RF SAFETY LAB
A NEXT GENERATION TEST LABORATORY™

RF Safety Laboratory, LLC
5520 Research Park Drive, Suite 140
Catonsville, Maryland 21228 USA
Lab Code: 32002
+1 202 240 9240
info@rfsafetylab.com

SAR EVALUATION REPORT

FCC ID:	AFJ448000
IC:	202D-448000
HVIN:	448000-01
Model:	IP510H
Device Type:	Push to Talk Radio
Report Issue Date:	March 5, 2025

Icom Inc.
1-1-32 Kamiminami Hirano-ku,
Osaka, Japan 547-0003

Certification

Band / Mode	Face SAR [W/kg]	Body SAR [W/kg]	1g Simultaneous Tx SAR [W/kg]
All LTE Bands	0.19	0.46	0.79
2.4 GHz WIFI	< 0.10	< 0.10	0.79
5 GHz WIFI	< 0.10	0.29	0.79
2.4 GHz Bluetooth	< 0.10	< 0.10	0.79
FCC/ISED Limit	**1.6**	**1.6**	**1.6**

The measurement evaluations presented in this report are based on the maximum performance of the tested device(s), which has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment / general population exposure federal limits in 47CFR § 1.1310 and Health Canada Safety Code 6 and has been tested in accordance with the measurement procedures specified within this report.

This document has been revised and replaces all previously issued versions of this document with the same Test Report S/N.

ilac-MRA

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BLOCKCHAIN VERIFIED

Steve Liu
President

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1. DUT Specifics

1.1. Device under Test

The device under test is a push-to-talk radio with different batteries, body-worn accessories, and audio accessories. Please see section 3.7 for the accessories supplied with the radio.

The manufacturer has confirmed that the device is within operational tolerances expected for production units and has the same physical, mechanical, and thermal characteristics expected for production units. The serial number of the device used for each test is indicated alongside the results.

1.2. Maximum SAR per Mode

Table 1-1 FCC/ISED Maximum SAR Summary

Band/Mode	Frequency (MHz)	Face SAR [W/kg]	Body SAR [W/kg]	1g Simultaneous Tx SAR [W/kg]
LTE Band 71	663 - 698 MHz	0.166	0.329	0.788
LTE Band 12	699 - 716 MHz	0.171	0.358	0.788
LTE Band 13	777 - 787 MHz	0.185	0.457	0.788
LTE Band 14	788 - 798 MHz	0.174	0.440	0.788
LTE Band 26	814 - 849 MHz	0.131	0.256	0.788
LTE Band 5	824 - 849 MHz	0.120	0.322	0.788
LTE Band 66	1710 - 1780 MHz	0.094	0.293	0.788
LTE Band 4	1710 - 1755 MHz	-	-	-
LTE Band 25	1850 - 1915 MHz	0.096	0.306	0.788
LTE Band 2	1850 - 1910 MHz	-	-	-
2.4 GHz WIFI	2412 - 2462 MHz	0.011	0.030	0.788
5 GHz WIFI	5180 - 5825 MHz	0.034	0.293	0.788
2.4 GHz Bluetooth	2402 - 2480 MHz	0.000	0.008	0.788

Note: LTE Band 26 is not supported in Canada.

This device supports LTE capabilities with overlapping transmission frequency ranges. When the supported frequency range of a LTE band falls completely within a LTE band with a larger transmission frequency range, both LTE bands have the same maximum output power, and both LTE bands share the same transmission path and signal characteristics, SAR was only evaluated for the LTE band with larger transmission frequency range.

1.3. LTE Supported Bandwidths and Modulations

Table 1-2 LTE Bands and Modulations

Band	Bandwidth (MHz)	UL Modulation
LTE Band 71	20, 15, 10, 5	QPSK, 16QAM
LTE Band 12	10, 5, 3, 1.4	QPSK, 16QAM
LTE Band 13	10, 5	QPSK, 16QAM
LTE Band 14	10, 5	QPSK, 16QAM
LTE Band 26	15, 10, 5, 3, 1.4	QPSK, 16QAM
LTE Band 5	10, 5, 3, 1.4	QPSK, 16QAM
LTE Band 66	20, 15, 10, 5, 3, 1.4	QPSK, 16QAM
LTE Band 4	20, 15, 10, 5, 3, 1.4	QPSK, 16QAM
LTE Band 25	20, 15, 10, 5, 3, 1.4	QPSK, 16QAM
LTE Band 2	20, 15, 10, 5, 3, 1.4	QPSK, 16QAM

Note: LTE Band 26 is not supported in Canada.

1.4. Maximum Time-Averaged Power From Manufacturer

The manufacturer has confirmed that this device follows the below target output power specifications and tolerances. SAR values were scaled to the maximum allowed power (including tolerance) to determine compliance per KDB Publication 447498 D04v01.

Table 1-3 LTE Target RF Output Power

LTE	
Band/Mode	Modulated Average Nominal Power [dBm]
LTE Band 71	23.0
LTE Band 12	23.0
LTE Band 13	23.0
LTE Band 14	23.0
LTE Band 26	23.0
LTE Band 5	23.0
LTE Band 66	23.0
LTE Band 4	23.0
LTE Band 25	23.0
LTE Band 2	23.0
Upper Tolerance: +1.0 dB	
Lower Tolerance: -2.0 dB	

Note: LTE Band 26 is not supported in Canada.

Table 1-4 2.4 GHz WIFI Target RF Output Power

2.4 GHz WIFI Target Power [dBm]					
Power Level	Mode		802.11b	802.11g	802.11n
	Channel	Freq. [MHz]	WLAN Antenna	WLAN Antenna	WLAN Antenna
Max	1	2412	16	9	8
	2	2417	17	9	8
	3	2422	17	9	8
	4	2427	17	16	16
	5	2432	17	16	16
	6	2437	17	16	16
	7	2442	17	16	16
	8	2447	17	16	16
	9	2452	17	9	8
	10	2457	17	9	8
	11	2462	16	9	8
Upper Tolerance: +2 dB					

Table 1-5 5 GHz WIFI Target RF Output Power

5 GHz WIFI Target Power [dBm]							
Power Level	Channel Bandwidth [MHz]	Band	Mode		802.11a	802.11n	802.11ac
			Channel	Freq. [MHz]	WLAN Antenna	WLAN Antenna	WLAN Antenna
Max	20	UNII-1	36	5180	14	14	14
		UNII-1	40	5200	16	16	16
		UNII-1	44	5220	16	16	16
		UNII-1	48	5240	16	16	16
		UNII-2A	52	5260	16	16	16
		UNII-2A	56	5280	16	16	16
		UNII-2A	60	5300	16	16	16
		UNII-2A	64	5320	14	14	14
		UNII-2C	100	5500	13	12	12
		UNII-2C	104	5520	16	16	16
		UNII-2C	108	5540	16	16	16
		UNII-2C	112	5560	16	16	16
		UNII-2C	116	5580	16	16	16
		UNII-2C	120	5600	16	16	16
		UNII-2C	124	5620	16	16	16
		UNII-2C	128	5640	16	16	16
		UNII-2C	132	5660	16	16	16
		UNII-2C	136	5680	16	16	16
		UNII-2C	140	5700	13	12	12
		UNII-2C	144	5720	16	16	16
		UNII-3	149	5745	16	16	16
		UNII-3	153	5765	16	16	16
		UNII-3	157	5785	16	16	16
		UNII-3	161	5805	16	16	16
		UNII-3	165	5825	16	16	16
		Upper Tolerance			+2.5 dB	+1.5 dB	+1.5 dB
	40	UNII-1	38	5190		10	10
		UNII-1	46	5230		14	14
		UNII-2A	54	5270		14	14
		UNII-2A	62	5310		10	10
		UNII-2C	102	5510		10	10
		UNII-2C	110	5550		14	14
		UNII-2C	118	5590		14	14
		UNII-2C	126	5630		14	14
		UNII-2C	134	5670		10	10
		UNII-2C	142	5710		14	14
		UNII-3	151	5755		14	14
		UNII-3	159	5795		14	14
		Upper Tolerance				+2 dB	
	80	All	All				11
		Upper Tolerance					+2 dB

Table 1-6 2.4 GHz Bluetooth Target RF Output Power

2.4 GHz Bluetooth Target Power [dBm]		
Power Level	Mode	Bluetooth Antenna
Max	Bluetooth BR	9.1
	Bluetooth EDR	9.1
Upper Tolerance: +0 dB		

1.5. Test Guidance Applied

- IEEE 1528-2013
- IEC/IEEE 62209-1528:2020
- RSS-102 Issue 6
- RSS-102.SAR.MEAS
- Health Canada Safety Code 6
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D04v01 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 941225 D05v02r05 (4G)
- FCC KDB Publication 643646 D01v01r03 (PTT Radios)

2. DUT Conducted Powers

2.1. LTE Conducted Powers

Note: Per FCC KDB Publication 941225 D05v02r05, LTE SAR for the lower bandwidths and for higher order modulations was not required for testing since the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest bandwidth and the reported LTE SAR for the highest bandwidth was less than 1.45 W/kg. Conducted powers for the higher order modulations and for the lower bandwidths for all LTE Bands are included in the Secondary Mode Conducted Power Appendix.

