

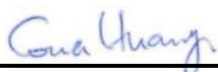
FCC SAR TEST REPORT

FCC ID : E2KBE200NG
Equipment : 2x2 Wi-Fi and BT, M.2 2230 adapter card
Brand Name : DELL
Model Name : BE200NGW
Applicant : Dell Inc.
One Dell Way Round Rock, Texas 78682 United States
Standard : FCC 47 CFR Part 2 (2.1093)

The product was installed into Portable Computer (Brand Name DELL, Model Name: P53E) during test.

The product was received on Dec. 24, 2024 and testing was started from Dec. 26, 2024 and completed on Jan. 01, 2025. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide by manufacturer and the test data has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been pass the FCC requirement.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Laboratory, the test report shall not be reproduced except in full.



Approved by: Cona Huang / Deputy Manager



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History of this test report

Report No.	Version	Description	Issued Date
FA4D0220-01	01	Initial issue of report	Feb. 07, 2025

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) for **Dell Inc., 2x2 Wi-Fi and BT, M.2 2230 adapter card, BE200NGW**, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary		Highest Simultaneous Transmission 1g SAR (W/kg)
		Body		
		1g SAR (W/kg)		
DTS	2.4GHz WLAN	0.39		0.45
NII	5GHz WLAN	0.73		0.84
6CD	6GHz WLAN	0.56		
DSS	Bluetooth	0.11		
Equipment Class	Frequency Band	Reported APD (mW/cm^2)		Reported PD (mW/cm^2)
6CD	6GHz WLAN	0.46		0.48
Date of Testing:		2024/12/26 ~ 2025/01/01		

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation and the FCC designation No. TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test. This device is in compliance with Specific Absorption Rate (SAR) general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR) specified in FCC 47 CFR part 2 (2.1093), Human Exposure to RF Radiation Limits (1.0 mW/cm²=10 W/m²) specified in FCC 47 CFR part 1.1310 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.

Reviewed by: Jason Wang
Report Producer: Daisy Peng

2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards, the below KDB standard may not including in the TAF code without accreditation.

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- IEC/IEEE 62209-1528:2020
- SPEAG DASY6 System Handbook
- SPEAG DASY6 Application Note (Interim Procedure for Device Operation at 6GHz-10GHz)



3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	2x2 Wi-Fi and BT, M.2 2230 adapter card
Brand Name	DELL
Model Name	BE200NGW
FCC ID	E2KBE200NG
Wireless Technology and Frequency Range	WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2 GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3 GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6 GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz WLAN 5.9 GHz Band: 5850 MHz ~ 5895 MHz WLAN 6GHz Band: 5925 MHz ~ 6425 MHz, 6425 MHz ~ 6525 MHz, 6525 MHz ~ 6875 MHz, 6875 MHz ~ 7125 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz
Mode	WLAN: 802.11a/b/g/n/ac/ax/be HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160/EHT20/EHT40/EHT80/EHT160/EHT320 Bluetooth BR/EDR/LE
Remark: 1. This device has two antenna vendors; RF exposure evaluation selects Auden as the main test, WNC will spot check worst case found in Auden.	

Host Information	
Equipment Name	Portable Computer
Brand Name	DELL
Model Name	P53E
EUT Stage	Identical Prototype

Antenna Information									
1-Auden (Auden Techno Corp)	Ant. Type	Monopole	connector	IPEX(20565-001R-13)	2.WNC Wistron NeWeb Corp.	Ant. Type	Monopole	connector	MHF4L(IPEX),20565-001R-13
	Model No.	Auden A23315-30 (DC33002YR1L)				Model No.	WNC 81ELBE15.G26 (DC33002YQ1L)		
	Peak Gain (dBi)					Peak Gain (dBi)			
	2400~2483.5MHz	Main:2.06 Aux:1.42	5850~5925MHz	Main:3.68 Aux:2.00		2400~2483.5MHz	Main:2.03 Aux:1.37	5850~5925MHz	Main:3.63 Aux:1.95
	5150~5250MHz	Main:1.27 Aux:2.46	5925~6425MHz	Main:2.29 Aux:3.50		5150~5250MHz	Main:1.22 Aux:2.41	5925~6425MHz	Main:2.23 Aux:3.46
	5250~5350MHz	Main:1.27 Aux:2.38	6425~6525MHz	Main:2.13 Aux:4.21		5250~5350MHz	Main:1.14 Aux:2.33	6425~6525MHz	Main:2.08 Aux:4.19
	5470~5725MHz	Main:2.58 Aux:2.40	6525~6875MHz	Main:2.50 Aux:4.21		5470~5725MHz	Main:2.49 Aux:2.35	6525~6875MHz	Main:2.45 Aux:4.15
	5725~5850MHz	Main:4.00 Aux:2.40	6875~7125MHz	Main:3.44 Aux:4.03		5725~5850MHz	Main:3.97 Aux:2.36	6875~7125MHz	Main:3.4 Aux:3.97

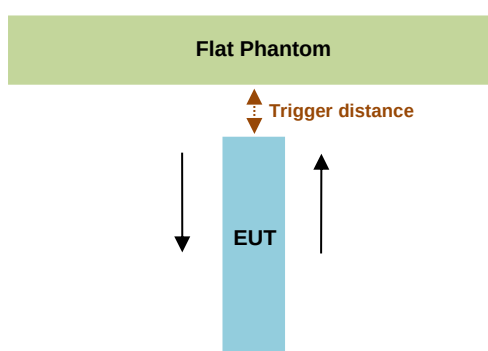
4. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance (KDB 616217 D04 section 6.2)>:

For the device is fully integrated, touch sensing capacitive sensor. It uses a charge transfer capacitive acquisition method that is capable of near range proximity detection. In this device offers a state of the art capacitive sensing engine with an embedded sampling capacitor and voltage regulator allowing the overall solution cost to be reduced and improving system immunity in noisy environments.

Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed. The details are illustrated as following, and the shortest triggering distances were reported and used for SAR assessment.

In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 1900MHz, and the tissue-equivalent medium for 1900MHz was used for formal proximity sensor triggering testing.



<Main Ant>

Proximity Sensor Trigger Distance (mm)		
Position	Bottom Side	
	moving toward	moving away
Minimum	26	26

<Aux Ant>

Proximity Sensor Trigger Distance (mm)		
Position	Bottom Side	
	moving toward	moving away
Minimum	26	26

<MIMO Ant>

Proximity Sensor Trigger Distance (mm)		
Position	Bottom Side	
	moving toward	moving away
Minimum	26	26

<Proximity Sensor Triggering Coverage (KDB 616217 D04 section 6.3)>:

Since the antenna and sensor are collocated and all of the peak SAR location is overlapping with the sensor pad for this device, therefore, According to KDB 616217 section 6.3, these procedures do not apply and are not required for this device. due to the antenna and sensor are collocated and the peak SAR location is overlapping with the sensor on this device.

Proximity sensor power reduction

	Mode	Channel	Frequency (MHz)	Bottom Side ⁽¹⁾		
				Ant Main Tune-up Limit (dB)	Ant Aux Tune-up Limit (dB)	Ant Main+Aux Tune-up Limit (dB)
2.4GHz WLAN	802.11b 1Mbps	1	2412	5	5.5	
		6	2437	5	5.5	
		11	2462	5	5.5	
		12	2467	4	4.5	
		13	2472	1	1.5	
	802.11g 6Mbps	1	2412	4	4.5	
		6	2437	4	4.5	
		11	2462	4	4.5	
		12	2467	0	0	
		13	2472	0	0	
	802.11n-HT20 MCS0	1	2412	4	4.5	4.5
		6	2437	4	4.5	4.5
		11	2462	4	4.5	4.5
		12	2467	0	0	0
		13	2472	0	0	0
	802.11n-HT40 MCS0	3	2422	3	3.5	3.5
		6	2437	3	3.5	3.5
		9	2452	3	3.5	3.5
		10	2457	0	0	0
		11	2462	0	0	0
	802.11ax-HE20 MCS0	1	2412	4	4.5	4.5
		6	2437	4	4.5	4.5
		11	2462	4	4.5	4.5
		12	2467	0	0	0
		13	2472	0	0	0
	802.11ax-HE40 MCS0	3	2422	3	3.5	3.5
		6	2437	3	3.5	3.5
		9	2452	3	3.5	3.5
		10	2457	0	0	0
		11	2462	0	0	0
	802.11be-EHT20 MCS0	1	2412	4	4.5	4.5
		6	2437	4	4.5	4.5
		11	2462	4	4.5	4.5
		12	2467	0	0	0
		13	2472	0	0	0
	802.11be-EHT40 MCS0	3	2422	3	3.5	3.5
		6	2437	3	3.5	3.5
		9	2452	3	3.5	3.5
		10	2457	0	0	0
		11	2462	0	0	0

