Head 1850	e'	39.3600	Relative Permittivity (ϵ_r):	39.36	40.00	-1.60	5
		e''	13.2000	Conductivity (σ):	1.36	1.40	-3.01	5
	Head 1915	e'	39.3800	Relative Permittivity (ϵ_r):	39.38	40.00	-1.55	5
		e''	13.1100	Conductivity (σ):	1.40	1.40	-0.29	5

8.2. System Check

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

For The System verification of 9MHz to 19MHz frequency range, The System verification must be performed before 24 hours.

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

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

System Performance Check Measurement Conditions (13MHz):

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

Reference Target SAR Values

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

System Dipole	Serial No.	Cal. Date	Cal. Due Date	Target SAR Values (W/kg)	
				1g/10g	Head
D750V3	1122	2024-02-22	2025-02-22	1g	8.58
				10g	5.62
D750V3	1205	2023-04-18	2025-04-18	1g	8.55
				10g	5.59
D835V2	4d174	2022-09-21	2024-09-21	1g	9.63
				10g	6.29
D835V2	4d194	2024-03-11	2025-03-11	1g	9.86
				10g	6.45
D1750V2	1125	2022-11-30	2024-11-30	1g	37.40
				10g	19.70
D1900V2	5d190	2022-11-16	2024-11-16	1g	39.7
				10g	20.7
D2450V2	960	2024-03-14	2025-03-14	1g	51.90
				10g	24.00
D2600V2	1097	2023-09-26	2024-09-26	1g	57.3
				10g	25.7
D2600V2	1178	2023-04-25	2025-04-25	1g	57.40
				10g	25.70
D5GHz V2 (5250 MHz)	1325	2023-04-21	2025-04-21	1g	79.6
				10g	22.7
D5GHz V2 (5600 MHz)	1325	2023-04-21	2025-04-21	1g	83.9
				10g	23.8
D5GHz V2 (5600 MHz)	1209	2023-02-28	2025-02-28	1g	83.1
				10g	23.6
D5GHz V2 (5750 MHz)	1209	2023-02-28	2025-02-28	1g	78.9
				10g	22.2
D5GHz V2 (5800 MHz)	1209	2023-02-28	2025-02-28	1g	81.2
				10g	22.9
CLA-13	1015	2024-08-22	2025-08-22	10g	0.33

Note(s):

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

System Check Results

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

SAR 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			
2024-08-12	D750V3	1122	Head	1g	0.85	8.5	8.58	-0.58	
				10g	0.57	5.7	5.62	0.53	
2024-08-12	D2600V2	1097	Head	1g	5.27	52.7	57.30	-8.03	1
				10g	2.37	23.7	25.70	-7.78	
2024-08-16	D750V3	1122	Head	1g	0.85	8.5	8.58	-1.17	2
				10g	0.56	5.6	5.62	-1.07	
2024-08-20	D2600V2	1097	Head	1g	5.52	55.2	57.30	-3.66	
				10g	2.49	24.9	25.70	-3.11	

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			
2024-08-13	D1750V2	1125	Head	1g	3.55	35.5	37.40	-5.08	
				10g	1.89	18.9	19.70	-4.06	
2024-08-13	D1900V2	5d190	Head	1g	4.07	40.7	39.70	2.52	
				10g	2.12	21.2	20.70	2.42	
2024-08-19	D1750V2	1125	Head	1g	3.53	35.3	37.40	-5.61	3
				10g	1.90	19.0	19.70	-3.55	
2024-08-19	D1900V2	5d190	Head	1g	4.20	42.0	39.70	5.79	4
				10g	2.22	22.2	20.70	7.25	

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			
2024-08-21	D835V2	4d194	Head	1g	1.04	10.4	9.86	5.48	5
				10g	0.69	6.9	6.45	7.29	
2024-08-26	D2450V2	960	Head	1g	5.14	51.4	51.90	-0.96	6
				10g	2.46	24.6	24.00	2.50	

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			
2024-08-26	D5GHzV2 (5250)	1325	Head	1g	7.89	78.9	79.60	-0.88	
				10g	2.23	22.3	22.70	-1.76	
2024-08-26	D5GHzV2 (5600)	1325	Head	1g	8.24	82.4	83.90	-1.79	7
				10g	2.32	23.2	23.80	-2.52	
2024-08-30	D5GHzV2 (5600)	1325	Head	1g	8.41	84.1	83.90	0.24	
				10g	2.37	23.7	23.80	-0.42	
2024-09-02	D5GHzV2 (5250)	1325	Head	1g	8.00	80.0	79.60	0.50	
				10g	2.17	21.7	22.70	-4.41	

SAR 7 Room

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
2024-08-19	D2600V2	1178	Head	1g	5.77	57.7	57.40	0.52	8
				10g	2.68	26.8	25.70	4.28	
2024-08-21	D835V2	4d174	Head	1g	0.94	9.4	9.63	-2.80	9
				10g	0.64	6.4	6.29	1.27	
2024-09-02	CLA-13	1015	Head	1g	0.06	0.6	0.537	2.42	10
				10g	0.03	0.3	0.333	2.10	

SAR 8 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				
2024-08-20	D750V3	1205	Head	1g	0.81	8.1	8.55	-5.85	11
				10g	0.54	5.4	5.59	-3.04	
2024-08-27	D5GHzV2 (5600)	1209	Head	1g	8.67	86.7	83.10	4.33	
				10g	2.49	24.9	23.60	5.51	
2024-08-27	D5GHzV2 (5750)	1209	Head	1g	8.23	82.3	78.90	4.31	
				10g	2.36	23.6	22.20	6.31	
2024-08-27	D5GHzV2 (5800)	1209	Head	1g	8.17	81.7	81.20	0.62	
				10g	2.33	23.3	22.90	1.75	
2024-08-27	D750V3	1205	Head	1g	0.88	8.8	8.55	2.92	
				10g	0.58	5.8	5.59	4.29	
2024-09-05	D5GHzV2 (5750)	1209	Head	1g	7.52	75.2	78.90	-4.69	12
				10g	2.22	22.2	22.20	0.00	
2024-09-05	D5GHzV2 (5800)	1209	Head	1g	8.14	81.4	81.20	0.25	
				10g	2.39	23.9	22.90	4.37	
2024-09-10	D5GHzV2 (5750)	1209	Head	1g	7.74	77.4	78.90	-1.90	
				10g	2.28	22.8	22.20	2.70	
2024-09-10	D5GHzV2 (5800)	1209	Head	1g	7.88	78.8	81.20	-2.96	
				10g	2.31	23.1	22.90	0.87	
2024-09-12	D5GHzV2 (5250)	1209	Head	1g	7.93	79.3	80.40	-1.37	
				10g	2.34	23.4	22.90	2.18	
2024-09-19	D1900V2	5d190	Head	1g	3.82	38.2	39.70	-3.78	13
				10g	2.02	20.2	20.70	-2.42	

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			
2024-08-20	D1750V2	1125	Head	1g	3.47	34.7	37.40	-7.22	14
				10g	1.85	18.5	19.70	-6.09	
2024-08-20	D1900V2	5d190	Head	1g	3.80	38.0	39.40	-3.55	15
				10g	1.98	19.8	20.50	-3.41	

9. Conducted Output Power Measurements

9.1. GSM

Per KDB 941225 D01 3G SAR Procedures:

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

GSM850 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)				Reduced Average Power (dBm) Hotspot back-off			
					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	32.44	23.25	34.0	24.8	32.42	23.23	34.0	24.8
			190	836.6	32.40	23.21			32.46	23.27		
			251	848.8	32.32	23.13			32.29	23.10		
GPRS (GMSK)	CS1	1	128	824.2	32.44	23.25	34.0	24.8	31.79	22.60	33.0	23.8
			190	836.6	32.37	23.18			31.70	22.51		
			251	848.8	32.29	23.10			31.64	22.45		
		2	128	824.2	31.37	25.19	32.5	26.3	30.03	23.85	31.5	25.3
			190	836.6	31.30	25.12			29.96	23.78		
			251	848.8	31.21	25.03			29.90	23.72		
		3	128	824.2	29.22	24.80	30.5	26.1	27.83	23.41	29.5	25.1
			190	836.6	29.13	24.71			27.76	23.34		
			251	848.8	29.06	24.64			27.73	23.31		
		4	128	824.2	27.97	24.80	29.5	26.3	26.62	23.45	28.5	25.3
			190	836.6	27.91	24.74			26.54	23.37		
			251	848.8	27.85	24.68			26.53	23.36		
EGPRS (8PSK)	MCS5	1	128	824.2	26.69	17.50	28.0	18.8	25.83	16.64	27.0	17.8
			190	836.6	26.69	17.50			25.82	16.63		
			251	848.8	26.65	17.46			25.77	16.58		
		2	128	824.2	25.50	19.32	26.5	20.3	24.15	17.97	25.5	19.3
			190	836.6	25.50	19.32			24.17	17.99		
			251	848.8	25.46	19.28			24.11	17.93		
		3	128	824.2	23.29	18.87	24.5	20.1	21.90	17.48	23.5	19.1
			190	836.6	23.29	18.87			21.91	17.49		
			251	848.8	23.25	18.83			21.85	17.43		
		4	128	824.2	22.01	18.84	23.5	20.3	20.60	17.43	22.5	19.3
			190	836.6	22.02	18.85			20.61	17.44		
			251	848.8	21.99	18.82			20.58	17.41		

Notes:

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

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

GSM850 Measured Results(Continued)

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Reduced Average Power (dBm) Proximity sensor back-off			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	128	824.2	32.47	23.28	34.0	24.8
			190	836.6	32.41	23.22		
			251	848.8	32.39	23.20		
GPRS (GMSK)	CS1	1	128	824.2	31.55	22.36	33.0	23.8
			190	836.6	31.48	22.29		
			251	848.8	31.43	22.24		
		2	128	824.2	29.84	23.66	31.5	25.3
			190	836.6	29.77	23.59		
			251	848.8	29.74	23.56		
		3	128	824.2	27.69	23.27	29.5	25.1
			190	836.6	27.64	23.22		
			251	848.8	27.63	23.21		
		4	128	824.2	26.55	23.38	28.5	25.3
			190	836.6	26.51	23.34		
			251	848.8	26.51	23.34		
EGPRS (8PSK)	MCS5	1	128	824.2	25.64	16.45	27.0	17.8
			190	836.6	25.66	16.47		
			251	848.8	25.61	16.42		
		2	128	824.2	24.03	17.85	25.5	19.3
			190	836.6	24.05	17.87		
			251	848.8	23.99	17.81		
		3	128	824.2	21.82	17.40	23.5	19.1
			190	836.6	21.83	17.41		
			251	848.8	21.80	17.38		
		4	128	824.2	20.57	17.40	22.5	19.3
			190	836.6	20.61	17.44		
			251	848.8	20.59	17.42		

Notes:

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

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

GSM1900 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GSM (Voice)	CS1	1	512	1850.2	30.45	21.26	31.5	22.3
			661	1880.0	30.17	20.98		
			810	1909.8	29.77	20.58		
GPRS (GMSK)	CS1	1	512	1850.2	30.46	21.27	31.5	22.3
			661	1880.0	30.12	20.93		
			810	1909.8	29.71	20.52		
		2	512	1850.2	29.32	23.14	30.0	23.8
			661	1880.0	28.94	22.76		
			810	1909.8	28.46	22.28		
		3	512	1850.2	26.99	22.57	27.5	23.1
			661	1880.0	26.55	22.13		
			810	1909.8	26.09	21.67		
		4	512	1850.2	25.81	22.64	26.0	22.8
			661	1880.0	25.36	22.19		
			810	1909.8	24.85	21.68		
EGPRS (8PSK)	MCS5	1	512	1850.2	25.81	16.62	27.0	17.8
			661	1880.0	25.77	16.58		
			810	1909.8	25.49	16.30		
		2	512	1850.2	24.62	18.44	25.5	19.3
			661	1880.0	24.59	18.41		
			810	1909.8	24.35	18.17		
		3	512	1850.2	22.38	17.96	23.5	19.1
			661	1880.0	22.45	18.03		
			810	1909.8	22.23	17.81		
		4	512	1850.2	21.17	18.00	22.5	19.3
			661	1880.0	21.09	17.92		
			810	1909.8	20.88	17.71		

GSM1900 Measured Results (Continued)

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Reduced Average Power (dBm) Hotspot back-off				Reduced Average Power (dBm) Proximity sensor back-off			
					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	30.35	21.16	31.5	22.3	30.38	21.19	31.5	22.3
			661	1880.0	30.35	21.16			30.41	21.22		
			810	1909.8	30.48	21.29			30.42	21.23		
GPRS (GMSK)	CS1	1	512	1850.2	28.10	18.91	29.5	20.3	28.21	19.02	29.5	20.3
			661	1880.0	27.56	18.37			27.68	18.49		
			810	1909.8	27.18	17.99			27.35	18.16		
		2	512	1850.2	26.50	20.32	28.0	21.8	26.61	20.43	28.0	21.8
			661	1880.0	25.95	19.77			26.07	19.89		
			810	1909.8	25.58	19.40			25.75	19.57		
		3	512	1850.2	24.38	19.96	25.5	21.1	24.46	20.04	25.5	21.1
			661	1880.0	23.80	19.38			23.89	19.47		
			810	1909.8	23.44	19.02			23.57	19.15		
		4	512	1850.2	23.23	20.06	24.0	20.8	23.32	20.15	24.0	20.8
			661	1880.0	22.68	19.51			22.82	19.65		
			810	1909.8	22.29	19.12			22.44	19.27		
EGPRS (8PSK)	MCS5	1	512	1850.2	23.98	14.79	25.0	15.8	23.81	14.62	25.0	15.8
			661	1880.0	23.91	14.72			23.76	14.57		
			810	1909.8	23.72	14.53			23.57	14.38		
		2	512	1850.2	22.37	16.19	23.5	17.3	22.20	16.02	23.5	17.3
			661	1880.0	22.25	16.07			22.13	15.95		
			810	1909.8	22.07	15.89			21.93	15.75		
		3	512	1850.2	20.07	15.65	21.5	17.1	19.95	15.53	21.5	17.1
			661	1880.0	20.00	15.58			19.89	15.47		
			810	1909.8	19.78	15.36			19.69	15.27		
		4	512	1850.2	18.83	15.66	20.5	17.3	18.74	15.57	20.5	17.3
			661	1880.0	18.74	15.57			18.69	15.52		
			810	1909.8	18.53	15.36			18.49	15.32		

Notes:

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

- GMSK (GPRS) mode with 4 time slots for Maximum 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 $\leq 1/4\text{dB}$ higher than GMSK GPRS or the adjusted SAR of the highest reported SAR of GMSK GPRS is $\leq 1.2\text{W/kg}$

9.2. W-CDMA

Release 99 Setup Procedures used to establish the test signals

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

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

HSDPA Setup Procedures used to establish the test signals

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

	Mode	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			
	β_c	2/15	11/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	11/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	$A_{hs}=\beta_{hs}/\beta_c$	30/15			

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

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

	Mode	HSPA				
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2 kbps RMC				
	HSDPA FRC	H-Set 1				
	HSUPA Test	HSPA				
	Power Control Algorithm	Algorithm 2				Algorithm 1
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	0
	β_{ec}	209/225	12/15	30/15	2/15	5/15
	β_c/β_d	11/15	6/15	15/9	2/15	-
	β_{hs}	22/15	12/15	30/15	4/15	5/15
	β_{ed}	1309/225	94/75	47/15	56/75	47/15
HSDPA Specific Settings	CM (dB)	1	3	2	3	1
	MPR (dB)	0	2	1	2	0
	DACK	8				0
	DNAK	8				0
	DCQI	8				0
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
HSUPA Specific Settings	CQI Repetition Factor (Table 5.2B.4)	2				
	A _{hs} = β_{hs}/β_c	30/15				
	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

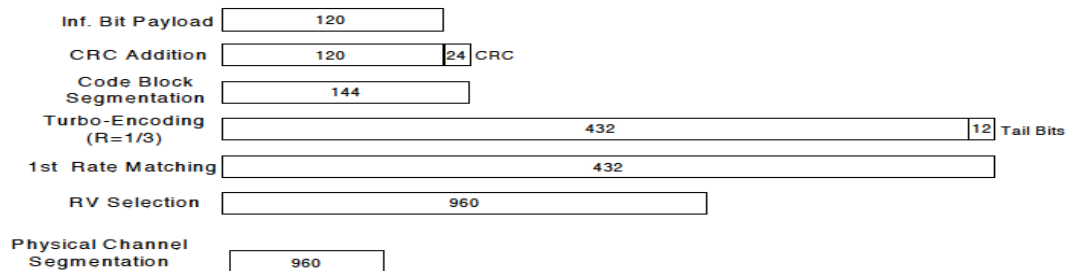
Parameter During Connection setup	Unit	Value
P-CPICH E_c/I_{or}	dB	-10
P-CCPCH and SCH E_c/I_{or}	dB	-12
PICH E_c/I_{or}	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH E_c/I_{or}	dB	-5
OCNS E_c/I_{or}	dB	-3.1

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

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

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

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

HSPA+

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

W-CDMA Band II Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Hotspot back-off			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	23.67	N/A	24.5	20.69	N/A	21.5	20.80	N/A	21.5
		9400	1880.0	23.52			20.59			20.73		
		9538	1907.6	23.40			20.53			20.74		
HSDPA	Subtest 1	9262	1852.4	22.70	1	23.5	19.74	1	20.5	19.84	1	20.5
		9400	1880.0	22.55			19.69			19.77		
		9538	1907.6	22.43			19.70			19.78		
	Subtest 2	9262	1852.4	22.65	1	23.5	19.69	1	20.5	19.76	1	20.5
		9400	1880.0	22.51			19.63			19.70		
		9538	1907.6	22.36			19.62			19.71		
	Subtest 3	9262	1852.4	22.16	1.5	23.0	19.20	1.5	20.0	19.29	1.5	20.0
		9400	1880.0	22.05			19.13			19.22		
		9538	1907.6	21.88			19.13			19.21		
	Subtest 4	9262	1852.4	22.16	1.5	23.0	19.20	1.5	20.0	19.27	1.5	20.0
		9400	1880.0	22.03			19.14			19.22		
		9538	1907.6	21.89			19.13			19.22		
HSUPA	Subtest 1	9262	1852.4	20.82	3	21.5	17.60	3	18.5	17.41	3	18.5
		9400	1880.0	20.92			17.82			17.66		
		9538	1907.6	20.66			17.33			17.35		
	Subtest 2	9262	1852.4	20.75	3	21.5	17.24	3	18.5	17.35	3	18.5
		9400	1880.0	20.76			17.08			17.09		
		9538	1907.6	20.70			17.09			17.11		
	Subtest 3	9262	1852.4	21.68	2	22.5	18.65	2	19.5	18.48	2	19.5
		9400	1880.0	21.70			18.71			18.37		
		9538	1907.6	21.73			18.56			18.25		
	Subtest 4	9262	1852.4	20.41	3.5	21.0	17.20	3.5	18.0	17.23	3.5	18.0
		9400	1880.0	20.21			17.12			17.15		
		9538	1907.6	20.34			17.09			17.13		
	Subtest 5	9262	1852.4	21.81	2	22.5	18.51	2	19.5	18.36	2	19.5
		9400	1880.0	21.84			18.31			18.49		
		9538	1907.6	21.79			18.26			18.62		
DC-HSDPA	Subtest 1	9262	1852.4	22.74	1	23.5	19.75	1	20.5	19.83	1	20.5
		9400	1880.0	22.61			19.73			19.76		
		9538	1907.6	22.45			19.74			19.77		
	Subtest 2	9262	1852.4	22.76	1	23.5	19.75	1	20.5	19.76	1	20.5
		9400	1880.0	22.61			19.71			19.68		
		9538	1907.6	22.46			19.73			19.69		
	Subtest 3	9262	1852.4	22.24	1.5	23.0	19.25	1.5	20.0	19.29	1.5	20.0
		9400	1880.0	22.08			19.21			19.22		
		9538	1907.6	21.95			19.20			19.21		
	Subtest 4	9262	1852.4	22.23	1.5	23.0	19.26	1.5	20.0	19.26	1.5	20.0
		9400	1880.0	22.09			19.21			19.19		
		9538	1907.6	21.95			19.22			19.00		

W-CDMA Band IV Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Hotspot back-off			Reduced Average Power (dBm) Proximity sensor back-off		
				Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99	1312	1712.4	23.48	N/A	24.5	21.59	N/A	22.5	21.53	N/A	22.5
		1413	1732.6	23.52			21.62			21.60		
		1513	1752.6	23.70			21.77			21.77		
HSDPA	Subtest 1	1312	1712.4	22.52	1	23.5	20.61	1	21.5	20.57	1	21.5
		1413	1732.6	22.56			20.65			20.62		
		1513	1752.6	22.72			20.80			20.79		
	Subtest 2	1312	1712.4	22.44	1	23.5	20.58	1	21.5	20.51	1	21.5
		1413	1732.6	22.51			20.61			20.56		
		1513	1752.6	22.68			20.75			20.73		
	Subtest 3	1312	1712.4	22.00	1.5	23.0	20.10	1.5	21.0	20.02	1.5	21.0
		1413	1732.6	22.05			20.08			20.08		
		1513	1752.6	22.17			20.26			20.23		
	Subtest 4	1312	1712.4	22.01	1.5	23.0	20.06	1.5	21.0	20.01	1.5	21.0
		1413	1732.6	22.06			20.07			20.07		
		1513	1752.6	22.17			20.24			20.23		
HSUPA	Subtest 1	1312	1712.4	20.61	3	21.5	18.52	3	19.5	18.56	3	19.5
		1413	1732.6	20.56			18.44			18.54		
		1513	1752.6	20.54			18.49			18.48		
	Subtest 2	1312	1712.4	20.35	3	21.5	18.46	3	19.5	18.46	3	19.5
		1413	1732.6	20.41			18.43			18.47		
		1513	1752.6	20.36			18.43			18.43		
	Subtest 3	1312	1712.4	21.44	2	22.5	19.21	2	20.5	19.29	2	20.5
		1413	1732.6	21.34			19.25			19.14		
		1513	1752.6	21.42			19.25			19.25		
	Subtest 4	1312	1712.4	19.94	3.5	21.0	17.88	3.5	19.0	17.98	3.5	19.0
		1413	1732.6	19.91			17.92			17.89		
		1513	1752.6	19.88			17.94			17.93		
	Subtest 5	1312	1712.4	21.69	2	22.5	19.73	2	20.5	19.68	2	20.5
		1413	1732.6	21.71			19.73			19.72		
		1513	1752.6	21.72			19.65			19.65		
DC-HSDPA	Subtest 1	1312	1712.4	22.54	1	23.5	20.65	1	21.5	20.60	1	21.5
		1413	1732.6	22.59			20.69			20.63		
		1513	1752.6	22.72			20.85			20.78		
	Subtest 2	1312	1712.4	22.51	1	23.5	20.67	1	21.5	20.57	1	21.5
		1413	1732.6	22.59			20.71			20.63		
		1513	1752.6	22.72			20.87			20.78		
	Subtest 3	1312	1712.4	22.07	1.5	23.0	20.16	1.5	21.0	20.06	1.5	21.0
		1413	1732.6	22.10			20.16			20.11		
		1513	1752.6	22.21			20.31			20.27		
	Subtest 4	1312	1712.4	22.07	1.5	23.0	20.16	1.5	21.0	20.08	1.5	21.0
		1413	1732.6	22.10			20.16			20.12		
		1513	1752.6	22.20			20.30			20.25		

W-CDMA Band V Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)		
				Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	4132	826.4	24.42	N/A	25.5
		4183	836.6	24.39		
		4233	846.6	24.32		
HSDPA	Subtest 1	4132	826.4	23.43	1	24.5
		4183	836.6	23.42		
		4233	846.6	23.34		
	Subtest 2	4132	826.4	23.41	1	24.5
		4183	836.6	23.38		
		4233	846.6	23.29		
	Subtest 3	4132	826.4	22.94	1.5	24.0
		4183	836.6	22.94		
		4233	846.6	22.79		
	Subtest 4	4132	826.4	22.91	1.5	24.0
		4183	836.6	22.89		
		4233	846.6	22.80		
HSUPA	Subtest 1	4132	826.4	21.23	3	22.5
		4183	836.6	21.24		
		4233	846.6	21.17		
	Subtest 2	4132	826.4	21.41	3	22.5
		4183	836.6	21.36		
		4233	846.6	21.37		
	Subtest 3	4132	826.4	22.55	2	23.5
		4183	836.6	22.50		
		4233	846.6	22.48		
	Subtest 4	4132	826.4	20.97	3.5	22.0
		4183	836.6	21.02		
		4233	846.6	21.13		
	Subtest 5	4132	826.4	22.67	2	23.5
		4183	836.6	22.44		
		4233	846.6	22.51		
DC-HSDPA	Subtest 1	4132	826.4	23.40	1	24.5
		4183	836.6	23.36		
		4233	846.6	23.30		
	Subtest 2	4132	826.4	23.41	1	24.5
		4183	836.6	23.38		
		4233	846.6	23.32		
	Subtest 3	4132	826.4	22.92	1.5	24.0
		4183	836.6	22.90		
		4233	846.6	22.80		
	Subtest 4	4132	826.4	22.90	1.5	24.0
		4183	836.6	22.89		
		4233	846.6	22.78		

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
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
256 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
	≥ 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:

- The maximum output power, including tolerance, for the smaller band must be $\leq$ the larger band to qualify for the SAR test exclusion.
- The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.
 - LTE Band 5 (824 – 849 MHz) is covered by LTE Band 26 (814 – 849MHz) in case of Head, Body-worn, Hotspot.
 - LTE Band 4 (1710 – 1755 MHz) is covered by LTE Band 66 (1710 – 1780 MHz) in case of Head, Body-worn, Hotspot.
 - LTE Band 17 (704 - 716 MHz) is covered by LTE Band 12 (699 - 716 MHz) in case of Head, Body-worn, Hotspot.

