Prüfbericht-Nr.: *Test report no.:*	**CN22BZAU 001**	**Auftrags-Nr.:** *Order no.*:	168395172	Seite 1 von 66 *Page 1 of* 66
Kunden-Referenz-Nr.: *Client reference no.:*	N/A	**Auftragsdatum:** *Order date:*	2022-10-19	
Auftraggeber: *Client:*	**Realme Chongqing Mobile Telecommunications Corp., Ltd.** No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing,China.			
Prüfgegenstand: *Test item:*	Mobile Phone			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	RMX3686 (Trademark: realme)			
Auftrags-Inhalt: *Order content*:	FCC approval			
Prüfgrundlage: *Test specification:*	FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures			

Wareneingangsdatum: *Date of sample receipt:*	2022-10-19	Please refer to Photo Document
Prüfmuster-Nr.: *Test sample no:*	A003358046-001 A003358046-002	
Prüfzeitraum: *Testing period:*	2022-10-21 –2022-10-25	
Ort der Prüfung: *Place of testing:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüfergebnis*: *Test result*:*	Pass	

geprüft von: *tested by:*	X Chris Chen Signed by: Chris Chen	**genehmigt von:** *authorized by:*	X Signed by: Andy Yan
Datum: *Date:* 2022-10-28		**Ausstellungsdatum:** *Issue date:* 2022-10-28	
Stellung */ Position:*	Section Manager	**Stellung** */ Position:*	Technical Certifier

Sonstiges */ Other:*	FCC ID: 2AUYFRMX3686 WWAN SAR result refer the "BTL-FCC SAR-1-2208G029".

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery:*	Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged*

* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut	3 = befriedigend F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	4 = ausreichend N/A = nicht anwendbar	5 = mangelhaft N/T = nicht getestet
** Legend:*	*1 = very good* *P(ass) = passed a.m. test specification(s)*	*2 = good*	*3 = satisfactory* *F(ail) = failed a.m. test specification(s)*	*4 = sufficient* *N/A = not applicable*	*5 = poor* *N/T = not tested*

Table of Contents

1. General Information

1.1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for the EUT are as follows:

Mode	Antenna	Highest Reported Head SAR_{1g} (W/kg)	Highest Reported Body-worn SAR_{1g} (1.5 cm Gap) (W/kg)	Highest Reported Hotspot SAR_{1g} (1.0 cm Gap) (W/kg)	Highest Reported Extremity SAR_{10g} (0 cm Gap) (W/kg)
2.4G WLAN	8	0.789	0.107	0.232	/
	2	0.069	0.009	0.042	/
5.2G WLAN	7	0.507	0.157	0.487	/
	9	0.146	0.088	0.227	/
5.3G WLAN	7	0.420	0.188	/	1.345
	9	0.203	0.120	/	0.870
5.6G WLAN	7	0.414	0.191	/	1.303
	9	0.483	0.161	/	0.476
5.8G WLAN	7	0.877	0.236	0.531	/
	9	0.441	0.084	0.235	/
Bluetooth	8	0.111	0.064	/	0.119

Note:

1. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6W/kg as averaged over any 1 gram of tissue; 10-gram SAR for Product Specific 10g SAR, limit: 4.0W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.
2. WWAN+WiFi Simultaneous SAR result refer the "BTL-FCC SAR-1-2208G029".

1.2. Equipment Under Test (EUT) Information

1.2.1. General Information

Equipment Name	Mobile Phone
FCC ID	2AUYFRMX3686
Brand Name	realme
Model Name	RMX3686
IMEI Code	863756060019836 / 863756060019828
Antenna Type	IFA Antenna
EUT Stage	Production Unit

1.2.2. Wireless Technologies

Operating mode(s):	GSM850/1900, WCDMA Band 2/Band 4/Band 5, LTE Band 2/4/5/7/12/13/17/26/38/41/66 5G NR n5/n7/n38/n41/n66, 5G NSA n5+B7/ n5+B66/ n7+B5/ n7+B66/ n41+B26/ n66+B5/ n66+B7/ n66+B12 Wi-Fi 6 (2.4G/5G), BT, NFC.
Tested Tx Frequency:	824 – 849 MHz (GSM 850)
	1850 – 1910 MHz (GSM 1900)
	1850–1910 MHz (WCDMA1900 Band II)
	1710 – 1755 MHz (WCDMA 1700 Band IV)
	824 – 849 MHz (WCDMA 850 Band V)
	1850 – 1910 MHz (LTE Band 2)
	1710 – 1755 MHz (LTE Band 4)
	824 – 849 MHz (LTE Band 5)
	2500 – 2570 MHz (LTE Band 7)
	699 – 716 MHz (LTE Band 12)
	777 - 787 MHz (LTE Band 13)
	704 –716 MHz (LTE Band 17)
	814 – 849 MHz (LTE Band 26)
	2570 – 2620 MHz (LTE Band 38)
	2496 – 2690 MHz (LTE Band 41)
	1710 – 1780 MHz (LTE Band 66)
	824 - 849 MHz (NR n5)
	2500 – 2570 MHz (NR n7)
	2570 – 2620 MHz (NR n38)
	2496 – 2690 MHz (NR n41)
	1710 - 1780 MHz (NR n66)
	2402 – 2480 MHz (Bluetooth)
	2412 – 2462 MHz (Wi-Fi 2.4G)
	5150-5825 MHz (Wi-Fi 5G)
	13.56 MHz (NFC)
GPRS/EGPRS Multislot Class:	12
GPRS capability Class:	8
Hotspot mode:	Support

Note:

1. The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.
2. This device does not support DTM operation and supports GRPS/EGRPS mode up to multi-slot class 12.
3. WLAN transmit with WWAN simultaneously, WLAN and WWAN will invoke reduced power level.

2. Test Sites

2.1. Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No. 362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China

A2LA Cert. No.: 5162.01

FCC Registration No.: 694916

IC Registration No.: 25069

2.2. Testing Environment

Temperature:	18°C - 25°C
Relative Humidity:	30% - 70%
Ground system:	< 0.5 Ω
Ambient noise & Reflection:	< 0.012 W/kg

2.3. List of Test and Measurement Instruments

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D2450V2	1014	May. 19, 2021	3 years
System Validation Dipole	SPEAG	D5GHzV2	1280	May. 17, 2021	3 years
Dosimetric E-Field Probe	SPEAG	EX3DV4	7506	May. 31, 2022	1 year
Data Acquisition Electronics	SPEAG	DAE4	1557	Jan. 20, 2022	1 year
Signal Analyzer	R&S	FSV 7	103665	Aug. 09, 2022	1 year
Vector Network Analyzer	R&S	ZNB 8	107040	Aug. 09, 2022	1 year
Dielectric assessment Kit	SPEAG	DAK-3.5	1269	May. 30, 2022	1 year
Signal Generator	R&S	SMB 100A	180840	Aug. 09, 2022	1 year
EPM Series Power Meter	Keysight	N1914A	MY58240005	Dec. 02, 2021	2 years
Power Sensor	Keysight	N8481H	MY58250002	Dec. 02, 2021	1 year
Power Sensor	Keysight	N8481H	MY58250006	Dec. 02, 2021	1 year
DC Power Supply	Topward	3303D	809332	Dec. 02, 2021	1 year
Coaxial Directional Couper	Keysight	773D	MY52180552	Dec. 02, 2021	1 year
Coaxial Directional Couper	shhuaxiang	DTO-0.4/3.9-10	18052101	Dec. 02, 2021	1 year
Coaxial attenuator	Keysight	8491A	MY52463219	Dec. 02, 2021	1 year
Coaxial attenuator	Keysight	8491A	MY52463210	Dec. 02, 2021	1 year
Coaxial attenuator	Keysight	8491A	MY52463222	Dec. 02, 2021	1 year
Power Amplifier Mini circuit	mini-circuits	ZHL-42W	SN002101809	N/A	N/A
Power Amplifier Mini circuit	mini-circuits	ZVE-8G	SN070501814	N/A	N/A

3. Measurement Uncertainty

Source of Uncertainty	Tolerance (± %)	Probability Distribution	Divisor	Ci 1g	Ci 10g	Standard Uncertainty 1g (± %)	Standard Uncertainty 10g (± %)	Vi Veff
Measurement System								
Probe Calibration	6.65	Normal	1	1	1	6.65	6.65	∞
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	3.9	3.9	∞
Boundary Effects	1	Rectangular	√3	1	1	0.6	0.6	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.1	0.1	∞
Modulation Response	2.4	Rectangular	√3	1	1	1.4	1.4	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient – Noise	3	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient – Reflections	3	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning	2.9	Rectangular	√3	1	1	1.7	1.7	∞
Max. SAR Evaluation	2	Rectangular	√3	1	1	1.2	1.2	∞
Test Sample Related								
Device Positioning	2.2 / 2.6	Normal	1	1	1	2.2	2.6	30
Device Holder	3.3 / 3.4	Normal	1	1	1	3.3	3.4	30
Power Drift	5	Rectangular	√3	1	1	2.9	2.9	∞
Power Scaling	0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty	7.5	Rectangular	√3	1	1	4.3	4.3	∞
SAR correction	1.2 / 0.97	Rectangular	√3	1	0.84	0.7	0.5	∞
Liquid Conductivity (Meas.)	2.5	Normal	1	0.78	0.71	2.0	1.8	20
Liquid Permittivity (Meas.)	2.5	Normal	1	0.23	0.26	0.6	0.7	20
Temp. unc. - Conductivity	5.2	Rectangular	√3	0.78	0.71	2.3	2.1	∞
Temp. unc. - Permittivity	0.8	Rectangular	√3	0.23	0.26	0.1	0.1	∞
Combined Standard Uncertainty (K = 1)						11.11	11.13	
Expanded Uncertainty (K = 2)						**22.2**	**22.3**	

Uncertainty budget for frequency range 300 MHz to 3 GHz

Source of Uncertainty	Tolerance (± %)	Probability Distribution	Divisor	Ci 1g	Ci 10g	Standard Uncertainty 1g (± %)	Standard Uncertainty 10g (± %)	Vi Veff
Measurement System								
Probe Calibration	6.65	Normal	1	1	1	6.65	6.65	∞
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	3.9	3.9	∞
Boundary Effects	2	Rectangular	√3	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.1	0.1	∞
Modulation Response	2.4	Rectangular	√3	1	1	1.4	1.4	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient – Noise	3	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient – Reflections	3	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning	6.7	Rectangular	√3	1	1	3.9	3.9	∞
Max. SAR Evaluation	4	Rectangular	√3	1	1	2.3	2.3	∞
Test Sample Related								
Device Positioning	2.2 / 2.6	Normal	1	1	1	2.2	2.6	30
Device Holder	3.3 / 3.4	Normal	1	1	1	3.3	3.4	30
Power Drift	5	Rectangular	√3	1	1	2.9	2.9	∞
Power Scaling	0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty	7.9	Rectangular	√3	1	1	4.6	4.6	∞
SAR correction	1.2 / 0.97	Rectangular	√3	1	0.84	0.7	0.5	∞
Liquid Conductivity (Meas.)	2.5	Normal	1	0.78	0.71	2.0	1.8	20
Liquid Permittivity (Meas.)	2.5	Normal	1	0.23	0.26	0.6	0.7	20
Temp. unc. - Conductivity	3.4	Rectangular	√3	0.78	0.71	1.5	1.4	∞
Temp. unc. - Permittivity	0.4	Rectangular	√3	0.23	0.26	0.1	0.1	∞
Combined Standard Uncertainty (K = 1)						11.86	11.91	
Expanded Uncertainty (K = 2)						**23.7**	**23.8**	

Uncertainty budget for frequency range 3 GHz to 6 GHz

4. 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, the following FCC Published RF exposure KDB procedures & manufacturer KDB inquiries:

- KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- KDB 865664 D02 RF Exposure Reporting v01r02
- KDB 248227 D01 802 11 Wi-Fi SAR v02r02
- KDB 447498 D01 General RF Exposure Guidance v06
- KDB 648474 D04 Handset SAR v01r03
- KDB 941225 D06 Hotspot Mode v02r01

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

- TCB workshop April, 2019; Page 19, Tissue Simulating Liquids(TSL)

5. SAR Characteruzatuin

This device uses different Device State Index (SDI) to configure different time averaged power levels based on certain exposure scenarios. Depending on the detection scheme implemented in the smartphone.