	Mode	Channel	Frequency (MHz)	Bottom Side ⁽¹⁾		
				Ant Main Tune-up Limit (dB)	Ant Aux Tune-up Limit (dB)	Ant Main+Aux Tune-up Limit (dB)
5.2GHz WLAN	802.11a 6Mbps	36	5180	11.5	10	
		40	5200	11.5	10	
		44	5220	11.5	10	
		48	5240	11.5	10	
	802.11n-HT20 MCS0	36	5180	11.5	10	10
		40	5200	11.5	10	10
		44	5220	11.5	10	10
		48	5240	11.5	10	10
	802.11n-HT40 MCS0	38	5190	10.5	9	9
		46	5230	11.5	10	10
	802.11ac-VHT80 MCS0	42	5210	10.5	9	9
	802.11ax-HE20 MCS0	36	5180	11.5	10	10
		40	5200	11.5	10	10
		44	5220	11.5	10	10
		48	5240	11.5	10	10
	802.11ax-HE40 MCS0	38	5190	10.5	9	9
		46	5230	11.5	10	10
	802.11ax-HE80 MCS0	42	5210	10.5	9	9
	802.11be-EHT20 MCS0	36	5180	11.5	10	10
		40	5200	11.5	10	10
		44	5220	11.5	10	10
		48	5240	11.5	10	10
	802.11be-EHT40 MCS0	38	5190	10.5	9	9
		46	5230	11.5	10	10
	802.11be-EHT80 MCS0	42	5210	10.5	9	9

	Mode	Channel	Frequency (MHz)	Bottom Side ⁽¹⁾		
				Ant Main Tune-up Limit (dB)	Ant Aux Tune-up Limit (dB)	Ant Main+Aux Tune-up Limit (dB)
5.3GHz WLAN	802.11a 6Mbps	52	5260	11.5	10	
		56	5280	11.5	10	
		60	5300	11.5	10	
		64	5320	11.5	10	
	802.11n-HT20 MCS0	52	5260	11.5	10	10
		56	5280	11.5	10	10
		60	5300	11.5	10	10
		64	5320	11.5	10	10
	802.11n-HT40 MCS0	54	5270	11.5	10	10
		62	5310	10.5	9	9
	802.11ac-VHT80 MCS0	58	5290	10.5	9	9
	802.11ac-VHT160 MCS0	50	5250	7.5	6	6
	802.11ax-HE20 MCS0	52	5260	11.5	10	10
		56	5280	11.5	10	10
		60	5300	11.5	10	10
		64	5320	11.5	10	10
	802.11ax-HE40 MCS0	54	5270	11.5	10	10
		62	5310	10.5	9	9
	802.11ax-HE80 MCS0	58	5290	10.5	9	9
	802.11ax-HE160 MCS0	50	5250	7.5	6	6
	802.11be-EHT20 MCS0	52	5260	11.5	10	10
		56	5280	11.5	10	10
		60	5300	11.5	10	10
		64	5320	11.5	10	10
	802.11be-EHT40 MCS0	54	5270	11.5	10	10
		62	5310	10.5	9	9
	802.11be-EHT80 MCS0	58	5290	10.5	9	9
	802.11be-EHT160 MCS0	50	5250	7.5	6	6

	Mode	Channel	Frequency (MHz)	Bottom Side ⁽¹⁾		
				Ant Main Tune-up Limit (dB)	Ant Aux Tune-up Limit (dB)	Ant Main+Aux Tune-up Limit (dB)
5.5GHz WLAN	802.11a 6Mbps	100	5500	10	13	
		116	5580	10	13	
		124	5620	10	13	
		132	5660	10	13	
		140	5700	10	13	
		144	5720	10	13	
	802.11n-HT20 MCS0	100	5500	10	13	10
		116	5580	10	13	10
		124	5620	10	13	10
		132	5660	10	13	10
		140	5700	10	13	10
		144	5720	10	13	10
	802.11n-HT40 MCS0	102	5510	9	12	9
		110	5550	9	12	9
		126	5630	9	12	9
		134	5670	9	12	9
		142	5710	9	12	9
	802.11ac-VHT80 MCS0	106	5530	9	12	9
		122	5610	9	12	9
		138	5690	9	12	9
	802.11ac-VHT160 MCS0	114	5570	6	9	6
	802.11ax-HE20 MCS0	100	5500	10	13	10
		116	5580	10	13	10
		124	5620	10	13	10
		132	5660	10	13	10
		140	5700	10	13	10
		144	5720	10	13	10
	802.11ax-HE40 MCS0	102	5510	9	12	9
		110	5550	9	12	9
		126	5630	9	12	9
		134	5670	9	12	9
		142	5710	9	12	9
	802.11ax-HE80 MCS0	106	5530	9	12	9
		122	5610	9	12	9
		138	5690	9	12	9
	802.11ax-HE160 MCS0	114	5570	6	9	6
	802.11be-EHT20 MCS0	100	5500	10	13	10
		116	5580	10	13	10
		124	5620	10	13	10
		132	5660	10	13	10
		140	5700	10	13	10
		144	5720	10	13	10
	802.11be-EHT40 MCS0	102	5510	9	12	9
		110	5550	9	12	9
		126	5630	9	12	9
		134	5670	9	12	9
		142	5710	9	12	9
	802.11be-EHT80 MCS0	106	5530	9	12	9
		122	5610	9	12	9
		138	5690	9	12	9
	802.11be-EHT160 MCS0	114	5570	6	9	6

	Mode	Channel	Frequency (MHz)	Bottom Side ⁽¹⁾		
				Ant Main Tune-up Limit (dB)	Ant Aux Tune-up Limit (dB)	Ant Main+Aux Tune-up Limit (dB)
5.8GHz WLAN	802.11a 6Mbps	149	5745	10	11	
		157	5785	10	11	
		165	5825	10	11	
	802.11n-HT20 MCS0	149	5745	10	11	10
		157	5785	10	11	10
		165	5825	10	11	10
	802.11n-HT40 MCS0	151	5755	10	11	10
		159	5795	10	11	10
	802.11ac-VHT80 MCS0	155	5775	9	10	9
		149	5745	10	11	10
	802.11ax-HE20 MCS0	157	5785	10	11	10
		165	5825	10	11	10
		151	5755	10	11	10
	802.11ax-HE40 MCS0	159	5795	10	11	10
		155	5775	9	10	9
	802.11ax-HE80 MCS0	149	5745	10	11	10
		157	5785	10	11	10
		165	5825	10	11	10
	802.11be-EHT20 MCS0	151	5755	10	11	10
		159	5795	10	11	10
		155	5775	9	10	9
	802.11be-EHT40 MCS0	149	5745	10	11	10
		157	5785	10	11	10
		165	5825	10	11	10
	802.11be-EHT80 MCS0	151	5755	10	11	10
		159	5795	10	11	10
	802.11be-EHT80 MCS0	155	5775	10	11	10