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

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

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

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

LTE Band 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100			18700	18900	19100			18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz			1860 MHz	1880 MHz	1900 MHz			1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	22.98	22.96	22.90	0.0	24.0	20.97	20.92	20.81	0.0	22.0	21.12	20.99	20.91	0.0	22.0
		1	49	23.20	23.21	23.12	0.0	24.0	21.12	21.18	20.99	0.0	22.0	21.20	21.24	21.05	0.0	22.0
		1	99	23.00	22.91	22.88	0.0	24.0	20.92	20.87	20.74	0.0	22.0	21.04	20.93	20.75	0.0	22.0
		50	0	22.16	21.96	22.02	1.0	23.0	21.12	20.97	21.03	0.0	22.0	21.20	20.96	21.03	0.0	22.0
		50	24	22.10	22.17	21.97	1.0	23.0	21.16	21.20	21.03	0.0	22.0	21.20	21.21	21.12	0.0	22.0
		50	50	22.12	22.05	21.91	1.0	23.0	21.10	20.99	20.93	0.0	22.0	21.21	21.12	20.93	0.0	22.0
		100	0	22.21	21.99	22.00	1.0	23.0	21.10	20.99	20.98	0.0	22.0	21.19	21.00	20.95	0.0	22.0
		1	0	22.62	22.53	21.95	1.0	23.0	21.48	21.49	21.42	0.0	22.0	21.54	21.24	21.07	0.0	22.0
	16QAM	1	49	22.20	22.46	22.63	1.0	23.0	21.67	21.66	21.58	0.0	22.0	21.56	21.47	21.04	0.0	22.0
		1	99	22.44	22.23	21.59	1.0	23.0	21.45	21.43	21.27	0.0	22.0	20.91	21.73	21.16	0.0	22.0
		50	0	21.19	21.00	21.16	2.0	22.0	21.15	21.07	21.11	0.0	22.0	21.23	20.93	21.15	0.0	22.0
		50	24	21.32	21.11	21.07	2.0	22.0	21.19	21.17	21.09	0.0	22.0	21.26	21.19	21.21	0.0	22.0
		50	50	21.20	21.12	21.01	2.0	22.0	21.14	21.09	20.99	0.0	22.0	21.21	21.16	20.98	0.0	22.0
		100	0	21.24	21.15	20.97	2.0	22.0	21.15	21.08	20.99	0.0	22.0	21.19	20.96	20.96	0.0	22.0
		1	0	21.44	21.01	21.32	2.0	22.0	20.98	21.32	21.57	0.0	22.0	21.33	21.25	21.02	0.0	22.0
		1	49	21.22	21.53	21.08	2.0	22.0	21.48	21.50	21.75	0.0	22.0	21.47	21.54	21.35	0.0	22.0
	64QAM	1	99	20.95	21.21	21.14	2.0	22.0	21.29	21.29	21.44	0.0	22.0	21.31	21.26	20.84	0.0	22.0
		50	0	20.28	20.10	20.06	3.0	21.0	20.25	20.15	20.12	1.0	21.0	20.26	20.02	20.07	1.0	21.0
		50	24	20.23	20.20	20.13	3.0	21.0	20.30	20.28	20.12	1.0	21.0	20.25	20.22	20.04	1.0	21.0
		50	50	20.26	20.14	20.13	3.0	21.0	20.23	20.18	20.04	1.0	21.0	20.27	20.21	20.00	1.0	21.0
		100	0	20.18	20.17	20.08	3.0	21.0	20.23	20.12	20.03	1.0	21.0	20.23	20.07	20.10	1.0	21.0
15 MHz	QPSK	1	0	23.02	23.01	22.90	0.0	24.0	21.13	20.94	20.92	0.0	22.0	21.12	20.99	20.91	0.0	22.0
		1	37	23.14	23.10	23.02	0.0	24.0	21.14	21.01	21.00	0.0	22.0	21.20	21.12	21.05	0.0	22.0
		1	74	23.09	22.96	22.72	0.0	24.0	21.08	20.88	20.85	0.0	22.0	21.04	20.93	20.75	0.0	22.0
		36	0	22.11	22.08	21.92	1.0	23.0	21.09	20.93	20.88	0.0	22.0	21.25	20.96	21.03	0.0	22.0
		36	20	22.16	22.18	22.02	1.0	23.0	21.10	21.00	20.91	0.0	22.0	21.27	21.13	21.12	0.0	22.0
		36	39	22.18	22.08	21.91	1.0	23.0	21.08	20.96	20.85	0.0	22.0	21.21	21.13	20.93	0.0	22.0
		75	0	22.06	22.10	22.01	1.0	23.0	21.14	20.98	20.90	0.0	22.0	21.19	21.00	20.95	0.0	22.0
		1	0	22.08	22.84	21.93	1.0	23.0	21.65	20.97	21.31	0.0	22.0	21.54	21.24	21.07	0.0	22.0
	16QAM	1	37	22.47	22.80	22.22	1.0	23.0	21.72	21.05	21.37	0.0	22.0	21.56	21.47	21.04	0.0	22.0
		1	74	22.33	22.35	22.50	1.0	23.0	21.65	20.93	21.22	0.0	22.0	20.91	21.73	21.16	0.0	22.0
		36	0	21.23	21.07	21.03	2.0	22.0	21.13	20.99	21.00	0.0	22.0	21.23	20.93	21.15	0.0	22.0
		36	20	21.17	21.13	21.08	2.0	22.0	21.15	21.06	20.97	0.0	22.0	21.26	21.19	21.21	0.0	22.0
		36	39	21.20	21.17	21.04	2.0	22.0	21.13	21.01	20.95	0.0	22.0	21.21	21.16	20.98	0.0	22.0
		75	0	21.28	21.07	20.95	2.0	22.0	21.16	21.03	20.96	0.0	22.0	21.19	20.96	20.96	0.0	22.0
		1	0	21.32	21.12	21.34	2.0	22.0	21.16	21.38	21.07	0.0	22.0	21.33	21.25	21.02	0.0	22.0
		1	37	21.57	21.44	21.06	2.0	22.0	21.86	21.45	21.13	0.0	22.0	21.47	21.54	21.35	0.0	22.0
	64QAM	1	74	20.94	21.14	21.18	2.0	22.0	21.79	21.34	20.96	0.0	22.0	21.31	21.26	20.84	0.0	22.0
		36	0	20.25	20.07	20.09	3.0	21.0	20.18	20.10	20.03	1.0	21.0	20.26	20.02	20.07	1.0	21.0
		36	20	20.31	20.20	20.04	3.0	21.0	20.19	20.14	20.03	1.0	21.0	20.25	20.22	20.04	1.0	21.0
		36	39	20.22	20.13	20.04	3.0	21.0	20.17	20.14	20.00	1.0	21.0	20.27	20.21	20.00	1.0	21.0
		75	0	20.24	20.15	20.10	3.0	21.0	20.23	20.09	19.94	1.0	21.0	20.23	20.07	20.10	1.0	21.0
10 MHz	QPSK	1	0	23.16	23.07	22.90	0.0	24.0	21.18	20.98	20.95	0.0	22.0	21.20	21.08	20.81	0.0	22.0
		1	25	23.25	23.17	23.04	0.0	24.0	21.19	21.03	21.00	0.0	22.0	21.27	21.13	20.93	0.0	22.0
		1	49	23.26	22.94	22.87	0.0	24.0	21.09	20.94	20.88	0.0	22.0	21.15	21.03	20.95	0.0	22.0
		25	0	22.08	21.93	21.87	1.0	23.0	21.13	20.97	20.87	0.0	22.0	21.13	21.11	20.96	0.0	22.0
		25	12	22.24	22.18	21.99	1.0	23.0	21.17	21.06	20.91	0.0	22.0	21.20	21.07	21.03	0.0	22.0
		25	25	22.19	22.09	21.89	1.0	23.0	21.13	20.99	20.81	0.0	22.0	21.07	21.06	20.98	0.0	22.0
		50	0	22.19	22.05	21.87	1.0	23.0	21.14	21.00	20.87	0.0	22.0	21.16	21.09	20.98	0.0	22.0
		1	0	22.40	22.43	22.78	1.0	23.0	21.26	21.03	21.32	0.0	22.0	21.37	21.21	21.18	0.0	22.0
	16QAM	1	25	22.56	22.37	21.80	1.0	23.0	21.29	21.07	21.37	0.0	22.0	21.95	21.28	21.65	0.0	22.0
		1	49	22.57	22.24	22.25	1.0	23.0	21.20	20.99	21.25	0.0	22.0	21.37	21.48	21.20	0.0	22.0
		25	0	21.27	21.14	21.09	2.0	22.0	21.26	21.03	20.93	0.0	22.0	21.31	21.14	21.04	0.0	22.0
		25	12	21.32	21.17	20.99	2.0	22.0	21.32	21.12	21.01	0.0	22.0	21.16	21.12	21.06	0.0	22.0
		25	25	21.22	21.06	20.98	2.0	22.0	21.28	21.07	20.90	0.0	22.0	21.20	21.06	20.97	0.0	22.0
		50	0	21.29	21.16	20.93	2.0	22.0	21.21	21.01	20.92	0.0	22.0	21.14	21.10	21.05	0.0	22.0
		1	0	21.55	21.56	21.33	2.0	22.0	21.56	21.20	21.11	0.0	22.0	21.44	21.03	21.01	0.0	22.0
		1	25	21.51	21.14	21.16	2.0	22.0	21.60	21.26	21.13	0.0	22.0	21.63	21.12	21.34	0.0	22.0
	64QAM	1	49	21.40	21.05	21.32	2.0	22.0	21.51	21.17	21.01	0.0	22.0	21.50	21.27	21.32	0.0	22.0
		25	0	20.20	20.07	20.00	3.0	21.0	20.27	20.16	20.00	1.0	21.0	20.28	20.11	20.09	1.0	21.0
		25	12	20.25	20.20	20.13	3.0	21.0	20.34	20.27	20.06	1.0	21.0	20.34	20.20	20.09	1.0	21.0
		25	25	20.17	20.21	20.04	3.0	21.0	20.28	20.21	19.96	1.0	21.0	20.26	20.17	20.01	1.0	21.0
		50	0	20.23	20.21	20.07	3.0	21.0	20.25	20.18	19.89	1.0	21.0	20.22	20.13	20.08	1.0	21.0

LTE Band 2 Measured Results(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18625	18900	19175			18625	18900	19175			18625	18900	19175		
				1852.5 MHz	1880 MHz	1907.5 MHz			1852.5 MHz	1880 MHz	1907.5 MHz			1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	23.07	22.93	22.88	0.0	24.0	21.20	21.00	20.81	0.0	22.0	21.25	21.12	20.96	0.0	22.0
		1	12	23.18	23.10	23.02	0.0	24.0	21.32	21.13	20.92	0.0	22.0	21.30	21.05	21.10	0.0	22.0
		1	24	23.06	23.06	22.87	0.0	24.0	21.17	20.97	20.77	0.0	22.0	21.16	21.10	20.82	0.0	22.0
		12	0	22.06	22.03	21.86	1.0	23.0	21.17	20.95	20.82	0.0	22.0	21.09	20.98	20.98	0.0	22.0
		12	7	22.17	22.11	21.93	1.0	23.0	21.24	21.00	20.87	0.0	22.0	21.19	21.19	20.98	0.0	22.0
		12	13	22.08	22.03	21.81	1.0	23.0	21.17	21.00	20.82	0.0	22.0	21.19	21.06	20.94	0.0	22.0
		25	0	22.18	22.10	21.83	1.0	23.0	21.18	20.99	20.82	0.0	22.0	21.11	21.00	20.97	0.0	22.0
	16QAM	1	0	22.80	22.11	22.39	1.0	23.0	21.29	21.16	21.31	0.0	22.0	21.96	21.20	21.51	0.0	22.0
		1	12	22.83	22.18	22.26	1.0	23.0	21.42	21.29	21.46	0.0	22.0	21.94	21.97	21.36	0.0	22.0
		1	24	21.98	22.46	21.83	1.0	23.0	21.27	21.16	21.30	0.0	22.0	21.14	20.98	21.14	0.0	22.0
		12	0	21.32	21.21	20.89	2.0	22.0	21.25	21.08	20.99	0.0	22.0	21.15	21.06	20.95	0.0	22.0
		12	7	21.20	21.30	21.03	2.0	22.0	21.31	21.15	21.05	0.0	22.0	21.23	21.19	21.08	0.0	22.0
		12	13	21.28	21.03	20.97	2.0	22.0	21.26	21.13	20.96	0.0	22.0	21.24	21.11	20.98	0.0	22.0
		25	0	21.35	21.13	20.96	2.0	22.0	21.17	21.08	20.96	0.0	22.0	21.24	21.09	20.96	0.0	22.0
	64QAM	1	0	21.62	21.04	21.30	2.0	22.0	21.12	21.24	21.18	0.0	22.0	21.27	21.35	21.40	0.0	22.0
		1	12	21.37	20.98	21.20	2.0	22.0	21.27	21.39	21.29	0.0	22.0	21.90	21.50	21.59	0.0	22.0
		1	24	20.86	21.23	20.87	2.0	22.0	21.12	21.25	21.13	0.0	22.0	21.64	21.31	21.05	0.0	22.0
		12	0	20.23	20.20	19.89	3.0	21.0	20.30	20.17	19.84	1.0	21.0	20.20	20.10	19.97	1.0	21.0
		12	7	20.35	20.28	20.13	3.0	21.0	20.31	20.23	19.89	1.0	21.0	20.33	20.18	20.12	1.0	21.0
		12	13	20.28	20.19	19.95	3.0	21.0	20.27	20.21	19.84	1.0	21.0	20.23	20.13	19.98	1.0	21.0
		25	0	20.20	20.11	19.93	3.0	21.0	20.25	20.17	19.90	1.0	21.0	20.19	20.09	19.94	1.0	21.0
3 MHz	QPSK	1	0	22.74	22.67	22.56	0.0	24.0	20.86	20.60	20.58	0.0	22.0	21.16	20.95	20.83	0.0	22.0
		1	8	22.99	22.73	22.65	0.0	24.0	20.94	20.73	20.66	0.0	22.0	21.23	21.08	20.89	0.0	22.0
		1	14	22.82	22.66	22.53	0.0	24.0	20.82	20.60	20.53	0.0	22.0	21.10	20.95	20.78	0.0	22.0
		8	0	22.05	21.91	21.80	1.0	23.0	21.09	20.89	20.75	0.0	22.0	21.05	21.02	20.95	0.0	22.0
		8	4	22.12	22.05	21.81	1.0	23.0	21.14	20.92	20.79	0.0	22.0	21.25	21.02	20.91	0.0	22.0
		8	7	22.01	22.01	21.81	1.0	23.0	21.12	20.91	20.73	0.0	22.0	21.16	20.98	20.83	0.0	22.0
		15	0	22.07	21.95	21.75	1.0	23.0	21.07	20.87	20.68	0.0	22.0	21.10	21.03	20.95	0.0	22.0
	16QAM	1	0	22.03	21.88	21.56	1.0	23.0	20.99	20.65	20.94	0.0	22.0	21.77	21.32	21.61	0.0	22.0
		1	8	22.34	22.15	21.70	1.0	23.0	21.09	20.78	21.06	0.0	22.0	21.27	21.74	21.01	0.0	22.0
		1	14	21.98	22.00	21.80	1.0	23.0	20.94	20.61	20.90	0.0	22.0	21.29	20.77	20.84	0.0	22.0
		8	0	21.18	21.17	20.93	2.0	22.0	21.16	21.05	20.88	0.0	22.0	21.10	21.03	20.83	0.0	22.0
		8	4	21.15	21.19	20.99	2.0	22.0	21.22	21.09	20.93	0.0	22.0	21.25	21.16	20.88	0.0	22.0
		8	7	21.10	21.19	21.02	2.0	22.0	21.21	21.08	20.90	0.0	22.0	21.21	20.99	20.97	0.0	22.0
		15	0	21.24	21.19	20.82	2.0	22.0	21.06	20.95	20.75	0.0	22.0	21.19	21.00	20.87	0.0	22.0
	64QAM	1	0	21.35	21.15	20.97	2.0	22.0	21.40	21.04	20.80	0.0	22.0	21.11	21.04	20.90	0.0	22.0
		1	8	21.50	21.13	20.96	2.0	22.0	21.50	21.18	20.93	0.0	22.0	21.37	21.42	21.11	0.0	22.0
		1	14	21.29	20.97	20.93	2.0	22.0	21.36	20.98	20.82	0.0	22.0	21.19	20.98	20.87	0.0	22.0
		8	0	20.27	19.93	19.97	3.0	21.0	20.30	20.00	19.85	1.0	21.0	20.13	20.11	19.87	1.0	21.0
		8	4	20.18	20.14	20.13	3.0	21.0	20.32	20.03	19.91	1.0	21.0	20.27	20.26	20.05	1.0	21.0
		8	7	20.19	20.12	19.77	3.0	21.0	20.27	19.99	19.86	1.0	21.0	20.31	20.21	20.05	1.0	21.0
		15	0	20.07	19.93	20.00	3.0	21.0	20.17	20.04	19.80	1.0	21.0	20.15	20.15	19.91	1.0	21.0
1.4 MHz	QPSK	1	0	22.93	22.88	22.64	0.0	24.0	20.93	20.76	20.65	0.0	22.0	20.89	20.69	20.50	0.0	22.0
		1	3	22.94	22.92	22.74	0.0	24.0	21.01	20.81	20.70	0.0	22.0	20.93	20.91	20.73	0.0	22.0
		1	5	22.86	22.78	22.60	0.0	24.0	20.95	20.74	20.63	0.0	22.0	20.69	20.66	20.63	0.0	22.0
		3	0	22.93	22.88	22.78	0.0	24.0	21.13	20.92	20.78	0.0	22.0	21.08	20.90	20.85	0.0	22.0
		3	1	23.00	22.96	22.67	0.0	24.0	21.16	20.93	20.78	0.0	22.0	21.16	21.06	20.91	0.0	22.0
		3	3	23.02	22.84	22.77	0.0	24.0	21.14	20.92	20.77	0.0	22.0	20.96	20.93	20.81	0.0	22.0
		6	0	22.03	22.09	21.94	1.0	23.0	21.14	20.93	20.79	0.0	22.0	21.06	20.89	20.70	0.0	22.0
	16QAM	1	0	22.03	22.53	21.91	1.0	23.0	21.06	20.97	21.04	0.0	22.0	21.36	20.97	21.25	0.0	22.0
		1	3	22.56	21.66	22.26	1.0	23.0	21.13	21.04	21.10	0.0	22.0	21.22	20.94	20.53	0.0	22.0
		1	5	22.20	21.89	22.04	1.0	23.0	21.09	20.96	21.03	0.0	22.0	21.38	21.54	20.93	0.0	22.0
		3	0	22.03	21.84	21.70	1.0	23.0	21.36	21.04	20.99	0.0	22.0	21.09	21.01	20.88	0.0	22.0
		3	1	22.07	21.88	21.71	1.0	23.0	21.39	21.05	21.00	0.0	22.0	21.29	21.19	20.97	0.0	22.0
		3	3	21.96	21.83	21.68	1.0	23.0	21.39	21.03	20.99	0.0	22.0	21.02	21.16	20.84	0.0	22.0
		6	0	21.34	21.04	20.99	2.0	22.0	21.40	21.16	20.75	0.0	22.0	20.99	20.95	20.75	0.0	22.0
	64QAM	1	0	20.96	21.18	20.97	2.0	22.0	21.55	21.14	20.93	0.0	22.0	21.06	21.20	20.73	0.0	22.0
		1	3	21.37	21.42	20.83	2.0	22.0	21.67	21.20	20.99	0.0	22.0	21.29	21.29	21.36	0.0	22.0
		1	5	21.60	21.44	21.13	2.0	22.0	21.54	21.06	20.96	0.0	22.0	21.41	20.91	20.86	0.0	22.0
		3	0	21.41	21.15	21.13	2.0	22.0	20.61	20.20	20.83	1.0	21.0	19.95	20.06	19.76	1.0	21.0
		3	1	21.31	21.43	21.18	2.0	22.0	20.61	20.24	20.86	1.0	21.0	20.27	19.96	20.00	1.0	21.0
		3	3	21.51	21.16	20.72	2.0	22.0	20.60	20.24	20.85	1.0	21.0	20.22	20.08	19.85	1.0	21.0
		6	0	20.13	20.18	19.88	3.0	21.0	20.21	20.41	19.95	1.0	21.0	19.96	20.07	19.86	1.0	21.0

LTE Band 12 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pw r (dBm)			MPR	Tune-up Limit
					23095			
10 MHz	QPSK	1	0		24.05		0.0	25.0
		1	25		24.01		0.0	25.0
		1	49		23.93		0.0	25.0
		25	0		23.01		1.0	24.0
		25	12		23.05		1.0	24.0
		25	25		22.95		1.0	24.0
		50	0		22.96		1.0	24.0
	16QAM	1	0		23.27		1.0	24.0
		1	25		23.07		1.0	24.0
		1	49		22.94		1.0	24.0
		25	0		21.96		2.0	23.0
		25	12		22.07		2.0	23.0
		25	25		22.11		2.0	23.0
		50	0		21.99		2.0	23.0
	64QAM	1	0		22.31		2.0	23.0
		1	25		22.00		2.0	23.0
		1	49		21.60		2.0	23.0
		25	0		21.01		3.0	22.0
		25	12		20.95		3.0	22.0
		25	25		20.98		3.0	22.0
		50	0		21.05		3.0	22.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pw r (dBm)			MPR	Tune-up Limit
				23035	23095	23155		
				701.5 MHz	707.5 MHz	713.5 MHz		
5 MHz	QPSK	1	0	23.86	23.97	23.81	0.0	25.0
		1	12	23.90	23.98	23.95	0.0	25.0
		1	24	23.94	23.84	23.75	0.0	25.0
		12	0	22.86	22.95	22.91	1.0	24.0
		12	7	22.97	23.05	22.82	1.0	24.0
		12	13	22.88	23.03	22.80	1.0	24.0
		25	0	22.94	23.03	22.85	1.0	24.0
	16QAM	1	0	23.40	23.02	23.34	1.0	24.0
		1	12	23.16	23.88	23.21	1.0	24.0
		1	24	22.99	23.54	22.83	1.0	24.0
		12	0	21.88	21.98	21.80	2.0	23.0
		12	7	21.98	22.04	21.87	2.0	23.0
		12	13	21.91	22.02	21.79	2.0	23.0
		25	0	21.93	21.97	21.98	2.0	23.0
	64QAM	1	0	22.20	21.90	22.19	2.0	23.0
		1	12	22.25	21.98	22.11	2.0	23.0
		1	24	22.04	22.41	21.88	2.0	23.0
		12	0	20.99	21.20	20.80	3.0	22.0
		12	7	21.18	21.15	21.07	3.0	22.0
		12	13	21.05	20.98	20.89	3.0	22.0
		25	0	21.01	21.11	20.91	3.0	22.0

LTE Band 12 Measured Results(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23025	23095	23165		
				700.5 MHz	707.5 MHz	714.5 MHz		
3 MHz	QPSK	1	0	23.55	23.56	23.55	0.0	25.0
		1	8	23.74	23.66	23.64	0.0	25.0
		1	14	23.57	23.60	23.67	0.0	25.0
		8	0	22.78	22.80	22.78	1.0	24.0
		8	4	22.87	23.00	22.83	1.0	24.0
		8	7	22.92	22.90	22.85	1.0	24.0
		15	0	22.85	22.82	22.78	1.0	24.0
	16QAM	1	0	22.60	23.15	22.87	1.0	24.0
		1	8	22.94	23.02	22.57	1.0	24.0
		1	14	22.86	22.77	23.00	1.0	24.0
		8	0	21.95	21.96	21.82	2.0	23.0
		8	4	22.10	22.01	21.99	2.0	23.0
		8	7	21.89	21.98	21.89	2.0	23.0
		15	0	21.81	21.86	21.74	2.0	23.0
	64QAM	1	0	21.94	22.09	21.75	2.0	23.0
		1	8	22.02	22.03	21.95	2.0	23.0
		1	14	21.94	22.01	22.09	2.0	23.0
		8	0	20.93	20.97	20.97	3.0	22.0
		8	4	20.87	21.06	20.96	3.0	22.0
		8	7	20.89	20.79	20.66	3.0	22.0
		15	0	20.71	20.97	20.71	3.0	22.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				23017	23095	23173		
				699.7 MHz	707.5 MHz	715.3 MHz		
1.4 MHz	QPSK	1	0	23.63	23.74	23.61	0.0	25.0
		1	3	23.75	23.98	23.68	0.0	25.0
		1	5	23.71	23.69	23.59	0.0	25.0
		3	0	23.87	23.87	23.76	0.0	25.0
		3	1	23.87	23.89	23.81	0.0	25.0
		3	3	23.86	23.80	23.91	0.0	25.0
		6	0	22.88	22.92	23.02	1.0	24.0
	16QAM	1	0	23.10	23.54	22.63	1.0	24.0
		1	3	22.75	23.24	22.89	1.0	24.0
		1	5	23.27	22.97	23.18	1.0	24.0
		3	0	22.92	23.01	22.64	1.0	24.0
		3	1	22.73	22.83	22.88	1.0	24.0
		3	3	22.71	22.83	22.73	1.0	24.0
		6	0	21.98	22.20	22.01	2.0	23.0
	64QAM	1	0	22.11	21.97	21.80	2.0	23.0
		1	3	22.01	22.22	22.20	2.0	23.0
		1	5	22.13	22.28	22.15	2.0	23.0
		3	0	22.04	22.23	22.01	2.0	23.0
		3	1	21.87	22.12	22.10	2.0	23.0
		3	3	22.25	22.18	22.19	2.0	23.0
		6	0	21.08	21.16	20.93	3.0	22.0

LTE Band 13 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			
				Measured Pw r (dBm)		MPR	Tune-up Limit
				23230	782 MHz		
10 MHz	QPSK	1	0	24.00		0.0	25.0
		1	25	23.90		0.0	25.0
		1	49	23.78		0.0	25.0
		25	0	22.86		1.0	24.0
		25	12	22.99		1.0	24.0
		25	25	22.81		1.0	24.0
		50	0	22.86		1.0	24.0
	16QAM	1	0	23.12		1.0	24.0
		1	25	23.69		1.0	24.0
		1	49	23.71		1.0	24.0
		25	0	21.79		2.0	23.0
		25	12	21.96		2.0	23.0
		25	25	21.85		2.0	23.0
		50	0	21.80		2.0	23.0
	64QAM	1	0	22.00		2.0	23.0
		1	25	22.18		2.0	23.0
		1	49	21.92		2.0	23.0
		25	0	20.73		3.0	22.0
		25	12	21.11		3.0	22.0
		25	25	20.77		3.0	22.0
		50	0	20.94		3.0	22.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pw r (dBm)		MPR	Tune-up Limit
				23230	782 MHz		
5 MHz	QPSK	1	0	23.73		0.0	25.0
		1	12	24.00		0.0	25.0
		1	24	23.81		0.0	25.0
		12	0	22.88		1.0	24.0
		12	7	22.97		1.0	24.0
		12	13	22.88		1.0	24.0
		25	0	22.88		1.0	24.0
	16QAM	1	0	23.16		1.0	24.0
		1	12	22.69		1.0	24.0
		1	24	22.61		1.0	24.0
		12	0	21.84		2.0	23.0
		12	7	21.86		2.0	23.0
		12	13	21.97		2.0	23.0
		25	0	21.81		2.0	23.0
	64QAM	1	0	21.79		2.0	23.0
		1	12	21.86		2.0	23.0
		1	24	21.77		2.0	23.0
		12	0	20.71		3.0	22.0
		12	7	20.91		3.0	22.0
		12	13	20.99		3.0	22.0
		25	0	20.80		3.0	22.0