DSI and Corresponding Exposure Scenarios

Scenario	Description	Exposure scenarios
DSI 1	Receiver on (Standalone)	Head
DSI 2	Receiver off (Standalone)	Body-Worn & Hotspot
DSI 3	Receiver on (WWAN+WLAN)	Head
DSI 4	Receiver off (WWAN+WLAN)	Hotspot

6. SAR Measurement System

6.1. Definition of Specific Absorption Rate (SAR)

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$\mathbf{SAR} = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\mathbf{dm}}\right) = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\boldsymbol{\rho}\mathbf{dv}}\right)$$

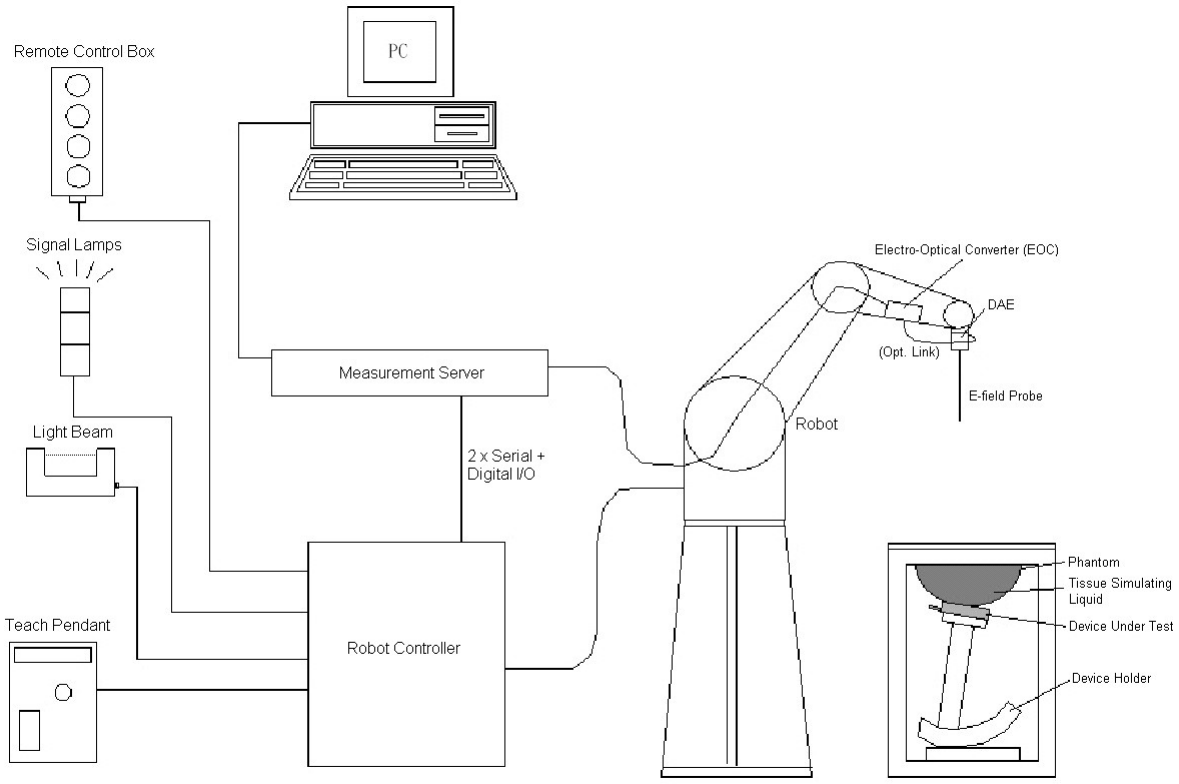
SAR is expressed in units of Watts per kilogram (W/kg)
SAR measurement can be related to the electrical field in the tissue by

$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}|\mathbf{E}|^2}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

6.2. SPEAG DASY System

DASY system consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY5 software defined. The DASY software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion form the optical into digital electric signal of the DAE and transfers data to the PC.

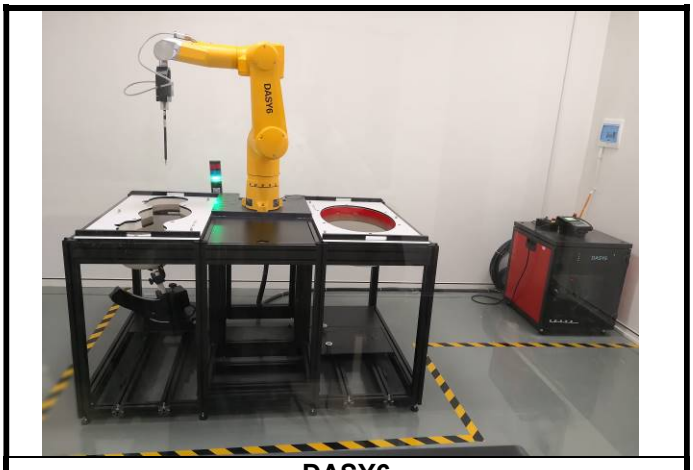


DASY System Setup

6.2.1.Robot

The DASY system uses the high precision robots from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability ±0.035 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)



DASY6

6.2.2. Probes

The SAR measurement is conducted with the dosimetric probe. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.

Model	EX3DV4
Construction	Symmetrical design with triangular core. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).
Frequency	10 MHz to 6 GHz Linearity: ± 0.2 dB
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 µW/g to 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm

6.2.3.Data Acquisition Electronics (DAE)

Model	DAE4
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV, 400mV)
Input Offset Voltage	< 5µV (with auto zero)
Input Bias Current	< 50 fA
Dimensions	60 x 60 x 68 mm

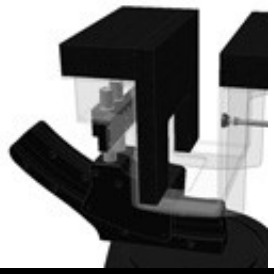
6.2.4. Phantoms

Model	Twin SAM	
Construction	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.	
Material	Vinylester, glass fiber reinforced (VE-GF)	
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)	
Dimensions	Length: 1000 mm Width: 500 mm Height: adjustable feet	
Filling Volume	approx. 25 liters	

Model	ELI	
Construction	Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.	
Material	Vinylester, glass fiber reinforced (VE-GF)	
Shell Thickness	2.0 ± 0.2 mm (bottom plate)	
Dimensions	Major axis: 600 mm Minor axis: 400 mm	
Filling Volume	approx. 30 liters	

6.2.5. Device Holder

Model	Mounting Device	
Construction	In combination with the Twin SAM Phantom or ELI4, the Mounting Device enables the rotation of the mounted transmitter device in spherical coordinates. Rotation point is the ear opening point. Transmitter devices can be easily and accurately positioned according to IEC, IEEE, FCC or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat).	
Material	POM	

Model	Laptop Extensions Kit	
Construction	Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices according to IEC 62209-2 (e.g., laptops, cameras, etc.). It is lightweight and fits easily on the upper part of the Mounting Device in place of the phone positioner.	
Material	POM, Acrylic glass, Foam	

6.2.6.System Validation Dipoles

Model	D-Serial	
Construction	Symmetrical dipole with l/4 balun. Enables measurement of feed point impedance with NWA. Matched for use near flat phantoms filled with tissue simulating solutions.	
Frequency	750 MHz to 5800 MHz	
Return Loss	> 20 dB	
Power Capability	> 100 W (f < 1GHz), > 40 W (f > 1GHz)	

6.2.7. Tissue Simulating Liquids

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed.

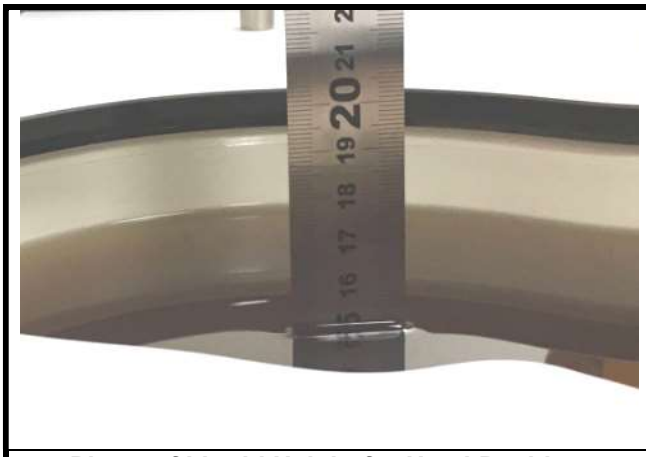
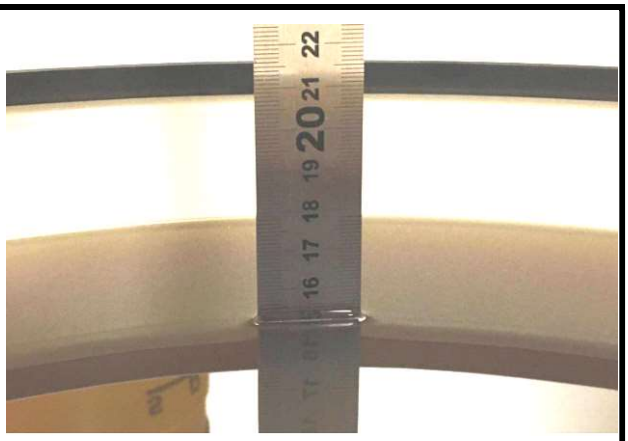
	

Photo of Liquid Height for Head Position	**Photo of Liquid Height for Body Position**

The dielectric properties of the head tissue simulating liquids are defined in IEEE 1528, and KDB 865664 D01 Appendix A. For the body tissue simulating liquids, the dielectric properties are defined in KDB 865664 D01 Appendix A. The dielectric properties of the tissue simulating liquids were verified prior to the SAR evaluation using a dielectric assessment kit and a network analyzer.

Targets of Tissue Simulating Liquid

Frequency (MHz)	Target Permittivity	Range of ±5%	Target Conductivity	Range of ±5%
For Head				
750	41.9	39.8 ~ 44.0	0.89	0.85 ~ 0.93
835	41.5	39.4 ~ 43.6	0.90	0.86 ~ 0.95
900	41.5	39.4 ~ 43.6	0.97	0.92 ~ 1.02
1450	40.5	38.5 ~ 42.5	1.20	1.14 ~ 1.26
1640	40.3	38.3 ~ 42.3	1.29	1.23 ~ 1.35
1750	40.1	38.1 ~ 42.1	1.37	1.30 ~ 1.44
1800	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
1900	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
2000	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
2300	39.5	37.5 ~ 41.5	1.67	1.59 ~ 1.75
2450	39.2	37.2 ~ 41.2	1.80	1.71 ~ 1.89
2600	39.0	37.1 ~ 41.0	1.96	1.86 ~ 2.06
3500	37.9	36.0 ~ 39.8	2.91	2.76 ~ 3.06
5200	36.0	34.2 ~ 37.8	4.66	4.43 ~ 4.89
5300	35.9	34.1 ~ 37.7	4.76	4.52 ~ 5.00
5500	35.6	33.8 ~ 37.4	4.96	4.71 ~ 5.21
5600	35.5	33.7 ~ 37.3	5.07	4.82 ~ 5.32
5800	35.3	33.5 ~ 37.1	5.27	5.01 ~ 5.53
For Body				
750	55.5	52.7 ~ 58.3	0.96	0.91 ~ 1.01
835	55.2	52.4 ~ 58.0	0.97	0.92 ~ 1.02
900	55.0	52.3 ~ 57.8	1.05	1.00 ~ 1.10
1450	54.0	51.3 ~ 56.7	1.30	1.24 ~ 1.37
1640	53.8	51.1 ~ 56.5	1.40	1.33 ~ 1.47
1750	53.4	50.7 ~ 56.1	1.49	1.42 ~ 1.56
1800	53.3	50.6 ~ 56.0	1.52	1.44 ~ 1.60
1900	53.3	50.6 ~ 56.0	1.52	1.44 ~ 1.60
2000	53.3	50.6 ~ 56.0	1.52	1.44 ~ 1.60
2300	52.9	50.3 ~ 55.5	1.81	1.72 ~ 1.90
2450	52.7	50.1 ~ 55.3	1.95	1.85 ~ 2.05
2600	52.5	49.9 ~ 55.1	2.16	2.05 ~ 2.27
3500	51.3	48.7 ~ 53.9	3.31	3.14 ~ 3.48
5200	49.0	46.6 ~ 51.5	5.30	5.04 ~ 5.57
5300	48.9	46.5 ~ 51.3	5.42	5.15 ~ 5.69
5500	48.6	46.2 ~ 51.0	5.65	5.37 ~ 5.93
5600	48.5	46.1 ~ 50.9	5.77	5.48 ~ 6.06
5800	48.2	45.8 ~ 50.6	6.00	5.70 ~ 6.30

The following table gives the recipes for tissue simulating liquids.

Recipes of Tissue Simulating Liquid

Tissue Type	Bactericide	DGBE	HEC	NaCl	Sucrose	Triton X-100	Water	Diethylene Glycol Mono-hexylether
H750	0.2	-	0.2	1.5	56.0	-	42.1	-
H835	0.2	-	0.2	1.5	57.0	-	41.1	-
H900	0.2	-	0.2	1.4	58.0	-	40.2	-
H1450	-	43.3	-	0.6	-	-	56.1	-
H1640	-	45.8	-	0.5	-	-	53.7	-
H1750	-	47.0	-	0.4	-	-	52.6	-
H1800	-	44.5	-	0.3	-	-	55.2	-
H1900	-	44.5	-	0.2	-	-	55.3	-
H2000	-	44.5	-	0.1	-	-	55.4	-
H2300	-	44.9	-	0.1	-	-	55.0	-
H2450	-	45.0	-	0.1	-	-	54.9	-
H2600	-	45.1	-	0.1	-	-	54.8	-
H3500	-	8.0	-	0.2	-	20.0	71.8	-
H5G	-	-	-	-	-	17.2	65.5	17.3
B750	0.2	-	0.2	0.8	48.8	-	50.0	-
B835	0.2	-	0.2	0.9	48.5	-	50.2	-
B900	0.2	-	0.2	0.9	48.2	-	50.5	-
B1450	-	34.0	-	0.3	-	-	65.7	-
B1640	-	32.5	-	0.3	-	-	67.2	-
B1750	-	31.0	-	0.2	-	-	68.8	-
B1800	-	29.5	-	0.4	-	-	70.1	-
B1900	-	29.5	-	0.3	-	-	70.2	-
B2000	-	30.0	-	0.2	-	-	69.8	-
B2300	-	31.0	-	0.1	-	-	68.9	-
B2450	-	31.4	-	0.1	-	-	68.5	-
B2600	-	31.8	-	0.1	-	-	68.1	-
B3500	-	28.8	-	0.1	-	-	71.1	-
B5G	-	-	-	-	-	10.7	78.6	10.7

Simulating Head Liquid (HBBL600-6000MHz), Manufactured by SPEAG:

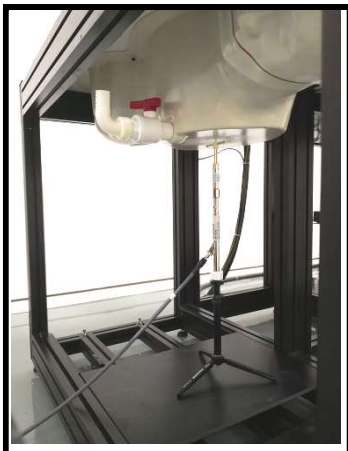
Water (% by weight)	Esters, Emulsifiers, Inhibitors (% by weight)	Sodium salt (% by weight)
50 - 65%	10 - 30%	8 - 25%