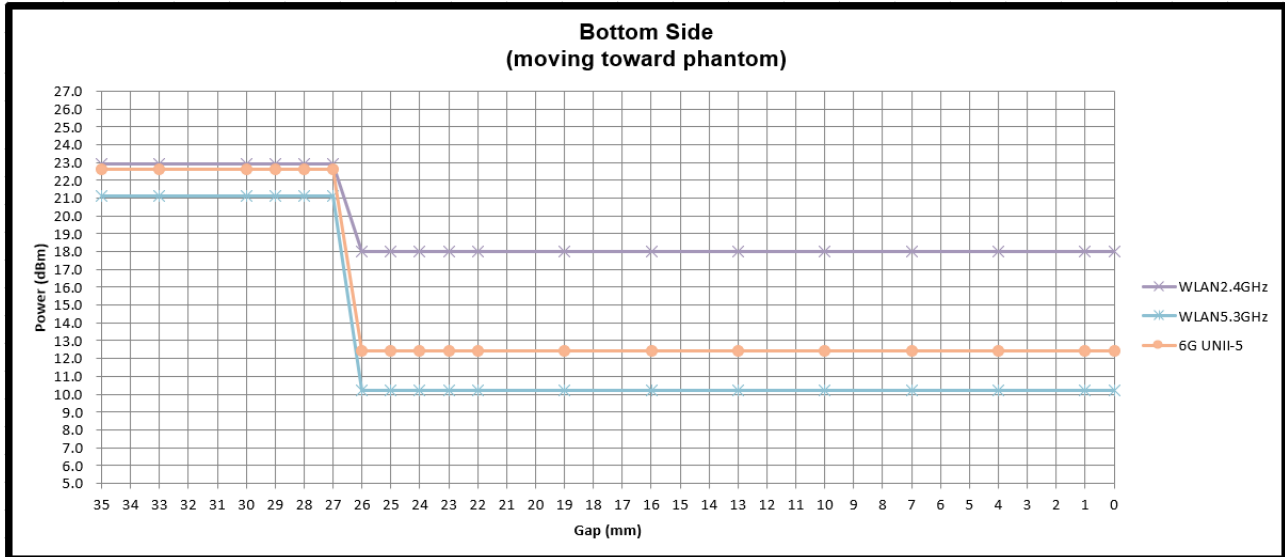
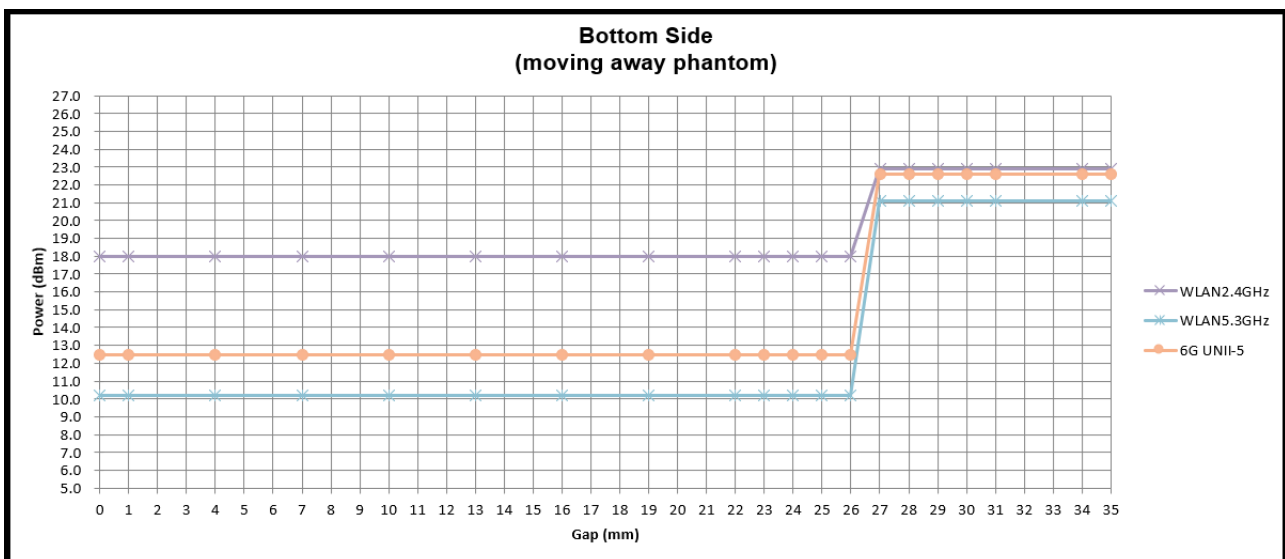
	Mode	Channel	Frequency (MHz)	Bottom Side ⁽¹⁾		
				Ant Main Tune-up Limit (dB)	Ant Aux Tune-up Limit (dB)	Ant Main+Aux Tune-up Limit (dB)
5.9GHz WLAN UNII-4	802.11a 6Mbps	169	5845	8	8.5	
		173	5865	8	8.5	
		177	5885	8	8.5	
	802.11n-HT20 MCS0	169	5845	8	8.5	8
		173	5865	8	8.5	8
		177	5885	8	8.5	8
	802.11n-HT40 MCS0	167	5835	10	10.5	10
		175	5875	10	10.5	10
	802.11ac-VHT80 MCS0	171	5855	10	10.5	10
	802.11ac-VHT160 MCS0	163	5815	8	8.5	8
	802.11ax-HE20 MCS0	169	5845	8	8.5	8
		173	5865	8	8.5	8
		177	5885	8	8.5	8
	802.11ax-HE40 MCS0	167	5835	10	10.5	10
		175	5875	10	10.5	10
	802.11ax-HE80 MCS0	171	5855	10	10.5	10
	802.11ax-HE160 MCS0	163	5815	8	8.5	8
	802.11be-EHT20 MCS0	169	5845	8	8.5	8
		173	5865	8	8.5	8
		177	5885	8	8.5	8
	802.11be-EHT40 MCS0	167	5835	10	10.5	10
		175	5875	10	10.5	10
	802.11be-EHT80 MCS0	171	5855	10	10.5	10
	802.11be-EHT160 MCS0	163	5815	8	8.5	8

	Mode	Channel	Frequency (MHz)	Bottom Side ⁽¹⁾		
				Ant Main Tune-up Limit (dB)	Ant Aux Tune-up Limit (dB)	Ant Main+Aux Tune-up Limit (dB)
WiFi 6E(SP)	802.11ax-HE20 MCS0	1	5955	10.5	11.5	10.5
		57	6235	10.5	11.5	10.5
		173	6815	10.5	11.5	10.5
	802.11ax-HE40 MCS0	3	5965	10.5	11.5	10.5
		59	6245	10.5	11.5	10.5
		171	6805	10.5	11.5	10.5
	802.11ax-HE80 MCS0	7	5985	10.5	11.5	10.5
		71	6305	10.5	11.5	10.5
		119	6545	10.5	11.5	10.5
	802.11ax-HE160 MCS0	167	6785	10.5	11.5	10.5
		15	6025	9.5	10.5	9.5
		47	6185	9.5	10.5	9.5
	802.11be-EHT20 MCS0	143	6665	9.5	10.5	9.5
		1	5955	10.5	11.5	10.5
		57	6235	10.5	11.5	10.5
	802.11be-EHT40 MCS0	173	6815	10.5	11.5	10.5
		3	5965	10.5	11.5	10.5
		59	6245	10.5	11.5	10.5
	802.11be-EHT80 MCS0	171	6805	10.5	11.5	10.5
		7	5985	10.5	11.5	10.5
		71	6305	10.5	11.5	10.5
	802.11be-EHT160 MCS0	167	6785	10.5	11.5	10.5
		15	6025	9.5	10.5	9.5
		47	6185	9.5	10.5	9.5
	802.11be-EHT320 MCS0	143	6665	9.5	10.5	9.5
		31	6105	6.5	7.5	6.5
		63	6265	6.5	7.5	6.5