LTE Band 26 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pw r (dBm)			MPR	Tune-up Limit
					26865 831.5 MHz			
15 MHz	QPSK	1	0		23.72		0.0	25.5
		1	37		23.76		0.0	25.5
		1	74		23.63		0.0	25.5
		36	0		22.62		1.0	24.5
		36	20		22.74		1.0	24.5
		36	39		22.72		1.0	24.5
		75	0		22.66		1.0	24.5
	16QAM	1	0		23.03		1.0	24.5
		1	37		22.77		1.0	24.5
		1	74		22.62		1.0	24.5
		36	0		21.62		2.0	23.5
		36	20		21.69		2.0	23.5
		36	39		21.65		2.0	23.5
		75	0		21.62		2.0	23.5
	64QAM	1	0		21.89		2.0	23.5
		1	37		22.15		2.0	23.5
		1	74		21.65		2.0	23.5
		36	0		20.72		3.0	22.5
		36	20		20.76		3.0	22.5
		36	39		20.74		3.0	22.5
		75	0		20.65		3.0	22.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pw r (dBm)			MPR	Tune-up Limit
				26740 819 MHz	26865 831.5 MHz	26990 844 MHz		
10 MHz	QPSK	1	0	23.71	23.67	23.68	0.0	25.5
		1	25	23.88	23.74	23.69	0.0	25.5
		1	49	23.67	23.58	23.49	0.0	25.5
		25	0	22.67	22.66	22.63	1.0	24.5
		25	12	22.71	22.60	22.62	1.0	24.5
		25	25	22.68	22.60	22.59	1.0	24.5
		50	0	22.72	22.70	22.69	1.0	24.5
	16QAM	1	0	23.08	23.06	22.70	1.0	24.5
		1	25	23.09	23.49	22.81	1.0	24.5
		1	49	23.04	23.04	22.61	1.0	24.5
		25	0	21.78	21.62	21.75	2.0	23.5
		25	12	21.81	21.67	21.68	2.0	23.5
		25	25	21.84	21.71	21.57	2.0	23.5
		50	0	21.74	21.63	21.68	2.0	23.5
	64QAM	1	0	21.67	21.81	22.09	2.0	23.5
		1	25	22.01	22.20	22.02	2.0	23.5
		1	49	22.19	21.87	22.13	2.0	23.5
		25	0	20.79	20.65	20.70	3.0	22.5
		25	12	20.85	20.81	20.75	3.0	22.5
		25	25	20.75	20.74	20.68	3.0	22.5
		50	0	20.78	20.71	20.57	3.0	22.5

LTE Band 26 Measured Results(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26715	26865	27015		
				816.5 MHz	831.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	23.62	23.54	23.47	0.0	25.5
		1	12	23.73	23.62	23.59	0.0	25.5
		1	24	23.71	23.54	23.53	0.0	25.5
		12	0	22.65	22.60	22.58	1.0	24.5
		12	7	22.75	22.64	22.73	1.0	24.5
		12	13	22.68	22.66	22.53	1.0	24.5
		25	0	22.69	22.62	22.61	1.0	24.5
	16QAM	1	0	22.69	22.63	22.80	1.0	24.5
		1	12	23.07	22.84	23.49	1.0	24.5
		1	24	23.45	22.94	22.97	1.0	24.5
		12	0	21.72	21.65	21.65	2.0	23.5
		12	7	21.87	21.58	21.68	2.0	23.5
		12	13	21.70	21.63	21.55	2.0	23.5
		25	0	21.71	21.58	21.68	2.0	23.5
	64QAM	1	0	21.99	21.61	21.76	2.0	23.5
		1	12	22.36	22.08	22.09	2.0	23.5
		1	24	22.04	21.72	21.54	2.0	23.5
		12	0	20.65	20.70	20.70	3.0	22.5
		12	7	20.83	20.85	20.86	3.0	22.5
		12	13	20.84	20.70	20.55	3.0	22.5
		25	0	20.71	20.77	20.66	3.0	22.5
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				26705	26865	27025		
				815.5 MHz	831.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	23.34	23.32	23.38	0.0	25.5
		1	8	23.40	23.38	23.39	0.0	25.5
		1	14	23.33	23.33	23.33	0.0	25.5
		8	0	22.62	22.49	22.49	1.0	24.5
		8	4	22.72	22.63	22.54	1.0	24.5
		8	7	22.65	22.50	22.46	1.0	24.5
		15	0	22.68	22.50	22.55	1.0	24.5
	16QAM	1	0	22.50	23.11	22.44	1.0	24.5
		1	8	22.93	22.60	22.49	1.0	24.5
		1	14	22.56	22.48	22.28	1.0	24.5
		8	0	21.73	21.47	21.62	2.0	23.5
		8	4	21.68	21.68	21.70	2.0	23.5
		8	7	21.67	21.55	21.55	2.0	23.5
		15	0	21.54	21.48	21.57	2.0	23.5
	64QAM	1	0	21.40	21.41	21.63	2.0	23.5
		1	8	21.95	21.74	21.58	2.0	23.5
		1	14	21.89	21.55	21.72	2.0	23.5
		8	0	20.72	20.59	20.58	3.0	22.5
		8	4	20.84	20.63	20.61	3.0	22.5
		8	7	20.78	20.67	20.73	3.0	22.5
		15	0	20.67	20.68	20.41	3.0	22.5

LTE Band 26 Measured Results(Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune- up Limit
				26697	26865	27033		
				814.7 MHz	831.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	23.7	23.3	23.4	0.0	25.5
		1	3	23.6	23.4	23.4	0.0	25.5
		1	5	23.5	23.4	23.3	0.0	25.5
		3	0	23.6	23.4	23.5	0.0	25.5
		3	1	23.6	23.5	23.6	0.0	25.5
		3	3	23.6	23.4	23.6	0.0	25.5
		6	0	22.8	22.6	22.6	1.0	24.5
	16QAM	1	0	22.6	23.0	22.4	1.0	24.5
		1	3	22.8	22.5	23.1	1.0	24.5
		1	5	22.8	22.6	22.2	1.0	24.5
		3	0	22.7	22.4	22.4	1.0	24.5
		3	1	22.5	22.4	22.5	1.0	24.5
		3	3	22.6	22.5	22.4	1.0	24.5
		6	0	21.8	21.8	21.8	2.0	23.5
	64QAM	1	0	21.5	21.8	21.6	2.0	23.5
		1	3	21.8	21.8	21.8	2.0	23.5
		1	5	21.9	21.7	21.9	2.0	23.5
		3	0	22.0	21.6	21.7	2.0	23.5
		3	1	21.8	21.8	21.5	2.0	23.5
		3	3	21.9	21.8	21.7	2.0	23.5
		6	0	21.0	20.6	20.7	3.0	22.5

LTE Band 41 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)						Reduced Average Power (dBm) Hotspot back-off						Reduced Average Power (dBm) Proximity sensor back-off									
				Measured Pwr (dBm)					MPR	Measured Pwr (dBm)					MPR	Measured Pwr (dBm)					MPR				
				39750	40185	40620	41055	41490		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		2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz					
20 MHz	QPSK	1	0	22.80	22.28	22.77	22.41	22.72	0.0	24.0	20.73	20.55	20.48	20.55	20.93	0.0	22.0	20.67	20.36	20.66	20.42	20.69	0.0	22.0	
		1	49	22.86	22.57	22.87	22.63	22.78	0.0	24.0	20.93	20.79	21.11	20.81	21.10	0.0	22.0	20.76	20.45	20.81	20.64	20.75	0.0	22.0	
		1	99	22.51	22.41	22.54	22.55	22.51	0.0	24.0	20.70	20.59	20.56	20.72	20.98	0.0	22.0	20.41	20.43	20.54	20.43	20.55	0.0	22.0	
		50	0	21.74	21.37	21.68	21.45	21.76	1.0	23.0	20.71	20.61	20.60	20.68	20.89	0.0	22.0	20.75	20.33	20.83	20.51	20.67	0.0	22.0	
		50	24	21.75	21.44	21.79	21.53	21.75	1.0	23.0	20.86	20.72	20.92	20.77	20.90	0.0	22.0	20.84	20.53	20.86	20.63	20.75	0.0	22.0	
		50	50	21.84	21.37	21.61	21.47	21.59	1.0	23.0	20.85	20.66	20.64	20.72	20.87	0.0	22.0	20.76	20.45	20.73	20.51	20.61	0.0	22.0	
		100	0	21.66	21.40	21.70	21.48	21.71	1.0	23.0	20.77	20.63	20.57	20.66	20.96	0.0	22.0	20.67	20.46	20.75	20.55	20.69	0.0	22.0	
		1	0	21.80	21.36	21.73	21.44	21.68	1.0	23.0	20.68	20.50	20.34	20.41	20.93	0.0	22.0	20.81	20.30	20.88	20.46	20.72	0.0	22.0	
		1	49	21.95	21.61	21.95	21.67	21.79	1.0	23.0	20.88	20.74	20.59	20.66	21.15	0.0	22.0	20.93	20.60	20.97	20.68	20.80	0.0	22.0	
		1	99	21.54	21.43	21.58	21.48	21.49	1.0	23.0	20.66	20.53	20.43	20.58	20.98	0.0	22.0	20.58	20.44	20.64	20.54	20.51	0.0	22.0	
		50	0	20.74	20.53	20.85	20.49	20.73	2.0	22.0	20.71	20.63	20.60	20.69	21.01	0.0	22.0	20.77	20.47	20.79	20.58	20.74	0.0	22.0	
		50	24	20.89	20.57	20.86	20.67	20.74	2.0	22.0	20.86	20.72	20.70	20.77	21.05	0.0	22.0	20.86	20.54	20.82	20.54	20.77	0.0	22.0	
	50	50	20.72	20.52	20.71	20.52	20.60	2.0	22.0	20.86	20.66	20.64	20.71	20.92	0.0	22.0	20.78	20.41	20.74	20.53	20.61	0.0	22.0		
	100	0	20.71	20.45	20.74	20.56	20.65	2.0	22.0	20.79	20.66	20.59	20.69	20.93	0.0	22.0	20.75	20.47	20.75	20.58	20.70	0.0	22.0		
	64QAM	1	0	20.48	20.01	20.33	20.09	20.33	2.0	22.0	21.15	20.76	20.84	21.23	21.03	0.0	22.0	20.35	20.04	20.31	20.11	20.31	0.0	22.0	
		1	49	20.60	20.15	20.57	20.32	20.44	2.0	22.0	21.34	20.98	21.08	21.48	21.26	0.0	22.0	20.44	20.10	20.54	20.34	20.40	0.0	22.0	
		1	99	20.12	19.99	20.17	20.17	20.09	2.0	22.0	21.12	20.80	20.92	21.37	21.08	0.0	22.0	20.16	20.08	20.09	20.14	20.17	0.0	22.0	
		50	0	19.85	19.55	19.86	19.59	19.78	3.0	21.0	19.80	19.97	19.97	20.03	20.29	1.0	21.0	19.79	19.55	19.88	19.60	19.76	1.0	21.0	
		50	24	19.96	19.67	19.71	19.82	19.70	3.0	21.0	19.93	20.08	20.06	20.12	20.35	1.0	21.0	19.92	19.55	19.91	19.74	19.79	1.0	21.0	
		50	50	19.84	19.55	19.76	19.58	19.62	3.0	21.0	19.92	20.01	20.01	20.04	20.20	1.0	21.0	19.83	19.54	19.76	19.64	19.62	1.0	21.0	
		100	0	19.71	19.54	19.70	19.63	19.69	3.0	21.0	19.83	19.98	19.98	19.99	20.25	1.0	21.0	19.74	19.50	19.71	19.64	19.74	1.0	21.0	
15 MHz		QPSK	1	0	22.84	22.42	22.83	22.43	22.77	0.0	24.0	21.14	20.84	20.96	20.89	21.19	0.0	22.0	20.74	20.33	20.76	20.45	20.72	0.0	22.0
			1	37	22.86	22.48	22.86	22.67	22.78	0.0	24.0	21.22	20.92	21.18	21.04	21.33	0.0	22.0	20.72	20.42	20.74	20.64	20.77	0.0	22.0
	1		74	22.71	22.51	22.67	22.52	22.64	0.0	24.0	21.09	20.85	21.05	21.04	21.22	0.0	22.0	20.58	20.55	20.59	20.60	20.63	0.0	22.0	
	36		0	21.73	21.36	21.72	21.48	21.87	1.0	23.0	21.06	20.88	20.88	20.96	21.29	0.0	22.0	20.73	20.46	20.77	20.50	20.77	0.0	22.0	
	36		20	21.82	21.45	21.76	21.56	21.80	1.0	23.0	21.14	20.95	20.95	21.05	21.32	0.0	22.0	20.78	20.49	20.73	20.52	20.79	0.0	22.0	
	36		39	21.64	21.37	21.70	21.56	21.70	1.0	23.0	21.15	20.92	20.98	21.00	21.31	0.0	22.0	20.71	20.37	20.65	20.51	20.65	0.0	22.0	
	75		0	21.68	21.39	21.76	21.53	21.74	1.0	23.0	21.14	20.90	20.95	21.01	21.31	0.0	22.0	20.80	20.45	20.75	20.52	20.67	0.0	22.0	
	16QAM	1	0	21.85	21.47	21.82	21.55	21.68	1.0	23.0	21.18	20.86	20.87	20.95	21.14	0.0	22.0	20.92	20.42	20.86	20.58	20.77	0.0	22.0	
		1	37	21.92	21.61	21.83	21.62	21.76	1.0	23.0	21.31	20.93	21.10	21.08	21.27	0.0	22.0	20.87	20.60	20.84	20.67	20.75	0.0	22.0	
		1	74	21.65	21.59	21.67	21.57	21.56	1.0	23.0	21.16	20.86	20.97	21.07	21.17	0.0	22.0	20.71	20.63	20.73	20.65	20.64	0.0	22.0	
		36	0	20.68	20.44	20.72	20.53	20.71	2.0	22.0	21.11	20.91	20.88	21.00	21.27	0.0	22.0	20.72	20.36	20.70	20.51	20.74	0.0	22.0	
		36	20	20.75	20.46	20.71	20.53	20.76	2.0	22.0	21.17	20.98	20.96	21.08	21.27	0.0	22.0	20.72	20.39	20.67	20.53	20.75	0.0	22.0	
		36	39	20.73	20.43	20.65	20.51	20.65	2.0	22.0	21.19	20.94	20.97	21.03	21.26	0.0	22.0	20.61	20.44	20.65	20.50	20.62	0.0	22.0	
		75	0	20.74	20.47	20.75	20.58	20.69	2.0	22.0	21.17	20.93	20.97	21.02	21.28	0.0	22.0	20.76	20.45	20.77	20.57	20.71	0.0	22.0	
	64QAM	1	0	20.55	20.02	20.39	20.20	20.37	2.0	22.0	20.72	20.77	21.16	20.51	20.98	0.0	22.0	20.45	20.11	20.39	20.14	20.36	0.0	22.0	
		1	37	20.57	20.20	20.49	20.30	20.42	2.0	22.0	20.82	20.85	21.37	20.64	21.13	0.0	22.0	20.56	20.16	20.47	20.29	20.43	0.0	22.0	
		1	74	20.23	20.22	20.23	20.20	20.28	2.0	22.0	20.87	20.77	21.26	20.65	21.01	0.0	22.0	20.31	20.06	20.32	20.22	20.22	0.0	22.0	
		36	0	19.70	19.45	19.80	19.58	19.77	3.0	21.0	20.15	19.89	19.99	20.06	20.22	1.0	21.0	19.73	19.67	19.79	19.59	19.75	1.0	21.0	
		36	20	19.86	19.40	19.82	19.59	19.76	3.0	21.0	20.22	19.97	20.04	20.12	20.25	1.0	21.0	19.83	19.54	19.70	19.59	19.77	1.0	21.0	
		36	39	19.70	19.49	19.69	19.50	19.66	3.0	21.0	20.24	19.93	20.08	20.10	20.19	1.0	21.0	19.75	19.57	19.75	19.59	19.67	1.0	21.0	
		75	0	19.89	19.56	19.82	19.60	19.73	3.0	21.0	20.15	19.96	19.98	20.02	20.26	1.0	21.0	19.87	19.54	19.85	19.59	19.70	1.0	21.0	
10 MHz	QPSK	1	0	22.88	22.51	22.89	22.55	22.77	0.0	24.0	21.10	20.93	21.04	20.94	21.21	0.0	22.0	20.85	20.46	20.81	20.55	20.80	0.0	22.0	
		1	25	22.79	22.52	22.82	22.62	22.77	0.0	24.0	21.16	20.99	21.14	21.02	21.31	0.0	22.0	20.80	20.46	20.85	20.62	20.78	0.0	22.0	
		1	49	22.66	22.52	22.70	22.64	22.65	0.0	24.0	21.05	20.91	21.07	21.02	21.24	0.0	22.0	20.71	20.43	20.70	20.61	20.66	0.0	22.0	
		25	0	21.77	21.42	21.62	21.60	21.72	1.0	23.0	21.10	20.88	20.97	21.00	21.26	0.0	22.0	20.70	20.39	20.75	20.56	20.72	0.0	22.0	
		25	12	21.77	21.55	21.76	21.58	21.79	1.0	23.0	21.09	21.01	20.99	21.08	21.28	0.0	22.0	20.79	20.42	20.79	20.59	20.82	0.0	22.0	
		25	25	21.79	21.57	21.78	21.55	21.68	1.0	23.0	21.17	20.97	20.97	21.02	21.22	0.0	22.0	20.81	20.38	20.72	20.58	20.66	0.0	22.0	
		50	0	21.72	21.37	21.67	21.48	21.71	1.0	23.0	21.18	20.99	21.01	21.03	21.29	0.0	22.0	20.85	20.49	20.79	20.49	20.64	0.0	22.0	
	16QAM	1	0	21.84	21.58	21.94	21.62	21.75	1.0	23.0	21.30	20.95	20.95	21.11	21.16	0.0	22.0	20.94	20.53	20.92	20.65	20.81	0.0	22.0	
		1	25	21.88	21.55	21.95	21.61	21.75	1.0	23.0	21.37	20.99	21.02	21.18	21.24	0.0	22.0								

LTE Band 66 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572			132072	132322	132572			132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	23.76	23.68	23.78	0.0	25.0	20.81	20.93	20.97	0.0	22.0	20.69	20.69	20.81	0.0	22.0
		1	49	24.18	24.06	24.19	0.0	25.0	21.05	21.18	21.21	0.0	22.0	20.90	21.01	21.05	0.0	22.0
		1	99	23.68	23.88	23.98	0.0	25.0	20.89	21.02	21.07	0.0	22.0	20.81	20.87	20.91	0.0	22.0
		50	0	22.87	22.81	23.10	1.0	24.0	20.91	21.01	21.21	0.0	22.0	20.85	20.74	21.05	0.0	22.0
		50	24	22.92	23.09	23.15	1.0	24.0	21.05	21.13	21.26	0.0	22.0	20.91	20.98	21.11	0.0	22.0
		50	50	22.94	23.01	23.16	1.0	24.0	21.06	21.10	21.27	0.0	22.0	21.05	21.01	21.14	0.0	22.0
	16QAM	100	0	22.93	22.91	23.13	1.0	24.0	20.97	21.04	21.20	0.0	22.0	20.93	20.92	21.04	0.0	22.0
		1	0	23.14	23.17	23.25	1.0	24.0	21.28	21.44	21.53	0.0	22.0	21.01	20.98	21.14	0.0	22.0
		1	49	22.98	23.31	23.75	1.0	24.0	21.50	21.71	21.79	0.0	22.0	20.93	21.27	21.41	0.0	22.0
		1	99	23.54	22.82	23.14	1.0	24.0	21.38	21.53	21.62	0.0	22.0	20.85	21.29	20.86	0.0	22.0
		50	0	21.79	21.88	22.05	2.0	23.0	20.94	21.07	21.27	0.0	22.0	20.93	20.72	21.12	0.0	22.0
		50	24	22.02	22.02	22.11	2.0	23.0	21.04	21.20	21.31	0.0	22.0	20.92	20.96	21.16	0.0	22.0
	64QAM	50	50	22.01	21.96	22.15	2.0	23.0	21.07	21.17	21.28	0.0	22.0	20.99	21.04	21.08	0.0	22.0
		100	0	21.85	21.91	22.00	2.0	23.0	21.00	21.09	21.25	0.0	22.0	20.92	20.87	21.06	0.0	22.0
		1	0	21.74	21.90	21.70	2.0	23.0	21.29	21.62	21.10	0.0	22.0	20.96	20.75	20.78	0.0	22.0
		1	49	22.49	21.81	22.33	2.0	23.0	21.57	21.84	21.33	0.0	22.0	21.11	20.98	20.86	0.0	22.0
		1	99	22.21	21.83	22.12	2.0	23.0	21.42	21.67	21.20	0.0	22.0	21.13	21.27	20.72	0.0	22.0
		50	0	20.87	20.88	21.18	3.0	22.0	21.25	21.08	21.00	0.0	22.0	20.86	20.81	21.09	0.0	22.0
15 MHz	QPSK	50	24	21.07	21.03	21.13	3.0	22.0	21.32	21.22	21.10	0.0	22.0	21.05	21.01	21.12	0.0	22.0
		50	50	21.10	21.08	21.20	3.0	22.0	21.30	21.17	21.12	0.0	22.0	20.93	21.06	21.11	0.0	22.0
		100	0	20.99	20.91	21.11	3.0	22.0	21.23	21.07	21.05	0.0	22.0	20.93	20.81	21.13	0.0	22.0
	16QAM	1	0	23.92	23.75	23.95	0.0	25.0	20.75	20.80	21.00	0.0	22.0	20.75	20.76	20.79	0.0	22.0
		1	37	23.89	24.06	24.04	0.0	25.0	20.86	20.96	21.15	0.0	22.0	20.86	20.84	20.90	0.0	22.0
		1	74	23.88	23.95	24.02	0.0	25.0	20.82	20.88	21.09	0.0	22.0	20.80	20.88	20.98	0.0	22.0
		36	0	22.80	22.93	22.97	1.0	24.0	20.77	20.85	21.02	0.0	22.0	20.84	20.71	20.88	0.0	22.0
		36	20	22.86	22.94	22.98	1.0	24.0	20.82	20.95	21.07	0.0	22.0	20.81	20.98	20.95	0.0	22.0
		36	39	22.89	22.96	23.08	1.0	24.0	20.81	20.95	21.11	0.0	22.0	20.81	20.92	20.91	0.0	22.0
	64QAM	75	0	22.88	22.90	23.05	1.0	24.0	20.79	20.93	21.09	0.0	22.0	20.75	20.89	21.00	0.0	22.0
		1	0	22.83	22.72	22.87	1.0	24.0	21.27	20.80	21.37	0.0	22.0	21.63	20.95	21.24	0.0	22.0
		1	37	23.08	23.27	23.22	1.0	24.0	21.39	20.94	21.50	0.0	22.0	21.20	21.19	20.79	0.0	22.0
		1	74	22.87	23.31	22.95	1.0	24.0	21.33	20.89	21.42	0.0	22.0	21.12	21.58	21.04	0.0	22.0
		36	0	21.86	21.82	21.99	2.0	23.0	20.76	20.85	21.09	0.0	22.0	20.81	20.86	21.01	0.0	22.0
		36	20	21.84	21.93	22.02	2.0	23.0	20.80	20.94	21.14	0.0	22.0	20.82	20.88	20.97	0.0	22.0
10 MHz	QPSK	36	39	21.81	21.84	22.01	2.0	23.0	20.82	20.93	21.15	0.0	22.0	20.81	20.88	20.98	0.0	22.0
		75	0	21.85	21.92	22.06	2.0	23.0	20.76	20.92	21.09	0.0	22.0	20.76	20.90	20.93	0.0	22.0
		1	0	22.07	22.05	22.22	2.0	23.0	21.16	21.52	21.14	0.0	22.0	21.00	21.38	21.23	0.0	22.0
		1	37	22.14	22.10	22.28	2.0	23.0	21.30	21.65	21.24	0.0	22.0	21.22	20.84	20.99	0.0	22.0
		1	74	22.27	22.26	22.21	2.0	23.0	21.20	21.58	21.18	0.0	22.0	20.96	21.13	21.23	0.0	22.0
		36	0	20.97	20.97	21.04	3.0	22.0	21.11	20.92	20.85	0.0	22.0	20.80	20.87	20.96	0.0	22.0
	16QAM	36	20	21.05	21.00	21.21	3.0	22.0	21.21	21.00	20.90	0.0	22.0	20.92	20.95	21.05	0.0	22.0
		36	39	21.02	21.01	21.20	3.0	22.0	21.22	21.00	20.91	0.0	22.0	20.79	20.90	21.00	0.0	22.0
		75	0	20.92	20.94	21.06	3.0	22.0	21.15	21.01	20.86	0.0	22.0	20.78	20.94	20.89	0.0	22.0
		1	0	23.83	23.95	24.00	0.0	25.0	20.79	20.87	21.07	0.0	22.0	20.86	20.73	20.86	0.0	22.0
		1	25	24.02	24.03	24.05	0.0	25.0	20.80	20.94	21.17	0.0	22.0	20.81	20.91	21.03	0.0	22.0
		1	49	23.96	24.01	23.99	0.0	25.0	20.78	20.94	21.13	0.0	22.0	20.85	20.98	20.90	0.0	22.0
	64QAM	25	0	22.85	22.84	22.93	1.0	24.0	20.70	20.86	21.01	0.0	22.0	20.68	20.79	20.90	0.0	22.0
		25	12	22.89	23.05	23.13	1.0	24.0	20.81	20.91	21.08	0.0	22.0	20.86	20.95	20.97	0.0	22.0
		25	25	22.90	22.97	22.99	1.0	24.0	20.75	20.89	21.06	0.0	22.0	20.74	20.91	21.02	0.0	22.0
		50	0	22.84	22.95	23.12	1.0	24.0	20.76	20.84	21.05	0.0	22.0	20.80	20.83	20.97	0.0	22.0
		1	0	23.08	23.28	23.16	1.0	24.0	20.87	20.86	21.43	0.0	22.0	20.93	21.13	20.99	0.0	22.0
		1	25	23.34	23.33	23.31	1.0	24.0	20.91	20.93	21.51	0.0	22.0	21.22	21.00	21.07	0.0	22.0
5 MHz	QPSK	1	49	22.86	23.05	23.08	1.0	24.0	20.87	20.89	21.46	0.0	22.0	20.82	21.10	21.63	0.0	22.0
		25	0	21.90	21.93	22.09	2.0	23.0	20.87	20.90	21.09	0.0	22.0	20.68	20.80	20.91	0.0	22.0
		25	12	22.04	21.93	22.11	2.0	23.0	20.93	21.00	21.17	0.0	22.0	20.91	20.90	21.07	0.0	22.0
		25	25	21.85	21.97	22.16	2.0	23.0	20.91	20.99	21.11	0.0	22.0	20.82	20.89	20.93	0.0	22.0
		50	0	21.86	22.01	22.10	2.0	23.0	20.85	20.94	21.11	0.0	22.0	20.82	20.84	21.06	0.0	22.0
		1	0	22.03	21.78	22.19	2.0	23.0	21.26	21.29	21.02	0.0	22.0	21.01	21.34	20.95	0.0	22.0
	16QAM	1	25	22.15	22.42	22.55	2.0	23.0	21.34	21.32	21.06	0.0	22.0	21.49	21.03	21.06	0.0	22.0
		1	49	22.14	22.14	22.21	2.0	23.0	21.27	21.33	21.00	0.0	22.0	20.94	21.25	21.20	0.0	22.0
		25	0	20.85	21.00	21.13	3.0	22.0	21.18	20.97	20.91	0.0	22.0	20.80	20.74	20.88	0.0	22.0
		25	12	20.97	21.06	21.21	3.0	22.0	21.23	21.07	20.99	0.0	22.0	20.95	20.99	21.04	0.0	22.0
		25	25	20.91	21.00	21.10	3.0	22.0	21.20	21.02	20.97	0.0	22.0	20.87	20.90	20.99	0.0	22.0
		50	0	20.93	20.99	21.11	3.0	22.0	21.13	20.96	20.88	0.0	22.0	20.83	20.92	20.97	0.0	22.0