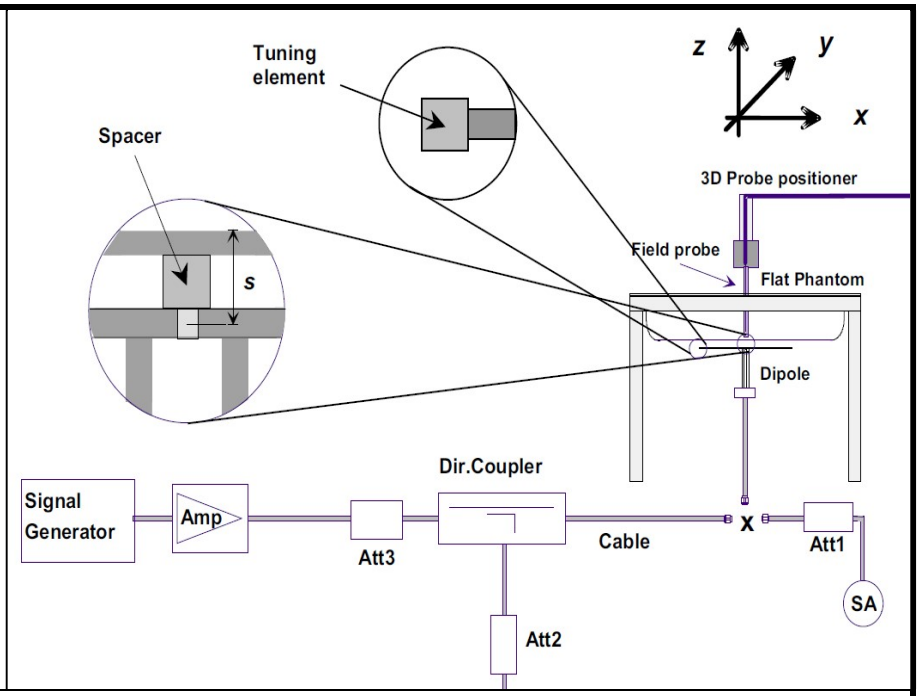
Simulating Body Liquid (MBBL600-6000MHz), Manufactured by SPEAG:

Water (% by weight)	Esters, Emulsifiers, Inhibitors (% by weight)	Sodium salt (% by weight)
60 - 80%	20 - 40%	0 – 1.5%

6.2.8.SAR System Verification

The system check verifies that the system operates within its specifications. It is performed daily or before every SAR measurement. The system check uses normal SAR measurements in the flat section of the phantom with a matched dipole at a specified distance. The system verification setup is shown as below.





System Verification Setup

The validation dipole is placed beneath the flat phantom with the specific spacer in place. The distance spacer is touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The spectrum analyzer measures the forward power at the location of the system check dipole connector. The signal generator is adjusted for the desired forward power (250 mW is used for 700 MHz to 3 GHz, 100 mW is used for 3.5 GHz to 6 GHz) at the dipole connector and the power meter is read at that level. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter.

After system check testing, the SAR result will be normalized to 1W forward input power and compared with the reference SAR value derived from validation dipole certificate report. The deviation of system check should be within 10 %.

7. SAR Measurement Procedure

According to the SAR test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

The SAR measurement procedures for each of test conditions are as follows:

(a) Make EUT to transmit maximum output power
(b) Measure conducted output power through RF cable
(c) Place the EUT in the specific position of phantom
(d) Perform SAR testing steps on the DASY system
(e) Record the SAR value

7.1. Area & Zoom Scan Procedure

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. According to KDB 865664 D01, the resolution for Area and Zoom scan is specified in the table below.

Items	<= 2 GHz	2-3 GHz	3-4 GHz	4-5 GHz	5-6 GHz
Area Scan (Δx, Δy)	<= 15 mm	<= 12 mm	<= 12 mm	<= 10 mm	<= 10 mm
Zoom Scan (Δx, Δy)	<= 8 mm	<= 5 mm	<= 5 mm	<= 4 mm	<= 4 mm
Zoom Scan (Δz)	<= 5 mm	<= 5 mm	<= 4 mm	<= 3 mm	<= 2 mm
Zoom Scan Volume	>= 30 mm	>= 30 mm	>= 28 mm	>= 25 mm	>= 22 mm

Note:
When zoom scan is required and report SAR is <= 1.4 W/kg, the zoom scan resolution of Δx / Δy (2-3GHz: <= 8 mm, 3-4GHz: <= 7 mm, 4-6GHz: <= 5 mm) may be applied.

7.2. Volume Scan Procedure

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

7.3. Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

7.4. Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

7.5. SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Shepard’s method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

8. SAR Measurement Evaluation

8.1. EUT Configuration and Setting

<Considerations Related to WLAN for Setup and Testing>

In general, various vendor specific external test software and chipset based internal test modes are typically used for SAR measurement. These chipset based test mode utilities are generally hardware and manufacturer dependent, and often include substantial flexibility to reconfigure or reprogram a device. A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement. The test frequencies established using test mode must correspond to the actual channel frequencies. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. In addition, a periodic transmission duty factor is required for current generation SAR systems to measure SAR correctly. The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

According to KDB 248227 D01, this device has installed WLAN engineering testing software which can provide continuous transmitting RF signal. During WLAN SAR testing, this device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.

Initial Test Configuration

An initial test configuration is determined for OFDM transmission modes in 2.4 GHz and 5 GHz bands according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. 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.

Subsequent Test Configuration

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. Additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. When the highest reported SAR for the initial test configuration according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.

SAR Test Configuration and Channel Selection

When multiple channel bandwidth configurations in a frequency band have the same specified maximum output power, the initial test configuration is using largest channel bandwidth, lowest order modulation, lowest data rate, and lowest order 802.11 mode (i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is

chosen over 802.11n). After an initial test configuration is determined, if multiple test channels have the same measured maximum output power, the channel chosen for SAR measurement is determined according to the following.
1) The channel closest to mid-band frequency is selected for SAR measurement.
2) For channels with equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

Test Reduction for U-NII-1 (5.2 GHz) and U-NII-2A (5.3 GHz) Bands
For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following.
1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition).
2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration.

<Considerations Related to Bluetooth for Setup and Testing>
This device has installed Bluetooth engineering testing software which can provide continuous transmitting RF signal. During Bluetooth SAR testing, this device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.

8.2. EUT Testing Position

According to KDB 648474 D04, handsets are tested for SAR compliance in head, body-worn accessory and other use configurations described in the following subsections.

8.2.1. Head Exposure Conditions

Head exposure is limited to next to the ear voice mode operations. Head SAR compliance is tested according to the test positions defined in IEEE Std 1528-2003 using the SAM phantom illustrated as below.

1. Define two imaginary lines on the handset

(a) The vertical centerline passes through two points on the front side of the handset - the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.

(b) The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.

(c) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.

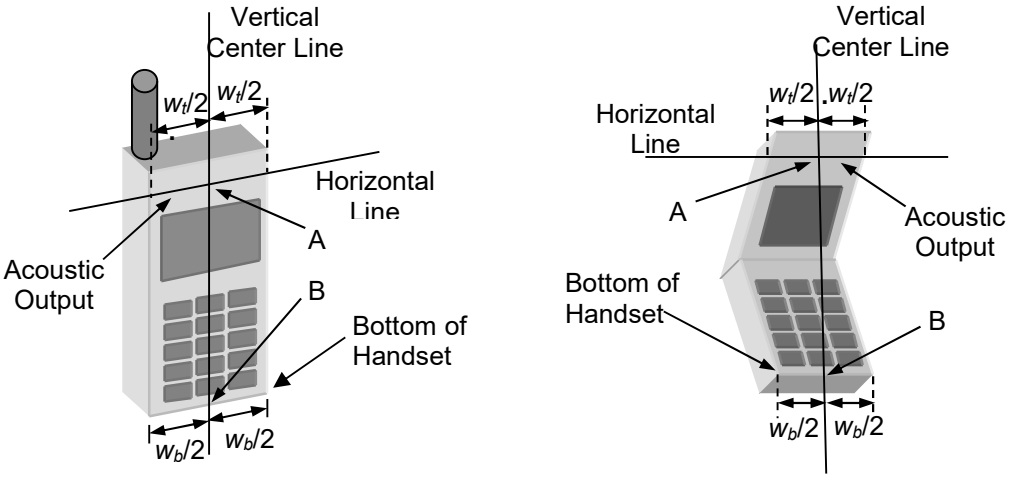


Illustration for Handset Vertical and Horizontal Reference Lines

2. Cheek Position

(a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.

(b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see Fig-4.2).

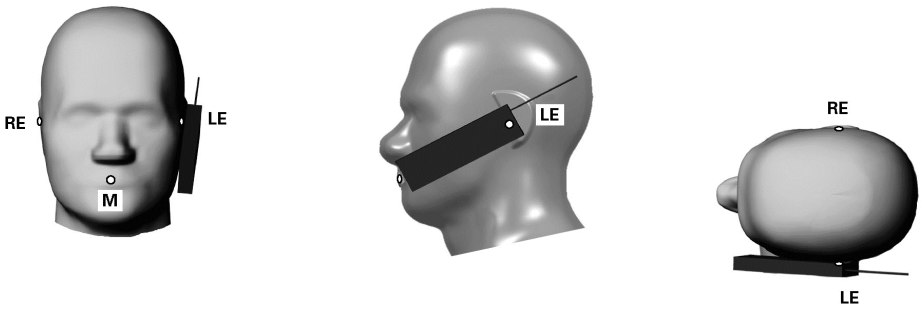


Illustration for Cheek Position

3. Tilted Position

(a) To position the device in the “cheek” position described above.

(b) While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see Fig-4.3).

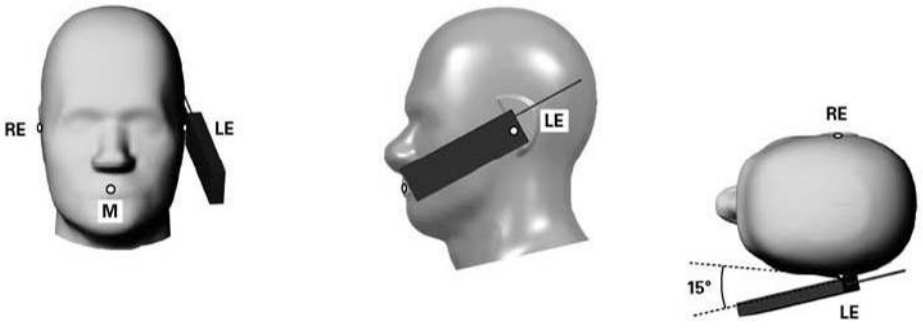


Illustration for Tilted Position

8.2.2. Body-worn Accessory Exposure Conditions

Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB 447498 D01 are used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode. When the reported SAR for a 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.

Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics. All body-worn accessories containing metallic components are tested in conjunction with the host device.

Body-worn accessory SAR compliance is based on a single minimum test separation distance for all wireless and operating modes applicable to each body-worn accessory used by the host, and according to the relevant voice and/or data mode transmissions and operations. If a body-worn accessory supports voice only operations in its normal and expected use conditions, testing of data mode for body-worn compliance is not required.

A conservative minimum test separation distance for supporting off-the-shelf body-worn accessories that may be acquired by users of consumer handsets is used to test for body-worn accessory SAR compliance. This distance is determined by the handset manufacturer, according to the requirements of Supplement C 01-01. Devices that are designed to operate on the body of users using lanyards and straps, or without requiring additional body-worn accessories, will be tested using a conservative minimum test separation distance <= 5 mm to support compliance.

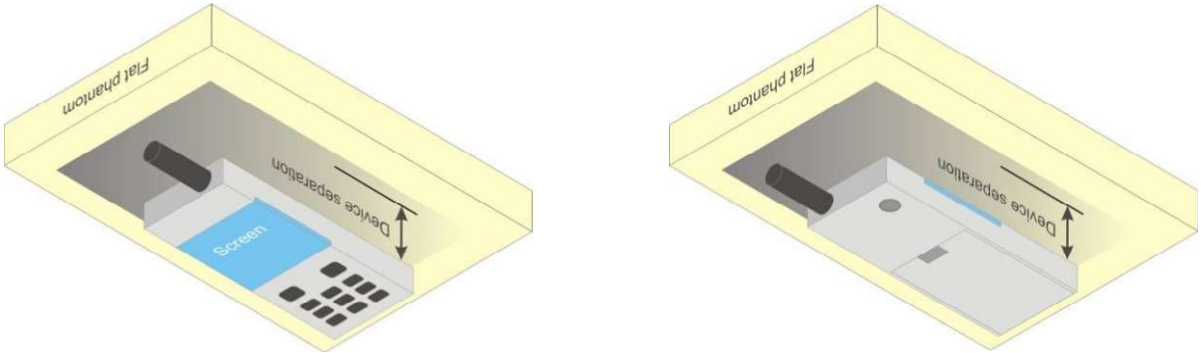
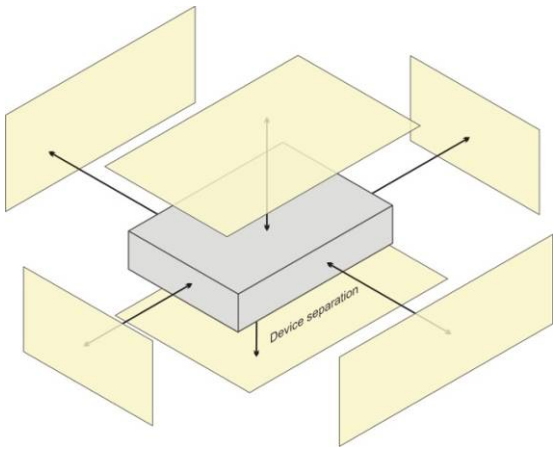


Illustration for Body Worn Position

8.2.3. Hotspot Mode Exposure Conditions

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing functions, the relevant hand and body exposure conditions are tested according to the hotspot SAR procedures in KDB 941225 D06. A test separation distance of 10 mm is required between the phantom and all surfaces and edges with a transmitting antenna located within 25 mm from that surface or edge. When the form factor of a handset is smaller than 9 cm x 5 cm, a test separation distance of 5 mm (instead of 10 mm) is required for testing hotspot mode. When the separation distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, in the same wireless mode and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface).