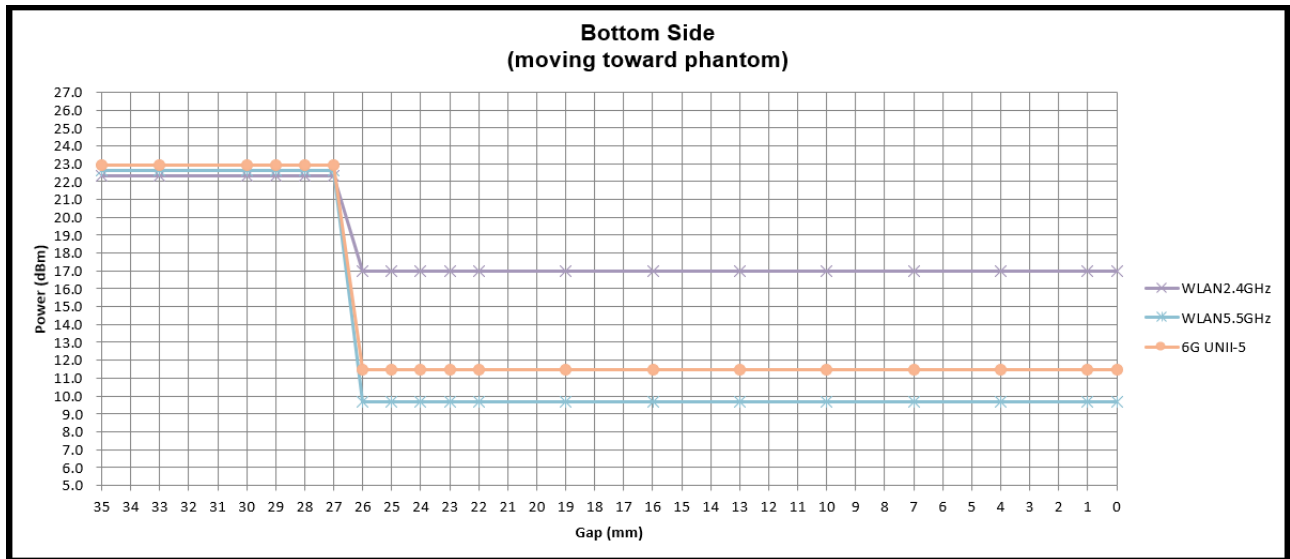
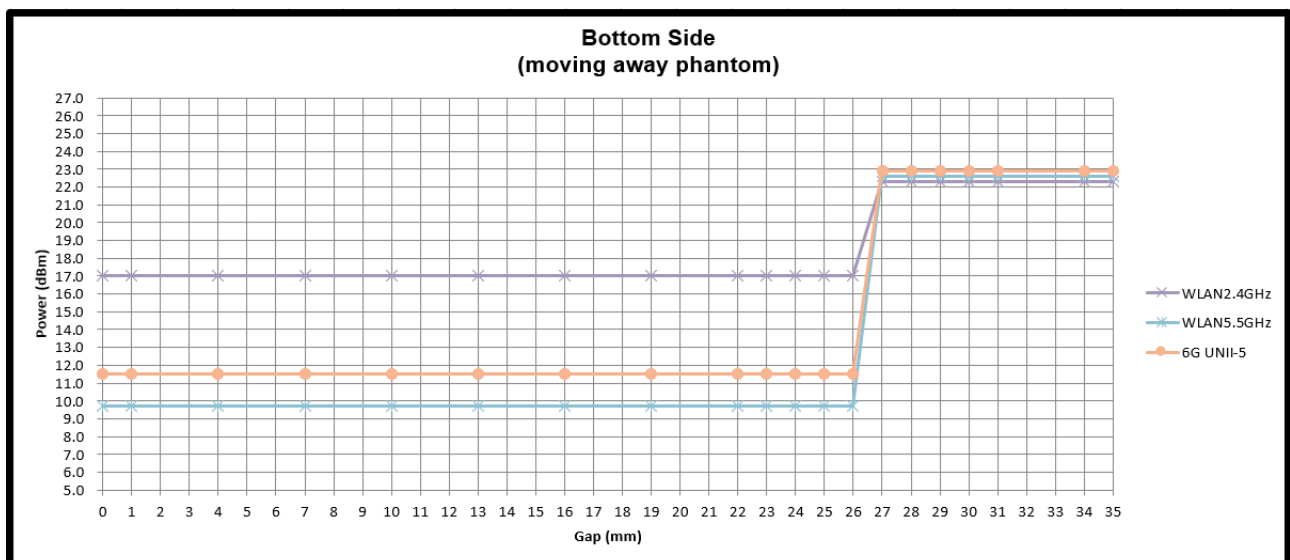
	Mode	Channel	Frequency (MHz)	Bottom Side ⁽¹⁾		
				Ant Main Tune-up Limit (dB)	Ant Aux Tune-up Limit (dB)	Ant Main+Aux Tune-up Limit (dB)
WiFi 6E(LPI)	802.11ax-HE20 MCS0	1	5955	0	0	0
		57	6235	0	0	0
		113	6515	0	0	0
		173	6815	0	0	0
		233	7115	0	0	0
	802.11ax-HE40 MCS0	3	5965	0	0	0
		59	6245	0	0	0
		107	6485	0	0	0
		171	6805	0	0	0
		227	7085	0	0	0
	802.11ax-HE80 MCS0	7	5985	0	0.5	0
		71	6305	0	0.5	0
		119	6545	0	0.5	0
		167	6785	0	0.5	0
		215	7025	0	0.5	0
	802.11ax-HE160 MCS0	15	6025	2.5	3.5	2.5
		47	6185	2.5	3.5	2.5
		111	6505	2.5	3.5	2.5
		143	6665	2.5	3.5	2.5
		207	6985	2.5	3.5	2.5
	802.11be-EHT20 MCS0	1	5955	0	0	0
		57	6235	0	0	0
		113	6515	0	0	0
		173	6815	0	0	0
		233	7115	0	0	0
	802.11be-EHT40 MCS0	3	5965	0	0	0
		59	6245	0	0	0
		107	6485	0	0	0
		171	6805	0	0	0
		227	7085	0	0	0
	802.11be-EHT80 MCS0	7	5985	0	0.5	0
		71	6305	0	0.5	0
		119	6545	0	0.5	0
		167	6785	0	0.5	0
		215	7025	0	0.5	0
	802.11be-EHT160 MCS0	15	6025	2.5	3.5	2.5
		47	6185	2.5	3.5	2.5
		111	6505	2.5	3.5	2.5
		143	6665	2.5	3.5	2.5
		207	6985	2.5	3.5	2.5
	802.11be-EHT320 MCS0	31	6105	5.5	6.5	5.5
		63	6265	5.5	6.5	5.5
		95	6425	5.5	6.5	5.5
		127	6585	5.5	6.5	5.5
		159	6745	5.5	6.5	5.5
		191	6905	5.5	6.5	5.5

Remark:

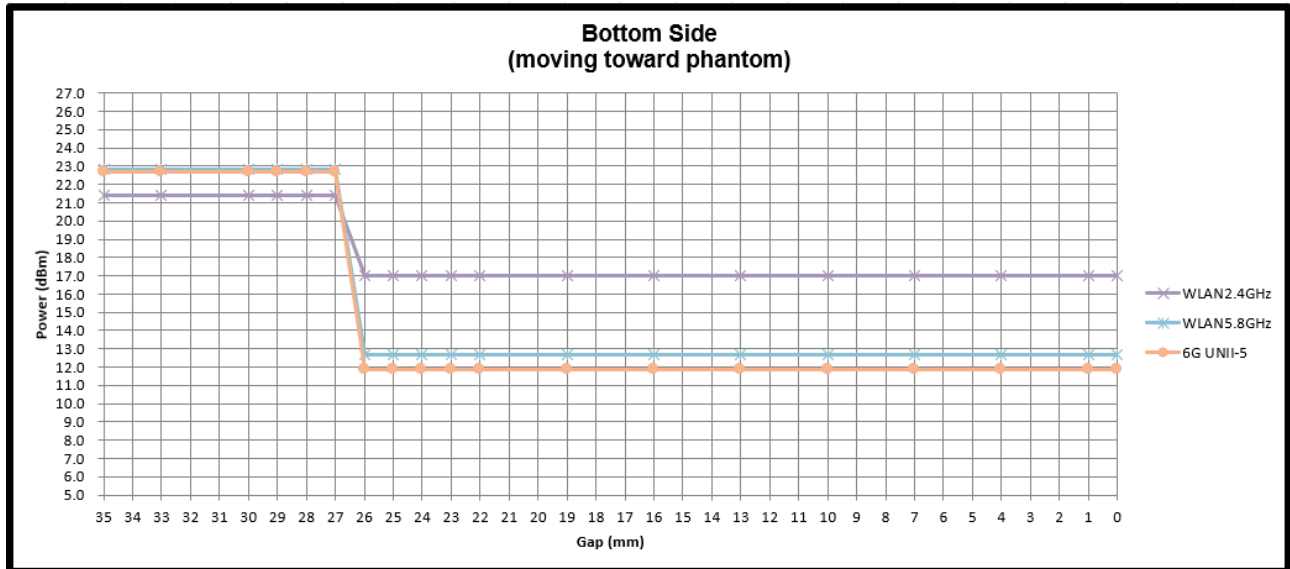
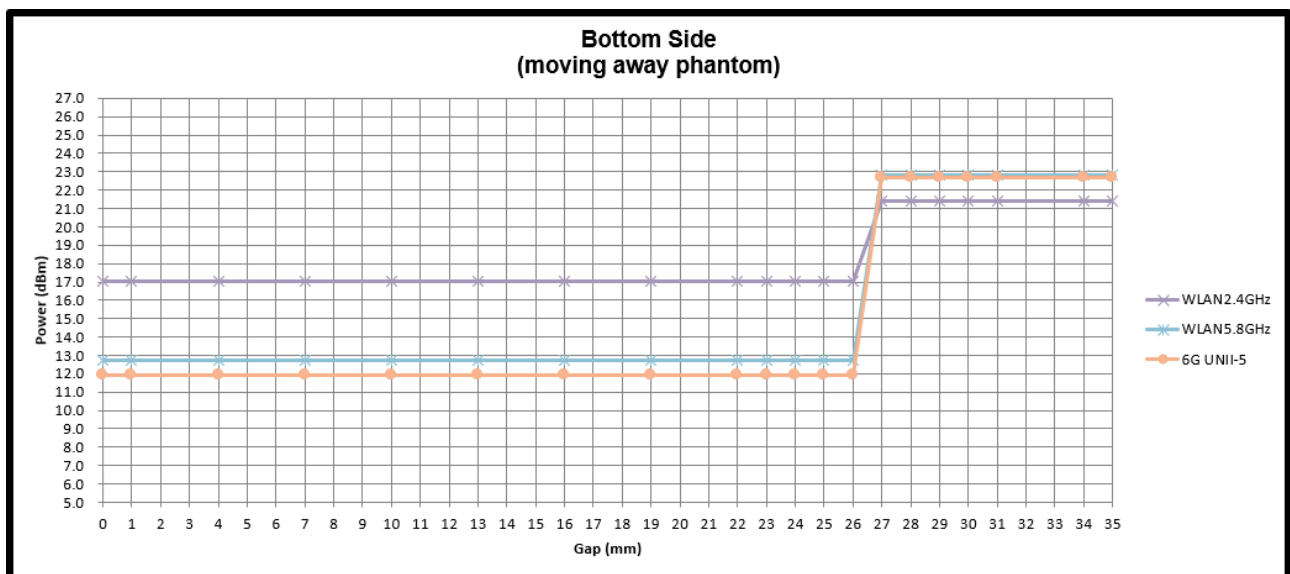
- ⁽¹⁾: Reduced maximum limit applied by activation of proximity sensor.
- Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown as below.
- For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed trigger distance -1:
 - Bottom Side: [25 mm](#)

Power Measurement during Sensor Trigger distance testing
Main Ant


Aux Ant



MIMO Ant



5. RF Exposure Limits

5.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

5.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). 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. The 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.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

5.3 RF Exposure limit for above 6GHz

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Peak Spatially Averaged Power Density was evaluated over a circular area of 4cm² per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

6. Specific Absorption Rate (SAR)

6.1 Introduction

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.