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	Measured Pwr (dBm)			MPR	Tune-up Limit
				18625	18900	19175			18625	18900	19175			18625	18900	19175		
				1852.5 MHz	1880 MHz	1907.5 MHz			1852.5 MHz	1880 MHz	1907.5 MHz			1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	23.07	22.93	22.88	0.0	24.0	21.20	21.00	20.81	0.0	22.0	21.25	21.12	20.96	0.0	22.0
		1	12	23.18	23.10	23.02	0.0	24.0	21.32	21.13	20.92	0.0	22.0	21.30	21.05	21.10	0.0	22.0
		1	24	23.06	23.06	22.87	0.0	24.0	21.17	20.97	20.77	0.0	22.0	21.16	21.10	20.82	0.0	22.0
		12	0	22.06	22.03	21.86	1.0	23.0	21.17	20.95	20.82	0.0	22.0	21.09	20.98	20.98	0.0	22.0
		12	7	22.17	22.11	21.93	1.0	23.0	21.24	21.00	20.87	0.0	22.0	21.19	21.19	20.98	0.0	22.0
		12	13	22.08	22.03	21.81	1.0	23.0	21.17	21.00	20.82	0.0	22.0	21.19	21.06	20.94	0.0	22.0
		25	0	22.18	22.10	21.83	1.0	23.0	21.18	20.99	20.82	0.0	22.0	21.11	21.00	20.97	0.0	22.0
	16QAM	1	0	22.80	22.11	22.39	1.0	23.0	21.29	21.16	21.31	0.0	22.0	21.96	21.20	21.51	0.0	22.0
		1	12	22.83	22.18	22.26	1.0	23.0	21.42	21.29	21.46	0.0	22.0	21.94	21.97	21.36	0.0	22.0
		1	24	21.98	22.46	21.83	1.0	23.0	21.27	21.16	21.30	0.0	22.0	21.14	20.98	21.14	0.0	22.0
		12	0	21.32	21.21	20.89	2.0	22.0	21.25	21.08	20.99	0.0	22.0	21.15	21.06	20.95	0.0	22.0
		12	7	21.20	21.30	21.03	2.0	22.0	21.31	21.15	21.05	0.0	22.0	21.23	21.19	21.08	0.0	22.0
		12	13	21.28	21.03	20.97	2.0	22.0	21.26	21.13	20.96	0.0	22.0	21.24	21.11	20.98	0.0	22.0
		25	0	21.35	21.13	20.96	2.0	22.0	21.17	21.08	20.96	0.0	22.0	21.24	21.09	20.96	0.0	22.0
	64QAM	1	0	21.62	21.04	21.30	2.0	22.0	21.12	21.24	21.18	0.0	22.0	21.27	21.35	21.40	0.0	22.0
		1	12	21.37	20.98	21.20	2.0	22.0	21.27	21.39	21.29	0.0	22.0	21.90	21.50	21.59	0.0	22.0
		1	24	20.86	21.23	20.87	2.0	22.0	21.12	21.25	21.13	0.0	22.0	21.64	21.31	21.05	0.0	22.0
		12	0	20.23	20.20	19.89	3.0	21.0	20.30	20.17	19.84	0.0	22.0	20.20	20.10	19.97	0.0	22.0
		12	7	20.35	20.28	20.13	3.0	21.0	20.31	20.23	19.89	0.0	22.0	20.33	20.18	20.12	0.0	22.0
		12	13	20.28	20.19	19.95	3.0	21.0	20.27	20.21	19.84	0.0	22.0	20.23	20.13	19.98	0.0	22.0
		25	0	20.20	20.11	19.93	3.0	21.0	20.25	20.17	19.90	0.0	22.0	20.19	20.09	19.94	0.0	22.0
3 MHz	QPSK	1	0	22.7	22.7	22.6	0.0	24.0	20.9	20.6	20.6	0.0	22.0	21.2	21.0	20.8	0.0	22.0
		1	8	23.0	22.7	22.7	0.0	24.0	20.9	20.7	20.7	0.0	22.0	21.2	21.1	20.9	0.0	22.0
		1	14	22.8	22.7	22.5	0.0	24.0	20.8	20.6	20.5	0.0	22.0	21.1	21.0	20.8	0.0	22.0
		8	0	22.1	21.9	21.8	1.0	23.0	21.1	20.9	20.8	0.0	22.0	21.1	21.0	21.0	0.0	22.0
		8	4	22.1	22.1	21.8	1.0	23.0	21.1	20.9	20.8	0.0	22.0	21.3	21.0	20.9	0.0	22.0
		8	7	22.0	22.0	21.8	1.0	23.0	21.1	20.9	20.7	0.0	22.0	21.2	21.0	20.8	0.0	22.0
		15	0	22.1	22.0	21.8	1.0	23.0	21.1	20.9	20.7	0.0	22.0	21.1	21.0	21.0	0.0	22.0
	16QAM	1	0	22.0	21.9	21.6	1.0	23.0	21.0	20.7	20.9	0.0	22.0	21.8	21.3	21.6	0.0	22.0
		1	8	22.3	22.2	21.7	1.0	23.0	21.1	20.8	21.1	0.0	22.0	21.3	21.7	21.0	0.0	22.0
		1	14	22.0	22.0	21.8	1.0	23.0	20.9	20.6	20.9	0.0	22.0	21.3	20.8	20.8	0.0	22.0
		8	0	21.2	21.2	20.9	2.0	22.0	21.2	21.1	20.9	0.0	22.0	21.1	21.0	20.8	0.0	22.0
		8	4	21.2	21.2	21.0	2.0	22.0	21.2	21.1	20.9	0.0	22.0	21.3	21.2	20.9	0.0	22.0
		8	7	21.1	21.2	21.0	2.0	22.0	21.2	21.1	20.9	0.0	22.0	21.2	21.0	21.0	0.0	22.0
		15	0	21.2	21.2	20.8	2.0	22.0	21.1	21.0	20.8	0.0	22.0	21.2	21.0	20.9	0.0	22.0
	64QAM	1	0	21.4	21.2	21.0	2.0	22.0	21.4	21.0	20.8	0.0	22.0	21.1	21.0	20.9	0.0	22.0
		1	8	21.5	21.1	21.0	2.0	22.0	21.5	21.2	20.9	0.0	22.0	21.4	21.4	21.1	0.0	22.0
		1	14	21.3	21.0	20.9	2.0	22.0	21.4	21.0	20.8	0.0	22.0	21.2	21.0	20.9	0.0	22.0
		8	0	20.3	19.9	20.0	3.0	21.0	20.3	20.0	19.9	0.0	22.0	20.1	20.1	19.9	0.0	22.0
		8	4	20.2	20.1	20.1	3.0	21.0	20.3	20.0	19.9	0.0	22.0	20.3	20.3	20.1	0.0	22.0
		8	7	20.2	20.1	19.8	3.0	21.0	20.3	20.0	19.9	0.0	22.0	20.3	20.2	20.1	0.0	22.0
		15	0	20.1	19.9	20.0	3.0	21.0	20.2	20.0	19.8	0.0	22.0	20.2	20.2	19.9	0.0	22.0
1.4 MHz	QPSK	1	0	22.9	22.9	22.6	0.0	24.0	20.9	20.8	20.7	0.0	22.0	20.9	20.7	20.5	0.0	22.0
		1	3	22.9	22.9	22.7	0.0	24.0	21.0	20.8	20.7	0.0	22.0	20.9	20.9	20.7	0.0	22.0
		1	5	22.9	22.8	22.6	0.0	24.0	21.0	20.7	20.6	0.0	22.0	20.7	20.9	20.6	0.0	22.0
		3	0	22.9	22.9	22.8	0.0	24.0	21.1	20.9	20.8	0.0	22.0	21.1	20.9	20.9	0.0	22.0
		3	1	23.0	23.0	22.7	0.0	24.0	21.2	20.9	20.8	0.0	22.0	21.2	21.1	20.9	0.0	22.0
		3	3	23.0	22.8	22.8	0.0	24.0	21.1	20.9	20.8	0.0	22.0	21.0	20.9	20.8	0.0	22.0
		6	0	22.0	22.1	21.9	1.0	23.0	21.1	20.9	20.8	0.0	22.0	21.1	20.9	20.7	0.0	22.0
	16QAM	1	0	22.0	22.5	21.9	1.0	23.0	21.1	21.0	21.0	0.0	22.0	21.4	21.0	21.3	0.0	22.0
		1	3	22.6	21.7	22.3	1.0	23.0	21.1	21.0	21.1	0.0	22.0	21.2	20.9	20.5	0.0	22.0
		1	5	22.2	21.9	22.0	1.0	23.0	21.1	21.0	21.0	0.0	22.0	21.4	21.5	20.9	0.0	22.0
		3	0	22.0	21.8	21.7	1.0	23.0	21.4	21.0	21.0	0.0	22.0	21.1	21.0	20.9	0.0	22.0
		3	1	22.1	21.9	21.7	1.0	23.0	21.4	21.1	21.0	0.0	22.0	21.3	21.2	21.0	0.0	22.0
		3	3	22.0	21.8	21.7	1.0	23.0	21.4	21.0	21.0	0.0	22.0	21.0	21.2	20.8	0.0	22.0
		6	0	21.3	21.0	21.0	2.0	22.0	21.4	21.2	20.8	0.0	22.0	21.0	21.0	20.8	0.0	22.0
	64QAM	1	0	21.0	21.2	21.0	2.0	22.0	21.6	21.1	20.9	0.0	22.0	21.1	21.2	20.7	0.0	22.0
		1	3	21.4	21.4	20.8	2.0	22.0	21.7	21.2	21.0	0.0	22.0	21.3	21.3	21.4	0.0	22.0
		1	5	21.6	21.4	21.1	2.0	22.0	21.5	21.1	21.0	0.0	22.0	21.4	20.9	20.9	0.0	22.0
		3	0	21.4	21.2	21.1	2.0	22.0	21.6	21.2	20.8	0.0	22.0	20.0	20.1	19.8	0.0	22.0
		3	1	21.3	21.4	21.2	2.0	22.0	21.6	21.2	20.9	0.0	22.0	20.3	20.0	20.0	0.0	22.0
		3	3	21.5	21.2	20.7	2.0	22.0	21.6	21.2	20.9	0.0	22.0	20.2	20.1	19.9	0.0	22.0
		6	0	20.1	20.2	19.9	3.0	21.0	20.2	20.4	20.0	0.0	22.0	20.0	20.1	19.9	0.0	22.0

9.4. Wi-Fi 2.4 GHz (DTS Band)

WLAN SISO output power results (Maximum Power)

Band	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pw r (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi 2.4G	802.11b	1 Mbps	1	2412	19.19	20	Yes
			6	2437	18.99		
			11	2462	18.78		
			12	2467	Not Required	8	No
			13	2472		6	
	802.11g	6 Mbps	Not Required			19	No
						8	
						6	
	802.11n (HT20)	MCS 0	Not Required			18	No
						8	
						6	

WLAN SISO output power results (Reduced Power)

Band	Mode	Data Rate	Ch #	Freq. (MHz)	Meas. Avg Pw r (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	
WiFi 2.4G	802.11b	1 Mbps	1	2412	11.41	12	Yes	
			6	2437	11.20			
			11	2462	10.94			
			12	2467	Not Required	8	No	
			13	2472		6		
	802.11g	6 Mbps	Not Required				11	No
							8	
							6	
	802.11n (HT20)	MCS 0	Not Required				11	No
							8	
							6	

Note(s):

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

Mode	T on (ms)	Period (ms)	Maximum Duty Cyle	Measured Duty Cycle	Crest Factor (maximum duty/ measured duty cycle)
802.11b	8.381	8.419	100.00%	99.55%	1.00

25910
Swept SA

Spectrum Analyzer 2
Swept SA

+

KEYSIGHT

Input: RF
Coupling: DC
Align: Auto

Input Z: 50 Ω
Corr
Freq Ref: Int (S)
NFE: Adaptive

#Atten: 34 dB
Preamp: Off
μW Path: Standard

PNO: Fast
Gate: Off
IF Gain: Low
Sig Track: Off

#Avg Type: Power (RMS)
Trig: RF Burst
Trig Delay: -12.57 ms

1 2 3 4 5 6

W W W W W W

P N N N N N

1 Spectrum

Scale/Div 10 dB

Ref Level 41.09 dBm

ΔMkr3 8.419 ms
1.79 dB

Center 2.437000000 GHz
Res BW 8 MHz

Span 0 Hz
Sweep 25.3 ms (2001 pts)

5 Marker Table

	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	t	4.132 ms	18.62 dBm			
2	Δ1	1	t	(Δ) 8.381 ms (Δ)	1.729 dB			
3	Δ1	1	t	(Δ) 8.419 ms (Δ)	1.788 dB			
4								
5								
6								

Windows Taskbar

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Grid

Hand

Zoom

Fit

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

WLAN SISO output power Results (Maximum Power)

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Avg Pwr (dBm)	Max.Tune-up Limit (dBm)	SAR Test (Yes/No)
UNII-1	802.11ac (VHT20)	MCS0	36	5180	15.71	17	Yes
			40	5200	15.80		
			44	5220	15.85		
			48	5240	15.89		
UNII-2A	802.11a	6 Mbps	52	5260	16.03	17	Yes
			56	5280	16.06		
			60	5300	16.12		
			64	5320	16.12		
	802.11n (HT20)	MCS0	Not Required			16	No
	802.11n (HT40)	MCS0	Not Required			15	No
	802.11ac (VHT80)	MCS0	Not Required			13	No
UNII-2C	802.11a	6 Mbps	100	5500	16.40	17	Yes
			120	5600	15.81		
			124	5620	15.83		
			144	5720	15.78		
	802.11n (HT20)	MCS0	Not Required			16	No
	802.11n (HT40)	MCS0	Not Required			15	No
	802.11ac (VHT80)	MCS0	Not Required			13	No
UNII-3 or S15.247	802.11a	6 Mbps	149	5745	16.22	17	Yes
			157	5785	16.29		
			165	5825	16.22		
	802.11n (HT20)	MCS0	Not Required			16	No
	802.11n (HT40)	MCS0	Not Required			15	No
	802.11ac (VHT80)	MCS0	Not Required			13	No

Note(s):

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

WLAN SISO output power Results (Reduced Power)

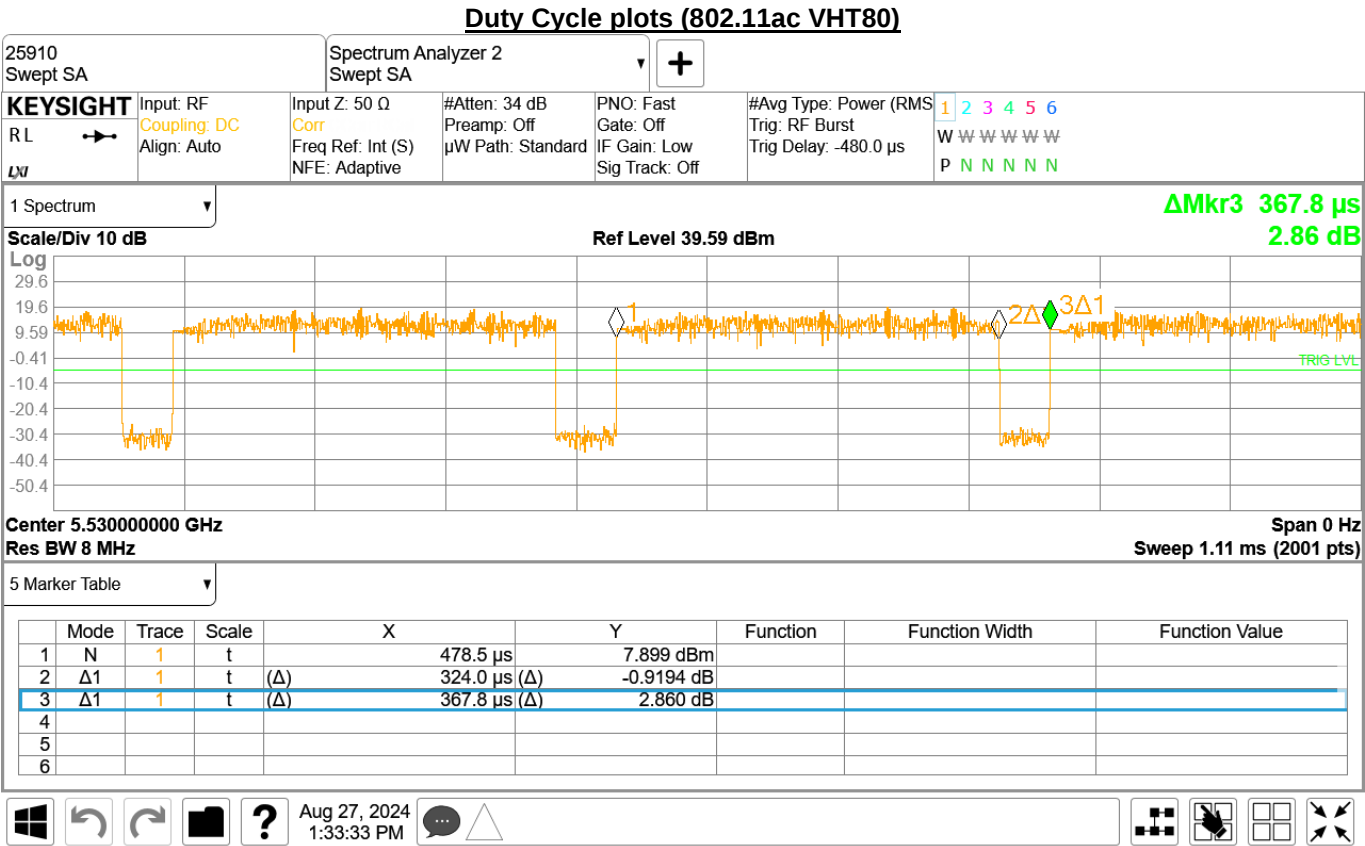
Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
UNII-2A	802.11a	6 Mbps	Not Required			11	No
	802.11n (HT20)	MCS0	Not Required			11	No
	802.11n (HT40)	MCS0	Not Required			11	No
	802.11ac (VHT80)	MCS0	58	5290	10.25	11	Yes
UNII-2C	802.11a	6 Mbps	Not Required			11	No
	802.11n (HT20)	MCS0	Not Required			11	No
	802.11n (HT40)	MCS0	Not Required			11	No
	802.11ac (VHT80)	MCS0	106	5530	9.94	11	Yes
			122	5610	10.13	11	
			138	5690	10.00	11	
UNII-3 or S15.247	802.11a	6 Mbps	Not Required			11	No
	802.11n (HT20)	MCS0	Not Required			11	No
	802.11n (HT40)	MCS0	Not Required			11	No
	802.11ac (VHT80)	MCS0	155	5775	9.93	11	Yes

Note(s):

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

Mode	T on (ms)	Period (ms)	Maximum Duty Cycle	Measured Duty Cycle	Crest Factor (1/duty cycle)
802.11a	2.755	2.798	100.00%	98.45%	1.02
802.11ac VHT 80	0.324	0.368	100.00%	88.09%	1.14

[illegible]



9.6. Bluetooth

Bluetooth SISO output power Results

Band (GHz)	Antenna	Mode	Ch #	Freq. (MHz)	Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
Bluetooth 2.4G	Sub.2-2	Bluetooth (BDR)	0	2402	15.31	17	Yes
			39	2441	15.99		
			78	2480	16.09		
		Bluetooth (EDR)	0	2402	Not Required	13	No
			39	2441			
			78	2480			
		Bluetooth (LE)	0	2402	Not Required	8	No
			19	2440			
			39	2480			
		Bluetooth (LE 2M)	0	2402	Not Required	8	No
			19	2440			
			39	2480			

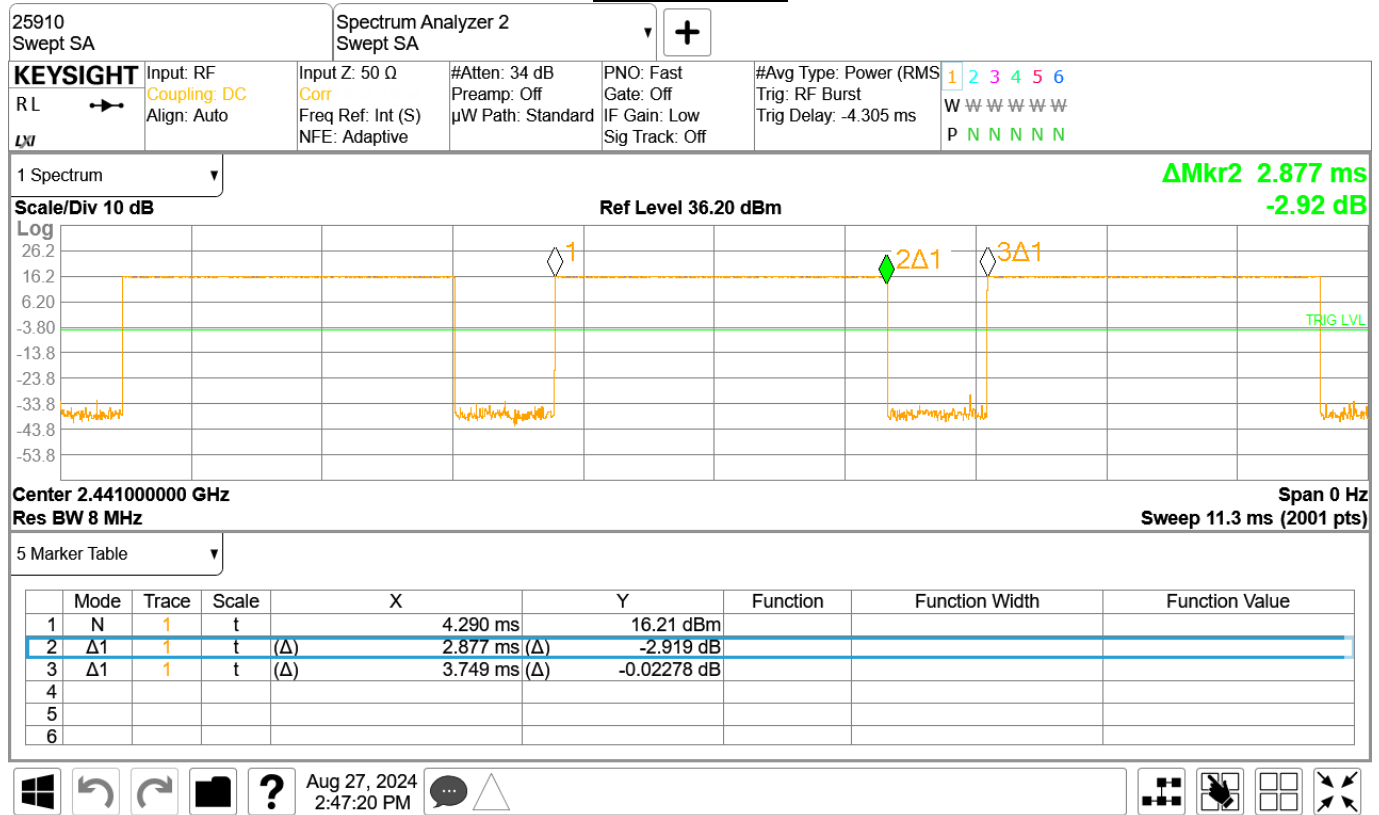
Note(s):

SAR test is evaluated at GFSK mode in Bluetooth.