Based on the antenna location shown on appendix D of this report, the SAR testing required for hotspot mode is listed as below.

Antenna	Front Face	Rear Face	Left Side	Right Side	Top Side	Bottom Side
WLAN Ant-2	V	V		V	V	
WLAN Ant-7	V	V		V	V	
WLAN / BT Ant-8	V	V		V	V	
WLAN Ant-9	V	V	V		V	

8.2.4. Extremity Exposure Conditions

For smart phones with a display diagonal dimension > 15 cm or an overall diagonal dimension > 16 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance.

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at <= 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g SAR > 1.2 W/kg. The normal tablet procedures in KDB 616217 are required when the over diagonal dimension of the device is > 20 cm. Hotspot mode SAR is not required when normal tablet procedures are applied. Extremity 10-g SAR is also not required for the front (top) surface of large form factor full size tablets. The more conservative tablet SAR results can be used to support the 10-g extremity SAR for phablet mode.
3. The simultaneous transmission operating configurations applicable to voice and data transmissions for both phone and mini-tablet modes must be taken into consideration separately for 1-g and 10-g SAR to determine the simultaneous transmission SAR test exclusion and measurement requirements for the relevant wireless modes and exposure conditions.
4. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
5. BT tested the product specific 10g SAR since it has no hotspot mode.

8.3. Tissue Verification

The measuring results for tissue simulating liquid are shown as below.

Test Date	Tissue Type	Frequency (MHz)	Measured Conductivity (σ)	Measured Permittivity (ε_r)	Target Conductivity (σ)	Target Permittivity (ε_r)	Conductivity Deviation (%)	Permittivity Deviation (%)
Oct. 24, 2022	H2450	2450	1.827	37.969	1.80	39.20	1.50	-3.14
Oct. 25, 2022	H5G	5250	4.742	36.257	4.71	35.90	0.68	0.99
Oct. 21, 2022	H5G	5250	4.736	36.261	4.71	35.90	0.55	1.01
Oct. 22, 2022	H5G	5600	5.100	35.744	5.07	35.50	0.59	0.69
Oct. 23, 2022	H5G	5800	5.314	35.454	5.27	35.30	0.83	0.44

Note:

The dielectric properties of the tissue simulating liquid must be measured within 24 hours before the SAR testing and within ±5% of the target values. Liquid temperature during the SAR testing must be within ±2 ℃.

8.4. System Validation

The SAR measurement system was validated according to procedures in KDB 865664 D01. The validation status in tabulated summary is as below.

Test Date	Probe S/N	Calibration Point		Measured Conductivity (σ)	Measured Permittivity (ε_r)	Validation for CW			Validation for Modulation		
						Sensitivity Range	Probe Linearity	Probe Isotropy	Modulation Type	Duty Factor	PAR
Oct. 24, 2022	7506	Head	2450	1.827	37.969	Pass	Pass	Pass	OFDM	N/A	Pass
Oct. 25, 2022	7506	Head	5250	4.742	36.257	Pass	Pass	Pass	OFDM	N/A	Pass
Oct. 21, 2022	7506	Head	5250	4.736	36.261	Pass	Pass	Pass	OFDM	N/A	Pass
Oct. 22, 2022	7506	Head	5600	5.100	35.744	Pass	Pass	Pass	OFDM	N/A	Pass
Oct. 23, 2022	7506	Head	5800	5.314	35.454	Pass	Pass	Pass	OFDM	N/A	Pass

8.5. System Verification

The measuring result for system verification is tabulated as below.

Test Date	Mode	Frequency (MHz)	1W Target SAR-1g (W/kg)	Measured SAR-1g (W/kg)	Normalized to 1W SAR-1g (W/kg)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N
Oct. 24, 2022	Head	2450	51.80	12.80	51.20	-1.16	1014	7506	1557
Oct. 25, 2022	Head	5250	79.20	8.11	81.10	2.40	1280	7506	1557
Oct. 21, 2022	Head	5250	79.20	8.35	83.50	5.43	1280	7506	1557
Oct. 22, 2022	Head	5600	83.60	8.54	85.40	2.15	1280	7506	1557
Oct. 23, 2022	Head	5800	80.60	8.61	86.10	6.82	1280	7506	1557

Note:

Comparing to the reference SAR value provided by SPEAG, the validation data should be within its specification of 10 %. The result indicates the system check can meet the variation criterion and the plots can be referred to Appendix A of this report.

9. Maximum Output Power

9.1. Measured Conducted Power Result

All Rate have been tested, the Worst average power (Unit: dBm) is shown as below.

Mode	Ch.	Fre. (MHz)	Data Rate (Mbps)	WLAN 2.4G_Antenna 8					
				Receiver on (Standalone)		Receiver off (Standalone)		Receiver on (WWAN+WLAN)	
				Max. Tune up (dBm)	Average Power (dBm)	Max. Tune up (dBm)	Average Power (dBm)	Max. Tune up (dBm)	Average Power (dBm)
802.11b	1	2412	1	17.00	**16.82**	17.00	**16.82**	15.00	**14.74**
	6	2437		17.00	16.55	17.00	16.55	15.00	14.53
	11	2462		17.00	16.78	17.00	16.78	15.00	14.58
802.11g	1	2412	6	16.50	Not Required	16.50	Not Required	14.50	Not Required
	6	2437		16.50		16.50		14.50	
	11	2462		16.50		16.50		14.50	
802.11n HT20	1	2412	MCS0	16.50		16.50		14.50	
	6	2437		16.50		16.50		14.50	
	11	2462		16.50		16.50		14.50	
802.11n HT40	3	2422	MCS0	16.50		16.50		14.50	
	6	2437		16.50		16.50		14.50	
	9	2452		16.50		16.50		14.50	
802.11ax HE20	1	2412	MCS0	16.50		16.50		14.50	
	6	2437		16.50		16.50		14.50	
	11	2462		16.50		16.50		14.50	
802.11ax HE40	3	2422	MCS0	16.50		16.50		14.50	
	6	2437		16.50		16.50		14.50	
	9	2452		16.50		16.50		14.50	
802.11ax HE20	1	2412	MCS0	5.50		5.50		3.50	
				8.50		8.50		6.50	
				11.50		11.50		9.50	
				12.50		12.50		10.50	
	6	2437		5.50		5.50		3.50	
				8.50		8.50		6.50	
				11.50		11.50		9.50	
				12.50		12.50		10.50	
	11	2462		5.50		5.50		3.50	
				8.50		8.50		6.50	
				11.50		11.50		9.50	

				12.50		12.50		10.50	
802.11ax HE40	3	2422	MCS0	5.50		5.50		3.50	
				8.50		8.50		6.50	
				11.50		11.50		9.50	
				12.50		12.50		10.50	
				12.50		12.50		10.50	
	6	2437		5.50		5.50		3.50	
				8.50		8.50		6.50	
				11.50		11.50		9.50	
				12.50		12.50		10.50	
				12.50		12.50		10.50	
	9	2452		5.50		5.50		3.50	
				8.50		8.50		6.50	
				11.50		11.50		9.50	
				12.50		12.50		10.50	
				12.50		12.50		10.50	

Mode	Ch.	Fre. (MHz)	Data Rate (Mbps)	WLAN2.4G_Antenna 2			
				Receiver on (Standalone)		Receiver off (Standalone)	
				Max. Tune up (dBm)	Average Power (dBm)	Max. Tune up (dBm)	Average Power (dBm)
802.11b	1	2412	1	17.00	16.39	17.00	16.39
	6	2437		17.00	**16.78**	17.00	**16.78**
	11	2462		17.00	16.63	17.00	16.63
802.11g	1	2412	6	16.50	Not Required	16.50	Not Required
	6	2437		16.50		16.50	
	11	2462		16.50		16.50	
802.11n HT20	1	2412	MCS0	16.50		16.50	
	6	2437		16.50		16.50	
	11	2462		16.50		16.50	
802.11n HT40	3	2422	MCS0	16.50		16.50	
	6	2437		16.50		16.50	
	9	2452		16.50		16.50	
802.11ax HE20	1	2412	MCS0	16.50		16.50	
	6	2437		16.50		16.50	
	11	2462		16.50		16.50	

802.11ax HE40	3	2422	MCS0	16.50		16.50	
	6	2437		16.50		16.50	
	9	2452		16.50		16.50	
802.11ax HE20	1	2412	MCS0	5.50		5.50	
				8.50		8.50	
				11.50		11.50	
				12.50		12.50	
	6	2437		5.50		5.50	
				8.50		8.50	
				11.50		11.50	
				12.50		12.50	
	11	2462		5.50		5.50	
				8.50		8.50	
				11.50		11.50	
				12.50		12.50	
802.11ax HE40	3	2422	MCS0	5.50		5.50	
				8.50		8.50	
				11.50		11.50	
				12.50		12.50	
				12.50		12.50	
	6	2437		5.50		5.50	
				8.50		8.50	
				11.50		11.50	
				12.50		12.50	
				12.50		12.50	
	9	2452		5.50		5.50	
				8.50		8.50	
				11.50		11.50	
				12.50		12.50	
				12.50		12.50	

Mode	Ch.	Fre. (MHz)	Data Rate (Mbps)	WLAN 2.4G_MIMO			
				Antenna 8	Antenna 2	Max. Tune up (dBm)	Total Average Power (dBm)
				Average Power (dBm)	Average Power (dBm)		
802.11b	1	2412	1	16.82	16.39	20.00	19.62
	6	2437		16.55	16.78	20.00	19.68
	11	2462		16.78	16.63	20.00	19.72
802.11g	1	2412	6	-	-	19.50	Not Required
	6	2437		-	-	19.50	
	11	2462		-	-	19.50	
802.11n HT20	1	2412	MCS0	-	-	19.50	
	6	2437		-	-	19.50	
	11	2462		-	-	19.50	
802.11n HT40	3	2422	MCS0	-	-	19.50	
	6	2437		-	-	19.50	
	9	2452		-	-	19.50	
802.11ax HE20	1	2412	MCS0	-	-	19.50	
	6	2437		-	-	19.50	
	11	2462		-	-	19.50	
802.11ax HE40	3	2422	MCS0	-	-	19.50	
	6	2437		-	-	19.50	
	9	2452		-	-	19.50	
802.11ax HE20	1	2412	MCS0	-	-	8.50	
				-	-	11.50	
				-	-	14.50	
				-	-	15.50	
	6	2437		-	-	8.50	
				-	-	11.50	
				-	-	14.50	
				-	-	15.51	
	11	2462		-	-	8.50	
				-	-	11.51	
				-	-	14.50	
				-	-	15.51	
802.11ax HE40	3	2422	MCS0	-	-	8.50	
				-	-	11.50	

				-	-	14.50	
				-	-	15.50	
				-	-	15.50	
	6	2437		-	-	8.50	
				-	-	11.51	
				-	-	14.51	
				-	-	15.50	
				-	-	15.50	
	9	2452		-	-	8.50	
				-	-	11.50	
				-	-	14.50	
				-	-	15.50	
				-	-	15.50	

Band	Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	WLAN 5G_Antenna 7							
					Receiver on (Standalone)		Receiver off (Standalone)		Receiver on (WWAN+WLAN)		Receiver off (WWAN+WLAN)	
					Max. Tune-up (dBm)	Average Power (dBm)	Max. Tune-up (dBm)	Average Power (dBm)	Max. Tune-up (dBm)	Average Power (dBm)	Max. Tune-up (dBm)	Average Power (dBm)
5.2G	802.11a	36	5180	6	12.50	Not Required	12.50	Not Required	-	-	-	-
		40	5200		12.50		12.50		-	-	-	-
		44	5220		12.50		12.50		-	-	-	-
		48	5240		12.50		12.50		-	-	-	-
	802.11n HT20	36	5180	MCS0	12.50		12.50		-	-	-	-
		40	5200		12.50		12.50		-	-	-	-
		44	5220		12.50		12.50		-	-	-	-
		48	5240		12.50		12.50		-	-	-	-
	802.11n HT40	38	5190	MCS0	15.50		15.50		-	-	-	-
		46	5230		15.50		15.50		-	-	-	-
	802.11ac VHT20	36	5180	MCS0	12.50		12.50		-	-	-	-
		40	5200		12.50		12.50		-	-	-	-
		44	5220		12.50		12.50		-	-	-	-
		48	5240		12.50		12.50		-	-	-	-
	802.11ac VHT40	38	5190	MCS0	15.50		15.50		-	-	-	-
		46	5230		15.50		15.50		-	-	-	-
	802.11ac VHT80	42	5210	MCS0	16.00	15.78	16.00	15.78	-	-	-	-
	802.11ax HE20	36	5180	MCS0	12.50	Not Required	12.50	Not Required	-	-	-	-

		40	5200		12.50		12.50		-	-	-	-
		44	5220		12.50		12.50		-	-	-	-
		48	5240		12.50		12.50		-	-	-	-
	802.11ax HE40	38	5190	MCS0	15.00		15.00		-	-	-	-
		46	5230		15.00		15.00		-	-	-	-
	802.11ax HE80	42	5210	MCS0	15.00		15.00		-	-	-	-
	802.11ax HE20	36	5180	MCS0	2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
		40	5200		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
		44	5220		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
		48	5240		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
	802.11ax HE40	38	5190	MCS0	2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
					12.00		12.00		-	-	-	-
		46	5230		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
					12.00		12.00		-	-	-	-
	802.11ax HE80	42	5210	MCS0	2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-