6.2 SAR Definition

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:

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

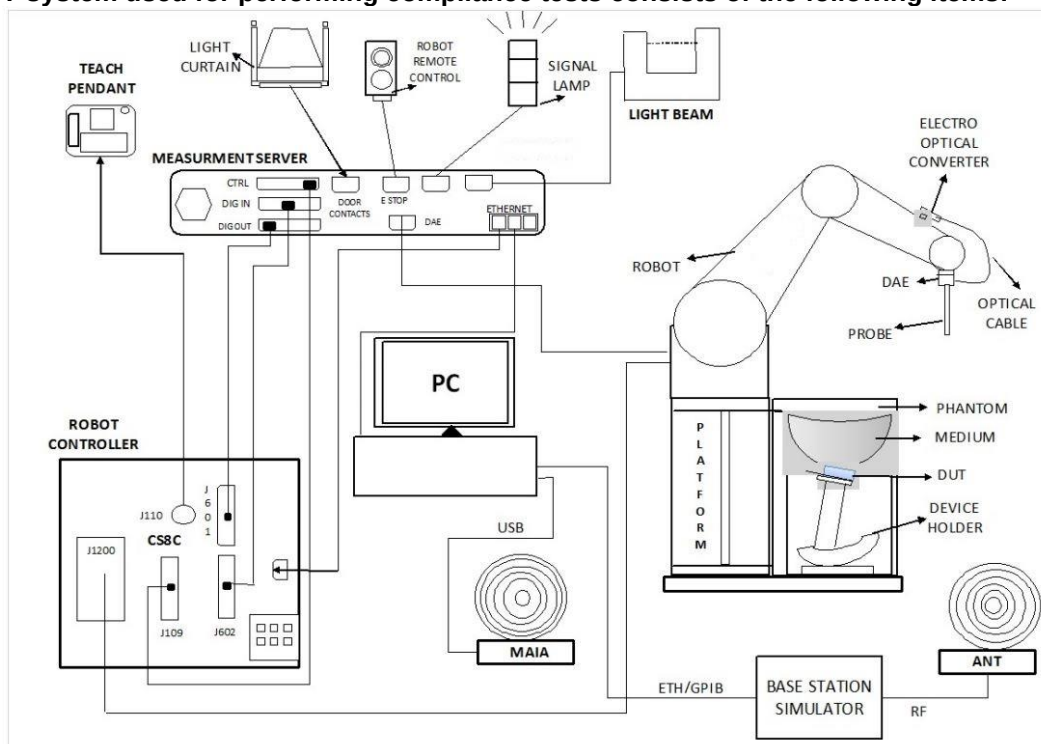
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



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

7.1 Test Site Location

The SAR measurement facilities used to collect data are within both Sporton Lab list below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 3786) and the FCC designation No. TW1190 and TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

Laboratory	EMC & Wireless Communications Laboratory		Wensan Laboratory					
Test Site Location	TW1190 No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan		TW3786 No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan					
Test Site No.	SAR01-HY	SAR03-HY	SAR08-HY	SAR09-HY	SAR15-HY	SAR18-HY	SAR21-HY	
	SAR04-HY	SAR05-HY	SAR11-HY	SAR12-HY	SAR16-HY	SAR19-HY	SAR22-HY	
	SAR06-HY	SAR10-HY	SAR13-HY	SAR14-HY	SAR17-HY	SAR20-HY		

7.2 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG). 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. This probe has a built in optical surface detection system to prevent from collision with phantom.

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	4 MHz – 4 GHz; Linearity: ± 0.2 dB (30 MHz – 4 GHz)	
Directivity	± 0.2 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 μ W/g – >100 mW/g; Linearity: ± 0.2 dB	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	4 MHz – >6 GHz Linearity: ± 0.2 dB (30 MHz – 6 GHz)	
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 μ W/g – >100 mW/g Linearity: ± 0.2 dB (noise: typically <1 μ W/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	

7.3 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



Fig 5.1 Photo of DAE

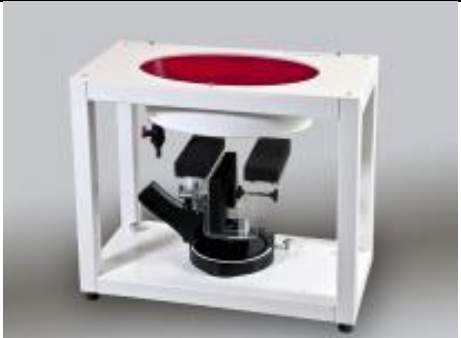
7.4 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)	
Filling Volume	Approx. 30 liters	
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm	

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

7.5 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.



Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix D demonstrates.
- (c) Set scan area, grid size and other setting on the DASY software.
- (d) Measure SAR results for the highest power channel on each testing position.
- (e) Find out the largest SAR result on these testing positions of each band
- (f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the 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

8.1 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 from 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

8.2 Power Reference Measurement

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

8.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

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

8.4 Zoom Scan

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

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

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

8.5 Volume Scan Procedures

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.

8.6 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 drifts more than 5%, the SAR will be retested.

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	2450MHz System Validation Kit	D2450V2	736	Aug. 15, 2024	Aug. 14, 2025
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Oct. 15, 2024	Oct. 14, 2025
SPEAG	6500MHz System Validation Kit	D6.5GHzV2	1003	Mar. 15, 2024	Mar. 14, 2025
SPEAG	5G Verification Source	10GHz	1020	Jan. 18, 2024	Jan. 17, 2025
SPEAG	EUmmWV Probe Tip Protection	EUmmWV4	9461	Oct. 16, 2024	Oct. 15, 2025
SPEAG	Data Acquisition Electronics	DAE4	1805	May. 22, 2024	May. 21, 2025
SPEAG	Data Acquisition Electronics	DAE4ip	1800	Jun. 18, 2024	Jun. 17, 2025
SPEAG	Dosimetric E-Field Probe	EX3DV4	7814	Jun. 20, 2024	Jun. 19, 2025
Testo	Hygro meter	608-H1	45196600	Oct. 28, 2024	Oct. 27, 2025
Anritsu	Radio Communication Test Station	MT8000A	6262208374	Feb. 29, 2024	Feb. 28, 2025
R&S	BT Base Station	CBT	101136	Oct. 20, 2024	Oct. 19, 2025
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Sep. 24, 2024	Sep. 23, 2025
Keysight	ENA Network Analyzer	E5071C	MY46104758	Oct. 20, 2024	Oct. 19, 2025
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 17, 2024	Sep. 16, 2025
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3690	Aug. 07, 2024	Aug. 06, 2025
Anritsu	Power Meter	ML2495A	1419002	Aug. 13, 2024	Aug. 12, 2025
Anritsu	Power Sensor	MA2411B	1911176	Aug. 13, 2024	Aug. 12, 2025
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jul. 09, 2024	Jul. 08, 2025
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 23, 2024	Oct. 22, 2025
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Warison	Directional Coupler	WCOU-10-50S-10	WR889BMC4B1	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.

10. System Verification

10.1 Tissue Verification

The tissue dielectric parameters of tissue-equivalent media used for SAR measurements must be characterized within a temperature range of 18°C to 25°C, measured with calibrated instruments and apparatuses, such as network analyzers and temperature probes. The temperature of the tissue-equivalent medium during SAR measurement must also be within 18°C to 25°C and within $\pm 2^\circ\text{C}$ of the temperature when the tissue parameters are characterized. The tissue dielectric measurement system must be calibrated before use. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements.