Note: Some bands do not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 2-1

LTE Band 12		Frequency [MHz]		707.5	MPR [dB]
Antenna:	**Main**				
Bandwidth [MHz]:	**10**	Channel Number		23095	
Power Level	Modulation	RB Size	RB Offset	Conducted Powers [dBm]	
Max	QPSK	1	0	22.43	0
		1	25	**22.54**	0
		1	49	22.42	0
		25	0	**21.43**	1
		25	12	21.33	1
		25	25	21.37	1
		50	0	21.28	1

Table 2-2

LTE Band 13		Frequency [MHz]		782	MPR [dB]
Antenna:	**Main**				
Bandwidth [MHz]:	**10**	Channel Number		23230	
Power Level	Modulation	RB Size	RB Offset	Conducted Powers [dBm]	
Max	QPSK	1	0	22.53	0
		1	25	**22.56**	0
		1	49	22.36	0
		25	0	**21.38**	1
		25	12	21.33	1
		25	25	21.31	1
		50	0	21.30	1

Table 2-3

LTE Band 14		Frequency [MHz]		793	MPR [dB]
Antenna:	**Main**				
Bandwidth [MHz]:	**10**	Channel Number		23330	
Power Level	Modulation	RB Size	RB Offset	Conducted Powers [dBm]	
Max	QPSK	1	0	21.51	0
		1	25	**22.47**	0
		1	49	22.03	0
		25	0	21.10	1
		25	12	**21.18**	1
		25	25	21.10	1
		50	0	21.07	1

Table 2-4

LTE Band 25		Frequency [MHz]		1860	1882.5	1905	MPR [dB]
Antenna:	**Main**						
Bandwidth [MHz]:	**20**	Channel Number		26140	26365	26590	
Power Level	Modulation	RB Size	RB Offset	Conducted Powers [dBm]			
Max	QPSK	1	0	22.17	22.21	22.05	0
		1	50	22.31	22.19	**22.32**	0
		1	99	22.07	22.07	22.21	0
		50	0	21.04	21.01	21.03	1
		50	25	21.03	21.00	21.02	1
		50	50	**21.30**	21.01	21.00	1
		100	0	21.01	21.02	21.05	1

Table 2-5

LTE Band 26		Frequency [MHz]		831.5	MPR [dB]
Antenna:	**Main**				
Bandwidth [MHz]:	**15**	Channel Number		26865	
Power Level	Modulation	RB Size	RB Offset	Conducted Powers [dBm]	
Max	QPSK	1	0	22.47	0
		1	36	**22.50**	0
		1	74	22.44	0
		36	0	21.30	1
		36	18	**21.33**	1
		36	37	21.32	1
		75	0	21.30	1

Note: LTE Band 26 is not supported in Canada.

Table 2-6

LTE Band 5		Frequency [MHz]		836.5	MPR [dB]
Antenna:	**LTE**				
Bandwidth [MHz]:	**10**	Channel Number		20525	
Power Level	Modulation	RB Size	RB Offset	Conducted Powers [dBm]	
Max	QPSK	1	0	22.34	0
		1	25	22.39	0
		1	49	**22.45**	0
		25	0	21.30	1
		25	12	21.34	1
		25	25	**21.40**	1
		50	0	21.29	1

Table 2-7

LTE Band 66		Frequency [MHz]		1720	1745	1770	MPR [dB]
Antenna:	**Main**						
Bandwidth [MHz]:	**20**	Channel Number		132072	132322	132572	
Power Level	Modulation	RB Size	RB Offset	Conducted Powers [dBm]			
Max	QPSK	1	0	22.61	22.62	22.66	0
		1	50	22.57	**22.67**	22.63	0
		1	99	22.36	22.52	22.28	0
		50	0	21.42	**21.60**	21.38	1
		50	25	21.35	21.31	21.31	1
		50	50	21.44	21.22	21.13	1
		100	0	21.39	21.48	21.21	1

Table 2-8

LTE Band 71		Frequency [MHz]		680.5	MPR [dB]
Antenna:	**Main**				
Bandwidth [MHz]:	**20**	Channel Number		133297	
Power Level	Modulation	RB Size	RB Offset	Conducted Powers [dBm]	
Max	QPSK	1	0	21.95	0
		1	50	**22.39**	0
		1	99	22.30	0
		50	0	21.14	1
		50	25	21.25	1
		50	50	**21.33**	1
		100	0	21.21	1

Figure 2-1 Power Measurement Setup

2.2. WIFI Conducted Powers

Table 2-9

2.4 GHz WIFI Measured Conducted Power [dBm]					
Power Level	Mode		802.11b	802.11g	802.11n
	Ch.	Freq. [MHz]	WLAN Antenna	WLAN Antenna	WLAN Antenna
Max	1	2412	16.09	9.79	8.72
	2	2417	17.15	9.81	8.69
	6	2437	17.07	16.03	16.01
	10	2457	17.09	9.91	8.56
	11	2462	16.03	9.80	8.67

Table 2-10

5 GHz WIFI Measured Conducted Power [dBm]							
Power Level	Channel Bandwidth [MHz]	Band	Mode		802.11a	802.11n	802.11ac
			Channel	Freq. [MHz]	WLAN Antenna	WLAN Antenna	WLAN Antenna
Max	20	UNII-1	36	5180	14.60	14.55	14.57
		UNII-1	40	5200	17.17	17.20	17.00
		UNII-1	44	5220	16.94	16.96	17.03
		UNII-1	48	5240	16.98	16.98	17.10
		UNII-2A	52	5260	16.75	16.88	16.95
		UNII-2A	56	5280	16.74	16.85	16.95
		UNII-2A	60	5300	16.82	16.80	16.87
		UNII-2A	64	5320	15.14	15.17	15.16
		UNII-2C	100	5500	13.68	13.48	13.50
		UNII-2C	104	5520	17.06	17.04	17.07
		UNII-2C	120	5600	17.09	17.10	17.24
		UNII-2C	124	5620	17.06	17.06	17.22
		UNII-2C	144	5720	17.11	17.14	17.17
		UNII-3	149	5745	16.64	16.47	16.52
		UNII-3	157	5785	16.51	16.61	16.58
		UNII-3	165	5825	16.52	16.51	16.52

Figure 2-2 Power Measurement Setup

2.3. Bluetooth Conducted Powers

Table 2-11

2.4 GHz Bluetooth Measured Conducted Power [dBm]			
Power Level	Channel	Freq [MHz]	Conducted Power [dBm]
Max	0	2402	7.85
	39	2441	7.90
	78	2480	7.85