					11.00		11.00		-	-	-	-
					12.00		12.00		-	-	-	-
					12.00		12.00		-	-	-	-
5.3G	802.11a	52	5260	6	14.00	Not Required	14.00	Not Required	-	-	-	-
		56	5280		14.00		14.00		-	-	-	-
		60	5300		14.00		14.00		-	-	-	-
		64	5320		14.00		14.00		-	-	-	-
	802.11n HT20	52	5260	MCS0	14.00		14.00		-	-	-	-
		56	5280		14.00		14.00		-	-	-	-
		60	5300		14.00		14.00		-	-	-	-
		64	5320		14.00		14.00		-	-	-	-
	802.11n HT40	54	5270	MCS0	16.50		16.50		-	-	-	-
		62	5310		16.50		16.50		-	-	-	-
	802.11ac VHT20	52	5260	MCS0	14.00		14.00		-	-	-	-
		56	5280		14.00		14.00		-	-	-	-
		60	5300		14.00		14.00		-	-	-	-
		64	5320		14.00		14.00		-	-	-	-
	802.11ac VHT40	54	5270	MCS0	16.50		16.50		-	-	-	-
		62	5310		16.50		16.50		-	-	-	-
	802.11ac VHT80	58	5290	MCS0	16.50	**16.45**	16.50	**16.45**	-	-	-	-
	802.11ax HE20	52	5260	MCS0	14.00	Not Required	14.00	Not Required	-	-	-	-
		56	5280		14.00		14.00		-	-	-	-
		60	5300		14.00		14.00		-	-	-	-
		64	5320		14.00		14.00		-	-	-	-
	802.11ax HE40	54	5270	MCS0	15.50		15.50		-	-	-	-
		62	5310		15.50		15.50		-	-	-	-
	802.11ax HE80	58	5290	MCS0	15.50		15.50		-	-	-	-
	802.11ax HE20	52	5260	MCS0	2.50		2.50		-	-	-	-
					5.50		5.50		-	-	-	-
					8.50		8.50		-	-	-	-
					11.50		11.50		-	-	-	-
		56	5280		2.50		2.50		-	-	-	-
					5.50		5.50		-	-	-	-
					8.50		8.50		-	-	-	-
					11.50		11.50		-	-	-	-

		60	5300		2.50	Not Required	2.50	Not Required	-	-	-	-
					5.50		5.50		-	-	-	-
					8.50		8.50		-	-	-	-
					11.50		11.50		-	-	-	-
		64	5320		2.50		2.50		-	-	-	-
					5.50		5.50		-	-	-	-
					8.50		8.50		-	-	-	-
					11.50		11.50		-	-	-	-
	802.11ax HE40	54	5270	MCS0	2.50		2.50		-	-	-	-
					5.50		5.50		-	-	-	-
					8.50		8.50		-	-	-	-
					11.50		11.50		-	-	-	-
					12.50		12.50		-	-	-	-
		62	5310		2.50		2.50		-	-	-	-
					5.50		5.50		-	-	-	-
					8.50		8.50		-	-	-	-
					11.50		11.50		-	-	-	-
					12.50		12.50		-	-	-	-
	802.11ax HE80	58	5290	MCS0	2.50		2.50		-	-	-	-
					5.50		5.50		-	-	-	-
					8.50		8.50		-	-	-	-
					11.50		11.50		-	-	-	-
					12.50		12.50		-	-	-	-
					12.50		12.50		-	-	-	-
5.6G	802.11a	100	5500	6	13.50		13.50		-	-	-	-
		104	5520		13.50		13.50		-	-	-	-
		108	5540		13.50		13.50		-	-	-	-
		112	5560		13.50		13.50		-	-	-	-
		116	5580		13.50		13.50		-	-	-	-
		132	5660		13.50		13.50		-	-	-	-
		136	5680		13.50		13.50		-	-	-	-
		140	5700		13.50		13.50		-	-	-	-
	802.11n HT20	100	5500	MCS0	13.50		13.50		-	-	-	-
		104	5520		13.50		13.50		-	-	-	-
		108	5540		13.50		13.50		-	-	-	-

		112	5560		13.50		13.50		-	-	-	-
		116	5580		13.50		13.50		-	-	-	-
		132	5660		13.50		13.50		-	-	-	-
		136	5680		13.50		13.50		-	-	-	-
		140	5700		13.50		13.50		-	-	-	-
	802.11n HT40	102	5510	MCS0	16.00		16.00		-	-	-	-
		110	5550		16.00		16.00		-	-	-	-
		118	5590		16.00		16.00		-	-	-	-
		126	5630		16.00		16.00		-	-	-	-
		134	5670		16.00		16.00		-	-	-	-
	802.11ac VHT20	100	5500	MCS0	13.50		13.50		-	-	-	-
		104	5520		13.50		13.50		-	-	-	-
		108	5540		13.50		13.50		-	-	-	-
		112	5560		13.50		13.50		-	-	-	-
		116	5580		13.50		13.50		-	-	-	-
		132	5660		13.50		13.50		-	-	-	-
		136	5680		13.50		13.50		-	-	-	-
		140	5700		13.50		13.50		-	-	-	-
	802.11ac VHT40	102	5510	MCS0	16.00		16.00		-	-	-	-
		110	5550		16.00		16.00		-	-	-	-
		118	5590		16.00		16.00		-	-	-	-
		126	5630		16.00		16.00		-	-	-	-
		134	5670		16.00		16.00		-	-	-	-
	802.11ac VHT80	106	5530	MCS0	16.00	**15.89**	16.00	**15.89**	-	-	-	-
		122	5610		16.00	15.71	16.00	15.71	-	-	-	-
	802.11ax HE20	100	5500	MCS0	13.50	Not Required	13.50	Not Required	-	-	-	-
		104	5520		13.50		13.50		-	-	-	-
		108	5540		13.50		13.50		-	-	-	-
		112	5560		13.50		13.50		-	-	-	-
		116	5580		13.50		13.50		-	-	-	-
		132	5660		13.50		13.50		-	-	-	-
		136	5680		13.50		13.50		-	-	-	-
		140	5700		13.50		13.50		-	-	-	-
	802.11ax HE40	102	5510	MCS0	15.00		15.00		-	-	-	-
		110	5550		15.00		15.00		-	-	-	-

		118	5590		15.00		15.00		-	-	-	-
		126	5630		15.00		15.00		-	-	-	-
		134	5670		15.00		15.00		-	-	-	-
	802.11ax HE80	106	5530	MCS0	15.00		15.00		-	-	-	-
		122	5610		15.00		15.00		-	-	-	-
	802.11ax HE20	100	5500	MCS0	2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
		104	5520		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
		108	5540		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
		112	5560		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
		116	5580		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
		132	5660		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
		136	5680		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
		140	5700		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-

					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
	802.11ax HE40	102	5510	MCS0	2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
					12.00		12.00		-	-	-	-
		110	5550		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
					12.00		12.00		-	-	-	-
		118	5590		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
					12.00		12.00		-	-	-	-
		126	5630		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
					12.00		12.00		-	-	-	-
		134	5670		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
					12.00		12.00		-	-	-	-
	802.11ax HE80	106	5530	MCS0	2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-
					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
					12.00		12.00		-	-	-	-
					12.00		12.00		-	-	-	-
		122	5610		2.00		2.00		-	-	-	-
					5.00		5.00		-	-	-	-

					8.00		8.00		-	-	-	-
					11.00		11.00		-	-	-	-
					12.00		12.00		-	-	-	-
					12.00		12.00		-	-	-	-
5.8G	802.11a	149	5745	6	17.00	Not Required	17.00	Not Required	16.00	Not Required	16.00	Not Required
		153	5765		17.00		17.00		16.00		16.00	
		157	5785		17.00		17.00		16.00		16.00	
		161	5805		17.00		17.00		16.00		16.00	
		165	5825		17.00		17.00		16.00		16.00	
	802.11n HT20	149	5745	MCS0	17.00		17.00		16.00		16.00	
		153	5765		17.00		17.00		16.00		16.00	
		157	5785		17.00		17.00		16.00		16.00	
		161	5805		17.00		17.00		16.00		16.00	
		165	5825		17.00		17.00		16.00		16.00	
	802.11n HT40	151	5755	MCS0	17.00		17.00		16.00		16.00	
		159	5795		17.00		17.00		16.00		16.00	
	802.11ac VHT20	149	5745	MCS0	17.00		17.00		16.00		16.00	
		153	5765		17.00		17.00		16.00		16.00	
		157	5785		17.00		17.00		16.00		16.00	
		161	5805		17.00		17.00		16.00		16.00	
		165	5825		17.00		17.00		16.00		16.00	
	802.11ac VHT40	151	5755	MCS0	17.00		17.00		16.00		16.00	
		159	5795		17.00		17.00		16.00		16.00	
	802.11ac VHT80	155	5775	MCS0	17.00	**16.89**	17.00	**16.89**	16.00	**15.84**	16.00	**15.84**
	802.11ax HE20	149	5745	MCS0	16.00	Not Required	16.00	Not Required	15.00	Not Required	15.00	Not Required
		153	5765		16.00		16.00		15.00		15.00	
		157	5785		16.00		16.00		15.00		15.00	
		161	5805		16.00		16.00		15.00		15.00	
		165	5825		16.00		16.00		15.00		15.00	
	802.11ax HE40	151	5755	MCS0	16.00		16.00		15.00		15.00	
		159	5795		16.00		16.00		15.00		15.00	
	802.11ax HE80	155	5775	MCS0	16.00		16.00		15.00		15.00	
	802.11ax HE20	149	5745	MCS0	3.00		3.00		2.00		2.00	
					6.00		6.00		5.00		5.00	
					9.00		9.00		8.00		8.00	

					12.00		12.00		11.00	11.00
		153	5765		3.00		3.00		2.00	2.00
					6.00		6.00		5.00	5.00
					9.00		9.00		8.00	8.00
					12.00		12.00		11.00	11.00
		157	5785		3.00		3.00		2.00	2.00
					6.00		6.00		5.00	5.00
					9.00		9.00		8.00	8.00
					12.00		12.00		11.00	11.00
		161	5805		3.00		3.00		2.00	2.00
					6.00		6.00		5.00	5.00
					9.00		9.00		8.00	8.00
					12.00		12.00		11.00	11.00
		165	5825		3.00		3.00		2.00	2.00
					6.00		6.00		5.00	5.00
					9.00		9.00		8.00	8.00
					12.00		12.00		11.00	11.00
	802.11ax HE40	151	5755	MCS0	3.00		3.00		2.00	2.00
					6.00		6.00		5.00	5.00
					9.00		9.00		8.00	8.00
					12.00		12.00		11.00	11.00
					13.00		13.00		12.00	12.00
		159	5795		3.00		3.00		2.00	2.00
					6.00		6.00		5.00	5.00
					9.00		9.00		8.00	8.00
					12.00		12.00		11.00	11.00
					13.00		13.00		12.00	12.00
	802.11ax HE80	155	5775	MCS0	3.00		3.00		2.00	2.00
					6.00		6.00		5.00	5.00
					9.00		9.00		8.00	8.00
					12.00		12.00		11.00	11.00
					13.00		13.00		12.00	12.00
					13.00		14.00		12.00	12.00

Band	Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	WLAN 5G_Antenna 9					
					Receiver on (Standalone)		Receiver off (Standalone)		Receiver off (WWAN+WLAN)	
					Max. Tune-up (dBm)	Average Power (dBm)	Max. Tune-up (dBm)	Average Power (dBm)	Max. Tune-up (dBm)	Average Power (dBm)
5.2G	802.11a	36	5180	6	12.50	Not Required	12.50	Not Required	13.50	Not Required
		40	5200		12.50		12.50		13.50	
		44	5220		12.50		12.50		13.50	
		48	5240		12.50		12.50		13.50	
	802.11n HT20	36	5180	MCS0	12.50		12.50		13.50	
		40	5200		12.50		12.50		13.50	
		44	5220		12.50		12.50		13.50	
		48	5240		12.50		12.50		13.50	
	802.11n HT40	38	5190	MCS0	15.50		15.50		16.50	
		46	5230		15.50		15.50		16.50	
	802.11ac VHT20	36	5180	MCS0	12.50		12.50		13.50	
		40	5200		12.50		12.50		13.50	
		44	5220		12.50		12.50		13.50	
		48	5240		12.50		12.50		13.50	
	802.11ac VHT40	38	5190	MCS0	15.50		15.50		16.50	
		46	5230		15.50		15.50		16.50	
	802.11ac VHT80	42	5210	MCS0	16.00	15.75	16.00	15.75	17.00	16.50
	802.11ax HE20	36	5180	MCS0	12.50	Not Required	12.50	Not Required	13.50	Not Required
		40	5200		12.50		12.50		13.50	
		44	5220		12.50		12.50		13.50	
		48	5240		12.50		12.50		13.50	
	802.11ax HE40	38	5190	MCS0	15.00		15.00		16.00	
		46	5230		15.00		15.00		16.00	
	802.11ax HE80	42	5210	MCS0	15.00		15.00		16.00	
	802.11ax HE20	36	5180	MCS0	2.00		2.00		3.00	
					5.00		5.00		6.00	
					8.00		8.00		9.00	
					11.00		11.00		12.00	
		40	5200		2.00		2.00		3.00	
					5.00		5.00		6.00	
					8.00		8.00		9.00	

					11.00		11.00		12.00	
		44	5220		2.00		2.00		3.00	
					5.00		5.00		6.00	
					8.00		8.00		9.00	
					11.00		11.00		12.00	
		48	5240		2.00		2.00		3.00	
					5.00		5.00		6.00	
					8.00		8.00		9.00	
					11.00		11.00		12.00	
	802.11ax HE40	38	5190	MCS0	2.00		2.00		3.00	
					5.00		5.00		6.00	
					8.00		8.00		9.00	
					11.00		11.00		12.00	
					12.00		12.00		13.00	
		46	5230		2.00		2.00		3.00	
					5.00		5.00		6.00	
					8.00		8.00		9.00	
					11.00		11.00		12.00	
					12.00		12.00		13.00	
	802.11ax HE80	42	5210	MCS0	2.00		2.00		3.00	
					5.00		5.00		6.00	
					8.00		8.00		9.00	
					11.00		11.00		12.00	
					12.00		12.00		13.00	
					12.00		12.00		13.00	
5.3G	802.11a	52	5260	6	14.00	Not Required	14.00	Not Required		
		56	5280		14.00		14.00			
		60	5300		14.00		14.00			
		64	5320		14.00		14.00			
	802.11n HT20	52	5260	MCS0	14.00		14.00			
		56	5280		14.00		14.00			
		60	5300		14.00		14.00			
		64	5320		14.00		14.00			
	802.11n HT40	54	5270	MCS0	16.50		16.50			
		62	5310		16.50		16.50			