The liquid tissue depth was at least 15cm in the phantom for all SAR testing

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
2450	22.6	1.840	38.800	1.80	39.20	2.22	-1.02	± 5	2024/12/28
5250	22.3	4.670	35.800	4.71	35.95	-0.85	-0.42	± 5	2024/12/26
5250	22.4	4.600	35.400	4.71	35.95	-2.34	-1.53	± 5	2024/12/27
5250	22.5	4.710	36.400	4.71	35.95	0.00	1.25	± 5	2024/12/30
5600	22.3	5.070	35.200	5.07	35.50	0.00	-0.85	± 5	2024/12/26
5600	22.4	4.990	34.800	5.07	35.50	-1.58	-1.97	± 5	2024/12/27
5600	22.5	5.080	35.900	5.07	35.50	0.20	1.13	± 5	2024/12/30
5800	22.3	5.310	34.800	5.27	35.30	0.76	-1.42	± 5	2024/12/26
5800	22.4	5.230	34.500	5.27	35.30	-0.76	-2.27	± 5	2024/12/27
5800	22.5	5.300	35.600	5.27	35.30	0.57	0.85	± 5	2024/12/30
6500	22.9	6.160	34.700	6.07	34.50	1.48	0.58	± 5	2024/12/29
6500	22.1	5.970	35.000	6.07	34.50	-1.65	1.45	± 5	2024/12/31
6500	22	5.950	34.900	6.07	34.50	-1.98	1.16	± 5	2025/1/1

10.2 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Date	Frequency (MHz)	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)	Test Site
2024/12/28	2450	50	D2450V2-736	EX3DV4 - SN7814	DAE4ip Sn1800	2.660	51.400	53.2	3.50	SAR-18
2024/12/26	5250	50	D5GHzV2-1006-5250	EX3DV4 - SN7814	DAE4ip Sn1800	3.960	80.600	79.2	-1.74	SAR-18
2024/12/27	5250	50	D5GHzV2-1006-5250	EX3DV4 - SN7814	DAE4ip Sn1800	3.890	80.600	77.8	-3.47	SAR-18
2024/12/30	5250	50	D5GHzV2-1006-5250	EX3DV4 - SN7814	DAE4ip Sn1800	4.210	80.600	84.2	4.47	SAR-18
2024/12/26	5600	50	D5GHzV2-1006-5600	EX3DV4 - SN7814	DAE4ip Sn1800	4.380	83.400	87.6	5.04	SAR-18
2024/12/27	5600	50	D5GHzV2-1006-5600	EX3DV4 - SN7814	DAE4ip Sn1800	4.330	83.400	86.6	3.84	SAR-18
2024/12/30	5600	50	D5GHzV2-1006-5600	EX3DV4 - SN7814	DAE4ip Sn1800	3.940	83.400	78.8	-5.52	SAR-18
2024/12/26	5800	50	D5GHzV2-1006-5800	EX3DV4 - SN7814	DAE4ip Sn1800	4.070	80.600	81.4	0.99	SAR-18
2024/12/27	5800	50	D5GHzV2-1006-5800	EX3DV4 - SN7814	DAE4ip Sn1800	3.980	80.600	79.6	-1.24	SAR-18
2024/12/30	5800	50	D5GHzV2-1006-5800	EX3DV4 - SN7814	DAE4ip Sn1800	3.680	80.600	73.6	-8.68	SAR-18
2024/12/29	6500	100	D6.5GHzV2-1003	EX3DV4 - SN7814	DAE4ip Sn1800	29.900	293.000	299	2.05	SAR-18
2024/12/31	6500	100	D6.5GHzV2-1003	EX3DV4 - SN7814	DAE4ip Sn1800	29.000	293.000	290	-1.02	SAR-18
2025/1/1	6500	100	D6.5GHzV2-1003	EX3DV4 - SN7814	DAE4ip Sn1800	28.800	293.000	288	-1.71	SAR-18

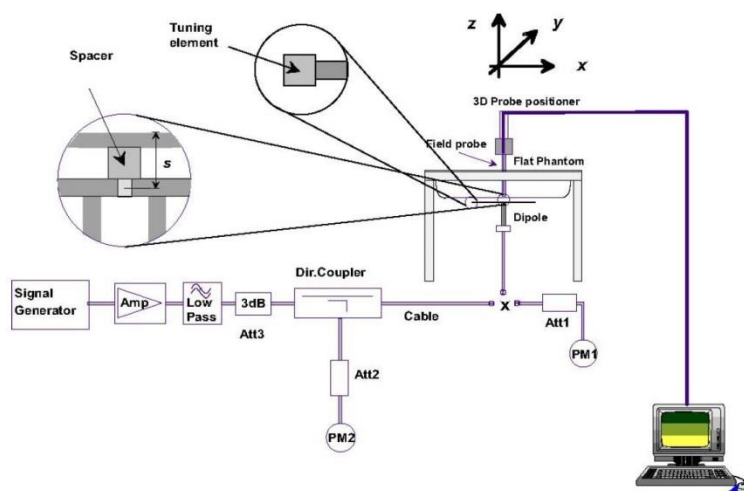


Fig 8.3.1 System Performance Check Setup



Fig 8.3.2 Setup Photo

10.1 PD System Performance Check Results

The system was verified to be within ± 0.66 dB of the power density targets on the calibration certificate according to the test system specification in the user's manual and calibration facility recommendation. The 0.66 dB deviation threshold represents the expanded uncertainty for system performance checks using SPEAG's mmWave verification sources. The same spatial resolution and measurement region used in the source calibration was applied during the system check. The measured power density distribution of verification source was also confirmed through visual inspection to have no noticeable differences, both spatially (shape) and numerically (level) from the distribution provided by the manufacturer, per November 2017 TCBC Workshop Notes

Test Site	Frequency (GHz)	5G Verification Source	Probe S/N	DAE S/N	Distance (mm)	Measured 4 cm ² (W/m ²)	Targeted 4 cm ² (W/m ²)	Deviation (dB)	Date
SAR14	10G	10GHz_1020	9461	1805	10	55.8	55.8	0.00	2024/12/31

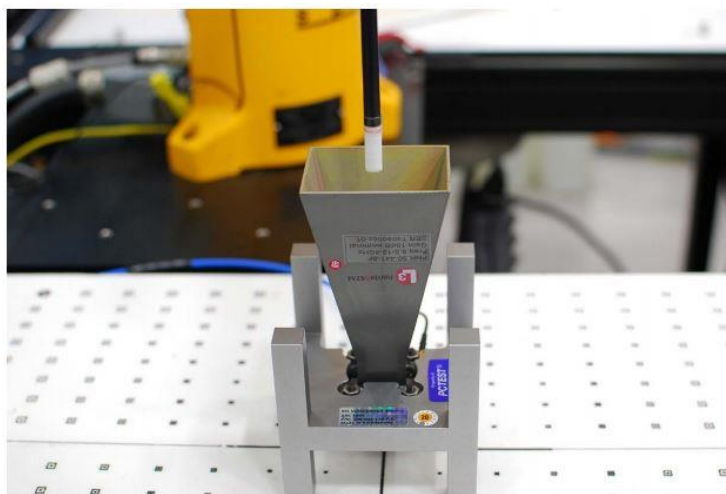


Figure 4-3
System Verification Setup Photo

System Performance Check Setup

11. WiFi/Bluetooth Output Power (Unit: dBm)

General Note:

1. The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, additional output power measurements were not necessary.
2. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
3. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
4. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, 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 for each frequency band.
5. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
 - a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
 - b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
 - c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
6. Per 201904 TCBC workshops, General principles of FCC KDB Publication 248227 D01 can be applied to determine the SAR Initial Test Configurations and test reduction for 802.11ax SAR testing. For the table below the 802.11ax maximum power is SU (non-OFDMA), and the SU maximum power also higher than RU (OFDMA)
7. In applying the test guidance, the IEEE 802.11 mode with the maximum output power (out of all modes) should be considered for testing
8. For modes with the same maximum output power, the guidance from section 5.3.2 a) of FCC KDB Publication 248227 D01 should be applied, with 802.11ax being considered as the highest 802.11 mode for the appropriate frequency bands
9. When SAR testing for 802.11ax is required
 - a. If the maximum output power is highest for OFDMA scenarios, choose the tone size with the maximum number of tones and the highest maximum output power
 - b. Otherwise, consider the fully allocated channel for SAR testing
 - c. When SAR testing is required on RU sizes less than the fully allocated channel, use the RU number closest to the middle of the channel, choosing the higher RU number when two RUs are equidistant to the middle of the channel