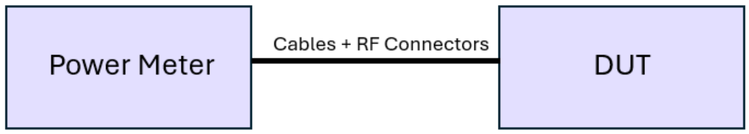

Figure 2-3 Power Measurement Setup

3. DUT SAR Test Results

3.1. LTE Face SAR Data

Table 3-1

Exposure Condition	Band/Mode	Antenna	Additional Information	DUT SN	Power Drift [dB]	Maximum Duty Cycle [%]	Measured Duty Cycle [%]	Frequency [MHz]	Channel	Modulation/Configuration	RB Size	RB Offset	Maximum Allowed Power [dBm]	Measured Conducted Power [dBm]	MPR [dB]	Separation Distance [mm]	Position	Measured 1g SAR [W/Kg]	Reported 1g SAR [W/Kg]	Test Plot
Face	LTE Band 12	LTE Main	Default Battery BP-314	00409	-0.04	50%	100%	707.5	23095	QPSK - 10 MHz	1	25	24	22.54	0	25	Front	0.220	0.154	-
Face	LTE Band 12	LTE Main	Battery BP-291	00409	-0.13	50%	100%	707.5	23095	QPSK - 10 MHz	1	25	24	22.54	0	25	Front	0.244	0.171	1
Face	LTE Band 12	LTE Main	Battery BP-315	00409	0.06	50%	100%	707.5	23095	QPSK - 10 MHz	1	25	24	22.54	0	25	Front	0.221	0.155	-
Face	LTE Band 12	LTE Main	Default Battery BP-314	00409	-0.04	50%	100%	707.5	23095	QPSK - 10 MHz	25	0	23	21.43	1	25	Front	0.164	0.118	-
Face	LTE Band 13	LTE Main	Default Battery BP-314	00409	0.01	50%	100%	782	23230	QPSK - 10 MHz	1	25	24	22.56	0	25	Front	0.233	0.162	-
Face	LTE Band 13	LTE Main	Battery BP-291	00409	-0.03	50%	100%	782	23230	QPSK - 10 MHz	1	25	24	22.56	0	25	Front	0.265	0.185	2
Face	LTE Band 13	LTE Main	Battery BP-315	00409	-0.08	50%	100%	782	23230	QPSK - 10 MHz	1	25	24	22.56	0	25	Front	0.249	0.173	-
Face	LTE Band 13	LTE Main	Default Battery BP-314	00409	0.01	50%	100%	782	23230	QPSK - 10 MHz	25	0	23	21.38	1	25	Front	0.175	0.127	-
Face	LTE Band 14	LTE Main	Default Battery BP-314	00409	-0.15	50%	100%	793	23330	QPSK - 10 MHz	1	25	24	22.47	0	25	Front	0.245	0.174	3
Face	LTE Band 14	LTE Main	Battery BP-291	00409	0.06	50%	100%	793	23330	QPSK - 10 MHz	1	25	24	22.47	0	25	Front	0.242	0.172	-
Face	LTE Band 14	LTE Main	Battery BP-315	00409	0.06	50%	100%	793	23330	QPSK - 10 MHz	1	25	24	22.47	0	25	Front	0.236	0.168	-
Face	LTE Band 14	LTE Main	Default Battery BP-314	00409	0.05	50%	100%	793	23330	QPSK - 10 MHz	25	12	23	21.18	1	25	Front	0.174	0.132	-
Face	LTE Band 25	LTE Main	Default Battery BP-314	00413	0.06	50%	100%	1905	26590	QPSK - 20 MHz	1	50	24	22.32	0	25	Front	0.108	0.080	-
Face	LTE Band 25	LTE Main	Battery BP-291	00413	-0.07	50%	100%	1905	26590	QPSK - 20 MHz	1	50	24	22.32	0	25	Front	0.131	0.096	4
Face	LTE Band 25	LTE Main	Battery BP-315	00413	0.03	50%	100%	1905	26590	QPSK - 20 MHz	1	50	24	22.32	0	25	Front	0.119	0.088	-
Face	LTE Band 25	LTE Main	Default Battery BP-314	00413	-0.07	50%	100%	1860	26140	QPSK - 20 MHz	50	50	23	21.30	1	25	Front	0.096	0.071	-
Face	LTE Band 26	LTE Main	Default Battery BP-314	00409	0.03	50%	100%	831.5	26865	QPSK - 15 MHz	1	36	24	22.50	0	25	Front	0.171	0.121	-
Face	LTE Band 26	LTE Main	Battery BP-291	00409	0.08	50%	100%	831.5	26865	QPSK - 15 MHz	1	36	24	22.50	0	25	Front	0.163	0.115	-
Face	LTE Band 26	LTE Main	Battery BP-315	00409	-0.04	50%	100%	831.5	26865	QPSK - 15 MHz	1	36	24	22.50	0	25	Front	0.185	0.131	5
Face	LTE Band 26	LTE Main	Default Battery BP-314	00409	-0.12	50%	100%	831.5	26865	QPSK - 15 MHz	36	18	23	21.33	1	25	Front	0.134	0.098	-
Face	LTE Band 5	LTE Main	Default Battery BP-314	00409	0.01	50%	100%	836.5	20525	QPSK - 10 MHz	1	49	24	22.45	0	25	Front	0.168	0.120	6
Face	LTE Band 5	LTE Main	Battery BP-291	00409	-0.03	50%	100%	836.5	20525	QPSK - 10 MHz	1	49	24	22.45	0	25	Front	0.137	0.098	-
Face	LTE Band 5	LTE Main	Battery BP-315	00409	0.04	50%	100%	836.5	20525	QPSK - 10 MHz	1	49	24	22.45	0	25	Front	0.151	0.108	-
Face	LTE Band 5	LTE Main	Default Battery BP-314	00409	0.00	50%	100%	836.5	20525	QPSK - 10 MHz	25	25	23	21.40	1	25	Front	0.133	0.096	-
Face	LTE Band 66	LTE Main	Default Battery BP-314	00413	-0.07	50%	100%	1745	132322	QPSK - 20 MHz	1	50	24	22.67	0	25	Front	0.119	0.081	-
Face	LTE Band 66	LTE Main	Battery BP-291	00413	0.03	50%	100%	1745	132322	QPSK - 20 MHz	1	50	24	22.67	0	25	Front	0.104	0.071	-
Face	LTE Band 66	LTE Main	Battery BP-315	00413	-0.05	50%	100%	1745	132322	QPSK - 20 MHz	1	50	24	22.67	0	25	Front	0.139	0.094	7
Face	LTE Band 66	LTE Main	Default Battery BP-314	00413	0.06	50%	100%	1745	132322	QPSK - 20 MHz	50	0	23	21.60	1	25	Front	0.091	0.063	-
Face	LTE Band 71	LTE Main	Default Battery BP-314	00409	0.05	50%	100%	680.5	133297	QPSK - 20 MHz	1	50	24	22.39	0	25	Front	0.229	0.166	8
Face	LTE Band 71	LTE Main	Battery BP-291	00409	-0.02	50%	100%	680.5	133297	QPSK - 20 MHz	1	50	24	22.39	0	25	Front	0.228	0.165	-
Face	LTE Band 71	LTE Main	Battery BP-315	00409	-0.11	50%	100%	680.5	133297	QPSK - 20 MHz	1	50	24	22.39	0	25	Front	0.228	0.165	-
Face	LTE Band 71	LTE Main	Default Battery BP-314	00409	-0.03	50%	100%	680.5	133297	QPSK - 20 MHz	50	50	23	21.33	1	25	Front	0.171	0.126	-

Note: LTE Band 26 is not supported in Canada.

3.2. WIFI Face SAR Data

Table 3-2

Exposure Condition	Band/Mode	Antenna	Additional Information	DUT SN	Power Drift [dB]	Maximum Duty Cycle [%]	Measured Duty Cycle [%]	Frequency [MHz]	Channel	Modulation/Configuration	Data Rate	Maximum Allowed Power [dBm]	Measured Conducted Power [dBm]	Separation Distance [mm]	Position	Measured 1g SAR [W/Kg]	Reported 1g SAR [W/Kg]	Test Plot
Face	2.4 GHz WIFI	WLAN	Default Battery BP-314	00413	0.05	50%	97%	2417	2	IEEE 802.11b - 22 MHz	1	19	17.15	25	Front	0.013	0.010	-
Face	2.4 GHz WIFI	WLAN	Battery BP-291	00413	0.19	50%	97%	2417	2	IEEE 802.11b - 22 MHz	1	19	17.15	25	Front	0.010	0.008	-
Face	2.4 GHz WIFI	WLAN	Battery BP-315	00413	-0.01	50%	97%	2417	2	IEEE 802.11b - 22 MHz	1	19	17.15	25	Front	0.014	0.011	9
Face	5 GHz WIFI	WLAN	Default Battery BP-314	00413	-0.04	50%	92%	5300	60	IEEE 802.11a/h - 20 MHz	6	18.5	16.82	25	Front	0.043	0.034	10
Face	5 GHz WIFI	WLAN	Battery BP-291	00413	0.16	50%	92%	5300	60	IEEE 802.11a/h - 20 MHz	6	18.5	16.82	25	Front	0.014	0.011	-
Face	5 GHz WIFI	WLAN	Battery BP-315	00413	-0.19	50%	92%	5300	60	IEEE 802.11a/h - 20 MHz	6	18.5	16.82	25	Front	0.031	0.025	-
Face	5 GHz WIFI	WLAN	Default Battery BP-314	00413	0.08	50%	92%	5720	144	IEEE 802.11a/h - 20 MHz	6	18.5	17.11	25	Front	0.042	0.031	-
Face	5 GHz WIFI	WLAN	Default Battery BP-314	00413	0.13	50%	92%	5745	149	IEEE 802.11a/h - 20 MHz	6	18.5	16.64	25	Front	0.032	0.027	-