	802.11ac VHT20	52	5260	MCS0	14.00		14.00	
		56	5280		14.00		14.00	
		60	5300		14.00		14.00	
		64	5320		14.00		14.00	
	802.11ac VHT40	54	5270	MCS0	16.50		16.50	
		62	5310		16.50		16.50	
	802.11ac VHT80	58	5290	MCS0	16.50	**16.13**	16.50	**16.13**
	802.11ax HE20	52	5260	MCS0	14.00		14.00	
		56	5280		14.00		14.00	
		60	5300		14.00		14.00	
		64	5320		14.00		14.00	
	802.11ax HE40	54	5270	MCS0	15.50		15.50	
		62	5310		15.50		15.50	
	802.11ax HE80	58	5290	MCS0	15.50		15.50	
	802.11ax HE20	52	5260	MCS0	2.50		2.50	
					5.50		5.50	
					8.50		8.50	
					11.50		11.50	
		56	5280		2.50		2.50	
					5.50		5.50	
					8.50		8.50	
					11.50	Not Required	11.50	Not Required
		60	5300		2.50		2.50	
					5.50		5.50	
					8.50		8.50	
					11.50		11.50	
		64	5320		2.50		2.50	
					5.50		5.50	
					8.50		8.50	
					11.50		11.50	
	802.11ax HE40	54	5270	MCS0	2.50		2.50	
					5.50		5.50	
					8.50		8.50	
					11.50		11.50	
					12.50		12.50	

		62	5310		2.50	Not Required	2.50	Not Required
					5.50		5.50	
					8.50		8.50	
					11.50		11.50	
					12.50		12.50	
	802.11ax HE80	58	5290	MCS0	2.50		2.50	
					5.50		5.50	
					8.50		8.50	
					11.50		11.50	
					12.50		12.50	
					12.50		12.50	
5.6G	802.11a	100	5500	6	13.50		13.50	
		104	5520		13.50		13.50	
		108	5540		13.50		13.50	
		112	5560		13.50		13.50	
		116	5580		13.50		13.50	
		132	5660		13.50		13.50	
		136	5680		13.50		13.50	
		140	5700		13.50		13.50	
	802.11n HT20	100	5500	MCS0	13.50		13.50	
		104	5520		13.50		13.50	
		108	5540		13.50		13.50	
		112	5560		13.50		13.50	
		116	5580		13.50		13.50	
		132	5660		13.50		13.50	
		136	5680		13.50		13.50	
		140	5700		13.50		13.50	
	802.11n HT40	102	5510	MCS0	16.00		16.00	
		110	5550		16.00		16.00	
		118	5590		16.00		16.00	
		126	5630		16.00		16.00	
		134	5670		16.00		16.00	
	802.11ac VHT20	100	5500	MCS0	13.50		13.50	
		104	5520		13.50		13.50	
		108	5540		13.50		13.50	
		112	5560		13.50		13.50	

		116	5580		13.50		13.50	
		132	5660		13.50		13.50	
		136	5680		13.50		13.50	
		140	5700		13.50		13.50	
	802.11ac VHT40	102	5510	MCS0	16.00		16.00	
		110	5550		16.00		16.00	
		118	5590		16.00		16.00	
		126	5630		16.00		16.00	
		134	5670		16.00		16.00	
	802.11ac VHT80	106	5530	MCS0	16.00	**15.67**	16.00	**15.67**
		122	5610		16.00	15.18	16.00	15.18
	802.11ax HE20	100	5500	MCS0	13.50		13.50	
		104	5520		13.50		13.50	
		108	5540		13.50		13.50	
		112	5560		13.50		13.50	
		116	5580		13.50		13.50	
		132	5660		13.50		13.50	
		136	5680		13.50		13.50	
		140	5700		13.50		13.50	
	802.11ax HE40	102	5510	MCS0	15.00		15.00	
		110	5550		15.00		15.00	
		118	5590		15.00		15.00	
		126	5630		15.00		15.00	
		134	5670		15.00	Not Required	15.00	Not Required
	802.11ax HE80	106	5530	MCS0	15.00		15.00	
		122	5610		15.00		15.00	
	802.11ax HE20	100	5500	MCS0	2.00		2.00	
					5.00		5.00	
					8.00		8.00	
					11.00		11.00	
		104	5520		2.00		2.00	
					5.00		5.00	
					8.00		8.00	
					11.00		11.00	
		108	5540		2.00		2.00	
					5.00		5.00	

					8.00		8.00
					11.00		11.00
		112	5560		2.00		2.00
					5.00		5.00
					8.00		8.00
					11.00		11.00
		116	5580		2.00		2.00
					5.00		5.00
					8.00		8.00
					11.00		11.00
		132	5660		2.00		2.00
					5.00		5.00
					8.00		8.00
					11.00		11.00
		136	5680		2.00		2.00
					5.00		5.00
					8.00		8.00
					11.00		11.00
		140	5700		2.00		2.00
					5.00		5.00
					8.00		8.00
					11.00		11.00
	802.11ax HE40	102	5510	MCS0	2.00		2.00
					5.00		5.00
					8.00		8.00
					11.00		11.00
					12.00		12.00
		110	5550		2.00		2.00
					5.00		5.00
					8.00		8.00
					11.00		11.00
					12.00		12.00
		118	5590		2.00		2.00
					5.00		5.00
					8.00		8.00
					11.00		11.00

					12.00		12.00	
		126	5630		2.00		2.00	
					5.00		5.00	
					8.00		8.00	
					11.00		11.00	
					12.00		12.00	
		134	5670		2.00		2.00	
					5.00		5.00	
					8.00		8.00	
					11.00		11.00	
					12.00		12.00	
	802.11ax HE80	106	5530	MCS0	2.00		2.00	
					5.00		5.00	
					8.00		8.00	
					11.00		11.00	
					12.00		12.00	
					12.00		12.00	
		122	5610		2.00		2.00	
					5.00		5.00	
					8.00		8.00	
					11.00		11.00	
					12.00		12.00	
					12.00		12.00	
5.8G	802.11a	149	5745	6	17.00	Not Required	17.00	Not Required
		153	5765		17.00		17.00	
		157	5785		17.00		17.00	
		161	5805		17.00		17.00	
		165	5825		17.00		17.00	
	802.11n HT20	149	5745	MCS0	17.00		17.00	
		153	5765		17.00		17.00	
		157	5785		17.00		17.00	
		161	5805		17.00		17.00	
		165	5825		17.00		17.00	
	802.11n HT40	151	5755	MCS0	17.00		17.00	
		159	5795		17.00		17.00	
	802.11ac VHT20	149	5745	MCS0	17.00		17.00	

		153	5765		17.00		17.00	
		157	5785		17.00		17.00	
		161	5805		17.00		17.00	
		165	5825		17.00		17.00	
	802.11ac VHT40	151	5755	MCS0	17.00		17.00	
		159	5795		17.00		17.00	
	802.11ac VHT80	155	5775	MCS0	17.00	**16.83**	17.00	**16.83**
	802.11ax HE20	149	5745	MCS0	16.00		16.00	
		153	5765		16.00		16.00	
		157	5785		16.00		16.00	
		161	5805		16.00		16.00	
		165	5825		16.00		16.00	
	802.11ax HE40	151	5755	MCS0	16.00		16.00	
		159	5795		16.00		16.00	
	802.11ax HE80	155	5775	MCS0	16.00		16.00	
	802.11ax HE20	149	5745	MCS0	3.00		3.00	
					6.00		6.00	
					9.00		9.00	
					12.00		12.00	
		153	5765		3.00		3.00	
					6.00	Not Required	6.00	Not Required
					9.00		9.00	
					12.00		12.00	
		157	5785		3.00		3.00	
					6.00		6.00	
					9.00		9.00	
					12.00		12.00	
		161	5805		3.00		3.00	
					6.00		6.00	
					9.00		9.00	
					12.00		12.00	
		165	5825		3.00		3.00	
					6.00		6.00	
					9.00		9.00	
					12.00		12.00	

	802.11ax HE40	151	5755	MCS0	3.00		3.00	
					6.00		6.00	
					9.00		9.00	
					12.00		12.00	
					13.00		13.00	
		159	5795		3.00		3.00	
					6.00		6.00	
					9.00		9.00	
					12.00		12.00	
					13.00		13.00	
	802.11ax HE80	155	5775	MCS0	3.00		3.00	
					6.00		6.00	
					9.00		9.00	
					12.00		12.00	
					13.00		13.00	
					13.00		13.00	

Band	Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	WLAN 5G_MIMO			
					ANT 7	ANT 9	Max. Tune up (dBm)	Total Average Power (dBm)
					Average Power (dBm)	Average Power (dBm)		
5.2G	802.11a	36	5180	6	-	-	15.50	Not Required
		40	5200		-	-	15.50	
		44	5220		-	-	15.50	
		48	5240		-	-	15.50	
	802.11n HT20	36	5180	MCS0	-	-	15.50	
		40	5200		-	-	15.50	
		44	5220		-	-	15.50	
		48	5240		-	-	15.50	
	802.11ac VHT20	36	5180	MCS0	-	-	15.50	
		40	5200		-	-	15.50	
		44	5220		-	-	15.50	
		48	5240		-	-	15.50	
	802.11ax HE20	36	5180	MCS0	-	-	15.50	
		40	5200		-	-	15.50	
		44	5220		-	-	15.50	
		48	5240		-	-	15.50	
	802.11n HT40	38	5190	MCS0	-	-	18.50	
		46	5230		-	-	18.50	
	802.11ac VHT40	38	5190	MCS0	-	-	18.50	
		46	5230		-	-	18.50	
	802.11ax HE40	38	5190	MCS0	-	-	18.00	
		46	5230		-	-	18.00	
	802.11ac VHT80	42	5210	MCS0	15.78	15.75	19.00	18.78
	802.11ax HE80	42	5210	MCS0	-	-	18.00	Not Required
5.3G	802.11a	52	5260	6	-	-	17.00	Not Required
		56	5280		-	-	17.00	
		60	5300		-	-	17.00	
		64	5320		-	-	17.00	
	802.11n HT20	52	5260	MCS0	-	-	17.00	
		56	5280		-	-	17.00	
		60	5300		-	-	17.00	

		64	5320		-	-	17.00	
	802.11ac VHT20	52	5260	MCS0	-	-	17.00	
		56	5280		-	-	17.00	
		60	5300		-	-	17.00	
		64	5320		-	-	17.00	
	802.11ax HE20	52	5260	MCS0	-	-	17.00	
		56	5280		-	-	17.00	
		60	5300		-	-	17.00	
		64	5320		-	-	17.00	
	802.11n HT40	54	5270	MCS0	-	-	19.50	
		62	5310		-	-	19.50	
	802.11ac VHT40	54	5270	MCS0	-	-	19.50	
		62	5310		-	-	19.50	
	802.11ax HE40	54	5270	MCS0	-	-	18.50	
		62	5310		-	-	18.50	
	802.11ac VHT80	58	5290	MCS0	16.45	15.73	19.50	19.12
	802.11ax HE80	58	5290	MCS0	-	-	18.50	Not Required
5.6G	802.11a	100	5500	6	-	-	16.50	
		104	5520		-	-	16.50	
		108	5540		-	-	16.50	
		112	5560		-	-	16.50	
		116	5580		-	-	16.50	
		132	5660		-	-	16.50	
		136	5680		-	-	16.50	
		140	5700		-	-	16.50	
	802.11n HT20	100	5500	MCS0	-	-	16.50	Not Required
		104	5520		-	-	16.50	
		108	5540		-	-	16.50	
		112	5560		-	-	16.50	
		116	5580		-	-	16.50	
		132	5660		-	-	16.50	
		136	5680		-	-	16.50	
		140	5700		-	-	16.50	
	802.11ac VHT20	100	5500	MCS0	-	-	16.50	
		104	5520		-	-	16.50	

		108	5540		-	-	16.50	
		112	5560		-	-	16.50	
		116	5580		-	-	16.50	
		132	5660		-	-	16.50	
		136	5680		-	-	16.50	
		140	5700		-	-	16.50	
	802.11ax HE20	100	5500	MCS0	-	-	16.50	
		104	5520		-	-	16.50	
		108	5540		-	-	16.50	
		112	5560		-	-	16.50	
		116	5580		-	-	16.50	
		132	5660		-	-	16.50	
		136	5680		-	-	16.50	
		140	5700		-	-	16.50	
	802.11n HT40	102	5510	MCS0	-	-	19.00	
		110	5550		-	-	19.00	
		118	5590		-	-	19.00	
		126	5630		-	-	19.00	
		134	5670		-	-	19.00	
	802.11ac VHT40	102	5510	MCS0	-	-	19.00	
		110	5550		-	-	19.00	
		118	5590		-	-	19.00	
		126	5630		-	-	19.00	
		134	5670		-	-	19.00	
	802.11ax HE40	102	5510	MCS0	-	-	18.00	
		110	5550		-	-	18.00	
		118	5590		-	-	18.00	
		126	5630		-	-	18.00	
		134	5670		-	-	18.00	
	802.11ac VHT80	106	5530	MCS0	15.59	15.67	19.00	18.64
		122	5610		15.41	15.18	19.00	18.31
	802.11ax HE80	106	5530	MCS0	-	-	18.00	Not Required
		122	5610		-	-	18.00	
5.8G	802.11a	149	5745	6	-	-	19.00	Not Required
		153	5765		-	-	19.00	