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Maximum Duty Cycle	Measured Duty Cycle
GFSK	DH5	2.877	3.749	77.00%	76.74%

Duty Cycle plot



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
- Wi-Fi Duty Cycle scaling factor = 1 / Duty cycle (%)
- BT Duty Cycle scaling factor = Maximum Duty cycle / Duty cycle (%)

KDB 447498 D01 General RF Exposure Guidance:

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

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

KDB 648474 D04 Handset SAR:

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

KDB 648474 D04 Handset SAR (Phablet Only):

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

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

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

KDB 941225 D01 SAR test for 3G devices:

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

KDB 941225 D05 SAR for LTE Devices:

SAR test reduction is applied using the following criteria:

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

KDB 248227 D01 SAR meas for 802.11:

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

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

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

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

10.1. GSM 850

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Main 1	Head	GPRS4 Slots	OFF	0	Left Touch	190	836.6	29.50	27.91	0.316	0.456	
Main 1	Head	GPRS4 Slots	OFF	0	Left Tilt	190	836.6	29.50	27.91	0.203	0.293	
Main 1	Head	GPRS4 Slots	OFF	0	Right Touch	190	836.6	29.50	27.91	0.352	0.508	1
Main 1	Head	GPRS4 Slots	OFF	0	Right Tilt	190	836.6	29.50	27.91	0.199	0.287	
Main 1	Body-worn	GPRS4 Slots	OFF	15	Rear	190	836.6	29.50	27.91	0.376	0.542	2
Main 1	Body-worn	GPRS4 Slots	OFF	15	Front	190	836.6	29.50	27.91	0.305	0.440	
Main 1	Hotspot	GPRS4 Slots	ON	10	Rear	190	836.6	28.50	26.54	0.354	0.556	3
Main 1	Hotspot	GPRS4 Slots	ON	10	Front	190	836.6	28.50	26.54	0.229	0.360	
Main 1	Hotspot	GPRS4 Slots	ON	10	Left	190	836.6	28.50	26.54	0.182	0.286	
Main 1	Hotspot	GPRS4 Slots	ON	10	Bottom	190	836.6	28.50	26.54	0.156	0.245	
Main 1	Hotspot	GPRS4 Slots	ON	10	Right	190	836.6	28.50	26.54	0.295	0.463	

10.2. GSM 1900

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Main 1	Head	GPRS2 Slots	OFF	0	Left Touch	512	1850.2	30.00	29.32	0.136	0.159	
Main 1	Head	GPRS2 Slots	OFF	0	Left Tilt	512	1850.2	30.00	29.32	0.129	0.151	
Main 1	Head	GPRS2 Slots	OFF	0	Right Touch	512	1850.2	30.00	29.32	0.167	0.195	4
Main 1	Head	GPRS2 Slots	OFF	0	Right Tilt	512	1850.2	30.00	29.32	0.099	0.116	
Main 1	Body-worn	GPRS2 Slots	OFF	15	Rear	512	1850.2	30.00	29.32	0.275	0.322	5
Main 1	Body-worn	GPRS2 Slots	OFF	15	Front	512	1850.2	30.00	29.32	0.148	0.173	
Main 1	Hotspot	GPRS2 Slots	ON	10	Rear	512	1850.2	28.00	26.50	0.320	0.452	6
Main 1	Hotspot	GPRS2 Slots	ON	10	Front	512	1850.2	28.00	26.50	0.167	0.236	
Main 1	Hotspot	GPRS2 Slots	ON	10	Left	512	1850.2	28.00	26.50	0.113	0.160	
Main 1	Hotspot	GPRS2 Slots	ON	10	Bottom	512	1850.2	28.00	26.50	0.247	0.349	
Main 1	Hotspot	GPRS2 Slots	ON	10	Right	512	1850.2	28.00	26.50	0.065	0.092	

10.3. WCDMA Band II

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Main 1	Head	Rel 99 RMC	OFF	0	Left Touch	9400	1880	24.50	23.52	0.197	0.247	
Main 1	Head	Rel 99 RMC	OFF	0	Left Tilt	9400	1880	24.50	23.52	0.165	0.207	
Main 1	Head	Rel 99 RMC	OFF	0	Right Touch	9400	1880	24.50	23.52	0.227	0.284	7
Main 1	Head	Rel 99 RMC	OFF	0	Right Tilt	9400	1880	24.50	23.52	0.107	0.134	
Main 1	Body-worn	Rel 99 RMC	OFF	15	Rear	9400	1880.0	24.50	23.52	0.423	0.530	8
Main 1	Body-worn	Rel 99 RMC	OFF	15	Front	9400	1880.0	24.50	23.52	0.171	0.214	
Main 1	Hotspot	Rel 99 RMC	ON	10	Rear	9400	1880.0	21.50	20.59	0.515	0.635	9
Main 1	Hotspot	Rel 99 RMC	ON	10	Front	9400	1880.0	21.50	20.59	0.236	0.291	
Main 1	Hotspot	Rel 99 RMC	ON	10	Left	9400	1880.0	21.50	20.59	0.155	0.191	
Main 1	Hotspot	Rel 99 RMC	ON	10	Bottom	9400	1880.0	21.50	20.59	0.367	0.453	
Main 1	Hotspot	Rel 99 RMC	ON	10	Right	9400	1880.0	21.50	20.59	0.075	0.092	
Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 10g (W/kg)	Reported. 10g (W/kg)	Plot No.
Main 1	Product specific 10-g SAR	Rel 99 RMC	Off	15	Rear	9400	1880.0	24.50	23.52	0.223	0.279	
Main 1	Product specific 10-g SAR	Rel 99 RMC	ON	0	Rear	9400	1880.0	21.50	20.73	1.440	1.719	10

10.4. WCDMA Band IV

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Main 1	Head	Rel 99 RMC	OFF	0	Left Touch	1413	1732.6	24.50	23.52	0.218	0.273	11
Main 1	Head	Rel 99 RMC	OFF	0	Left Tilt	1413	1732.6	24.50	23.52	0.179	0.224	
Main 1	Head	Rel 99 RMC	OFF	0	Right Touch	1413	1732.6	24.50	23.52	0.180	0.226	
Main 1	Head	Rel 99 RMC	OFF	0	Right Tilt	1413	1732.6	24.50	23.52	0.137	0.172	
Main 1	Body-worn	Rel 99 RMC	OFF	15	Rear	1413	1732.6	24.50	23.52	0.554	0.694	12
Main 1	Body-worn	Rel 99 RMC	OFF	15	Front	1413	1732.6	24.50	23.52	0.174	0.218	
Main 1	Hotspot	Rel 99 RMC	ON	10	Rear	1413	1732.6	22.50	21.62	0.611	0.748	
Main 1	Hotspot	Rel 99 RMC	ON	10	Front	1413	1732.6	22.50	21.62	0.233	0.285	
Main 1	Hotspot	Rel 99 RMC	ON	10	Left	1413	1732.6	22.50	21.62	0.074	0.091	
Main 1	Hotspot	Rel 99 RMC	ON	10	Bottom	1312	1712.4	22.50	21.59	0.656	0.809	
Main 1	Hotspot	Rel 99 RMC	ON	10	Bottom	1413	1732.6	22.50	21.62	0.699	0.856	13
Main 1	Hotspot	Rel 99 RMC	ON	10	Bottom	1513	1752.6	22.50	21.77	0.723	0.855	
Main 1	Hotspot	Rel 99 RMC	ON	10	Right	1413	1732.6	22.50	21.62	0.074	0.090	
Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 10g (W/kg)	Reported. 10g (W/kg)	Plot No.
Main 1	Product specific 10-g SAR	Rel 99 RMC	OFF	11	Bottom	1413	1732.6	24.50	23.52	0.454	0.569	
Main 1	Product specific 10-g SAR	Rel 99 RMC	ON	0	Bottom	1312	1712.4	22.50	21.53	1.900	2.375	
Main 1	Product specific 10-g SAR	Rel 99 RMC	ON	0	Bottom	1413	1732.6	22.50	21.60	2.150	2.645	
Main 1	Product specific 10-g SAR	Rel 99 RMC	ON	0	Bottom	1513	1752.6	22.50	21.77	2.430	2.875	14

10.5. WCDMA Band V

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Main 1	Head	Rel 99 RMC	N/A	0	Left Touch	4183	836.6	25.50	24.39	0.269	0.347	
Main 1	Head	Rel 99 RMC	N/A	0	Left Tilt	4183	836.6	25.50	24.39	0.150	0.194	
Main 1	Head	Rel 99 RMC	N/A	0	Right Touch	4183	836.6	25.50	24.39	0.270	0.349	15
Main 1	Head	Rel 99 RMC	N/A	0	Right Tilt	4183	836.6	25.50	24.39	0.154	0.199	
Main 1	Body-worn	Rel 99 RMC	N/A	15	Rear	4183	836.6	25.50	24.39	0.296	0.382	16
Main 1	Body-worn	Rel 99 RMC	N/A	15	Front	4183	836.6	25.50	24.39	0.246	0.318	
Main 1	Hotspot	Rel 99 RMC	N/A	10	Rear	4183	836.6	25.50	24.39	0.536	0.692	17
Main 1	Hotspot	Rel 99 RMC	N/A	10	Front	4183	836.6	25.50	24.39	0.263	0.340	
Main 1	Hotspot	Rel 99 RMC	N/A	10	Left	4183	836.6	25.50	24.39	0.195	0.252	
Main 1	Hotspot	Rel 99 RMC	N/A	10	Bottom	4183	836.6	25.50	24.39	0.324	0.418	
Main 1	Hotspot	Rel 99 RMC	N/A	10	Right	4183	836.6	25.50	24.39	0.302	0.390	

10.6. LTE Band 2 (20MHz Bandwidth)

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	RB Allocation	RB Offset	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Main 1	Head	QPSK	OFF	0	Left Touch	18900	1880.0	1	49	24.00	23.21	0.168	0.202	
Main 1	Head	QPSK	OFF	0	Left Touch	18900	1880.0	50	24	23.00	22.17	0.133	0.161	
Main 1	Head	QPSK	OFF	0	Left Tilt	18900	1880.0	1	49	24.00	23.21	0.145	0.174	
Main 1	Head	QPSK	OFF	0	Left Tilt	18900	1880.0	50	24	23.00	22.17	0.116	0.140	
Main 1	Head	QPSK	OFF	0	Right Touch	18900	1880.0	1	49	24.00	23.21	0.186	0.223	18
Main 1	Head	QPSK	OFF	0	Right Touch	18900	1880.0	50	24	23.00	22.17	0.146	0.177	
Main 1	Head	QPSK	OFF	0	Right Tilt	18900	1880.0	1	49	24.00	23.21	0.086	0.103	
Main 1	Head	QPSK	OFF	0	Right Tilt	18900	1880.0	50	24	23.00	22.17	0.067	0.081	
Main 1	Body-worn	QPSK	OFF	15	Rear	18900	1880.0	1	49	24.00	23.21	0.376	0.451	19
Main 1	Body-worn	QPSK	OFF	15	Rear	18900	1880.0	50	24	23.00	22.17	0.291	0.352	
Main 1	Body-worn	QPSK	OFF	15	Front	18900	1880.0	1	49	24.00	23.21	0.154	0.185	
Main 1	Body-worn	QPSK	OFF	15	Front	18900	1880.0	50	24	23.00	22.17	0.119	0.144	
Main 1	Hotspot	QPSK	ON	10	Rear	18900	1880.0	1	49	22.00	21.18	0.467	0.564	
Main 1	Hotspot	QPSK	ON	10	Rear	18900	1880.0	50	24	22.00	21.20	0.468	0.563	
Main 1	Hotspot	QPSK	ON	10	Front	18900	1880.0	1	49	22.00	21.18	0.177	0.214	
Main 1	Hotspot	QPSK	ON	10	Front	18900	1880.0	50	24	22.00	21.20	0.185	0.222	
Main 1	Hotspot	QPSK	ON	10	Left	18900	1880.0	1	49	22.00	21.18	0.147	0.178	
Main 1	Hotspot	QPSK	ON	10	Left	18900	1880.0	50	24	22.00	21.20	0.145	0.174	
Main 1	Hotspot	QPSK	ON	10	Bottom	18900	1880.0	1	49	22.00	21.18	0.565	0.682	20
Main 1	Hotspot	QPSK	ON	10	Bottom	18900	1880.0	50	24	22.00	21.20	0.565	0.679	
Main 1	Hotspot	QPSK	ON	10	Right	18900	1880.0	1	49	22.00	21.18	0.146	0.176	
Main 1	Hotspot	QPSK	ON	10	Right	18900	1880.0	50	24	22.00	21.20	0.113	0.136	

10.7. LTE Band 12 (10MHz Bandwidth)

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	RB Allocation	RB Offset	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Main 1	Head	QPSK	N/A	0	Left Touch	23095	707.5	1	0	25.00	24.05	0.197	0.245	
Main 1	Head	QPSK	N/A	0	Left Touch	23095	707.5	25	12	24.00	23.05	0.154	0.192	
Main 1	Head	QPSK	N/A	0	Left Tilt	23095	707.5	1	0	25.00	24.05	0.093	0.116	
Main 1	Head	QPSK	N/A	0	Left Tilt	23095	707.5	25	12	24.00	23.05	0.074	0.092	
Main 1	Head	QPSK	N/A	0	Right Touch	23095	707.5	1	0	25.00	24.05	0.209	0.260	21
Main 1	Head	QPSK	N/A	0	Right Touch	23095	707.5	25	12	24.00	23.05	0.167	0.208	
Main 1	Head	QPSK	N/A	0	Right Tilt	23095	707.5	1	0	25.00	24.05	0.105	0.131	
Main 1	Head	QPSK	N/A	0	Right Tilt	23095	707.5	25	12	24.00	23.05	0.085	0.106	
Main 1	Body-worn	QPSK	N/A	15	Rear	23095	707.5	1	0	25.00	24.05	0.197	0.245	22
Main 1	Body-worn	QPSK	N/A	15	Rear	23095	707.5	25	12	24.00	23.05	0.178	0.222	
Main 1	Body-worn	QPSK	N/A	15	Front	23095	707.5	1	0	25.00	24.05	0.149	0.185	
Main 1	Body-worn	QPSK	N/A	15	Front	23095	707.5	25	12	24.00	23.05	0.111	0.138	
Main 1	Hotspot	QPSK	N/A	10	Rear	23095	707.5	1	0	25.00	24.05	0.269	0.335	23
Main 1	Hotspot	QPSK	N/A	10	Rear	23095	707.5	25	12	24.00	23.05	0.213	0.265	
Main 1	Hotspot	QPSK	N/A	10	Front	23095	707.5	1	0	25.00	24.05	0.135	0.168	
Main 1	Hotspot	QPSK	N/A	10	Front	23095	707.5	25	12	24.00	23.05	0.122	0.152	
Main 1	Hotspot	QPSK	N/A	10	Left	23095	707.5	1	0	25.00	24.05	0.130	0.162	
Main 1	Hotspot	QPSK	N/A	10	Left	23095	707.5	25	12	24.00	23.05	0.093	0.116	
Main 1	Hotspot	QPSK	N/A	10	Bottom	23095	707.5	1	0	25.00	24.05	0.202	0.251	
Main 1	Hotspot	QPSK	N/A	10	Bottom	23095	707.5	25	12	24.00	23.05	0.161	0.200	
Main 1	Hotspot	QPSK	N/A	10	Right	23095	707.5	1	0	25.00	24.05	0.167	0.208	
Main 1	Hotspot	QPSK	N/A	10	Right	23095	707.5	25	12	24.00	23.05	0.140	0.174	

10.8. LTE Band 13 (10MHz Bandwidth)

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	RB Allocation	RB Offset	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Main 1	Head	QPSK	N/A	0	Left Touch	23230	782.0	1	0	25.00	24.00	0.214	0.269	
Main 1	Head	QPSK	N/A	0	Left Touch	23230	782.0	25	12	24.00	22.99	0.166	0.209	
Main 1	Head	QPSK	N/A	0	Left Tilt	23230	782.0	1	0	25.00	24.00	0.113	0.142	
Main 1	Head	QPSK	N/A	0	Left Tilt	23230	782.0	25	12	24.00	22.99	0.089	0.112	
Main 1	Head	QPSK	N/A	0	Right Touch	23230	782.0	1	0	25.00	24.00	0.217	0.273	24
Main 1	Head	QPSK	N/A	0	Right Touch	23230	782.0	25	12	24.00	22.99	0.166	0.209	
Main 1	Head	QPSK	N/A	0	Right Tilt	23230	782.0	1	0	25.00	24.00	0.133	0.167	
Main 1	Head	QPSK	N/A	0	Right Tilt	23230	782.0	25	12	24.00	22.99	0.104	0.131	
Main 1	Body-worn	QPSK	N/A	15	Rear	23230	782.0	1	0	25.00	24.00	0.309	0.389	25
Main 1	Body-worn	QPSK	N/A	15	Rear	23230	782.0	25	12	24.00	22.99	0.256	0.323	
Main 1	Body-worn	QPSK	N/A	15	Front	23230	782.0	1	0	25.00	24.00	0.250	0.315	
Main 1	Body-worn	QPSK	N/A	15	Front	23230	782.0	25	12	24.00	22.99	0.208	0.262	
Main 1	Hotspot	QPSK	N/A	10	Rear	23230	782.0	1	0	25.00	24.00	0.366	0.461	26
Main 1	Hotspot	QPSK	N/A	10	Rear	23230	782.0	25	12	24.00	22.99	0.292	0.368	
Main 1	Hotspot	QPSK	N/A	10	Front	23230	782.0	1	0	25.00	24.00	0.236	0.297	
Main 1	Hotspot	QPSK	N/A	10	Front	23230	782.0	25	12	24.00	22.99	0.195	0.246	
Main 1	Hotspot	QPSK	N/A	10	Left	23230	782.0	1	0	25.00	24.00	0.258	0.325	
Main 1	Hotspot	QPSK	N/A	10	Left	23230	782.0	25	12	24.00	22.99	0.206	0.260	
Main 1	Hotspot	QPSK	N/A	10	Bottom	23230	782.0	1	0	25.00	24.00	0.219	0.276	
Main 1	Hotspot	QPSK	N/A	10	Bottom	23230	782.0	25	12	24.00	22.99	0.174	0.220	
Main 1	Hotspot	QPSK	N/A	10	Right	23230	782.0	1	0	25.00	24.00	0.323	0.407	
Main 1	Hotspot	QPSK	N/A	10	Right	23230	782.0	25	12	24.00	22.99	0.267	0.337	

10.9. LTE Band 26 (15MHz Bandwidth)

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	RB Allocation	RB Offset	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Main 1	Head	QPSK	N/A	0	Left Touch	26865	831.5	1	37	25.50	23.76	0.234	0.349	
Main 1	Head	QPSK	N/A	0	Left Touch	26865	831.5	36	20	24.50	22.74	0.182	0.273	
Main 1	Head	QPSK	N/A	0	Left Tilt	26865	831.5	1	37	25.50	23.76	0.135	0.202	
Main 1	Head	QPSK	N/A	0	Left Tilt	26865	831.5	36	20	24.50	22.74	0.106	0.159	
Main 1	Head	QPSK	N/A	0	Right Touch	26865	831.5	1	37	25.50	23.76	0.281	0.419	27
Main 1	Head	QPSK	N/A	0	Right Touch	26865	831.5	36	20	24.50	22.74	0.220	0.330	
Main 1	Head	QPSK	N/A	0	Right Tilt	26865	831.5	1	37	25.50	23.76	0.140	0.209	
Main 1	Head	QPSK	N/A	0	Right Tilt	26865	831.5	36	20	24.50	22.74	0.110	0.165	
Main 1	Body-worn	QPSK	N/A	15	Rear	26865	831.5	1	37	25.50	23.76	0.296	0.442	28
Main 1	Body-worn	QPSK	N/A	15	Rear	26865	831.5	36	20	24.50	22.74	0.234	0.351	
Main 1	Body-worn	QPSK	N/A	15	Front	26865	831.5	1	37	25.50	23.76	0.238	0.355	
Main 1	Body-worn	QPSK	N/A	15	Front	26865	831.5	36	20	24.50	22.74	0.188	0.282	
Main 1	Hotspot	QPSK	N/A	10	Rear	26865	831.5	1	37	25.50	23.76	0.480	0.717	29
Main 1	Hotspot	QPSK	N/A	10	Rear	26865	831.5	36	20	24.50	22.74	0.378	0.567	
Main 1	Hotspot	QPSK	N/A	10	Front	26865	831.5	1	37	25.50	23.76	0.243	0.363	
Main 1	Hotspot	QPSK	N/A	10	Front	26865	831.5	36	20	24.50	22.74	0.192	0.288	
Main 1	Hotspot	QPSK	N/A	10	Left	26865	831.5	1	37	25.50	23.76	0.234	0.349	
Main 1	Hotspot	QPSK	N/A	10	Left	26865	831.5	36	20	24.50	22.74	0.186	0.279	
Main 1	Hotspot	QPSK	N/A	10	Bottom	26865	831.5	1	37	25.50	23.76	0.353	0.527	
Main 1	Hotspot	QPSK	N/A	10	Bottom	26865	831.5	36	20	24.50	22.74	0.274	0.411	
Main 1	Hotspot	QPSK	N/A	10	Right	26865	831.5	1	37	25.50	23.76	0.328	0.490	
Main 1	Hotspot	QPSK	N/A	10	Right	26865	831.5	36	20	24.50	22.74	0.259	0.388	

10.10. LTE Band 41 (20MHz Bandwidth)

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	RB Allocation	RB Offset	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Main 1	Head	QPSK	OFF	0	Left Touch	40620	2593.0	1	49	24.00	22.87	0.227	0.294	30
Main 1	Head	QPSK	OFF	0	Left Touch	40620	2593.0	50	24	23.00	21.79	0.174	0.230	
Main 1	Head	QPSK	OFF	0	Left Tilt	40620	2593.0	1	49	24.00	22.87	0.055	0.071	
Main 1	Head	QPSK	OFF	0	Left Tilt	40620	2593.0	50	24	23.00	21.79	0.041	0.054	
Main 1	Head	QPSK	OFF	0	Right Touch	40620	2593.0	1	49	24.00	22.87	0.120	0.156	
Main 1	Head	QPSK	OFF	0	Right Touch	40620	2593.0	50	24	23.00	21.79	0.058	0.077	
Main 1	Head	QPSK	OFF	0	Right Tilt	40620	2593.0	1	49	24.00	22.87	0.109	0.141	
Main 1	Head	QPSK	OFF	0	Right Tilt	40620	2593.0	50	24	23.00	21.79	0.084	0.111	
Main 1	Body-worn	QPSK	OFF	15	Rear	40620	2593.0	1	49	24.00	22.87	0.237	0.307	31
Main 1	Body-worn	QPSK	OFF	15	Rear	40620	2593.0	50	24	23.00	21.79	0.187	0.247	
Main 1	Body-worn	QPSK	OFF	15	Front	40620	2593.0	1	49	24.00	22.87	0.122	0.158	
Main 1	Body-worn	QPSK	OFF	15	Front	40620	2593.0	50	24	23.00	21.79	0.098	0.129	
Main 1	Hotspot	QPSK	ON	10	Rear	40620	2593.0	1	49	22.00	21.11	0.354	0.435	
Main 1	Hotspot	QPSK	ON	10	Rear	40620	2593.0	50	24	22.00	20.92	0.350	0.449	
Main 1	Hotspot	QPSK	ON	10	Front	40620	2593.0	1	49	22.00	21.11	0.160	0.196	
Main 1	Hotspot	QPSK	ON	10	Front	40620	2593.0	50	24	22.00	20.92	0.159	0.204	
Main 1	Hotspot	QPSK	ON	10	Left	40620	2593.0	1	49	22.00	21.11	0.073	0.090	
Main 1	Hotspot	QPSK	ON	10	Left	40620	2593.0	50	24	22.00	20.92	0.075	0.096	
Main 1	Hotspot	QPSK	ON	10	Bottom	40620	2593.0	1	49	22.00	21.11	0.392	0.481	
Main 1	Hotspot	QPSK	ON	10	Bottom	40620	2593.0	50	24	22.00	20.92	0.389	0.499	32
Main 1	Hotspot	QPSK	ON	10	Right	40620	2593.0	1	49	22.00	21.11	0.055	0.067	
Main 1	Hotspot	QPSK	ON	10	Right	40620	2593.0	50	24	22.00	20.92	0.069	0.088	