3.3. Bluetooth Face SAR Data

Table 3-3

Exposure Condition	Band/Mode	Antenna	Additional Information	DUT SN	Power Drift [dB]	Maximum Duty Cycle [%]	Measured Duty Cycle [%]	Frequency [MHz]	Channel	Modulation/Configuration	Data Rate	Maximum Allowed Power [dBm]	Measured Conducted Power [dBm]	Separation Distance [mm]	Position	Measured 1g SAR [W/Kg]	Reported 1g SAR [W/Kg]	Test Plot
Face	2.4 GHz Bluetooth	Bluetooth	Default Battery BP-314	00409	0.18	50%	100%	2441	39	FHSS	1	9.1	7.90	25	Front	0.000	0.000	11
Face	2.4 GHz Bluetooth	Bluetooth	Battery BP-291	00409	0.17	50%	100%	2441	39	FHSS	1	9.1	7.90	25	Front	0.000	0.000	-
Face	2.4 GHz Bluetooth	Bluetooth	Battery BP-315	00409	-0.03	50%	100%	2441	39	FHSS	1	9.1	7.90	25	Front	0.000	0.000	-

3.4. LTE Body SAR Data

Table 3-4

Exposure Condition	Band/Mode	Antenna	Additional Information	DUT SN	Power Drift [dB]	Maximum Duty Cycle [%]	Measured Duty Cycle [%]	Frequency [MHz]	Channel	Modulation/Configuration	RB Size	RB Offset	Maximum Allowed Power [dBm]	Measured Conducted Power [dBm]	MPR [dB]	Separation Distance [mm]	Position	Measured 1g SAR [W/Kg]	Reported 1g SAR [W/Kg]	Test Plot
Body	LTE Band 12	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00409	0.03	50%	100%	707.5	23095	QPSK - 10 MHz	1	25	24	22.54	0	0	Back	0.512	0.358	12
Body	LTE Band 12	LTE Main	Battery BP-291 with Belt Clip, Audio Accessory HM-222HLS	00409	-0.13	50%	100%	707.5	23095	QPSK - 10 MHz	1	25	24	22.54	0	0	Back	0.101	0.071	-
Body	LTE Band 12	LTE Main	Battery BP-315 with Belt Clip, Audio Accessory HM-222HLS	00409	0.07	50%	100%	707.5	23095	QPSK - 10 MHz	1	25	24	22.54	0	0	Back	0.126	0.088	-
Body	LTE Band 12	LTE Main	Default Battery BP-314 with Belt Clip, Audio Accessory HM-222HLS	00409	-0.01	50%	100%	707.5	23095	QPSK - 10 MHz	1	25	24	22.54	0	0	Back	0.454	0.318	-
Body	LTE Band 12	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-153LS	00409	0.07	50%	100%	707.5	23095	QPSK - 10 MHz	1	25	24	22.54	0	0	Back	0.380	0.266	-
Body	LTE Band 12	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-102	00409	0.00	50%	100%	707.5	23095	QPSK - 10 MHz	1	25	24	22.54	0	0	Back	0.353	0.247	-
Body	LTE Band 12	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-94	00409	-0.15	50%	100%	707.5	23095	QPSK - 10 MHz	1	25	24	22.54	0	0	Back	0.353	0.247	-
Body	LTE Band 12	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00409	0.05	50%	100%	707.5	23095	QPSK - 10 MHz	25	0	23	21.43	1	0	Back	0.372	0.267	-
Body	LTE Band 13	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00409	0.00	50%	100%	782	23230	QPSK - 10 MHz	1	25	24	22.56	0	0	Back	0.656	0.457	13
Body	LTE Band 13	LTE Main	Battery BP-291 with Belt Clip, Audio Accessory HM-222HLS	00409	-0.06	50%	100%	782	23230	QPSK - 10 MHz	1	25	24	22.56	0	0	Back	0.197	0.137	-
Body	LTE Band 13	LTE Main	Battery BP-315 with Belt Clip, Audio Accessory HM-222HLS	00409	-0.06	50%	100%	782	23230	QPSK - 10 MHz	1	25	24	22.56	0	0	Back	0.111	0.077	-
Body	LTE Band 13	LTE Main	Default Battery BP-314 with Belt Clip, Audio Accessory HM-222HLS	00409	-0.12	50%	100%	782	23230	QPSK - 10 MHz	1	25	24	22.56	0	0	Back	0.430	0.300	-
Body	LTE Band 13	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-153LS	00409	0.07	50%	100%	782	23230	QPSK - 10 MHz	1	25	24	22.56	0	0	Back	0.438	0.305	-
Body	LTE Band 13	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-102	00409	-0.06	50%	100%	782	23230	QPSK - 10 MHz	1	25	24	22.56	0	0	Back	0.359	0.250	-
Body	LTE Band 13	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-94	00409	0.20	50%	100%	782	23230	QPSK - 10 MHz	1	25	24	22.56	0	0	Back	0.408	0.284	-
Body	LTE Band 13	LTE Main	Default Battery BP-314 with Leather Case, Audio Acessory HM-222HLS	00409	-0.09	50%	100%	782	23230	QPSK - 10 MHz	25	0	23	21.38	1	0	Back	0.483	0.351	-
Body	LTE Band 14	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00409	-0.01	50%	100%	793	23330	QPSK - 10 MHz	1	25	24	22.47	0	0	Back	0.619	0.440	14
Body	LTE Band 14	LTE Main	Battery BP-291 with Belt Clip, Audio Accessory HM-222HLS	00409	-0.02	50%	100%	793	23330	QPSK - 10 MHz	1	25	24	22.47	0	0	Back	0.195	0.139	-
Body	LTE Band 14	LTE Main	Battery BP-315 with Belt Clip, Audio Accessory HM-222HLS	00409	-0.04	50%	100%	793	23330	QPSK - 10 MHz	1	25	24	22.47	0	0	Back	0.120	0.085	-
Body	LTE Band 14	LTE Main	Default Battery BP-314 with Belt Clip, Audio Accessory HM-222HLS	00409	0.07	50%	100%	793	23330	QPSK - 10 MHz	1	25	24	22.47	0	0	Back	0.406	0.289	-
Body	LTE Band 14	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-153LS	00409	-0.01	50%	100%	793	23330	QPSK - 10 MHz	1	25	24	22.47	0	0	Back	0.332	0.236	-
Body	LTE Band 14	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-102	00409	-0.11	50%	100%	793	23330	QPSK - 10 MHz	1	25	24	22.47	0	0	Back	0.355	0.252	-
Body	LTE Band 14	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-94	00409	0.19	50%	100%	793	23330	QPSK - 10 MHz	1	25	24	22.47	0	0	Back	0.292	0.208	-
Body	LTE Band 14	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00409	0.02	50%	100%	793	23330	QPSK - 10 MHz	25	12	23	21.18	1	0	Back	0.451	0.343	-
Body	LTE Band 25	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00413	-0.10	50%	100%	1905	26590	QPSK - 20 MHz	1	50	24	22.32	0	0	Back	0.415	0.306	15
Body	LTE Band 25	LTE Main	Battery BP-291 with Belt Clip, Audio Accessory HM-222HLS	00413	-0.01	50%	100%	1905	26590	QPSK - 20 MHz	1	50	24	22.32	0	0	Back	0.191	0.141	-
Body	LTE Band 25	LTE Main	Battery BP-315 with Belt Clip, Audio Accessory HM-222HLS	00413	-0.01	50%	100%	1905	26590	QPSK - 20 MHz	1	50	24	22.32	0	0	Back	0.154	0.113	-
Body	LTE Band 25	LTE Main	Default Battery BP-314 with Belt Clip, Audio Accessory HM-222HLS	00413	0.07	50%	100%	1905	26590	QPSK - 20 MHz	1	50	24	22.32	0	0	Back	0.287	0.211	-
Body	LTE Band 25	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-153LS	00413	-0.20	50%	100%	1905	26590	QPSK - 20 MHz	1	50	24	22.32	0	0	Back	0.387	0.285	-
Body	LTE Band 25	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-102	00413	-0.08	50%	100%	1905	26590	QPSK - 20 MHz	1	50	24	22.32	0	0	Back	0.382	0.281	-
Body	LTE Band 25	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-94	00413	-0.07	50%	100%	1905	26590	QPSK - 20 MHz	1	50	24	22.32	0	0	Back	0.364	0.268	-
Body	LTE Band 25	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00413	-0.06	50%	100%	1860	26140	QPSK - 20 MHz	50	50	23	21.30	1	0	Back	0.392	0.290	-