		157	5785		-	-	19.00	
		161	5805		-	-	19.00	
		165	5825		-	-	19.00	
	802.11n HT20	149	5745	MCS0	-	-	19.00	
		153	5765		-	-	19.00	
		157	5785		-	-	19.00	
		161	5805		-	-	19.00	
		165	5825		-	-	19.00	
	802.11ac VHT20	149	5745	MCS0	-	-	19.00	
		153	5765		-	-	19.00	
		157	5785		-	-	19.00	
		161	5805		-	-	19.00	
		165	5825		-	-	19.00	
	802.11ax HE20	149	5745	MCS0	-	-	18.00	
		153	5765		-	-	18.00	
		157	5785		-	-	18.00	
		161	5805		-	-	18.00	
		165	5825		-	-	18.00	
	802.11n HT40	151	5755	MCS0	-	-	19.00	
		159	5795		-	-	19.00	
	802.11ac VHT40	151	5755	MCS0	-	-	19.00	
		159	5795		-	-	19.00	
	802.11ax HE40	151	5755	MCS0	-	-	18.00	
		159	5795		-	-	18.00	
	802.11ac VHT80	155	5775	MCS0	15.89	15.33	19.00	18.63
	802.11ax HE80	155	5775	MCS0	-	-	18.00	Not Required

BT	Max. Tune up (dBm)	Average Conducted Power(dBm)		
		CH0	CH39	CH78
		2402 (MHz)	2441 (MHz)	2480 (MHz)
DH5	15.00	14.58	**14.89**	14.28
2DH5	15.00	13.07	13.04	13.08
3DH5	15.00	13.09	13.02	13.01

BT	Max. Tune up (dBm)	Average Conducted Power(dBm)		
		CH0	CH19	CH39
		2402 (MHz)	2440 (MHz)	2480 (MHz)
BLE(1M)	9.00	7.84	8.27	7.83
BLE(2M)	9.00	7.86	8.28	7.82

9.2. SAR Testing Results

9.2.1. SAR Test Reduction Considerations

<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 SAR for the mid-band or highest output power channel is:

(1) ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz

(2) ≤ 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

(3) ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

<KDB 248227 D01, SAR Guidance for Wi-Fi Transmitters>

(1) For handsets operating next to ear, hotspot mode or mini-tablet configurations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When the reported SAR of initial test position is <= 0.4 W/kg, SAR testing for remaining test positions is not required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is <= 0.8 W/kg or all test positions are measured.

(2) For WLAN 2.4 GHz, the highest measured maximum output power channel for DSSS was selected for SAR measurement. When the reported SAR is <= 0.8 W/kg, no further SAR testing is required. Otherwise, SAR is evaluated at the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel. For OFDM modes (802.11g/n), SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and it is <= 1.2 W/kg.

(3) For WLAN 5 GHz, the initial test configuration was selected according to the transmission mode with the highest maximum output power. When the reported SAR of initial test configuration is > 0.8 W/kg, SAR is required for the subsequent highest measured output power channel until the reported SAR result is <= 1.2 W/kg or all required channels are measured. For other transmission modes, SAR is not required when the highest reported SAR for initial test configuration is adjusted by the ratio of subsequent test configuration to initial test configuration specified maximum output power and it is <= 1.2 W/kg.

(4) For WLAN MIMO mode, the power-based standalone SAR test exclusion or the sum of SAR provision in KDB 447498 to determine simultaneous transmission SAR test exclusion should be applied. Otherwise, SAR for MIMO mode will be measured with all applicable antennas transmitting simultaneously at the specified maximum output power of MIMO operation.

9.2.2. SAR Results for Head Exposure Condition

WiFi/BT SAR only

Plot No.	Band	Ch.	Test Position	Ant.	Duty Cycle %	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaling Factor	Scaled SAR-1g (W/kg)	Note
	802.11b	1	Right Cheek	8	99.56%	1.004	17	16.82	0.07	0.453	1.042	0.474	
	802.11b	1	Right Tilted	8	99.56%	1.004	17	16.82	0.04	0.534	1.042	0.559	
	802.11b	1	Left Cheek	8	99.56%	1.004	17	16.82	0.06	0.695	1.042	0.728	
1	802.11b	1	Left Tilted	8	99.56%	1.004	17	16.82	0.10	0.754	1.042	**0.789**	
2	802.11b	6	Right Cheek	2	99.56%	1.004	17	16.78	0.00	0.065	1.052	**0.069**	
	802.11b	6	Right Tilted	2	99.56%	1.004	17	16.78	0.00	＜0.01	1.052	＜0.01	
	802.11b	6	Left Cheek	2	99.56%	1.004	17	16.78	0.01	0.023	1.052	0.024	
	802.11b	6	Left Tilted	2	99.56%	1.004	17	16.78	0.07	0.004	1.052	0.004	
	BT DH5	39	Right Cheek	8	76.69%	1.304	15	14.89	0.03	0.046	1.026	0.062	
	BT DH5	39	Right Tilted	8	76.69%	1.304	15	14.89	0.06	0.054	1.026	0.072	
3	BT DH5	39	Left Cheek	8	76.69%	1.304	15	14.89	-0.08	0.083	1.026	**0.111**	
	BT DH5	39	Left Tilted	8	76.69%	1.304	15	14.89	-0.06	0.075	1.026	0.100	
	802.11ac VHT80	42	Right Cheek	7	97.08%	1.030	16	15.78	0.02	0.348	1.052	0.377	
4	802.11ac VHT80	42	Right Tilted	7	97.08%	1.030	16	15.78	-0.13	0.468	1.052	**0.507**	
	802.11ac VHT80	42	Left Cheek	7	97.08%	1.030	16	15.78	0.13	0.310	1.052	0.336	
	802.11ac VHT80	42	Left Tilted	7	97.08%	1.030	16	15.78	0.08	0.399	1.052	0.432	
5	802.11ac VHT80	42	Right Cheek	9	97.08%	1.030	16	15.75	0.06	0.134	1.059	**0.146**	
	802.11ac VHT80	42	Right Tilted	9	97.08%	1.030	16	15.75	0.02	0.078	1.059	0.085	
	802.11ac VHT80	42	Left Cheek	9	97.08%	1.030	16	15.75	-0.03	0.048	1.059	0.052	
	802.11ac VHT80	42	Left Tilted	9	97.08%	1.030	16	15.75	-0.08	0.059	1.059	0.064	
	802.11ac VHT80	58	Right Cheek	7	97.08%	1.030	16.5	16.45	0.02	0.338	1.012	0.352	
6	802.11ac VHT80	58	Right Tilted	7	97.08%	1.030	16.5	16.45	0.03	0.403	1.012	**0.420**	
	802.11ac VHT80	58	Left Cheek	7	97.08%	1.030	16.5	16.45	0.07	0.283	1.012	0.295	
	802.11ac VHT80	58	Left Tilted	7	97.08%	1.030	16.5	16.45	-0.07	0.379	1.012	0.395	
7	802.11ac VHT80	58	Right Cheek	9	97.08%	1.030	16.5	16.13	-0.07	0.181	1.089	**0.203**	
	802.11ac VHT80	58	Right Tilted	9	97.08%	1.030	16.5	16.13	0.02	0.081	1.089	0.091	
	802.11ac VHT80	58	Left Cheek	9	97.08%	1.030	16.5	16.13	0.02	0.074	1.089	0.083	
	802.11ac VHT80	58	Left Tilted	9	97.08%	1.030	16.5	16.13	0.09	0.076	1.089	0.085	
	802.11ac VHT80	106	Right Cheek	7	97.08%	1.030	16	15.89	0.07	0.281	1.026	0.297	
	802.11ac VHT80	106	Right Tilted	7	97.08%	1.030	16	15.89	0.12	0.362	1.026	0.382	
	802.11ac VHT80	106	Left Cheek	7	97.08%	1.030	16	15.89	0.07	0.284	1.026	0.300	
8	802.11ac VHT80	106	Left Tilted	7	97.08%	1.030	16	15.89	0.12	0.392	1.026	**0.414**	
9	802.11ac VHT80	106	Right Cheek	9	97.08%	1.030	16	15.67	-0.02	0.435	1.079	**0.483**	
	802.11ac VHT80	106	Right Tilted	9	97.08%	1.030	16	15.67	0.03	0.168	1.079	0.187	
	802.11ac VHT80	106	Left Cheek	9	97.08%	1.030	16	15.67	0.08	0.176	1.079	0.196	
	802.11ac VHT80	106	Left Tilted	9	97.08%	1.030	16	15.67	-0.02	0.083	1.079	0.093	
	802.11ac VHT80	155	Right Cheek	7	97.08%	1.030	17	16.89	0.07	0.531	1.026	0.561	
	802.11ac VHT80	155	Right Tilted	7	97.08%	1.030	17	16.89	-0.08	0.698	1.026	0.737	
	802.11ac VHT80	155	Left Cheek	7	97.08%	1.030	17	16.89	0.02	0.705	1.026	0.745	
10	802.11ac VHT80	155	Left Tilted	7	97.08%	1.030	17	16.89	0.16	0.830	1.026	**0.877**	
	802.11ac VHT80	155	Left Tilted	7	97.08%	1.030	17	16.89	0.05	0.818	1.026	0.864	Repeat 1
11	802.11ac VHT80	155	Right Cheek	9	97.08%	1.030	17	16.83	-0.09	0.412	1.040	**0.441**	
	802.11ac VHT80	155	Right Tilted	9	97.08%	1.030	17	16.83	0.01	0.169	1.040	0.181	
	802.11ac VHT80	155	Left Cheek	9	97.08%	1.030	17	16.83	-0.04	0.096	1.040	0.103	
	802.11ac VHT80	155	Left Tilted	9	97.08%	1.030	17	16.83	-0.10	0.063	1.040	0.067	

WiFi Simultaneous with WWAN

Plot No.	Band	Ch.	Test Position	Ant.	Duty Cycle %	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaling Factor	Scaled SAR-1g (W/kg)
	802.11b	1	Right Cheek	8	99.56%	1.004	15	14.74	0.11	0.151	1.062	0.161
	802.11b	1	Right Tilted	8	99.56%	1.004	15	14.74	0.07	0.175	1.062	0.187
12	802.11b	1	Left Cheek	8	99.56%	1.004	15	14.74	0.03	0.269	1.062	**0.287**
	802.11b	1	Left Tilted	8	99.56%	1.004	15	14.74	0.01	0.247	1.062	0.263
	802.11ac VHT80	155	Right Cheek	7	97.08%	1.030	16	15.84	0.11	0.291	1.038	0.311
	802.11ac VHT80	155	Right Tilted	7	97.08%	1.030	16	15.84	0.07	0.359	1.038	0.384
	802.11ac VHT80	155	Left Cheek	7	97.08%	1.030	16	15.84	0.04	0.344	1.038	0.368
13	802.11ac VHT80	155	Left Tilted	7	97.08%	1.030	16	15.84	0.11	0.487	1.038	**0.520**

9.2.3.SAR Results for Body-worn Exposure Condition (Separation Distance is 1.5 cm Gap)

WiFi only

Plot No.	Band	Ch.	Test Position	Ant.	Duty Cycle %	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaling Factor	Scaled SAR-1g (W/kg)
	802.11b	1	Front Face	8	99.56%	1.004	17	16.82	-0.03	0.102	1.042	0.107
14	802.11b	1	Rear Face	8	99.56%	1.004	17	16.82	-0.04	0.102	1.042	**0.107**
	802.11b	6	Front Face	2	99.56%	1.004	17	16.78	-0.08	0.007	1.052	0.007
15	802.11b	6	Rear Face	2	99.56%	1.004	17	16.78	-0.02	0.008	1.052	**0.009**
16	BT DH5	39	Front Face	8	76.69%	1.304	15	14.89	-0.07	0.048	1.026	**0.064**
	BT DH5	39	Rear Face	8	76.69%	1.304	15	14.89	-0.05	0.048	1.026	0.064
	802.11ac VHT80	42	Front Face	7	97.08%	1.030	16	15.78	0.06	0.046	1.052	0.050
17	802.11ac VHT80	42	Rear Face	7	97.08%	1.030	16	15.78	-0.05	0.145	1.052	**0.157**
	802.11ac VHT80	42	Front Face	9	97.08%	1.030	16	15.75	0.05	0.016	1.059	0.017
18	802.11ac VHT80	42	Rear Face	9	97.08%	1.030	16	15.75	0.00	0.081	1.059	**0.088**
	802.11ac VHT80	58	Front Face	7	97.08%	1.030	16.5	16.45	-0.02	0.058	1.012	0.060
19	802.11ac VHT80	58	Rear Face	7	97.08%	1.030	16.5	16.45	-0.03	0.180	1.012	**0.188**
	802.11ac VHT80	58	Front Face	9	97.08%	1.030	16.5	16.13	-0.01	0.023	1.089	0.025
20	802.11ac VHT80	58	Rear Face	9	97.08%	1.030	16.5	16.13	0.07	0.107	1.089	**0.120**
	802.11ac VHT80	106	Front Face	7	97.08%	1.030	16	15.89	-0.18	0.057	1.026	0.061
21	802.11ac VHT80	106	Rear Face	7	97.08%	1.030	16	15.89	-0.03	0.181	1.026	**0.191**
	802.11ac VHT80	106	Front Face	9	97.08%	1.030	16	15.67	-0.08	0.053	1.079	0.059
22	802.11ac VHT80	106	Rear Face	9	97.08%	1.030	16	15.67	-0.02	0.145	1.079	**0.161**
	802.11ac VHT80	155	Front Face	7	97.08%	1.030	17	16.89	0.08	0.085	1.026	0.090
23	802.11ac VHT80	155	Rear Face	7	97.08%	1.030	17	16.89	-0.03	0.223	1.026	**0.236**
	802.11ac VHT80	155	Front Face	9	97.08%	1.030	17	16.83	0.06	0.068	1.040	0.073
24	802.11ac VHT80	155	Rear Face	9	97.08%	1.030	17	16.83	-0.06	**0.079**	1.040	**0.084**

9.2.4.SAR Results for Hotspot Exposure Condition (Separation Distance is 1.0 cm Gap)