<2.4GHz WLAN_Sensor off>																
	Mode	Channel	Frequency (MHz)	Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	21.30	23.00	98.10	22.00	23.00	98.57							
		6	2437	22.80	23.00		22.30	23.00								
		11	2462	22.90	23.00		22.20	23.00								
		12	2467	21.00	22.00		20.02	22.00								
		13	2472	18.90	19.00		18.60	19.00								
	802.11g 6Mbps	1	2412		22.00			22.00								
		6	2437		22.00			22.00								
		11	2462		22.00			22.00								
		12	2467		17.00			17.00								
		13	2472		14.50			14.50								
	802.11n-HT20 MCS0	1	2412	Not Required	22.00	Not Required	Not Required	22.00	Not Required	18.40	19.00	18.20	19.00	21.31	22.00	98.00
		6	2437		22.00			22.00		18.50	19.00	18.20	19.00	21.36	22.00	
		11	2462		22.00			22.00		18.50	19.00	18.30	19.00	21.41	22.00	
		12	2467		17.00			17.00		13.60	14.00	13.30	14.00	16.46	17.00	
		13	2472		14.50			14.50		11.20	11.50	11.00	11.50	14.11	14.50	
	802.11n-HT40 MCS0	3	2422		21.00			21.00		Not Required	18.00	Not Required	18.00	Not Required	21.00	Not Required
		6	2437		21.00			21.00			18.00		18.00		21.00	
		9	2452		21.00			21.00			18.00		18.00		21.00	
		10	2457		16.00			16.00			13.00		13.00		16.00	
		11	2462		13.00			13.00			10.00		10.00		13.00	
	802.11ax-HE20 MCS0	1	2412		22.00			22.00			19.00		19.00		22.00	
		6	2437		22.00			22.00			19.00		19.00		22.00	
		11	2462		22.00			22.00			19.00		19.00		22.00	
		12	2467		17.00			17.00			14.00		14.00		17.00	
		13	2472		14.50			14.50			11.50		11.50		14.50	
	802.11ax-HE40 MCS0	3	2422		21.00			21.00			18.00		18.00		21.00	
		6	2437		21.00			21.00			18.00		18.00		21.00	
		9	2452		21.00			21.00			18.00		18.00		21.00	
		10	2457		16.00			16.00			13.00		13.00		16.00	
		11	2462		13.00			13.00			10.00		10.00		13.00	
	802.11be-EHT20 MCS0	1	2412		22.00			22.00			19.00		19.00		22.00	
		6	2437		22.00			22.00			19.00		19.00		22.00	
		11	2462		22.00			22.00			19.00		19.00		22.00	
		12	2467		17.00			17.00			14.00		14.00		17.00	
		13	2472		14.50			14.50			11.50		11.50		14.50	
	802.11be-EHT40 MCS0	3	2422		21.00			21.00			18.00		18.00		21.00	
		6	2437		21.00			21.00			18.00		18.00		21.00	
		9	2452		21.00			21.00			18.00		18.00		21.00	
		10	2457		16.00			16.00			13.00		13.00		16.00	
		11	2462		13.00			13.00			10.00		10.00		13.00	



<5.2GHz WLAN Sensor off>																
				Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	22.00	Not Required	Not Required	22.00	Not Required							
		40	5200		22.00			22.00								
		44	5220		22.00			22.00								
		48	5240		22.00			22.00								
	802.11n-HT20 MCS0	36	5180		22.00			22.00		Not Required	19.00	Not Required	19.00	Not Required	22.00	Not Required
		40	5200		22.00			22.00			19.00		19.00		22.00	
		44	5220		22.00			22.00			19.00		19.00		22.00	
		48	5240		22.00			22.00			19.00		19.00		22.00	
	802.11n-HT40 MCS0	38	5190		21.00			21.00			18.00		18.00		21.00	
		46	5230		22.00			22.00			19.00		19.00		22.00	
	802.11ac-VHT80 MCS0	42	5210		21.00			21.00			18.00		18.00		21.00	
		36	5180		22.00			22.00			19.00		19.00		22.00	
	802.11ax-HE20 MCS0	40	5200		22.00			22.00			19.00		19.00		22.00	
		44	5220		22.00			22.00			19.00		19.00		22.00	
		48	5240		22.00			22.00			19.00		19.00		22.00	
	802.11ax-HE40 MCS0	38	5190		21.00			21.00			18.00		18.00		21.00	
		46	5230		22.00			22.00			19.00		19.00		22.00	
	802.11ax-HE80 MCS0	42	5210		21.00			21.00			18.00		18.00		21.00	
		36	5180		22.00			22.00			19.00		19.00		22.00	
	802.11be-EHT20 MCS0	40	5200		22.00			22.00			19.00		19.00		22.00	
		44	5220		22.00			22.00			19.00		19.00		22.00	
		48	5240		22.00			22.00			19.00		19.00		22.00	
	802.11be-EHT40 MCS0	38	5190		21.00			21.00			18.00		18.00		21.00	
		46	5230		22.00			22.00			19.00		19.00		22.00	
	802.11be-EHT80 MCS0	42	5210		21.00			21.00			18.00		18.00		21.00	



<5.3GHz WLAN_Sensor off>																
				Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	21.60	22.00	94.93	21.50	22.00	95.35							
		56	5280	21.60	22.00		21.40	22.00								
		60	5300	21.70	22.00		21.30	22.00								
		64	5320	21.90	22.00		21.30	22.00								
	802.11n-HT20 MCS0	52	5260	Not Required	22.00	Not Required	22.00	Not Required	Not Required	18.50	19.00	18.60	19.00	21.56	22.00	98.50
		56	5280		22.00		22.00			18.40	19.00	18.40	19.00	21.41	22.00	
		60	5300		22.00		22.00			18.60	19.00	18.30	19.00	21.46	22.00	
		64	5320		22.00		22.00			18.70	19.00	18.30	19.00	21.51	22.00	
	802.11n-HT40 MCS0	54	5270	21.10	22.00	96.81	21.00	22.00	96.77	18.40	19.00	18.40	19.00	21.41	22.00	98.49
		62	5310	20.80	21.00		20.40	21.00		17.60	18.00	17.50	18.00	20.56	21.00	
	802.11ac-VHT80 MCS0	58	5290	Not Required	21.00	Not Required	21.00	Not Required	Not Required	Not Required	18.00	Not Required	18.00	Not Required	21.00	Not Required
	802.11ac-VHT160 MCS0	50	5250		18.00		18.00				15.00		15.00		18.00	
	802.11ax-HE20 MCS0	52	5260		22.00		22.00				19.00		19.00		22.00	
		56	5280		22.00		22.00				19.00		19.00		22.00	
		60	5300		22.00		22.00				19.00		19.00		22.00	
		64	5320		22.00		22.00				19.00		19.00		22.00	
	802.11ax-HE40 MCS0	54	5270		22.00		22.00				19.00		19.00		22.00	
		62	5310		21.00		21.00				18.00		18.00		21.00	
	802.11ax-HE80 MCS0	58	5290		21.00		21.00				18.00		18.00		21.00	
	802.11ax-HE160 MCS0	50	5250		18.00		18.00				15.00		15.00		18.00	
	802.11be-EHT20 MCS0	52	5260		22.00		22.00				19.00		19.00		22.00	
		56	5280		22.00		22.00				19.00		19.00		22.00	
		60	5300		22.00		22.00				19.00		19.00		22.00	
		64	5320		22.00		22.00				19.00		19.00		22.00	
	802.11be-EHT40 MCS0	54	5270		22.00		22.00				19.00		19.00		22.00	
		62	5310		21.00		21.00				18.00		18.00		21.00	
	802.11be-EHT80 MCS0	58	5290		21.00		21.00				18.00		18.00		21.00	
	802.11be-EHT160 MCS0	50	5250		18.00		18.00				15.00		15.00		18.00	



FCC SAR TEST REPORT

Report No. : FA4D0220-01

<5.5GHz WLAN_Sensor off>																
5.5GHz WLAN	Mode	Channel	Frequency (MHz)	Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	100	5500	22.80	23.00	94.93	22.40	23.00	95.35							
		116	5580	22.90	23.00		22.40	23.00								
		124	5620	23.00	23.00		22.20	23.00								
		132	5660	22.90	23.00		22.40	23.00								
		140	5700	22.90	23.00		22.50	23.00								
		144	5720	22.90	23.00		22.60	23.00								
	802.11n-HT20 MCS0	100	5500		23.00			23.00		19.50	20.00	19.40	20.00	22.46	23.00	98.50
		116	5580		23.00			23.00		19.60	20.00	19.40	20.00	22.51	23.00	
		124	5620		23.00			23.00		20.00	20.00	19.30	20.00	22.67	23.00	
		132	5660		23.00			23.00		19.90	20.00	19.50	20.00	22.71	23.00	
		140	5700		23.00			23.00		19.80	20.00	19.50	20.00	22.66	23.00	
		144	5720		23.00			23.00		19.80	20.00	19.60	20.00	22.71	23.00	
	802.11n-HT40 MCS0	102	5510		22.00			22.00			19.00		19.00		22.00	
		110	5550		22.00			22.00			19.00		19.00		22.00	
		126	5630		22.00			22.00			19.00		19.00		22.00	
		134	5670		22.00			22.00			19.00		19.00		22.00	
		142	5710		22.00			22.00			19.00		19.00		22.00	
	802.11ac-VHT80 MCS0	106	5530		22.00			22.00			19.00		19.00		22.00	
		122	5610		22.00			22.00			19.00		19.00		22.00	
		138	5690		22.00			22.00			19.00		19.00		22.00	
	802.11ac-VHT160 MCS0	114	5570		19.00			19.00			16.00		16.00		19.00	
	802.11ax-HE20 MCS0	100	5500		23.00			23.00			20.00		20.00		23.00	
		116	5580		23.00			23.00			20.00		20.00		23.00	
		124	5620		23.00			23.00			20.00		20.00		23.00	
		132	5660		23.00			23.00			20.00		20.00		23.00	
		140	5700		23.00			23.00			20.00		20.00		23.00	
		144	5720		23.00			23.00			20.00		20.00		23.00	
	802.11ax-HE40 MCS0	102	5510		22.00			22.00			19.00		19.00		22.00	
		110	5550		22.00			22.00			19.00		19.00		22.00	
		126	5630		22.00			22.00			19.00		19.00		22.00	
		134	5670		22.00			22.00			19.00		19.00		22.00	
		142	5710		22.00			22.00			19.00		19.00		22.00	
	802.11ax-HE80 MCS0	106	5530		22.00			22.00			19.00		19.00		22.00	
		122	5610		22.00			22.00			19.00		19.00		22.00	
		138	5690		22.00			22.00			19.00		19.00		22.00	
	802.11ax-HE160 MCS0	114	5570		19.00			19.00			16.00		16.00		19.00	
	802.11be-EHT20 MCS0	100	5500		23.00			23.00			20.00		20.00		23.00	
		116	5580		23.00			23.00			20.00		20.00		23.00	
		124	5620		23.00			23.00			20.00		20.00		23.00	
		132	5660		23.00			23.00			20.00		20.00		23.00	
		140	5700		23.00			23.00			20.00		20.00		23.00	
		144	5720		23.00			23.00			20.00		20.00		23.00	
	802.11be-EHT40 MCS0	102	5510		22.00			22.00			19.00		19.00		22.00	
		110	5550		22.00			22.00			19.00		19.00		22.00	
		126	5630		22.00			22.00			19.00		19.00		22.00	
		134	5670		22.00			22.00			19.00		19.00		22.00	
		142	5710		22.00			22.00			19.00		19.00		22.00	
	802.11be-EHT80 MCS0	106	5530		22.00			22.00			19.00		19.00		22.00	
		122	5610		22.00			22.00			19.00		19.00		22.00	
		138	5690		22.00			22.00			19.00		19.00		22.00	
	802.11be-EHT160 MCS0	114	5570		19.00			19.00			16.00		16.00		19.00	