10.11. LTE Band 66 (20MHz Bandwidth)

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	RB Allocation	RB Offset	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Main 1	Head	QPSK	OFF	0	Left Touch	132572	1770.0	1	49	25.00	24.19	0.314	0.378	33
Main 1	Head	QPSK	OFF	0	Left Touch	132572	1770.0	50	50	24.00	23.16	0.245	0.297	
Main 1	Head	QPSK	OFF	0	Left Tilt	132572	1770.0	1	49	25.00	24.19	0.247	0.298	
Main 1	Head	QPSK	OFF	0	Left Tilt	132572	1770.0	50	50	24.00	23.16	0.191	0.232	
Main 1	Head	QPSK	OFF	0	Right Touch	132572	1770.0	1	49	25.00	24.19	0.189	0.228	
Main 1	Head	QPSK	OFF	0	Right Touch	132572	1770.0	50	50	24.00	23.16	0.155	0.188	
Main 1	Head	QPSK	OFF	0	Right Tilt	132572	1770.0	1	49	25.00	24.19	0.184	0.222	
Main 1	Head	QPSK	OFF	0	Right Tilt	132572	1770.0	50	50	24.00	23.16	0.145	0.176	
Main 1	Body-worn	QPSK	OFF	15	Rear	132072	1720.0	1	49	25.00	24.18	0.569	0.687	
Main 1	Body-worn	QPSK	OFF	15	Rear	132322	1745.0	1	49	25.00	24.06	0.636	0.790	
Main 1	Body-worn	QPSK	OFF	15	Rear	132572	1770.0	1	49	25.00	24.19	0.675	0.813	34
Main 1	Body-worn	QPSK	OFF	15	Rear	132572	1770.0	50	50	24.00	23.16	0.496	0.602	
Main 1	Body-worn	QPSK	OFF	15	Front	132572	1770.0	1	49	25.00	24.19	0.272	0.328	
Main 1	Body-worn	QPSK	OFF	15	Front	132572	1770.0	50	50	24.00	23.16	0.218	0.265	
Main 1	Hotspot	QPSK	ON	10	Rear	132072	1720.0	1	49	22.00	21.05	0.537	0.668	
Main 1	Hotspot	QPSK	ON	10	Rear	132322	1745.0	1	49	22.00	21.18	0.628	0.759	
Main 1	Hotspot	QPSK	ON	10	Rear	132572	1770.0	1	49	22.00	21.21	0.676	0.811	
Main 1	Hotspot	QPSK	ON	10	Rear	132572	1770.0	50	50	22.00	21.27	0.644	0.762	
Main 1	Hotspot	QPSK	ON	10	Front	132572	1770.0	1	49	22.00	21.21	0.282	0.338	
Main 1	Hotspot	QPSK	ON	10	Front	132572	1770.0	50	50	22.00	21.27	0.281	0.332	
Main 1	Hotspot	QPSK	ON	10	Left	132572	1770.0	1	49	22.00	21.21	0.186	0.223	
Main 1	Hotspot	QPSK	ON	10	Left	132572	1770.0	50	50	22.00	21.27	0.180	0.213	
Main 1	Hotspot	QPSK	ON	10	Bottom	132072	1720.0	1	49	22.00	21.05	0.629	0.783	
Main 1	Hotspot	QPSK	ON	10	Bottom	132322	1745.0	1	49	22.00	21.18	0.661	0.798	
Main 1	Hotspot	QPSK	ON	10	Bottom	132572	1770.0	1	49	22.00	21.21	0.703	0.843	35
Main 1	Hotspot	QPSK	ON	10	Bottom	132572	1770.0	50	50	22.00	21.27	0.665	0.787	
Main 1	Hotspot	QPSK	ON	10	Right	132572	1770.0	1	49	22.00	21.21	0.072	0.087	
Main 1	Hotspot	QPSK	ON	10	Right	132572	1770.0	50	50	22.00	21.27	0.072	0.085	
Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	RB Allocation	RB Offset	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 10g (W/kg)	Reported. 10g (W/kg)	Plot No.
Main 1	Product specific 10-g SAR	QPSK	OFF	15	Rear	132572	1770.0	1	49	25.00	24.19	0.348	0.419	
Main 1	Product specific 10-g SAR	QPSK	OFF	15	Rear	132572	1770.0	50	50	24.00	23.16	0.256	0.311	
Main 1	Product specific 10-g SAR	QPSK	OFF	11	Bottom	132572	1770.0	1	49	25.00	24.19	0.532	0.641	
Main 1	Product specific 10-g SAR	QPSK	OFF	11	Bottom	132572	1770.0	50	50	24.00	23.16	0.408	0.495	
Main 1	Product specific 10-g SAR	QPSK	ON	0	Rear	132572	1770.0	1	49	22.00	21.05	1.350	1.680	36
Main 1	Product specific 10-g SAR	QPSK	ON	0	Rear	132572	1770.0	50	50	22.00	21.14	1.350	1.646	
Main 1	Product specific 10-g SAR	QPSK	ON	0	Bottom	132572	1770.0	1	49	22.00	21.05	1.120	1.394	
Main 1	Product specific 10-g SAR	QPSK	ON	0	Bottom	132572	1770.0	50	50	22.00	21.14	1.110	1.353	

10.12. Wi-Fi (DTS Band)

DTS SISO SAR results

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Sub.2-2	Head	802.11b 1Mbps	ON	0	Left Touch	1	2412.0	0.034	99.55	12.00	11.41			
Sub.2-2	Head	802.11b 1Mbps	ON	0	Left Tilt	1	2412.0	0.034	99.55	12.00	11.41			
Sub.2-2	Head	802.11b 1Mbps	ON	0	Right Touch	1	2412.0	0.104	99.55	12.00	11.41	0.079	0.091	37
Sub.2-2	Head	802.11b 1Mbps	ON	0	Right Tilt	1	2412.0	0.072	99.55	12.00	11.41			
Sub.2-2	Body-worn	802.11b 1Mbps	OFF	15	Rear	1	2412.0	0.349	99.55	20.00	19.19	0.295	0.357	38
Sub.2-2	Body-worn	802.11b 1Mbps	OFF	15	Front	1	2412.0	0.1	99.55	20.00	19.19			
Sub.2-2	Hotspot	802.11b 1Mbps	OFF	10	Rear	1	2412.0	0.609	99.55	20.00	19.19	0.496	0.600	39
Sub.2-2	Hotspot	802.11b 1Mbps	OFF	10	Front	1	2412.0	0.172	99.55	20.00	19.19			
Sub.2-2	Hotspot	802.11b 1Mbps	OFF	10	Top	1	2412.0	0.084	99.55	20.00	19.19			
Sub.2-2	Hotspot	802.11b 1Mbps	OFF	10	Left	1	2412.0	0.279	99.55	20.00	19.19	0.225	0.272	

Note(s):

- When the Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.

10.13. Wi-Fi (U-NII Bands)

U-NII 1 SAR results

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Sub.2-3	Hotspot	802.11a 6Mbps	OFF	10	Rear	36	5180.0	0.589	98.5	17.00	15.71	0.466	0.615	40
Sub.2-3	Hotspot	802.11a 6Mbps	OFF	10	Front	36	5180.0	0.104	98.5	17.00	15.71			
Sub.2-3	Hotspot	802.11a 6Mbps	OFF	10	Top	36	5180.0	0.508	98.5	17.00	15.71	0.388	0.512	
Sub.2-3	Hotspot	802.11a 6Mbps	OFF	10	Left	36	5180.0	0.050	98.5	17.00	15.71			

Note(s):

- For U-NII-1 Head, Body-worn and Product Specific 10-g exposure, SAR Test reduction was applied from KDB 248227 guidance, Sec. 5.3.1 a) when the same maximum output power is specified for U-NII-1 and U-NII-2A bands, Hotspot exposure condition is only considered in UNII-1.
- When the Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.

U-NII 2A SAR results

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Meas. 10g (W/kg)	Reported. 10g (W/kg)	Plot No.
Sub.2-3	Head	802.11ac MCS 0	ON	0	Left Touch	58	5290.0	0.145	88.1	11.00	10.25					
Sub.2-3	Head	802.11ac MCS 0	ON	0	Left Tilt	58	5290.0	0.178	88.1	11.00	10.25					
Sub.2-3	Head	802.11ac MCS 0	ON	0	Right Touch	58	5290.0	0.163	88.1	11.00	10.25					
Sub.2-3	Head	802.11ac MCS 0	ON	0	Right Tilt	58	5290.0	0.192	88.1	11.00	10.25	0.073	0.098			41
Sub.2-3	Body-worn	802.11a 6Mbps	OFF	15	Rear	60	5300.0	0.618	98.5	17.00	16.12	0.279	0.347			42
Sub.2-3	Body-worn	802.11a 6Mbps	OFF	15	Front	60	5300.0	0.130	98.5	17.00	16.12					
Sub.2-3	Product specific 10-g SAR	802.11a 6Mbps	OFF	0	Rear	60	5300.0	11.523	98.5	17.00	16.12			0.915	1.138	43
Sub.2-3	Product specific 10-g SAR	802.11a 6Mbps	OFF	0	Front	60	5300.0	1.052	98.5	17.00	16.12					
Sub.2-3	Product specific 10-g SAR	802.11a 6Mbps	OFF	0	Top	60	5300.0	9.114	98.5	17.00	16.12			0.677	0.842	
Sub.2-3	Product specific 10-g SAR	802.11a 6Mbps	OFF	0	Left	60	5300.0	0.323	98.5	17.00	16.12					

Note(s):

- When the Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.

U-NII 2C SAR results

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Meas. 10g (W/kg)	Reported. 10g (W/kg)	Plot No.
Sub.2-3	Head	802.11ac MCS 0	ON	0	Left Touch	122	5610.0	0.169	88.1	11.00	10.13					
Sub.2-3	Head	802.11ac MCS 0	ON	0	Left Tilt	122	5610.0	0.219	88.1	11.00	10.13					
Sub.2-3	Head	802.11ac MCS 0	ON	0	Right Touch	122	5610.0	0.214	88.1	11.00	10.13					
Sub.2-3	Head	802.11ac MCS 0	ON	0	Right Tilt	122	5610.0	0.258	88.1	11.00	10.13	0.106	0.147			44
Sub.2-3	Body-worn	802.11a 6Mbps	OFF	15	Rear	100	5500.0	1.105	98.5	17.00	16.40	0.493	0.575			45
Sub.2-3	Body-worn	802.11a 6Mbps	OFF	15	Front	100	5500.0	0.200	98.5	17.00	16.40	0.086	0.101			
Sub.2-3	Product specific 10-g SAR	802.11a 6Mbps	OFF	0	Rear	100	5500.0	10.671	98.5	17.00	16.40			1.180	1.376	46
Sub.2-3	Product specific 10-g SAR	802.11a 6Mbps	OFF	0	Front	100	5500.0	1.335	98.5	17.00	16.40					
Sub.2-3	Product specific 10-g SAR	802.11a 6Mbps	OFF	0	Top	100	5500.0	12.317	98.5	17.00	16.40			0.949	1.107	
Sub.2-3	Product specific 10-g SAR	802.11a 6Mbps	OFF	0	Left	100	5500.0	0.562	98.5	17.00	16.40					

Note(s):

- When the Highest reported SAR is ≤ 0.4 or 1.0 W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is > 0.4 or 1.0 W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR ≤ 0.8 or 2.0 W/kg (1-g or 10-g respectively) was reported.

U-NII 3 SAR results

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Meas. 10g (W/kg)	Reported. 10g (W/kg)	Plot No.
Sub.2-3	Head	802.11acVHT80MCS 0	ON	0	Left Touch	155	5775.0	0.123	88.1	11.00	9.93					
Sub.2-3	Head	802.11acVHT80MCS 0	ON	0	Left Tilt	155	5775.0	0.146	88.1	11.00	9.93					
Sub.2-3	Head	802.11acVHT80MCS 0	ON	0	Right Touch	155	5775.0	0.112	88.1	11.00	9.93					
Sub.2-3	Head	802.11acVHT80MCS 0	ON	0	Right Tilt	155	5775.0	0.201	88.1	11.00	9.93	0.135	0.196			47
Sub.2-3	Body-worn	802.11a 6Mbps	OFF	15	Rear	157	5785.0	0.494	98.5	17.00	16.29	0.376	0.450			48
Sub.2-3	Body-worn	802.11a 6Mbps	OFF	15	Front	157	5785.0	0.159	98.5	17.00	16.29	0.102	0.122			
Sub.2-3	Hotspot	802.11a 6Mbps	OFF	10	Rear	157	5785.0	1.210	98.5	17.00	16.29	0.843	1.008			49
Sub.2-3	Hotspot	802.11a 6Mbps	OFF	10	Rear	165	5825.0	1.170	98.5	17.00	16.22	0.794	0.965			
Sub.2-3	Hotspot	802.11a 6Mbps	OFF	10	Front	157	5785.0	0.196	98.5	17.00	16.29					
Sub.2-3	Hotspot	802.11a 6Mbps	OFF	10	Top	157	5785.0	0.525	98.5	17.00	16.29	0.406	0.486			
Sub.2-3	Hotspot	802.11a 6Mbps	OFF	10	Left	157	5785.0	0.178	98.5	17.00	16.29					

Note(s):

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

10.14. Bluetooth

Antenna	RF Exposure Condition	Mode	Power Mode	Dist (mm)	Test Position	Channel	Freq. (MHz)	Duty Cycle (%)	Tune-up Limit (dBm)	Meas. (dBm)	Meas. 1g (W/kg)	Reported. 1g (W/kg)	Plot No.
Sub.2-2	Head	GFSK DH5	OFF	0	Left Touch	78	2480.0	76.7	17.00	16.09	0.067	0.083	
Sub.2-2	Head	GFSK DH5	OFF	0	Left Tilt	78	2480.0	76.7	17.00	16.09	0.049	0.061	
Sub.2-2	Head	GFSK DH5	OFF	0	Right Touch	78	2480.0	76.7	17.00	16.09	0.190	0.235	50
Sub.2-2	Head	GFSK DH5	OFF	0	Right Tilt	78	2480.0	76.7	17.00	16.09	0.138	0.171	
Sub.2-2	Body-worn	GFSK DH5	OFF	15	Rear	78	2480.0	76.7	17.00	16.09	0.112	0.139	51
Sub.2-2	Body-worn	GFSK DH5	OFF	15	Front	78	2480.0	76.7	17.00	16.09	0.030	0.037	
Sub.2-2	Hotspot	GFSK DH5	OFF	10	Rear	78	2480.0	76.7	17.00	16.09	0.238	0.294	52
Sub.2-2	Hotspot	GFSK DH5	OFF	10	Front	78	2480.0	76.7	17.00	16.09	0.057	0.070	
Sub.2-2	Hotspot	GFSK DH5	OFF	10	Top	78	2480.0	76.7	17.00	16.09	0.031	0.038	
Sub.2-2	Hotspot	GFSK DH5	OFF	10	Left	78	2480.0	76.7	17.00	16.09	0.109	0.135	

10.15. NFC

Mode	RF Exposure Conditions	Dist. (mm)	Test Position	Test setup		Freq. (MHz)	10-g SAR (W/kg)	Plot No.
				Type	Bitrate		Meas.	
PBRS	Product Specific 10-g	0	Rear	A	106	13.56	0.049	53
			Front	A	106	13.56	0.000	
			Top	A	106	13.56	0.000	
			Left	A	106	13.56	0.000	

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	Antenna	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Repeated Measured SAR (W/kg)	Largest to Smallest SAR Ratio
5800	U-NII 3	Sub.2-3	Hotspot	Rear	Yes	0.843	0.816	1.03

Peak spatial-average (10g of tissue)

Frequency Band (MHz)	Air Interface	Antenna	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 IV	Main.1	Product specific 10-g	Bottom	Yes	2.430	2.400	1.01

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	Simultaneous transmission scenarios			
Head & Body-worn & Hotspot & Phablet-10g	1	WWAN (2G/3G/LTE)	+	DTS	
	2	WWAN (2G/3G/LTE)	+	UNII	
	3	WWAN (2G/3G/LTE)	+	BT	
	4	WWAN (2G/3G/LTE)	+	UNII	+ BT
Phablet-10g	5	Scenatios item (1-4)	+	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 supports Hotspot and VoIP
- 4. U-NII Radio can transmit simultaneously with Bluetooth Radio.
- 5. DTS Radio cannot transmit simultaneously with UNII Radio.
- 6. DTS Radio cannot transmit simultaneously with Bluetooth Radio.
- 7. BT tethering is considered about each RF exposure conditions.
- 8. NFC can transmit simultaneously with other Radios in Phablet-10g condition.

Simultaneous transmission SAR test exclusion considerations

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

Sum of SAR

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

SAR to Peak Location Ratio (SPLSR)

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

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

Where:

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

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

R_i 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:

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

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

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

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

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

RF Exposure	Test Position	Standalone SAR (W/kg)					Sum of SAR (W/kg)				
		WWAN	DTS	UNII	BT	NFC	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT	WWAN + UNII + BT + NFC
		1	2	3	4	5	1+2	1+3	1+4	1+3+4	1+3+4+5
Head (1-g SAR)	All positions	0.508	0.091	0.196	0.235		0.599	0.704	0.743	0.939	
Body-Worn (1-g SAR)	All positions	0.813	0.357	0.575	0.139		1.170	1.388	0.952	1.527	
Hotspot (1-g SAR)	Rear	0.811	0.600	1.008	0.294		1.411	1.819	1.105	2.113	
	Front	0.363	0.600	1.008	0.070		0.963	1.371	0.433	1.441	
	Top		0.600	0.486	0.038				0.038	0.524	
	Left	0.349	0.272	1.008	0.135		0.621	1.357	0.484	1.492	
	Bottom	0.856					0.856	0.856	0.856	0.856	
	Right	0.490					0.490	0.490	0.490	0.490	
Product Specific (10-g SAR)	Rear	1.719		1.376		0.049	1.719	3.095	1.719	3.095	3.144
	Front			1.376		0.000		1.376		1.376	1.376
	Top			1.107		0.000		1.107		1.107	1.107
	Left			1.376		0.000		1.376		1.376	1.376
	Bottom	2.875					2.875	2.875	2.875	2.875	2.875
	Right										

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	All position	0.508	0.091	0.196	0.235	0.599	0.704	0.749	0.945
Body-Worn (1-g SAR)	All position	0.542	0.357	0.575	0.139	0.899	1.117	0.684	1.259
Hotspot (1-g SAR)	Rear	0.556	0.600	1.008	0.294	1.156	1.564	0.858	1.858
	Front	0.360	0.600	1.008	0.070	0.960	1.368	0.432	1.438
	Top		0.600	0.486	0.038	0.600	0.486	0.039	0.524
	Left	0.286	0.272	1.008	0.135	0.558	1.294	0.424	1.429
	Bottom	0.245				0.245	0.245	0.245	0.245
	Right	0.463				0.463	0.463	0.463	0.463
Product Specific 10-g (10-g SAR)	Rear			1.376			1.376		1.376
	Front			1.376			1.376		1.376
	Top			1.107			1.107		1.107
	Left			1.376			1.376		1.376
	Bottom								
	Right								

Sum-Peak Location Separation Ratio

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (=0.04) or 10-g SPLSR (=0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.556		1.008	0.294	1+3+4	1.858				1
		0.556		1.302		1+(3+4)	1.858	160.9	0.02	No	
Sum-Peak Location Separation Ratio <i>Note 2</i>				1.302		3+4	1.302				

Note.2

Note(s):

- Green values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.
- According to 2022 Apr TCBC Workshop, SPLSR (Sum-Peak Location Separation Ratio) can algebraically sum the SAR values of the co-located pair and use that value in SPLSR calculation. Use the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	All position	0.195	0.091	0.196	0.235	0.286	0.391	0.436	0.632
Body-Worn (1-g SAR)	All position	0.322	0.357	0.575	0.139	0.679	0.897	0.464	1.039
Hotspot (1-g SAR)	Rear	0.452	0.600	1.008	0.294	1.052	1.460	0.754	1.754
	Front	0.236	0.600	1.008	0.070	0.836	1.244	0.308	1.314
	Top		0.600	0.486	0.038	0.600	0.486	0.039	0.524
	Left	0.160	0.272	1.008	0.135	0.432	1.168	0.298	1.303
	Bottom	0.349				0.349	0.349	0.349	0.349
	Right	0.092				0.092	0.092	0.092	0.092
Product Specific 10-g (10-g SAR)	Rear			1.376			1.376		1.376
	Front			1.376			1.376		1.376
	Top			1.107			1.107		1.107
	Left			1.376			1.376		1.376
	Bottom								
	Right								

Sum-Peak Location Separation Ratio

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (=≤0.04) or 10-g SPSLR (=≤0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.452		1.008	0.294	1+3+4	1.754				2
		0.452		1.302		1+(3+4)	1.754	135.0	0.02	No	
Sum-Peak Location Separation Ratio Note.2				1.302		3+4	1.302				

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	All position	0.284	0.091	0.196	0.235	0.375	0.480	0.525	0.721
Body-Worn (1-g SAR)	All position	0.530	0.357	0.575	0.139	0.887	1.105	0.672	1.247
Hotspot (1-g SAR)	Rear	0.635	0.600	1.008	0.294	1.235	1.643	0.929	1.937
	Front	0.291	0.600	1.008	0.070	0.849	1.257	0.321	1.327
	Top		0.600	0.486	0.038	0.600	0.486	0.039	0.524
	Left	0.191	0.272	1.008	0.135	0.514	1.250	0.380	1.385
	Bottom	0.453				0.753	0.753	0.753	0.753
	Right	0.092				0.194	0.194	0.194	0.194
Product Specific 10-g (10-g SAR)	Rear	1.719		1.376			3.095		3.095
	Front			1.376			1.376		1.376
	Top			1.107			1.107		1.107
	Left			1.376			1.376		1.376
	Bottom								
	Right								

Note(s):

- Green values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.
- According to 2022 Apr TCBC Workshop, SPLSR (Sum-Peak Location Separation Ratio) can algebraically sum the SAR values of the co-located pair and use that value in SPLSR calculation. Use the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (≤ 0.04) or 10-g SPLSR (≤ 0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.635		1.008		1+3	1.643	156.4	0.01	No	3

Sum-Peak Location Separation Ratio

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (≤0.04) or 10-g SPLSR (≤0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.635		1.008	0.294	1+3+4	1.937				4
		0.635		1.302		1+3+4	1.937	153.4	0.02	No	
Sum-Peak Location Separation Ratio <i>Note.2</i>				1.302		3+4	1.302				

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	All position	0.273	0.091	0.196	0.235	0.364	0.469	0.514	0.710
Body-Worn (1-g SAR)	All position	0.694	0.357	0.575	0.139	1.051	1.269	0.836	1.411
Hotspot (1-g SAR)	Rear	0.748	0.600	1.008	0.294	1.348	1.756	1.050	2.050
	Front	0.285	0.600	1.008	0.070	0.885	1.293	0.357	1.363
	Top		0.600	0.486	0.038	0.600	0.486	0.039	0.524
	Left	0.091	0.272	1.008	0.135	0.363	1.099	0.229	1.234
	Bottom	0.856				0.856	0.856	0.856	0.856
	Right	0.090				0.090	0.090	0.090	0.090
Product Specific 10-g (10-g SAR)	Rear			1.376			1.376		1.376
	Front			1.376			1.376		1.376
	Top			1.107			1.107		1.107
	Left			1.376			1.376		1.376
	Bottom	2.875				2.875	2.875	2.875	2.875
	Right								

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (≤ 0.04) or 10-g SPLSR (≤ 0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.748		1.008		1+3	1.756	154.9	0.02	No	5

Sum-Peak Location Separation Ratio

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (≤0.04) or 10-g SPSLR (≤0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.748		1.008	0.294	1+3+4	2.050				6
		0.748		1.302		1+3+4	2.050	151.3	0.02	No	
Sum-Peak Location Separation Ratio <i>Note.2</i>				1.302		3+4	1.302				

Note(s):

- Green values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.
- According to 2022 Apr TCBC Workshop, SPLSR (Sum-Peak Location Separation Ratio) can algebraically sum the SAR values of the co-located pair and use that value in SPLSR calculation. Use the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	All position	0.349	0.091	0.196	0.235	0.440	0.545	0.590	0.786
Body-Worn (1-g SAR)	All position	0.382	0.357	0.575	0.139	0.739	0.957	0.524	1.099
Hotspot (1-g SAR)	Rear	0.692	0.600	1.008	0.294	1.292	1.700	0.994	1.994
	Front	0.340	0.600	1.008	0.070	0.940	1.348	0.412	1.418
	Top		0.600	0.486	0.038	0.600	0.486	0.039	0.524
	Left	0.252	0.272	1.008	0.135	0.524	1.260	0.390	1.395
	Bottom	0.418				0.418	0.418	0.418	0.418
	Right	0.390				0.390	0.390	0.390	0.390
Product Specific 10-g (10-g SAR)	Rear			1.376			1.376		1.376
	Front			1.376			1.376		1.376
	Top			1.107			1.107		1.107
	Left			1.376			1.376		1.376
	Bottom								
	Right								

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (≤ 0.04) or 10-g SPLSR (≤ 0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.692		1.008		1+3	1.700	165.3	0.01	No	7

Sum-Peak Location Separation Ratio

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (= <0.04) or 10-g SPSLR (= <0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.692		1.008	0.294	1+3+4	1.994				8
		0.692		1.302		1+3+4	1.994	162.4	0.02	No	
Sum-Peak Location Separation Ratio <i>Note.2</i>				1.302		3+4	1.302				

Note(s):

- Green values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.
- According to 2022 Apr TCBC Workshop, SPLSR (Sum-Peak Location Separation Ratio) can algebraically sum the SAR values of the co-located pair and use that value in SPLSR calculation. Use the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.

12.7. Sum of the SAR for LTE Band 2 & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	All position	0.223	0.091	0.196	0.235	0.314	0.419	0.464	0.660
Body-Worn (1-g SAR)	All position	0.451	0.357	0.575	0.139	0.808	1.026	0.593	1.168
Hotspot (1-g SAR)	Rear	0.564	0.600	1.008	0.294	1.164	1.572	0.866	1.866
	Front	0.222	0.600	1.008	0.070	0.822	1.230	0.294	1.300
	Top		0.600	0.486	0.038	0.600	0.486	0.039	0.524
	Left	0.178	0.272	1.008	0.135	0.450	1.186	0.316	1.321
	Bottom	0.682				0.682	0.682	0.682	0.682
	Right	0.176				0.176	0.176	0.176	0.176
Product Specific 10-g (10-g SAR)	Rear			1.376			1.376		1.376
	Front			1.376			1.376		1.376
	Top			1.107			1.107		1.107
	Left			1.376			1.376		1.376
	Bottom								
	Right								

Sum-Peak Location Separation Ratio

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (= <0.04) or 10-g SPSLR (= <0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.564		1.008	0.294	1+3+4	1.866				9
		0.564		1.302		1+3+4	1.866	152.3	0.02	No	
Sum-Peak Location Separation Ratio Note.2				1.302		3+4	1.302				

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	All position	0.260	0.091	0.196	0.235	0.351	0.456	0.501	0.697
Body-Worn (1-g SAR)	All position	0.245	0.357	0.575	0.139	0.602	0.820	0.387	0.962
Hotspot (1-g SAR)	Rear	0.335	0.600	1.008	0.294	0.935	1.343	0.637	1.637
	Front	0.168	0.600	1.008	0.070	0.768	1.176	0.240	1.246
	Top		0.600	0.486	0.038	0.600	0.486	0.039	0.524
	Left	0.162	0.272	1.008	0.135	0.434	1.170	0.300	1.305
	Bottom	0.251				0.251	0.251	0.251	0.251
	Right	0.208				0.208	0.208	0.208	0.208
Product Specific 10-g (10-g SAR)	Rear			1.376			1.376		1.376
	Front			1.376			1.376		1.376
	Top			1.107			1.107		1.107
	Left			1.376			1.376		1.376
	Bottom								
	Right								

Note(s):

- Green values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.
- According to 2022 Apr TCBC Workshop, SPLSR (Sum-Peak Location Separation Ratio) can algebraically sum the SAR values of the co-located pair and use that value in SPLSR calculation. Use the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.