WiFi SAR only

Plot No.	Band	Ch.	Test Position	Ant.	Duty Cycle %	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaling Factor	Scaled SAR-1g (W/kg)
	802.11b	1	Front Face	8	99.56%	1.004	17	16.82	-0.02	0.170	1.042	0.178
	802.11b	1	Rear Face	8	99.56%	1.004	17	16.82	-0.04	0.132	1.042	0.138
	802.11b	1	Right Side	8	99.56%	1.004	17	16.82	-0.09	0.101	1.042	0.106
25	802.11b	1	Top Side	8	99.56%	1.004	17	16.82	-0.18	0.222	1.042	**0.232**
	802.11b	6	Front Face	2	99.56%	1.004	17	16.78	-0.02	0.014	1.052	0.015
	802.11b	6	Rear Face	2	99.56%	1.004	17	16.78	-0.12	0.019	1.052	0.020
26	802.11b	6	Right Side	2	99.56%	1.004	17	16.78	0.00	0.040	1.052	**0.042**
	802.11b	6	Top Side	2	99.56%	1.004	17	16.78	-0.07	0.005	1.052	0.005
	802.11ac VHT80	42	Front Face	7	97.08%	1.030	16	15.78	-0.06	0.098	1.052	0.106
	802.11ac VHT80	42	Rear Face	7	97.08%	1.030	16	15.78	-0.07	0.262	1.052	0.284
	802.11ac VHT80	42	Right Side	7	97.08%	1.030	16	15.78	-0.02	0.026	1.052	0.028
28	802.11ac VHT80	42	Top Side	7	97.08%	1.030	16	15.78	-0.02	0.449	1.052	**0.487**
	802.11ac VHT80	42	Front Face	9	97.08%	1.030	16	15.75	-0.08	0.039	1.059	0.043
29	802.11ac VHT80	42	Rear Face	9	97.08%	1.030	16	15.75	-0.05	0.208	1.059	**0.227**
	802.11ac VHT80	42	Left Side	9	97.08%	1.030	16	15.75	0.19	0.170	1.059	0.185
	802.11ac VHT80	42	Top Side	9	97.08%	1.030	16	15.75	0.05	0.068	1.059	0.074
	802.11ac VHT80	155	Front Face	7	97.08%	1.030	17	16.89	-0.03	0.121	1.026	0.128
	802.11ac VHT80	155	Rear Face	7	97.08%	1.030	17	16.89	-0.05	0.296	1.026	0.313
	802.11ac VHT80	155	Right Side	7	97.08%	1.030	17	16.89	-0.07	0.064	1.026	0.068
34	802.11ac VHT80	155	Top Side	7	97.08%	1.030	17	16.89	-0.06	0.503	1.026	**0.531**
	802.11ac VHT80	155	Front Face	9	97.08%	1.030	17	16.83	-0.06	0.082	1.040	0.088
	802.11ac VHT80	155	Rear Face	9	97.08%	1.030	17	16.83	-0.01	0.126	1.040	0.135
35	802.11ac VHT80	155	Left Side	9	97.08%	1.030	17	16.83	0.07	0.219	1.040	**0.235**
	802.11ac VHT80	155	Top Side	9	97.08%	1.030	17	16.83	-0.15	0.058	1.040	0.062

WiFi SAR Sim…with WWAN

Plot No.	Band	Ch.	Test Position	Ant.	Duty Cycle %	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaling Factor	Scaled SAR-1g (W/kg)
	802.11ac VHT80	155	Front Face	7	97.08%	1.030	16	15.84	-0.09	0.094	1.038	0.100
	802.11ac VHT80	155	Rear Face	7	97.08%	1.030	16	15.84	-0.04	0.252	1.038	0.269
	802.11ac VHT80	155	Right Side	7	97.08%	1.030	16	15.84	-0.06	0.056	1.038	0.060
36	802.11ac VHT80	155	Top Side	7	97.08%	1.030	16	15.84	0.03	0.414	1.038	**0.442**

9.2.5.SAR Results for Extremity Exposure Condition (Separation Distance is 0 cm Gap)

WiFi/BT SAR only

Plot No.	Band	Ch.	Test Position	Ant.	Duty Cycle %	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-10g (W/kg)	Scaling Factor	Scaled SAR-10g (W/kg)
	BT DH5	39	Front Face	8	76.69%	1.304	15	14.89	-0.07	0.050	1.026	0.051
	BT DH5	39	Rear Face	8	76.69%	1.304	15	14.89	0.13	0.037	1.026	0.038
	BT DH5	39	Right Side	8	76.69%	1.304	15	14.89	0.05	0.026	1.026	0.027
27	BT DH5	39	Top Side	8	76.69%	1.304	15	14.89	0.08	0.116	1.026	**0.119**
	802.11ac VHT80	58	Front Face	7	97.08%	1.030	16.5	16.45	0.00	0.166	1.012	0.168
	802.11ac VHT80	58	Rear Face	7	97.08%	1.030	16.5	16.45	-0.08	0.290	1.012	0.293
	802.11ac VHT80	58	Right Side	7	97.08%	1.030	16.5	16.45	-0.18	0.025	1.012	0.025
30	802.11ac VHT80	58	Top Side	7	97.08%	1.030	16.5	16.45	0.04	1.330	1.012	**1.345**
	802.11ac VHT80	58	Front Face	9	97.08%	1.030	16.5	16.13	-0.09	0.133	1.089	0.145
31	802.11ac VHT80	58	Rear Face	9	97.08%	1.030	16.5	16.13	-0.11	0.799	1.089	**0.870**
	802.11ac VHT80	58	Left Side	9	97.08%	1.030	16.5	16.13	0.12	0.428	1.089	0.466
	802.11ac VHT80	58	Top Side	9	97.08%	1.030	16.5	16.13	-0.10	0.095	1.089	0.103
	802.11ac VHT80	106	Front Face	7	97.08%	1.030	16	15.89	0.00	0.179	1.026	0.184
	802.11ac VHT80	106	Rear Face	7	97.08%	1.030	16	15.89	-0.02	0.294	1.026	0.302
	802.11ac VHT80	106	Right Side	7	97.08%	1.030	16	15.89	0.03	0.035	1.026	0.036
32	802.11ac VHT80	106	Top Side	7	97.08%	1.030	16	15.89	0.10	1.270	1.026	**1.303**
	802.11ac VHT80	106	Front Face	9	97.08%	1.030	16	15.67	-0.08	0.229	1.079	0.247
33	802.11ac VHT80	106	Rear Face	9	97.08%	1.030	16	15.67	0.00	0.441	1.079	**0.476**
	802.11ac VHT80	106	Left Side	9	97.08%	1.030	16	15.67	-0.17	0.330	1.079	0.356
	802.11ac VHT80	106	Top Side	9	97.08%	1.030	16	15.67	0.07	0.089	1.079	0.096

9.2.6. SAR Measurement Variability

According to KDB 865664 D01, SAR measurement variability was assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. Alternatively, if the highest measured SAR for both head and body tissue-equivalent media are ≤ 1.45 W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is ≤ 1.10, the highest SAR configuration for either head or body tissue-equivalent medium may be used to perform the repeated measurement. 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.

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is >= 0.80 W/kg, repeat that measurement once.
3. 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 W/kg, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20, and the original, first or second repeated measurement is >= 1.5 W/kg, perform a third repeated measurement.

Band	Channel	Test Position	Ant.	Original Measured SAR-1g (W/kg)	1st Repeated SAR-1g (W/kg)	L/S Ratio	2nd Repeated SAR-1g (W/kg)	L/S Ratio	3rd Repeated SAR-1g (W/kg)	L/S Ratio
802.11ac VHT80	155	Left Tilted	7	0.830	0.818	1.015	N/A	N/A	N/A	N/A

9.2.7. Simultaneous Multi-band Transmission Evaluation

WWAN+WiFi Simultaneous SAR result refer the "BTL-FCC SAR-1-2208G029".

<SAR Summation Analysis>

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna. When the sum of SAR_{1g} of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR_{1g} 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR_{1g} is greater than the SAR limit (SAR_{1g} 1.6 W/kg), SAR test exclusion is determined by the SPLSR.

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1 (Ant.8)	Max. SAR2 (Ant.2)	SAR Summation	SPLSR Analysis
1	WLAN 2.4G MIMO	Head	Right Cheek	0.474	0.069	0.543	ΣSAR < 1.6, Not required
			Right Tilted	0.559	＜0.01	0.559	ΣSAR < 1.6, Not required
			Left Cheek	0.728	0.024	0.752	ΣSAR < 1.6, Not required
			Left Tilted	0.789	0.004	0.793	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.107	0.007	0.114	ΣSAR < 1.6, Not required
			Rear Face	0.107	0.009	0.116	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.178	0.015	0.193	ΣSAR < 1.6, Not required
			Rear Face	0.138	0.020	0.158	ΣSAR < 1.6, Not required
			Left Side	0.000	0.000	0.000	ΣSAR < 1.6, Not required
			Right Side	0.106	0.042	0.148	ΣSAR < 1.6, Not required
			Top Side	0.232	0.005	0.237	ΣSAR < 1.6, Not required
			Bottom Side	0.000	0.000	0.000	ΣSAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1 (Ant.8)	Max. SAR2 (Ant.2)	SAR Summation	SPLSR Analysis
2	WLAN 5.2G MIMO	Head	Right Cheek	0.377	0.146	0.523	ΣSAR < 1.6, Not required
			Right Tilted	0.507	0.085	0.592	ΣSAR < 1.6, Not required
			Left Cheek	0.336	0.052	0.388	ΣSAR < 1.6, Not required
			Left Tilted	0.432	0.064	0.496	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.050	0.017	0.067	ΣSAR < 1.6, Not required
			Rear Face	0.157	0.088	0.245	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.106	0.043	0.149	ΣSAR < 1.6, Not required
			Rear Face	0.284	0.227	0.511	ΣSAR < 1.6, Not required
			Left Side	0.000	0.185	0.185	ΣSAR < 1.6, Not required
			Right Side	0.028	0.000	0.028	ΣSAR < 1.6, Not required
			Top Side	0.487	0.074	0.561	ΣSAR < 1.6, Not required

			Bottom Side	0.000	0.000	0.000	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1 (Ant.7)	Max. SAR2 (Ant.9)	SAR Summation	SPLSR Analysis
3	WLAN 5.3G MIMO	Head	Right Cheek	0.352	0.203	0.555	Σ SAR < 1.6, Not required
			Right Tilted	0.420	0.091	0.511	Σ SAR < 1.6, Not required
			Left Cheek	0.295	0.083	0.378	Σ SAR < 1.6, Not required
			Left Tilted	0.395	0.085	0.480	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.060	0.025	0.085	Σ SAR < 1.6, Not required
			Rear Face	0.188	0.120	0.308	Σ SAR < 1.6, Not required
		Extremity	Front Face	0.168	0.114	0.282	Σ SAR < 4.0, Not required
			Rear Face	0.293	0.870	1.163	Σ SAR < 4.0, Not required
			Left Side	0.000	0.466	0.466	Σ SAR < 4.0, Not required
			Right Side	0.025	0.000	.025	Σ SAR < 4.0, Not required
			Top Side	1.345	0.103	1.448	Σ SAR < 4.0, Not required
			Bottom Side	0.000	0.000	0.000	Σ SAR < 4.0, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1 (Ant.7)	Max. SAR2 (Ant.9)	SAR Summation	SPLSR Analysis
4	WLAN 5.6G MIMO	Head	Right Cheek	0.297	0.483	0.780	Σ SAR < 1.6, Not required
			Right Tilted	0.382	0.187	0.569	Σ SAR < 1.6, Not required
			Left Cheek	0.300	0.196	0.496	Σ SAR < 1.6, Not required
			Left Tilted	0.414	0.093	0.507	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.061	0.059	0.120	Σ SAR < 1.6, Not required
			Rear Face	0.191	0.161	0.352	Σ SAR < 1.6, Not required
		Extremity	Front Face	0.184	0.247	0.431	Σ SAR < 4.0, Not required
			Rear Face	0.302	0.476	0.788	Σ SAR < 4.0, Not required
			Left Side	0.000	0.356	0.356	Σ SAR < 4.0, Not required
			Right Side	0.036	0.000	0.036	Σ SAR < 4.0, Not required
			Top Side	1.303	0.096	1.399	Σ SAR < 4.0, Not required
			Bottom Side	0.000	0.000	0.000	Σ SAR < 4.0, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1 (Ant.7)	Max. SAR2 (Ant.9)	SAR Summation	SPLSR Analysis
5	WLAN 5.8G MIMO	Head	Right Cheek	0.648	0.441	1.089	Σ SAR < 1.6, Not required
			Right Tilted	0.853	0.181	1.034	Σ SAR < 1.6, Not required
			Left Cheek	0.861	0.103	0.964	Σ SAR < 1.6, Not required
			Left Tilted	1.014	0.067	1.081	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.090	0.073	0.163	Σ SAR < 1.6, Not required
			Rear Face	0.236	0.084	0.320	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.128	0.088	0.216	Σ SAR < 1.6, Not required
			Rear Face	0.313	0.135	0.448	Σ SAR < 1.6, Not required
			Left Side	0.000	0.235	0.235	Σ SAR < 1.6, Not required
			Right Side	0.068	0.000	0.068	Σ SAR < 1.6, Not required
			Top Side	0.531	0.062	0.593	Σ SAR < 1.6, Not required
			Bottom Side	0.000	0.000	0.000	Σ SAR < 1.6, Not required

Test Engineer： Warren Xiong,

Appendixes

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: SAR Plots of System Verification

The plots for system verification with largest deviation for each SAR system combination are shown as follows.

Appendix B: SAR Plots of SAR Measurement

The SAR plots for highest measured SAR in each exposure configuration, wireless mode and frequency band combination, and measured SAR > 1.5 W/kg are shown as follows.

Appendix C: Calibration Certificate for probe and Dipole

Appendix D: Photographs of EUT and setup