Table 3-5

Exposure Condition	Band/Mode	Antenna	Additional Information	DUT SN	Power Drift [dB]	Maximum Duty Cycle [%]	Measured Duty Cycle [%]	Frequency [MHz]	Channel	Modulation/Configuration	RB Size	RB Offset	Maximum Allowed Power [dBm]	Measured Conducted Power [dBm]	MPR [dB]	Separation Distance [mm]	Position	Measured 1g SAR [W/Kg]	Reported 1g SAR [W/Kg]	Test Plot
Body	LTE Band 26	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00409	0.07	50%	100%	831.5	26865	QPSK - 15 MHz	1	36	24	22.50	0	0	Back	0.266	0.188	-
Body	LTE Band 26	LTE Main	Battery BP-291 with Belt Clip, Audio Accessory HM-222HLS	00409	-0.03	50%	100%	831.5	26865	QPSK - 15 MHz	1	36	24	22.50	0	0	Back	0.149	0.105	-
Body	LTE Band 26	LTE Main	Battery BP-315 with Belt Clip, Audio Accessory HM-222HLS	00409	0.04	50%	100%	831.5	26865	QPSK - 15 MHz	1	36	24	22.50	0	0	Back	0.241	0.170	-
Body	LTE Band 26	LTE Main	Default Battery BP-314 with Belt Clip, Audio Accessory HM-222HLS	00409	-0.02	50%	100%	831.5	26865	QPSK - 15 MHz	1	36	24	22.50	0	0	Back	0.304	0.215	-
Body	LTE Band 26	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-153LS	00409	0.04	50%	100%	831.5	26865	QPSK - 15 MHz	1	36	24	22.50	0	0	Back	0.234	0.165	-
Body	LTE Band 26	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-102	00409	0.05	50%	100%	831.5	26865	QPSK - 15 MHz	1	36	24	22.50	0	0	Back	0.275	0.194	-
Body	LTE Band 26	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-94	00409	0.08	50%	100%	831.5	26865	QPSK - 15 MHz	1	36	24	22.50	0	0	Back	0.363	0.256	16
Body	LTE Band 26	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00409	-0.03	50%	100%	831.5	26865	QPSK - 15 MHz	36	18	23	21.33	1	0	Back	0.210	0.154	-
Body	LTE Band 5	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00409	0.01	50%	100%	836.5	20525	QPSK - 10 MHz	1	49	24	22.45	0	0	Back	0.450	0.322	17
Body	LTE Band 5	LTE Main	Battery BP-291 with Belt Clip, Audio Accessory HM-222HLS	00409	0.05	50%	100%	836.5	20525	QPSK - 10 MHz	1	49	24	22.45	0	0	Back	0.134	0.096	-
Body	LTE Band 5	LTE Main	Battery BP-315 with Belt Clip, Audio Accessory HM-222HLS	00409	0.01	50%	100%	836.5	20525	QPSK - 10 MHz	1	49	24	22.45	0	0	Back	0.142	0.101	-
Body	LTE Band 5	LTE Main	Default Battery BP-314 with Belt Clip, Audio Accessory HM-222HLS	00409	-0.02	50%	100%	836.5	20525	QPSK - 10 MHz	1	49	24	22.45	0	0	Back	0.275	0.196	-
Body	LTE Band 5	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-153LS	00409	0.07	50%	100%	836.5	20525	QPSK - 10 MHz	1	49	24	22.45	0	0	Back	0.445	0.318	-
Body	LTE Band 5	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-102	00409	-0.16	50%	100%	836.5	20525	QPSK - 10 MHz	1	49	24	22.45	0	0	Back	0.224	0.160	-
Body	LTE Band 5	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-94	00409	-0.08	50%	100%	836.5	20525	QPSK - 10 MHz	1	49	24	22.45	0	0	Back	0.356	0.254	-
Body	LTE Band 5	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00409	0.07	50%	100%	836.5	20525	QPSK - 10 MHz	25	25	23	21.40	1	0	Back	0.354	0.256	-
Body	LTE Band 66	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00413	-0.01	50%	100%	1745	132322	QPSK - 20 MHz	1	50	24	22.67	0	0	Back	0.432	0.293	18
Body	LTE Band 66	LTE Main	Battery BP-291 with Belt Clip, Audio Accessory HM-222HLS	00413	-0.01	50%	100%	1745	132322	QPSK - 20 MHz	1	50	24	22.67	0	0	Back	0.320	0.217	-
Body	LTE Band 66	LTE Main	Battery BP-315 with Belt Clip, Audio Accessory HM-222HLS	00413	-0.01	50%	100%	1745	132322	QPSK - 20 MHz	1	50	24	22.67	0	0	Back	0.160	0.109	-
Body	LTE Band 66	LTE Main	Default Battery BP-314 with Belt Clip, Audio Accessory HM-222HLS	00413	-0.09	50%	100%	1745	132322	QPSK - 20 MHz	1	50	24	22.67	0	0	Back	0.200	0.136	-
Body	LTE Band 66	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-153LS	00413	0.04	50%	100%	1745	132322	QPSK - 20 MHz	1	50	24	22.67	0	0	Back	0.319	0.217	-
Body	LTE Band 66	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-102	00413	0.00	50%	100%	1745	132322	QPSK - 20 MHz	1	50	24	22.67	0	0	Back	0.323	0.219	-
Body	LTE Band 66	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-94	00413	-0.01	50%	100%	1745	132322	QPSK - 20 MHz	1	50	24	22.67	0	0	Back	0.329	0.223	-
Body	LTE Band 66	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00413	-0.05	50%	100%	1745	132322	QPSK - 20 MHz	50	0	23	21.60	1	0	Back	0.304	0.210	-
Body	LTE Band 71	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00409	-0.01	50%	100%	680.5	133297	QPSK - 20 MHz	1	50	24	22.39	0	0	Back	0.454	0.329	19
Body	LTE Band 71	LTE Main	Battery BP-291 with Belt Clip, Audio Accessory HM-222HLS	00409	0.00	50%	100%	680.5	133297	QPSK - 20 MHz	1	50	24	22.39	0	0	Back	0.088	0.064	-
Body	LTE Band 71	LTE Main	Battery BP-315 with Belt Clip, Audio Accessory HM-222HLS	00409	0.07	50%	100%	680.5	133297	QPSK - 20 MHz	1	50	24	22.39	0	0	Back	0.276	0.200	-
Body	LTE Band 71	LTE Main	Default Battery BP-314 with Belt Clip, Audio Accessory HM-222HLS	00409	0.04	50%	100%	680.5	133297	QPSK - 20 MHz	1	50	24	22.39	0	0	Back	0.288	0.209	-
Body	LTE Band 71	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-153LS	00409	0.17	50%	100%	680.5	133297	QPSK - 20 MHz	1	50	24	22.39	0	0	Back	0.328	0.238	-
Body	LTE Band 71	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-102	00409	0.07	50%	100%	680.5	133297	QPSK - 20 MHz	1	50	24	22.39	0	0	Back	0.424	0.307	-
Body	LTE Band 71	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HS-94	00409	0.18	50%	100%	680.5	133297	QPSK - 20 MHz	1	50	24	22.39	0	0	Back	0.284	0.206	-
Body	LTE Band 71	LTE Main	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00409	0.02	50%	100%	680.5	133297	QPSK - 20 MHz	50	50	23	21.33	1	0	Back	0.346	0.254	-

Note: LTE Band 26 is not supported in Canada.