Sum-Peak Location Separation Ratio

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (=0.04) or 10-g SP SLR (=0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.335		1.008	0.294	1+3+4	1.637				10
		0.335		1.302		1+3+4	1.637	155.8	0.01	No	
Sum-Peak Location Separation Ratio <i>Note.2</i>				1.302		3+4	1.302				

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	All position	0.273	0.091	0.196	0.235	0.364	0.469	0.514	0.710
Body-Worn (1-g SAR)	All position	0.389	0.357	0.575	0.139	0.746	0.964	0.531	1.106
Hotspot (1-g SAR)	Rear	0.461	0.600	1.008	0.294	1.061	1.469	0.763	1.763
	Front	0.297	0.600	1.008	0.070	0.897	1.305	0.369	1.375
	Top		0.600	0.486	0.038	0.600	0.486	0.039	0.524
	Left	0.325	0.272	1.008	0.135	0.597	1.333	0.463	1.468
	Bottom	0.276				0.276	0.276	0.276	0.276
	Right	0.407				0.407	0.407	0.407	0.407
Product Specific 10-g (10-g SAR)	Rear			1.376			1.376		1.376
	Front			1.376			1.376		1.376
	Top			1.107			1.107		1.107
	Left			1.376			1.376		1.376
	Bottom								
	Right								

Sum-Peak Location Separation Ratio

Sum-Peak Location Separation Ratio											
RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (= <0.04) or 10-g SPSLR (= <0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.461		1.008	0.294	1+3+4	1.763				11
		0.461		1.302		1+3+4	1.763	70.2	0.03	No	
Sum-Peak Location Separation Ratio <i>Note.2</i>				1.302		3+4	1.302				

Note(s):

- Green values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.
- According to 2022 Apr TCBC Workshop, SPLSR (Sum-Peak Location Separation Ratio) can algebraically sum the SAR values of the co-located pair and use that value in SPLSR calculation. Use the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	All position	0.419	0.091	0.196	0.235	0.510	0.615	0.660	0.856
Body-Worn (1-g SAR)	All position	0.442	0.357	0.575	0.139	0.799	1.017	0.584	1.159
Hotspot (1-g SAR)	Rear	0.717	0.600	1.008	0.294	1.317	1.725	1.019	2.019
	Front	0.363	0.600	1.008	0.070	0.963	1.371	0.435	1.441
	Top		0.600	0.486	0.038	0.600	0.486	0.039	0.524
	Left	0.349	0.272	1.008	0.135	0.621	1.357	0.487	1.492
	Bottom	0.527				0.527	0.527	0.527	0.527
	Right	0.490				0.490	0.490	0.490	0.490
Product Specific 10-g (10-g SAR)	Rear			1.376			1.376		1.376
	Front			1.376			1.376		1.376
	Top			1.107			1.107		1.107
	Left			1.376			1.376		1.376
	Bottom								
	Right								

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (≤ 0.04) or 10-g SPLSR (≤ 0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.717		1.008		1+3	1.725	152.9	0.01	No	12

Sum-Peak Location Separation Ratio

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (=<0.04) or 10-g SPSLR (=<0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.717		1.008	0.294	1+3+4	2.019				13
		0.717		1.302		1+3+4	2.019	149.0	0.02	No	
Sum-Peak Location Separation Ratio <i>Note.2</i>				1.302		3+4	1.302				

Note(s):

- Green values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.
- According to 2022 Apr TCBC Workshop, SPLSR (Sum-Peak Location Separation Ratio) can algebraically sum the SAR values of the co-located pair and use that value in SPLSR calculation. Use the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.

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

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	All position	0.294	0.091	0.196	0.235	0.385	0.490	0.535	0.731
Body-Worn (1-g SAR)	All position	0.307	0.357	0.575	0.139	0.664	0.882	0.449	1.024
Hotspot (1-g SAR)	Rear	0.449	0.600	1.008	0.294	1.049	1.457	0.751	1.751
	Front	0.204	0.600	1.008	0.070	0.804	1.212	0.276	1.282
	Top		0.600	0.486	0.038	0.600	0.486	0.039	0.524
	Left	0.096	0.272	1.008	0.135	0.368	1.104	0.234	1.239
	Bottom	0.499				0.499	0.499	0.499	0.499
	Right	0.088				0.088	0.088	0.088	0.088
Product Specific 10-g (10-g SAR)	Rear			1.376			1.376		1.376
	Front			1.376			1.376		1.376
	Top			1.107			1.107		1.107
	Left			1.376			1.376		1.376
	Bottom								
	Right								

Sum-Peak Location Separation Ratio

Sum-Peak Location Separation Ratio											
RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (≤0.04) or 10-g SPLSR (≤0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.449		1.008	0.294	1+3+4	1.751				14
		0.449		1.302		1+3+4	1.751	138.6	0.02	No	
Sum-Peak Location Separation Ratio <i>Note.2</i>				1.302		3+4	1.302				

12.12. Sum of the SAR for LTE Band 66 & Wi-Fi & BT

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg)			
		WWAN	DTS	UNII	BT	WWAN + DTS	WWAN + UNII	WWAN + BT	WWAN + UNII + BT
		1	2	3	4	1+2	1+3	1+4	1+3+4
Head (1-g SAR)	All position	0.378	0.091	0.196	0.235	0.469	0.574	0.619	0.815
Body-Worn (1-g SAR)	All position	0.813	0.357	0.575	0.139	1.170	1.388	0.955	1.530
Hotspot (1-g SAR)	Rear	0.811	0.600	1.008	0.294	1.411	1.819	1.113	2.113
	Front	0.338	0.600	1.008	0.070	0.938	1.346	0.410	1.416
	Top		0.600	0.486	0.038	0.600	0.486	0.039	0.524
	Left	0.223	0.272	1.008	0.135	0.495	1.231	0.361	1.366
	Bottom	0.843				0.843	0.843	0.843	0.843
	Right	0.087				0.087	0.087	0.087	0.087
Product Specific 10-g (10-g SAR)	Rear	1.680		1.376		1.680	3.056	1.680	3.056
	Front			1.376			1.376		1.376
	Top			1.107			1.107		1.107
	Left			1.376			1.376		1.376
	Bottom	1.394				1.394	1.394	1.394	1.394
	Right								

Note(s):

- Green values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.
- According to 2022 Apr TCBC Workshop, SPLSR (Sum-Peak Location Separation Ratio) can algebraically sum the SAR values of the co-located pair and use that value in SPLSR calculation. Use the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.

SAR to Peak Location Separation Ratio (SPLSR)

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (=<0.04) or 10-g SPSLR (=<0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.811		1.008		1+3	1.819	154.6	0.02	No	15

Sum-Peak Location Separation Ratio

RF Exposure	Test Position	Standalone SAR (W/kg)				Sum of SAR (W/kg) (1-g or 10-g)		Calculated Distance (mm)	1-g SPLSR (=<0.04) or 10-g SPSLR (=<0.10)	Volume Scan (Yes/No)	Figure
		WWAN	DTS	UNII	BT						
		1	2	3	4						
Hotspot (1-g SAR)	Rear	0.811		1.008	0.294	1+3+4	2.113				16
		0.811		1.302		1+3+4	2.113	151.7	0.02	No	
Sum-Peak Location Separation Ratio <i>Note.2</i>				1.302		3+4	1.302				

Note(s):

- According to 2022 Apr TCBC Workshop, SPLSR (Sum-Peak Location Separation Ratio) can algebraically sum the SAR values of the co-located pair and use that value in SPLSR calculation. Use the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.

Conclusion:

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

Figure (1)

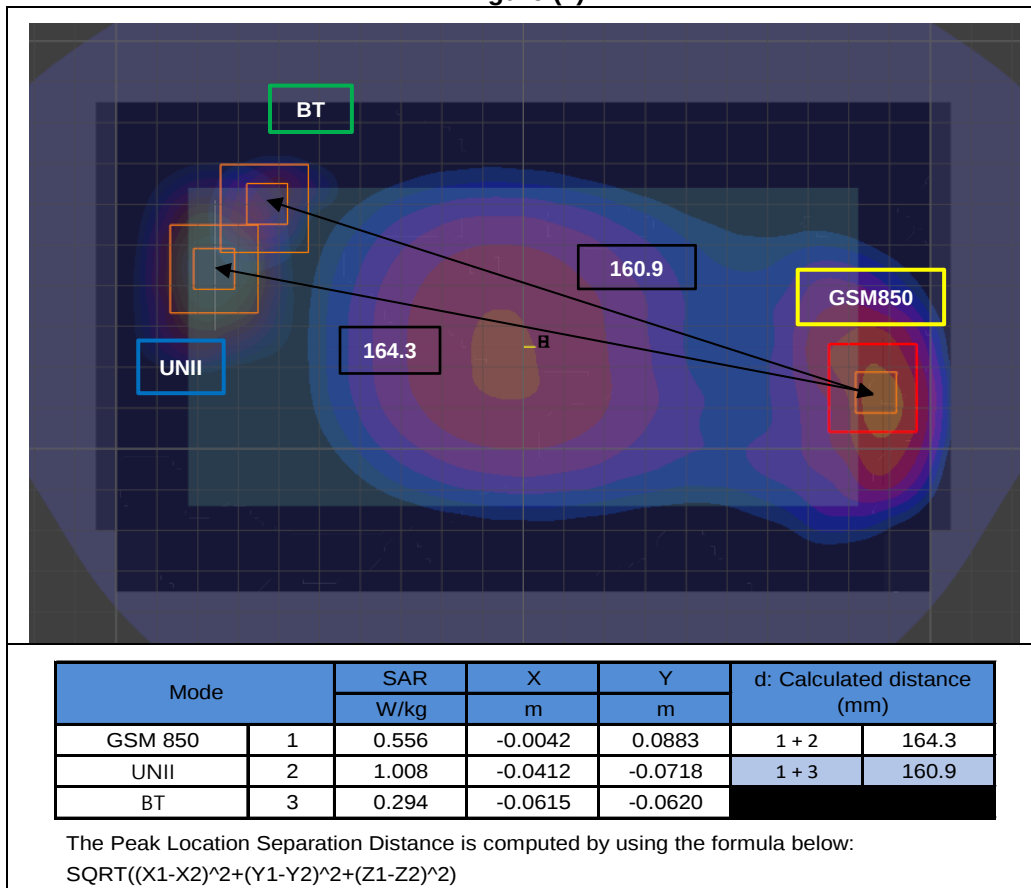


Figure (2)

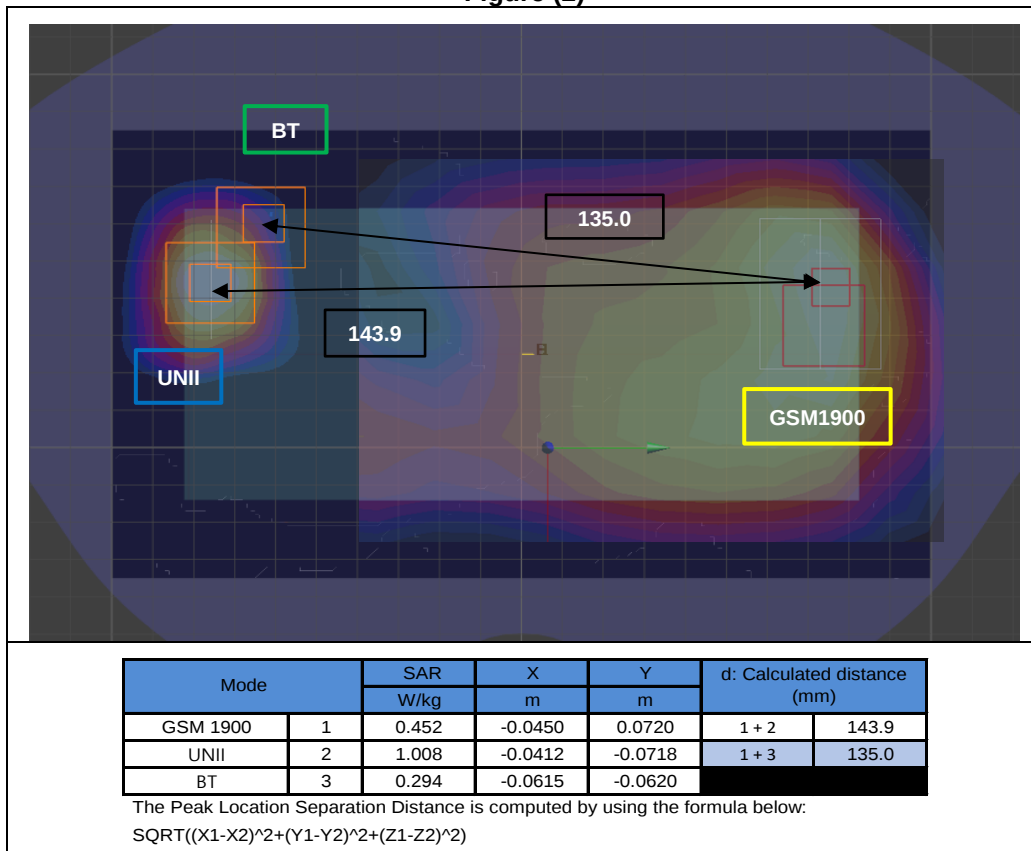


Figure (3)

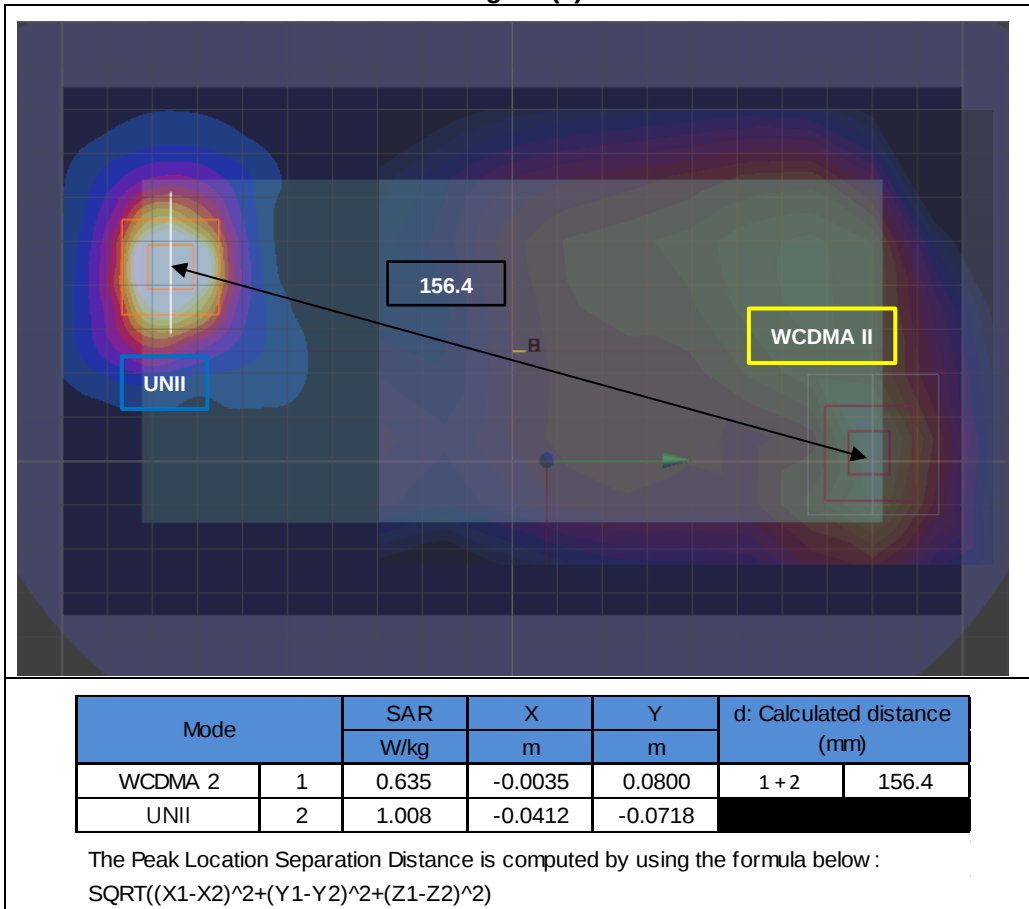


Figure (4)

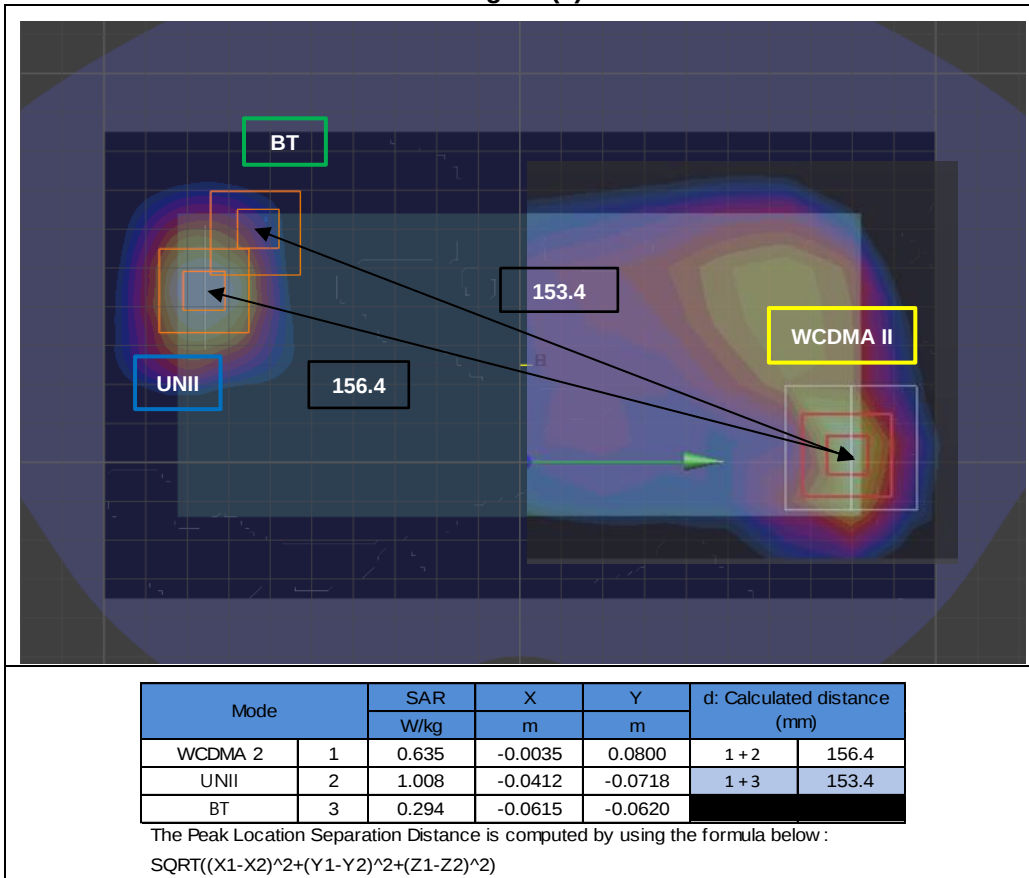


Figure (5)

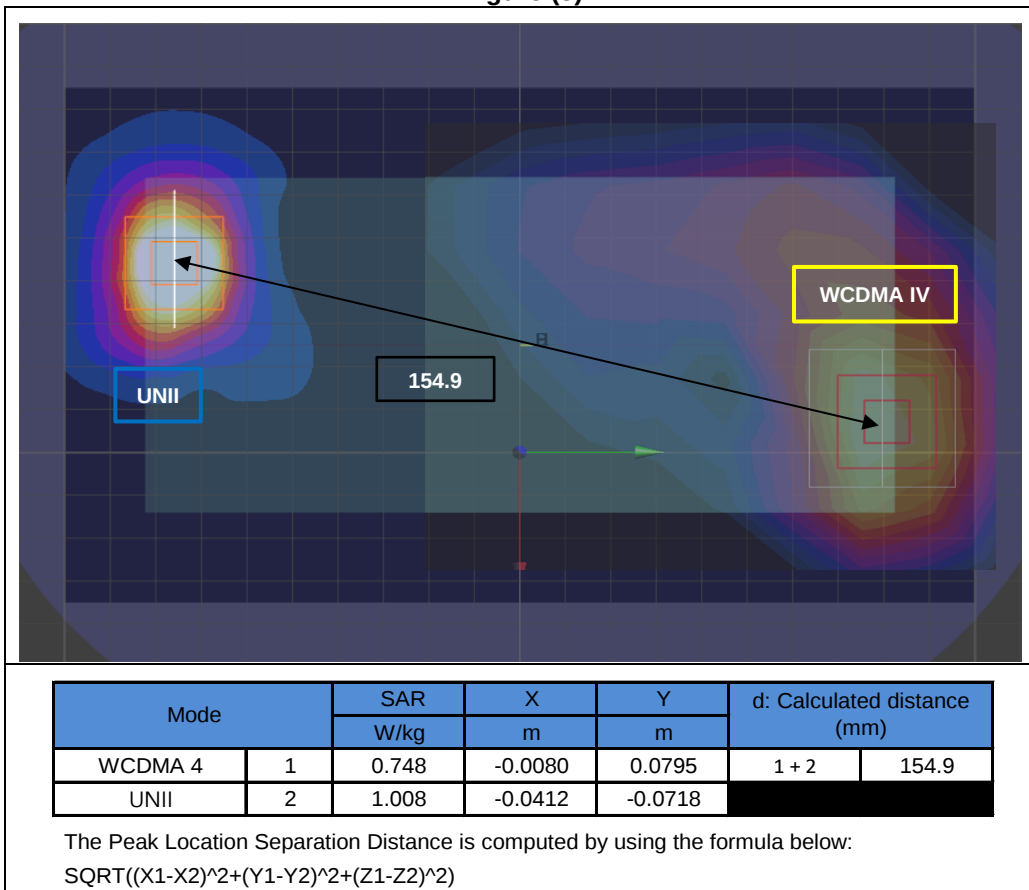


Figure (6)

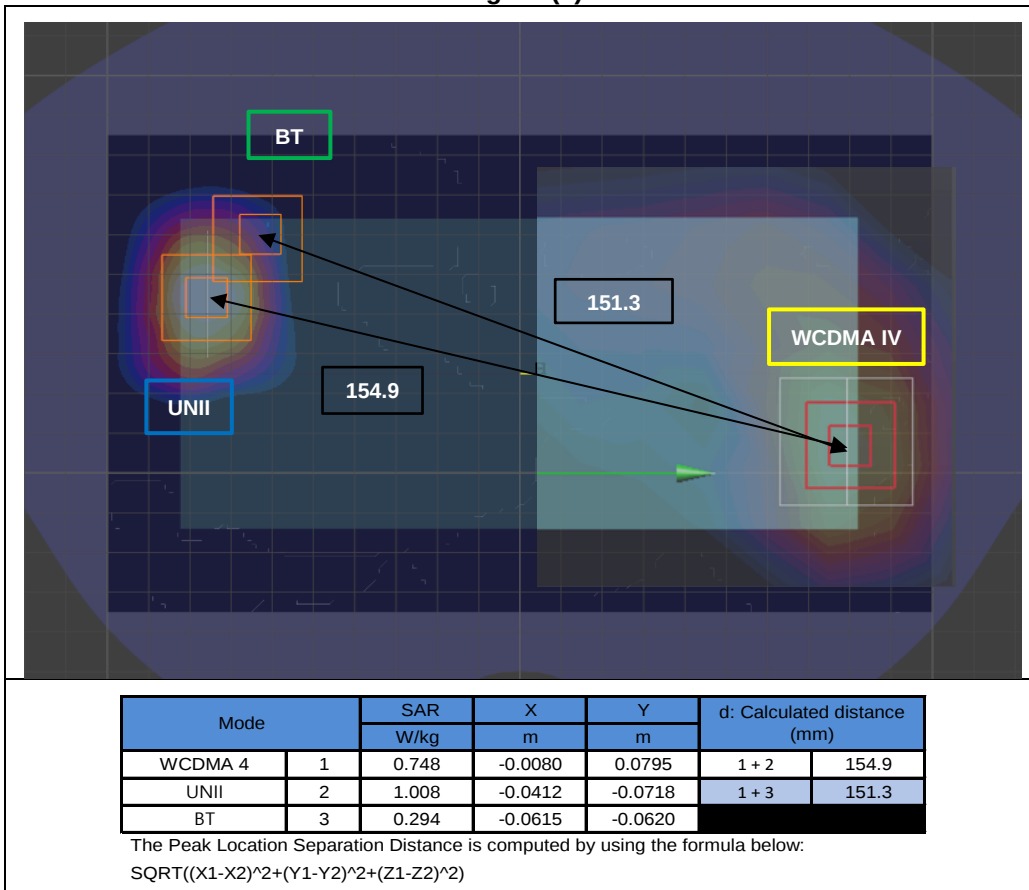


Figure (7)

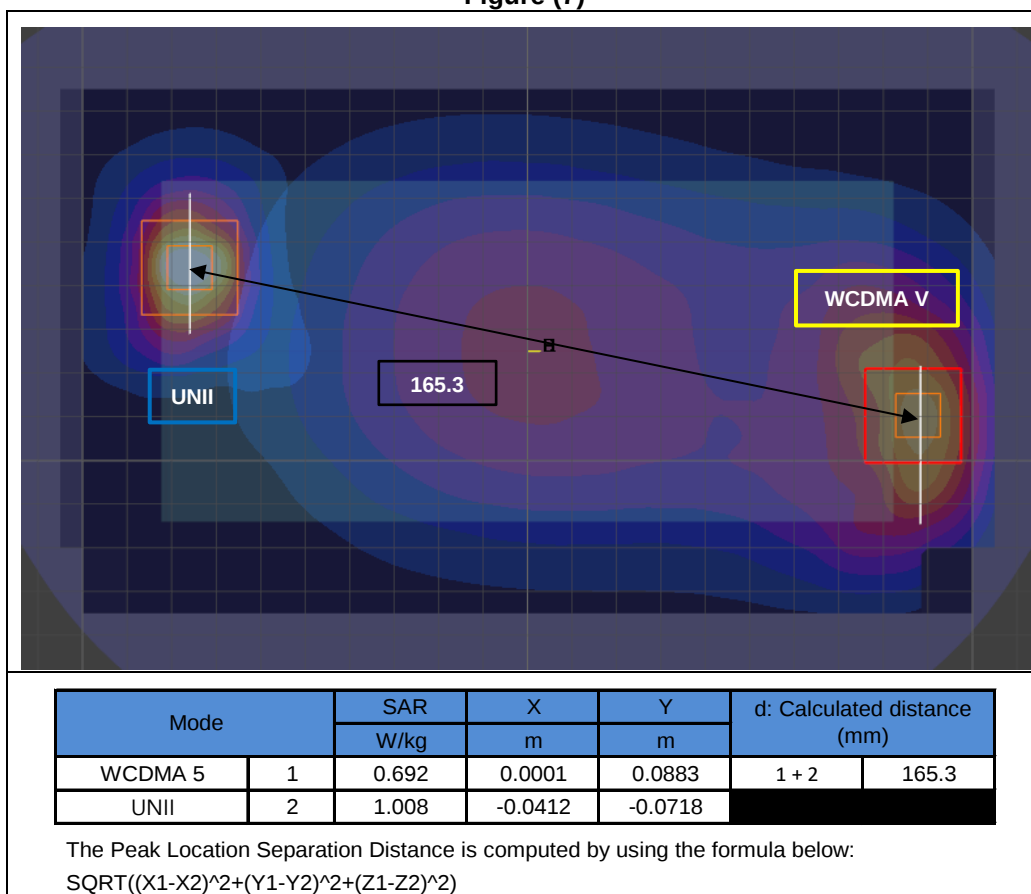


Figure (8)

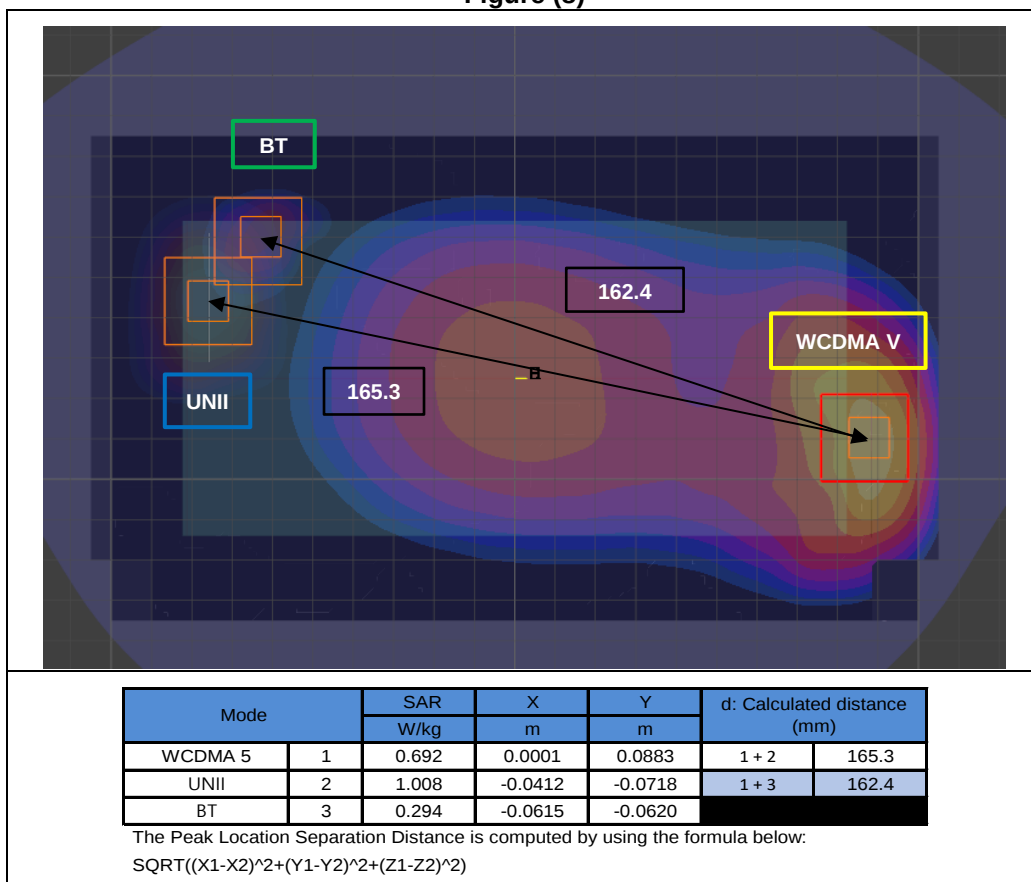
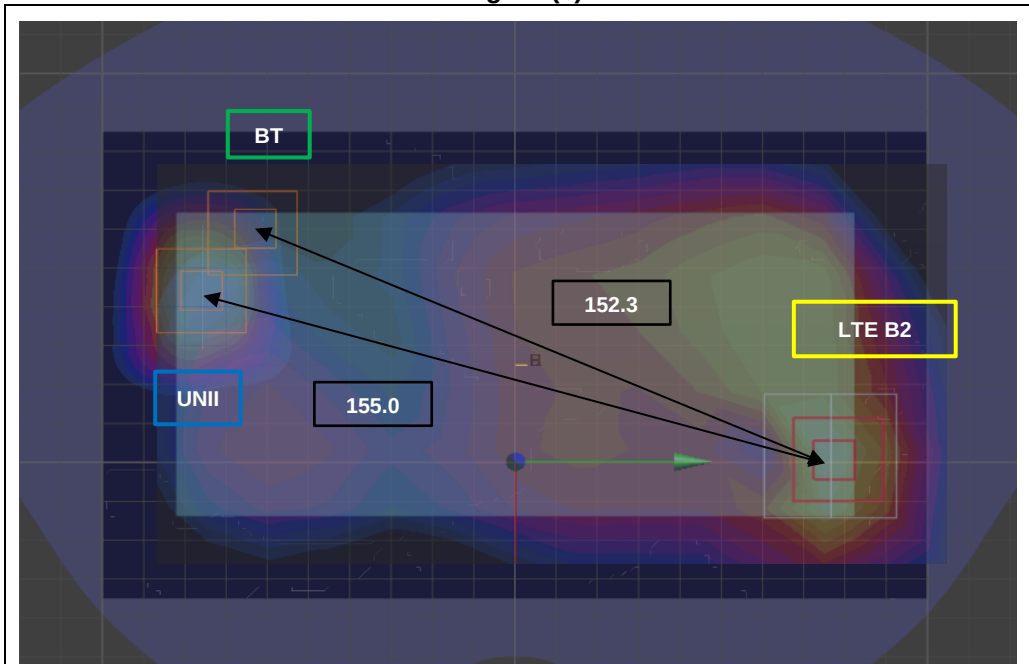


Figure (9)

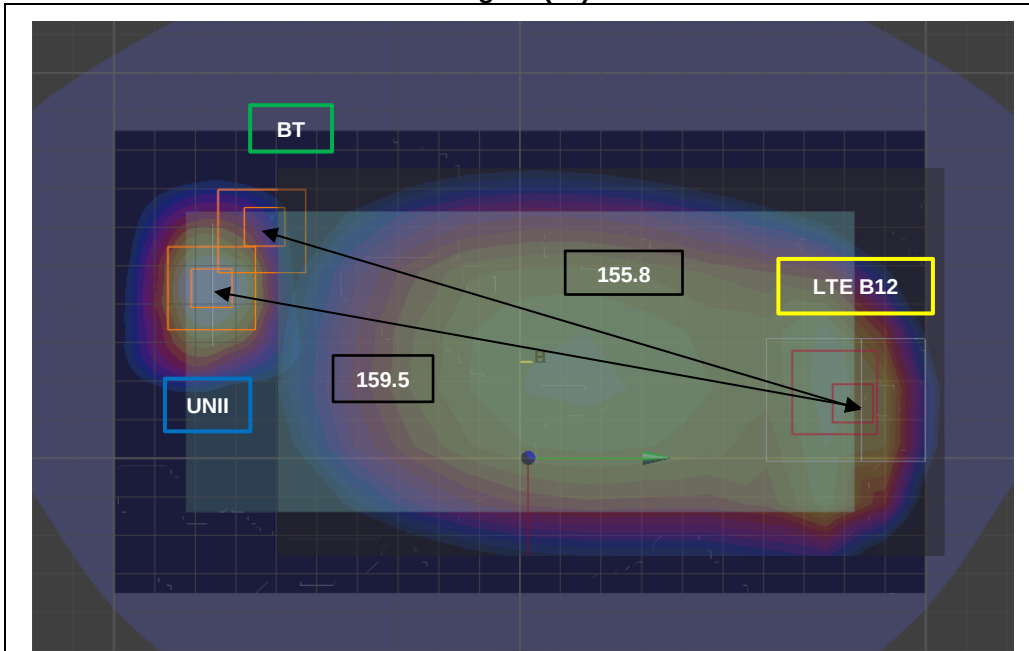


Mode		SAR W/kg	X m	Y m	d: Calculated distance (mm)	
LTE B2	1	0.564	-0.0015	0.0780	1 + 2	155.0
UNII	2	1.008	-0.0412	-0.0718	1 + 3	152.3
BT	3	0.294	-0.0615	-0.0620		

The Peak Location Separation Distance is computed by using the formula below:

$$\text{SQRT}((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)$$

Figure (10)

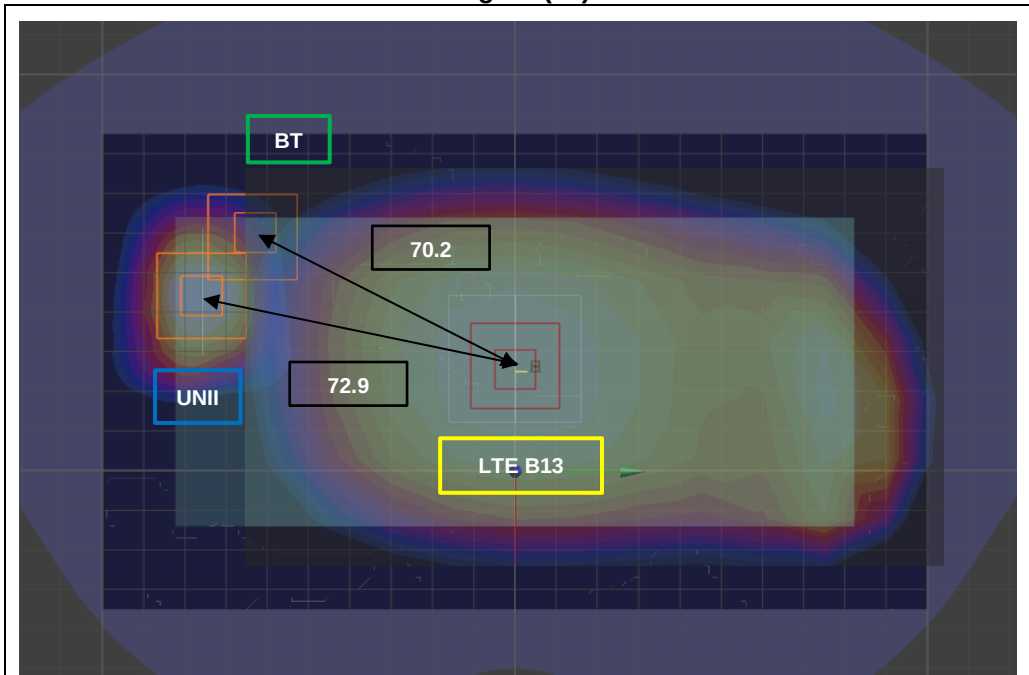


Mode		SAR W/kg	X m	Y m	d: Calculated distance (mm)	
LTE B12	1	0.335	-0.0070	0.0840	1 + 2	159.5
UNII	2	1.008	-0.0412	-0.0718	1 + 3	155.8
BT	3	0.294	-0.0615	-0.0620		

The Peak Location Separation Distance is computed by using the formula below:

$$\text{SQRT}((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)$$

Figure (11)

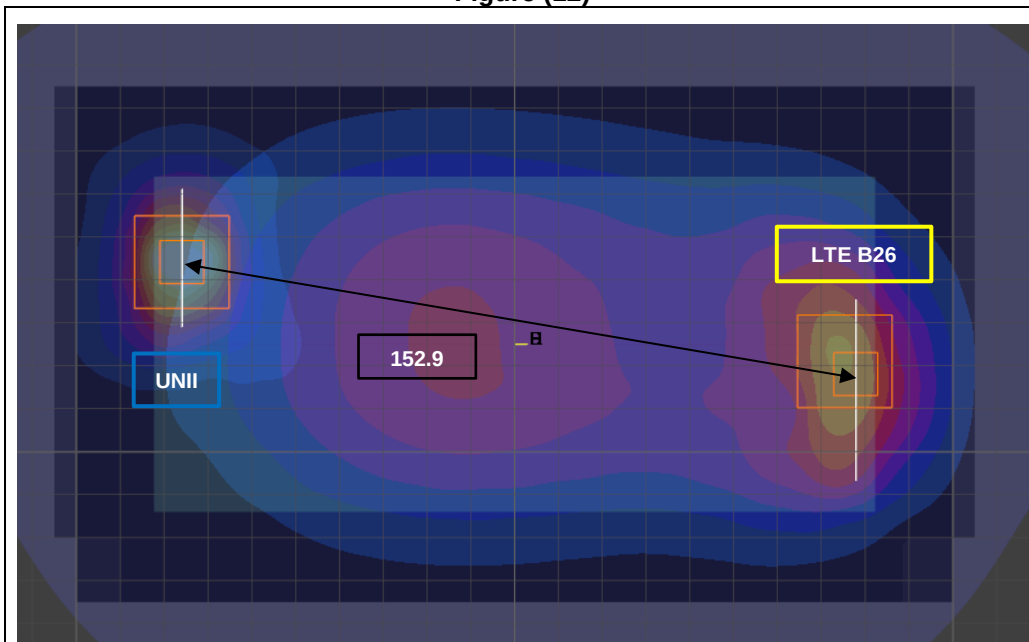


Mode		SAR W/kg	X m	Y m	d: Calculated distance (mm)	
LTE B13	1	0.461	-0.0285	0.0000	1 + 2	72.9
UNII	2	1.008	-0.0412	-0.0718	1 + 3	70.2
BT	3	0.294	-0.0615	-0.0620		

The Peak Location Separation Distance is computed by using the formula below:

$$\text{SQRT}((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)$$

Figure (12)



Mode		SAR W/kg	X m	Y m	d: Calculated distance (mm)	
LTE B26	1	0.717	-0.0103	0.0779	1 + 2	152.9
UNII	2	1.008	-0.0412	-0.0718		

The Peak Location Separation Distance is computed by using the formula below:

$$\text{SQRT}((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)$$

Figure (13)

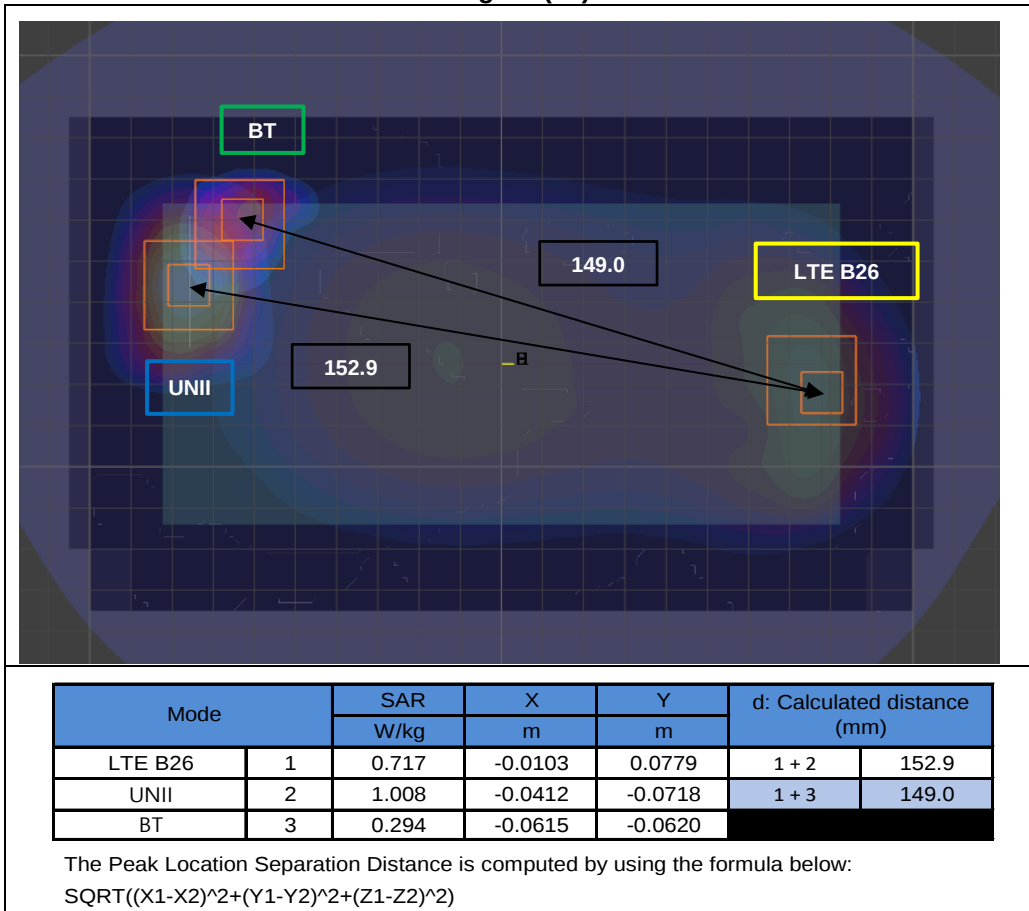


Figure (14)

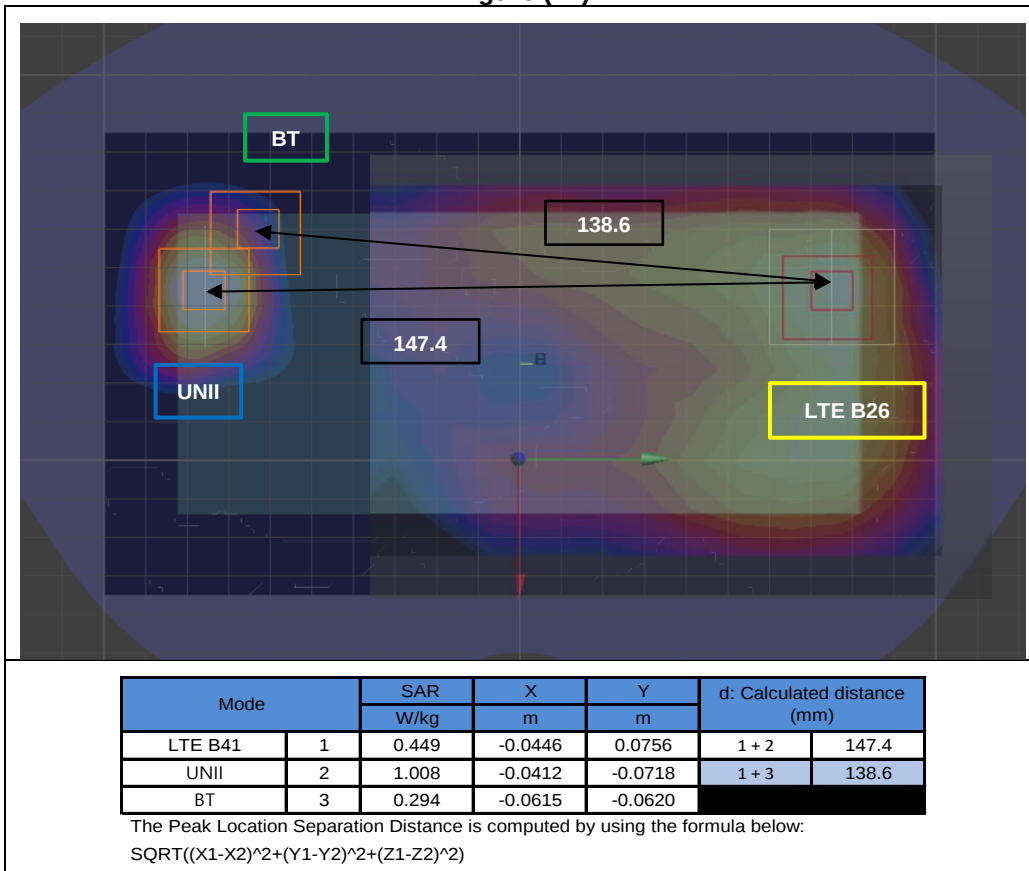


Figure (15)

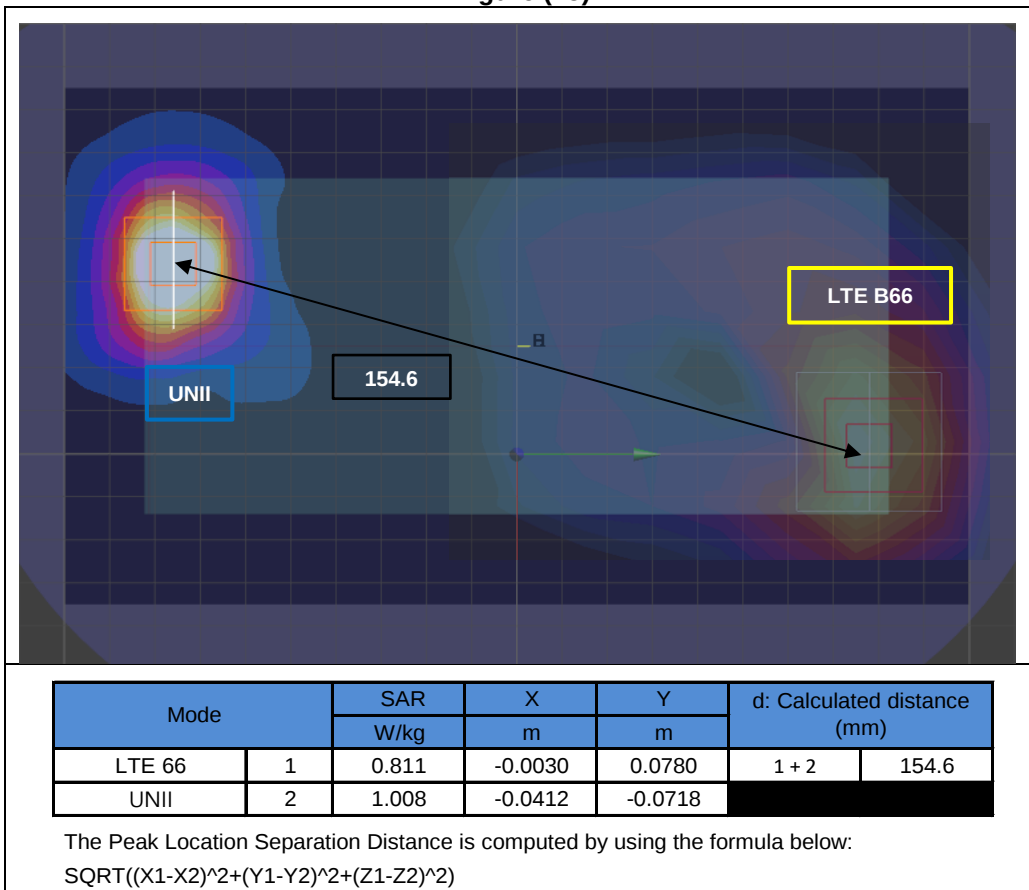
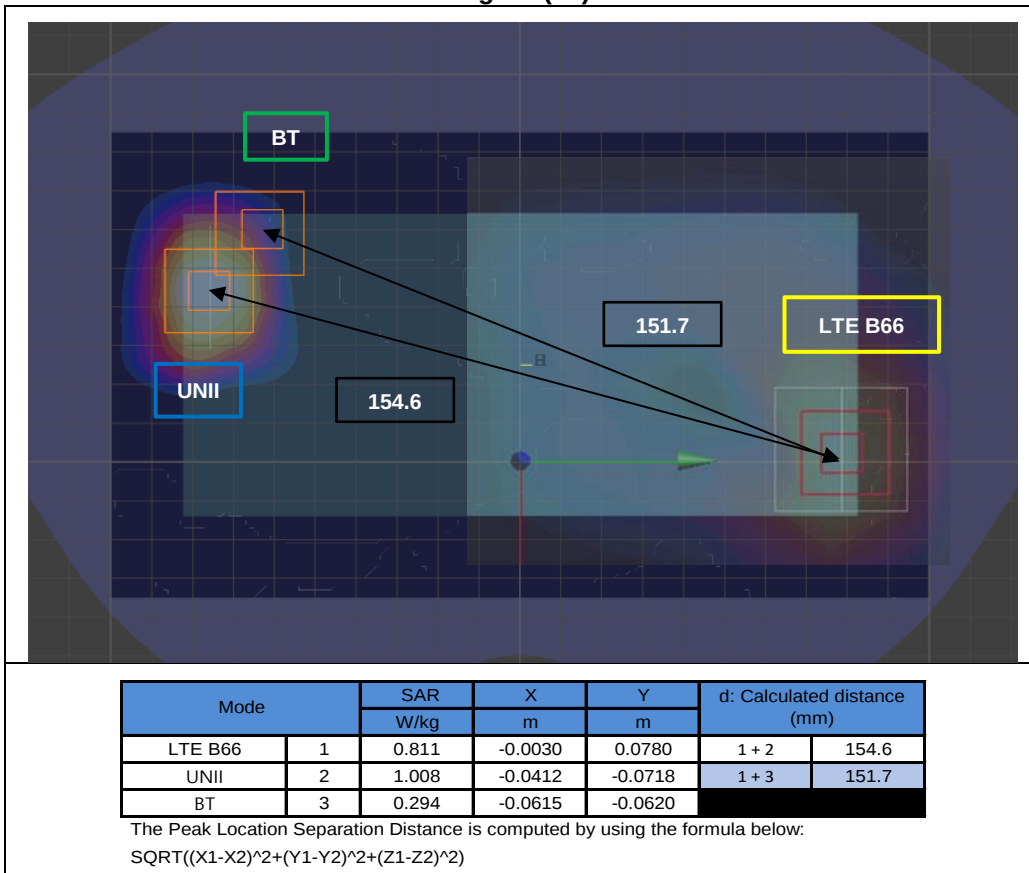


Figure (16)



Appendixes

Refer to separated files for the following appendixes.

S-4791427005-S1 FCC Report SAR_App A_Photos & Ant. Locations

S-4791427005-S1 FCC Report SAR_App B_Highest SAR Test Plots

S-4791427005-S1 FCC Report SAR_App C_System Check Plots

S-4791427005-S1 FCC Report SAR_App D_SAR Tissue Ingredients

S-4791427005-S1 FCC Report SAR_App E_Probe Cal. Certificates

S-4791427005-S1 FCC Report SAR_App F_Dipole Cal. Certificates

S-4791427005-S1 FCC Report SAR_App G_Proximity Sensor feature

END OF REPORT