3.5. WIFI Body SAR Data

Table 3-6

Exposure Condition	Band/Mode	Antenna	Additional Information	DUT SN	Power Drift [dB]	Maximum Duty Cycle [%]	Measured Duty Cycle [%]	Frequency [MHz]	Channel	Modulation/Configuration	Data Rate	Maximum Allowed Power [dBm]	Measured Conducted Power [dBm]	Separation Distance [mm]	Position	Measured 1g SAR [W/Kg]	Reported 1g SAR [W/Kg]	Test Plot
Body	2.4 GHz WIFI	WLAN	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00413	0.02	50%	97%	2417	2	IEEE 802.11b - 22 MHz	1	19	17.15	0	Back	0.028	0.022	-
Body	2.4 GHz WIFI	WLAN	Battery BP-291 with Belt Clip, Audio Accessory HM-222HLS	00413	0.02	50%	97%	2417	2	IEEE 802.11b - 22 MHz	1	19	17.15	0	Back	0.022	0.017	-
Body	2.4 GHz WIFI	WLAN	Battery BP-315 with Belt Clip, Audio Accessory HM-222HLS	00413	0.07	50%	97%	2417	2	IEEE 802.11b - 22 MHz	1	19	17.15	0	Back	0.016	0.013	-
Body	2.4 GHz WIFI	WLAN	Default Battery BP-314 with Belt Clip, Audio Accessory HM-222HLS	00413	0.04	50%	97%	2417	2	IEEE 802.11b - 22 MHz	1	19	17.15	0	Back	0.017	0.013	-
Body	2.4 GHz WIFI	WLAN	Default Battery BP-314 with Leather Case, Audio Accessory HM-153LS	00413	-0.08	50%	97%	2417	2	IEEE 802.11b - 22 MHz	1	19	17.15	0	Back	0.027	0.021	-
Body	2.4 GHz WIFI	WLAN	Default Battery BP-314 with Leather Case, Audio Accessory HS-102	00413	-0.12	50%	97%	2417	2	IEEE 802.11b - 22 MHz	1	19	17.15	0	Back	0.029	0.023	-
Body	2.4 GHz WIFI	WLAN	Default Battery BP-314 with Leather Case, Audio Accessory HS-94	00413	-0.18	50%	97%	2417	2	IEEE 802.11b - 22 MHz	1	19	17.15	0	Back	0.038	0.030	20
Body	5 GHz WIFI	WLAN	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00413	-0.03	50%	92%	5300	60	IEEE 802.11a/h - 20 MHz	6	18.5	16.82	0	Back	0.368	0.293	21
Body	5 GHz WIFI	WLAN	Battery BP-291 with Belt Clip, Audio Accessory HM-222HLS	00413	0.02	50%	92%	5300	60	IEEE 802.11a/h - 20 MHz	6	18.5	16.82	0	Back	0.026	0.021	-
Body	5 GHz WIFI	WLAN	Battery BP-315 with Belt Clip, Audio Accessory HM-222HLS	00413	0.02	50%	92%	5300	60	IEEE 802.11a/h - 20 MHz	6	18.5	16.82	0	Back	0.070	0.056	-
Body	5 GHz WIFI	WLAN	Default Battery BP-314 with Belt Clip, Audio Accessory HM-222HLS	00413	0.16	50%	92%	5300	60	IEEE 802.11a/h - 20 MHz	6	18.5	16.82	0	Back	0.112	0.089	-
Body	5 GHz WIFI	WLAN	Default Battery BP-314 with Leather Case, Audio Accessory HM-153LS	00413	-0.09	50%	92%	5300	60	IEEE 802.11a/h - 20 MHz	6	18.5	16.82	0	Back	0.316	0.252	-
Body	5 GHz WIFI	WLAN	Default Battery BP-314 with Leather Case, Audio Accessory HS-102	00413	0.01	50%	92%	5300	60	IEEE 802.11a/h - 20 MHz	6	18.5	16.82	0	Back	0.314	0.250	-
Body	5 GHz WIFI	WLAN	Default Battery BP-314 with Leather Case, Audio Accessory HS-94	00413	0.02	50%	92%	5300	60	IEEE 802.11a/h - 20 MHz	6	18.5	16.82	0	Back	0.261	0.208	-
Body	5 GHz WIFI	WLAN	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00413	-0.16	50%	92%	5720	144	IEEE 802.11a/h - 20 MHz	6	18.5	17.11	0	Back	0.235	0.175	-
Body	5 GHz WIFI	WLAN	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00413	-0.01	50%	92%	5745	149	IEEE 802.11a/h - 20 MHz	6	18.5	16.64	0	Back	0.256	0.213	-

3.6. Bluetooth Body SAR Data

Table 3-7

Exposure Condition	Band/Mode	Antenna	Additional Information	DUT SN	Power Drift [dB]	Maximum Duty Cycle [%]	Measured Duty Cycle [%]	Frequency [MHz]	Channel	Modulation/Configuration	Data Rate	Maximum Allowed Power [dBm]	Measured Conducted Power [dBm]	Separation Distance [mm]	Position	Measured 1g SAR [W/Kg]	Reported 1g SAR [W/Kg]	Test Plot
Body	2.4 GHz Bluetooth	Bluetooth	Default Battery BP-314 with Leather Case, Audio Accessory HM-222HLS	00409	0.04	50%	100%	2441	39	FHSS	1	9.1	7.90	0	Back	0.004	0.003	
Body	2.4 GHz Bluetooth	Bluetooth	Battery BP-291 with Belt Clip, Audio Accessory HM-222HLS	00409	-0.12	50%	100%	2441	39	FHSS	1	9.1	7.90	0	Back	0.000	0.000	
Body	2.4 GHz Bluetooth	Bluetooth	Battery BP-315 with Belt Clip, Audio Accessory HM-222HLS	00409	0.19	50%	100%	2441	39	FHSS	1	9.1	7.90	0	Back	0.003	0.002	
Body	2.4 GHz Bluetooth	Bluetooth	Default Battery BP-314 with Belt Clip, Audio Accessory HM-222HLS	00409	0.14	50%	100%	2441	39	FHSS	1	9.1	7.90	0	Back	0.006	0.004	
Body	2.4 GHz Bluetooth	Bluetooth	Default Battery BP-314 with Leather Case, Audio Accessory HM-153LS	00409	0.16	50%	100%	2441	39	FHSS	1	9.1	7.90	0	Back	0.003	0.002	-
Body	2.4 GHz Bluetooth	Bluetooth	Default Battery BP-314 with Leather Case, Audio Accessory HS-102	00409	-0.06	50%	100%	2441	39	FHSS	1	9.1	7.90	0	Back	0.002	0.001	-
Body	2.4 GHz Bluetooth	Bluetooth	Default Battery BP-314 with Leather Case, Audio Accessory HS-94	00409	-0.16	50%	100%	2441	39	FHSS	1	9.1	7.90	0	Back	0.012	0.008	22

3.7. Accessories:

The following accessories were used during the assessment.

Default Batteries	
Model: Description:	BP-314 2INP11/34/43, 2.01 Ah
Other Batteries	
Model: Description:	BP-315 3.15 Ah
Other Batteries	
Model: Description:	BP-291 Battery Case with external akaline batteries
Leather Case (Default Body-worn Accessory)	
Model: Description:	LC-204 Leather Pouch for 448000-01 Radios – only use with default battery BP-314
Belt Clip	
Model: Description:	MBB-3 Belt Clip for 448000-01 Radios
Default Audio Accessory	
Model: Description:	HM-222HLS Audio Accessory for 448000-01 Radios
Other Audio Accessory	
Model: Description:	HS-94 Audio Accessory for 448000-01 Radios

Other Audio Accessory	
Model: Description:	HS-102 Audio Accessory for 448000-01 Radios
Other Audio Accessory	
Model: Description:	HM-153LS Audio Accessory for 448000-01 Radios
Other Audio Accessories	
Model: Description:	HS-95, HS-97 (grouped with HS-102) Audio Accessories for 448000-01 Radios
Other Audio Accessories	
Model: Description:	HM-186LS, HM-183LS (grouped with HM-222HLS) Audio Accessories for 448000-01 Radios
Other Audio Accessories	
Model: Description:	HM-257LS, SP-29 (grouped with HS-94) Audio Accessories for 448000-01 Radios
Other Audio Accessories	
Model: Description:	HM-166LS (grouped with HM-153LS) Audio Accessories for 448000-01 Radios
Cable	
Model: Description:	OPC-2359 PPT Switch Cable (grouped with HS-102)

3.8. General SAR Testing Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, IEC/IEEE 62209-1528, RSS-102.SAR.MEAS and FCC KDB Publication 447498 D04v01.
2. Per IEC/IEEE 62209-1528, SAR testing was performed using probes calibrated for the modulation specific signal.
3. SAR evaluations were made in accordance with the latest version of RSS-102 Issue 6 and RSS-102.SAR.MEAS, then IEC/IEEE 62209-1528. FCC KDB Publications listed in RSS-102 can be used as supplementary procedures due to limitation of technology specific testing protocols in the international standards.
4. Liquid tissue depth was at least 15.0 cm for all frequencies.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D04v01.
6. Batteries are fully charged at the beginning of the SAR measurements.
7. Simultaneous transmission analysis is provided in Appendix E.
8. Per FCC KDB Publication 643646 D01, Face SAR is measured with the front surface of the radio positioned at 2.5 cm parallel to a flat phantom. Face SAR tests were evaluated without accessories and with a default battery supplied with the radio. For each band/mode, the worst case SAR was additionally evaluated for other batteries supplied with the radio to determine compliance.
9. Per FCC KDB Publication 643646 D01, Body SAR is measured with the radio placed in a default body-worn accessory, positioned against a flat phantom, representative of the normal operating conditions expected by users and with a default battery and a standard

default audio accessory supplied with the radio. The default battery and default body-worn accessory provide the smallest antenna separation distance between the radio and the users.

10. Per FCC KDB Publication 643646 D01, the worst case body SAR was additionally evaluated for other batteries, other body-worn accessories, and other audio accessories supplied with the radio to determine compliance.
11. Per FCC KDB Publication 643646 D01, similar audio accessories were grouped together based on similar shapes, sizes, and metal components. The audio accessories with the most metal components were used for SAR testing.
12. This device operates in a half-duplex system. It only allows the user to transmit or receive. This device cannot transmit and receive simultaneously. The user must stop transmitting to receive a signal or listen for a response, regardless of PTT button or use of voice activated audio accessories. This type of operation, along with the RF safety booklet, which instructs the user to transmit no more than 50% of the time, justifies the use of 50% duty cycle for this device. Hence 50% duty cycle was applied to the final scaled SAR results per FCC KDB Publication 643646 D01.

3.9. WLAN Notes:

1. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI operations, the initial test configuration was selected according to the 802.11 transmission modes with the highest maximum allowed powers. SAR for other 802.11 modes was not required due to the maximum allowed powers and the highest reported SAR.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations (3 W/kg for 10g evaluations).
3. When the maximum reported 1g averaged SAR is ≤ 0.8 W/kg (2.0 W/kg for 10g evaluations), SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations (3 W/kg for 10g evaluations) or all test channels were measured.
4. The device was 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. The reported SAR was scaled to the 50% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated Part 15 test reports.

3.10. Bluetooth Note:

1. The device was configured to transmit continuously at the required data rate and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 50% transmission duty factor to determine compliance.

4. DUT SAR Measurement Variability Requirement

Per FCC KDB Publication 865664 D01v01r04, SAR measurement variability was not required since the measured SAR results for a frequency band were less than 0.8 W/kg for 1g SAR and 2.0 W/kg for 10g SAR.

5. Background on Radiofrequency (RF) Exposure Limits

5.1. Controlled Environment

Controlled environments are defined as locations where the RF field intensities have been adequately characterized by means of measurement or calculation and exposure is incurred by persons who are: aware of the potential for RF field exposure, cognizant of the intensity of the RF fields in their environment, aware of the potential health risks associated with RF field exposure and able to control their risk using mitigation strategies. In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

5.2. Uncontrolled Environment

Uncontrolled environments are defined as locations where either insufficient assessment of RF fields have been conducted or where persons who are allowed access to these areas have not received proper RF field awareness/safety training and have no means to assess or, if required, to mitigate their exposure to RF fields. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed, or in which persons who may not be made fully aware of the potential for exposure, or cannot exercise control over their exposure. Members of the general public would fall under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

5.3. RF Exposure Limits for 100kHz – 6 GHz

Per FCC 47 CFR §1.1310 and Health Canada Safety Code 6, the SAR limits are applied for frequencies 100kHz ~ 6 GHz as shown below.

Table 5-1

Human Exposure to RF Radiation Limits in 47 CFR §1.1310 and Health Canada Safety Code 6 - SAR Basic Restrictions

Environment	Condition	**SAR**	Averaging volume
Uncontrolled / General Population	Head, Neck Trunk	**1.6 W/kg**	1g cube
	Extremity	**4.0 W/kg**	10g cube
Controlled	Head/Trunk	**8 W/kg**	1g cube
	Extremity / Limbs	**20 W/kg**	10g cube

6. RF Safety Laboratory SAR Measurement System

6.1. SAR Measurement Hardware and Software

Peak spatially averaged SAR (psSAR) measurements are performed using a DASY8 robot system with cDASY8 module SAR software. The DASY8 is made by SPEAG in Switzerland and consists of a 6-axis robot, robot controller, computer, dosimetric probe, probe alignment light beam unit, and various SAR phantoms.

6.2. E-Field Probe

Manufacturer	Schmid & Partner Engineering AG
Model	EX3DV4
Description	Smallest isotropic electric (E-) field probe for high precision specific absorption rate (SAR) measurements
Frequency Range	10 MHz - 10.0 GHz
Dynamic Range	10 µW/g – >100 mW/g
Overall Length (mm)	337
Body Diameter (mm)	12
Tip Length (mm)	337
Tip Diameter (mm)	2.5
Probe Tip to Sensor X Calibration Point (mm)	1

Probe Tip to Sensor Y Calibration Point (mm)	1
Applications	High precision dosimetric measurements in any exposure scenario (e.g. very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better than 30%
Compatibility	DASY8 robot + cDASY8 module SAR software

6.3. Peak Spatially Averaged SAR (psSAR) Measurements

SAR Evaluations are performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04, IEEE 1528:2013 and IEC/IEEE 62209-1528:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface, and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04, IEEE 1528:2013 and IEC/IEEE 62209-1528.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04, IEEE 1528:2013 and IEC/IEEE 62209-1528. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
   a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than the area scan and zoomscan resolutions specified in FCC KDB Publication 865664 D01v01v04 section 2.7.1, IEEE 1528:2013 table 6, and IEC/IEEE 62209-1528 table 3 & table 4. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
   b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
   c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
   d. The zoom scan is confirmed to meet both of the following parameters if the result is > 0.1 W/kg. If the result does not meet the below parameters, it is re-measured with a finer resolution scan until the below parameters are met.

(1) The smallest horizontal distance from the local SAR peaks to all points 3 dB below the SAR peak shall be larger than the horizontal grid steps in both x- and y-directions.

(2) The ratio of the SAR at the second measured point (M2) to the SAR at the closest measured point (Ml) at the x-y location of the measured maximum SAR value shall be at least 30%

4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

6.4. Test Positions

6.4.1. Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity ε = 3 and loss tangent δ = 0.02.

6.4.2. PTT Face SAR Test

Passive body-worn and audio accessories generally do not apply to the face SAR of PTT radios. Face SAR is measured with the front surface of the radio positioned at 2.5 cm parallel to a flat phantom. When the front of the radio has contour or non-uniform surface with a variation of 1.0cm or more, the average distance of such variations is used to establish the 2.5 cm test separation from the phantom.

6.4.3. PTT Body-Worn Accessory Configurations

Body SAR is measured with the radio placed in a body-worn accessory, positioned against a flat phantom, representative of the normal operating conditions expected by users and typically with a standard default audio accessory supplied with the radio. Since audio accessories, including any default audio accessories supplied with a radio, may be designed to operate with a subset of the combinations of antennas, batteries and body-worn accessories, when a default audio accessory does not fully support all the test configurations required in this section for body-worn accessories testing an alternative audio accessory must be selected to be the default audio accessory for body-worn accessories testing. If an alternative audio accessory cannot be identified, body-worn accessories should be tested without any audio accessory. In general, all sides of the radio that may be positioned facing the user when using a body-worn accessory must be considered for SAR compliance.

6.5. RF Safety Laboratory SAR System Measurement Uncertainty

SAR Uncertainty for DUTs
According to 62209-1528

(Frequencies: 300 MHz - 6 GHz)

Symbol	Input Quantity (Xi) (Source of Uncertainty)	62209-1528 Ref	Unc. (xi)	Prob. Dist. PDFi	Div(qi)	ci (1g)	ci (10g)	Std Unc (1g)	Std. Unc (10g)	vi
Measurement System Errors										
CF	Probe Calibration	8.4.1.1	13.1%	N (k=2)	2	1	1	6.55%	6.6%	∞
CFdrift	Probe Calibration Drift	8.4.1.2	1.7%	R	√3	1	1	1.0%	1.0%	∞
LIN	Probe Linearity and Detection Limit	8.4.1.3	4.7%	R	√3	1	1	2.7%	2.7%	∞
BBS	Broadband Signal	8.4.1.4	2.8%	R	√3	1	1	1.6%	1.6%	∞
ISO	Probe Isotropy	8.4.1.5	7.6%	R	√3	1	1	4.4%	4.4%	∞
DAE	Other probe and data acquisition errors	8.4.1.6	1.2%	N	1	1	1	1.2%	1.2%	∞
AMB	RF Ambient and Noise	8.4.1.7	1.8%	N	1	1	1	1.8%	1.8%	∞
Δxyz	Probe Positioning Errors	8.4.1.8	0.005 mm	N	1	0.29	0.29	0.2%	0.2%	
DAT	Data Processing Errors	8.4.1.9	2.3%	N	1	1	1	2.3%	2.3%	∞
Phantom and Device Errors										
LIQ(σ)	Measurement of Phantom Conductivity	8.4.2.1	2.5%	N	1	0.78	0.71	2.0%	1.8%	∞
LIQ(Tc)	Temperature Effects (Medium)	8.4.2.2	3.4%	R	√3	0.78	0.71	1.5%	1.4%	∞
EPS	Shell Permittivity	8.4.2.3	14.0%	R	√3	0.25	0.25	2.0%	2.0%	∞
DIS	Distance between the radiating element of the DUT and the phantom medium	8.4.2.4	2.0%	N	1	2	2	4.0%	4.0%	∞
Dxyz	Repeatability of Positioning the DUT or source against the phantom	8.4.2.5	1.0%	N	1	1	1	1.0%	1.0%	5
H	Device Holder Effects	8.4.2.6	3.6%	N	1	1	1	3.6%	3.6%	8
MOD	Effect of Operating mode on probe sensitivity	8.4.2.7	2.4%	R	√3	1	1	1.4%	1.4%	∞
RFdrift	Variation in SAR due to Drift in ouptput of DUT	8.4.2.9	2.5%	N	1	1	1	2.5%	2.5%	∞
VAL	Validation Antenna Uncertainty (Validation measurement only)	8.4.2.10	0.0%	N	1	1	1	0.0%	0.0%	∞
Pin	Uncertianty in Accepted Power (Validation Measurement only)	8.4.2.11	0.0%	N	1	1	1	0.0%	0.0%	∞
Correction to the SAR Results										
C(ε′,σ)	Phantom Deviation from Target (ε′,σ)	8.4.3.1	1.9%	N	1	1	0.84	1.9%	1.6%	∞
C(R)	SAR Scaling	8.4.3.2	0.0%	R	√3	1	1	0.0%	0.0%	∞
u(ΔS AR)	Combined Uncertainty							11.6%	11.5%	∞
U	Expanded Uncertainty and Effective Degrees of Freedom (k=2)							23.2%	23.1%	

7. Technology Specific Test Setup Requirements

7.1. Measured and Reported SAR

Per FCC KDB Publication 447498 D04v01, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

7.2. Procedures Used to Establish RF Signal for SAR

Devices under test are evaluated prior to testing, with a fully charged battery and were configured to operate at maximum output power. In order to verify that the device is tested throughout the SAR test at maximum output power, the SAR measurement system measures a "point SAR" at an arbitrary reference point at the start and end of the 1 gram SAR evaluation, to assess for any power drifts during the evaluation.

7.3. SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05v02r04 publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR. The R&S CMW500 or Anritsu MT8820C simulators are used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

7.3.1. Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

7.3.2. MPR and A-MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

7.3.3. Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

1. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
    a. The required channel and offset combination with the highest maximum output power is required for SAR.
    b. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
    c. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.
2. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
3. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
4. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to ½ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is <1.45 W/kg

7.4. Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v02r02 for more details.

7.4.1. General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters.

A periodic duty factor is required for current generation SAR systems to measure SAR. 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. The reported SAR is scaled to 100% duty factor to determine compliance at the maximum tune-up tolerance limit.

7.4.2. Initial Test Position Procedure

The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions is 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. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.4.3. 2.4 GHz SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.

2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

2.4 GHz 802.11 g/n OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.4.4. OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., then 802.11n or 802.11g then 802.11n, is used for SAR measurement.

7.4.5. Initial Test Configuration Procedure

For OFDM, an initial test configuration is determined for each frequency band and aggregated band, according to the transmission mode with the highest maximum output power specified for SAR measurements. When the same maximum output power is specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration(s) with the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order IEEE 802.11 mode. The channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 8.6.6). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.4.6. Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8. Equipment List

Manufacturer	Model	Description	Serial Number	Calibration Date	Calibration Due	CBT
Amplifier Research	15S4G8AM1	RF Broadband Amplifier (4 - 8 GHz)	0554497			✓
Amplifier Research	5S1G4	RF Broadband Amplifier (800 MHz - 4.2 GHz)	331258			✓
Anritsu	MG3691B	Anritsu MG3691B Signal Generator	54914			✓
Anritsu	MA24118A	Microwave USB Power Sensor (10MHz - 18 GHz)	2123431	1/13/2025	1/13/2026	
Anritsu	MA24118A	Microwave USB Power Sensor (10MHz - 18 GHz)	2123500	1/13/2025	1/13/2026	
Anritsu	S820E	Vector Network Analyzer	2348026	11/30/2023	11/30/2025	
Control Company	4040	Ambient Thermometer	230581662	8/28/2023	8/28/2025	
Control Company	4040	Ambient Thermometer	230581657	8/28/2023	8/28/2025	
Control Company	4352	Long Stem Liquid Thermometer	230662212	9/28/2023	9/28/2025	
Control Company	4352	Long Stem Liquid Thermometer	230662223	9/28/2023	9/28/2025	
Micro-Coax	UFB205A-0-0240-30x30	SMA M-F RF test Cable (DC - 18 GHz)	-			✓
Mini-Circuits	BW-N20W20+	20dB RF Fixed Attenuator (DC - 18 GHz)	-			✓
Mini-Circuits	BW-S3W2+	3dB RF Fixed Attenuator (DC - 18 GHz)	-			✓
Mini-Circuits	BW-S3W2+	3dB RF Fixed Attenuator (DC - 18 GHz)	-			✓
Mini-Circuits	CBL-6FT-SMNM+	Precision Test Cable SMA/N (DC - 18 GHz)	3318			✓
Mini-Circuits	NF-SF50+	RF Adapter N Male to SMA Female (DC - 18 GHz)	-			✓
Mini-Circuits	VLF-6000+	Coaxial Low Pass Filter (DC - 6 GHz)	-			✓
Mini-Circuits	VLF-3000+	Coaxial Low Pass Filter (DC - 3 GHz)	-			✓
Mini-Circuits	VLF-1000+	Coaxial Low Pass Filter (DC - 1 GHz)	-			✓
Mitutoyo	CD-4”AX	Digital Caliper	B23243217	9/28/2023	9/28/2025	
Narda	24785-20	20 dB SMA Fixed Attenuator (DC - 4.0 GHz)	-			✓
Narda	4226-20 (26733)	20 dB SMA Directional Coupler (0.5 - 18 GHz)	0201			✓
Rohde & Schwarz	SMCV100B	R&S SMCV100B Vector Signal Generator (VSG)	103882	12/21/2023	12/19/2025	
Rohde & Schwarz	CMW500	CMW500 Radio Communication Test Station	1201.0002K50-167186-cf			
SPEAG	D1750V2	1750 MHz System Validation Dipole	1205	10/11/2023	10/11/2025	
SPEAG	D1900V2	1900 MHz System Validation Dipole	5d252	10/6/2023	10/6/2025	
SPEAG	D2450V2	2450 MHz System Validation Dipole	1112	11/15/2024	11/15/2025	
SPEAG	D5GHzV2	5GHz System Validation Dipole	1396	11/15/2024	11/15/2025	
SPEAG	D750V3	750 MHz System Validation Dipole	1235	10/11/2023	10/11/2025	
SPEAG	D835V2	835 MHz System Validation Dipole	4d311	10/9/2023	10/9/2025	
SPEAG	DAE4ip	Data Acquisition Electronics with Integ. Power	1844	11/6/2024	11/6/2025	
SPEAG	DAE4ip	Data Acquisition Electronics with Integ. Power	1839	9/4/2024	9/4/2025	
SPEAG	DAE4ip	Data Acquisition Electronics with Integ. Power	1843	8/14/2024	8/14/2025	
SPEAG	DAK-3.5	DAK-3.5 Dielectric Probe	1349	9/2/2024	9/2/2025	
SPEAG	EX3DV4	SAR Measurement Probe	7853	11/7/2024	11/7/2025	
SPEAG	EX3DV4	SAR Measurement Probe	7836	9/12/2024	9/12/2025	
SPEAG	EX3DV4	SAR Measurement Probe	7872	3/15/2024	3/15/2025	
Anritsu	MT8820C	Radio Communication Test Station	6201342024			
SPEAG	SE UMS 171 EA	MAIA Modulation and Interference Analyzer	1820			
SPEAG	SE UMS 171 EA	MAIA Modulation and Interference Analyzer	1815			
SPEAG	SE UMS 176 C	ANT Wideband Communication Antenna	1579			
SPEAG	SE UMS 176 C	ANT Wideband Communication Antenna	1601			

✓Note: Components calibrated before testing. Prior to testing, the measurement paths containing a cable, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator, power sensor, or VNA) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

9. Conclusion

The SAR evaluation indicates that the DUT is capable of compliance with the RF radiation exposure limits of the FCC and ISED, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.