<5.8GHz WLAN_Sensor off>																
				Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	23.00	Not Required	Not Required	23.00	Not Required							
		157	5785		23.00			23.00								
		165	5825		23.00			23.00								
	802.11n-HT20 MCS0	149	5745	Not Required	23.00	Not Required	Not Required	23.00	Not Required	Not Required	20.00	Not Required	20.00	Not Required	23.00	Not Required
		157	5785		23.00			23.00			20.00		20.00		23.00	
		165	5825		23.00			23.00			20.00		20.00		23.00	
	802.11n-HT40 MCS0	151	5755	22.80	23.00	96.81	22.60	23.00	96.77	19.80	20.00	19.70	20.00	22.76	23.00	98.49
		159	5795		23.00			22.80		19.80	20.00	19.80	20.00	22.81	23.00	
	802.11ac-VHT80 MCS0	155	5775	Not Required	22.00	Not Required	Not Required	22.00	Not Required	Not Required	19.00	Not Required	19.00	Not Required	22.00	Not Required
	802.11ax-HE20 MCS0	149	5745		23.00			23.00			20.00		20.00		23.00	
		157	5785		23.00			23.00			20.00		20.00		23.00	
		165	5825		23.00			23.00			20.00		20.00		23.00	
	802.11ax-HE40 MCS0	151	5755		23.00			23.00			20.00		20.00		23.00	
		159	5795		23.00			23.00			20.00		20.00		23.00	
	802.11ax-HE80 MCS0	155	5775		22.00			22.00			19.00		19.00		22.00	
	802.11be-EHT20 MCS0	149	5745		23.00			23.00			20.00		20.00		23.00	
		157	5785		23.00			23.00			20.00		20.00		23.00	
		165	5825		23.00			23.00			20.00		20.00		23.00	
	802.11be-EHT40 MCS0	151	5755		23.00			23.00			20.00		20.00		23.00	
		159	5795		23.00			23.00			20.00		20.00		23.00	
	802.11be-EHT80 MCS0	155	5775		23.00			23.00			20.00		20.00		23.00	

**<5.9GHz WLAN UNII 4. Sensor off>**

				Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.9GHz WLAN UNII 4	802.11a 6Mbps	169	5845	Not Required	21.00	Not Required	Not Required	21.00	Not Required							
		173	5865		21.00			21.00								
		177	5885		21.00			21.00								
	802.11n-HT20 MCS0	169	5845	Not Required	21.00	Not Required	Not Required	21.00	Not Required	Not Required	18.00	Not Required	18.00	Not Required	21.00	Not Required
		173	5865		21.00			21.00			18.00		18.00		21.00	
		177	5885		21.00			21.00			18.00		18.00		21.00	
	802.11n-HT40 MCS0	167	5835	22.40	23.00	96.81	22.70	23.00	96.77	19.30	20.00	19.70	20.00	22.51	23.00	98.49
		175	5875		23.00			23.00		19.40	20.00	19.60	20.00	22.51	23.00	
	802.11ac-VHT80 MCS0	171	5855	22.40	23.00	96.28	22.70	23.00	96.79	19.60	20.00	19.70	20.00	22.66	23.00	97.03
	802.11ac-VHT160 MCS0	163	5815	Not Required	21.00	Not Required	Not Required	21.00	Not Required	Not Required	18.00	Not Required	18.00	Not Required	21.00	Not Required
	802.11ax-HE20 MCS0	169	5845		21.00			21.00			18.00		18.00		21.00	
		173	5865		21.00			21.00			18.00		18.00		21.00	
		177	5885		21.00			21.00			18.00		18.00		21.00	
	802.11ax-HE40 MCS0	167	5835		23.00			23.00			20.00		20.00		23.00	
		175	5875		23.00			23.00			20.00		20.00		23.00	
	802.11ax-HE80 MCS0	171	5855		23.00			23.00			20.00		20.00		23.00	
	802.11ax-HE160 MCS0	163	5815		21.00			21.00			18.00		18.00		21.00	
	802.11be-EHT20 MCS0	169	5845		21.00			21.00			18.00		18.00		21.00	
		173	5865		21.00			21.00			18.00		18.00		21.00	
		177	5885		21.00			21.00			18.00		18.00		21.00	
	802.11be-EHT40 MCS0	167	5835		23.00			23.00			20.00		20.00		23.00	
		175	5875		23.00			23.00			20.00		20.00		23.00	
	802.11be-EHT80 MCS0	171	5855		23.00			23.00			20.00		20.00		23.00	
	802.11be-EHT160 MCS0	163	5815		21.00			21.00			18.00		18.00		21.00	



FCC SAR TEST REPORT

Report No. : FA4D0220-01

<WLAN 6GHz (LPI) Sensor off>																								
				Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO										
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %								
WLAN 6GHz (LPI)	802.11ax-HE20 MCS0	1	5955	Not Required	6.00	Not Required	Not Required	6.00	Not Required	Not Required	3.00	Not Required	3.00	Not Required	6.00	Not Required								
		57	6235		6.00			6.00			3.00		3.00		6.00									
		113	6515		6.00			6.00			3.00		3.00		6.00									
		173	6815		6.00			6.00			3.00		3.00		6.00									
		233	7115		2.00			2.00			-1.00		-1.00		2.00									
	802.11ax-HE40 MCS0	3	5965		9.00			9.00			6.00		6.00		9.00									
		59	6245		9.00			9.00			6.00		6.00		9.00									
		107	6485		9.00			9.00			6.00		6.00		9.00									
		171	6805		9.00			9.00			6.00		6.00		9.00									
		227	7085		9.00			9.00			6.00		6.00		9.00									
	802.11ax-HE80 MCS0	7	5985		12.00			12.00			9.00		9.00		12.00									
		71	6305		12.00			12.00			9.00		9.00		12.00									
		119	6545		12.00			12.00			9.00		9.00		12.00									
		167	6785		12.00			12.00			9.00		9.00		12.00									
		215	7025		12.00			12.00			9.00		9.00		12.00									
	802.11ax-HE160 MCS0	15	6025		15.00			15.00			12.00		12.00		15.00									
		47	6185		15.00			15.00			12.00		12.00		15.00									
		111	6505		15.00			15.00			12.00		12.00		15.00									
		143	6665		15.00			15.00			12.00		12.00		15.00									
		207	6985		15.00			15.00			12.00		12.00		15.00									
	802.11be-EHT20 MCS0	1	5955		6.00			6.00			3.00		3.00		6.00									
		57	6235		6.00			6.00			3.00		3.00		6.00									
		113	6515		6.00			6.00			3.00		3.00		6.00									
		173	6815		6.00			6.00			3.00		3.00		6.00									
		233	7115		2.00			2.00			-1.00		-1.00		2.00									
	802.11be-EHT40 MCS0	3	5965		9.00			9.00			6.00		6.00		9.00									
		59	6245		9.00			9.00			6.00		6.00		9.00									
		107	6485		9.00			9.00			6.00		6.00		9.00									
		171	6805		9.00			9.00			6.00		6.00		9.00									
		227	7085		9.00			9.00			6.00		6.00		9.00									
	802.11be-EHT80 MCS0	7	5985		12.00			12.00			9.00		9.00		12.00									
		71	6305		12.00			12.00			9.00		9.00		12.00									
		119	6545		12.00			12.00			9.00		9.00		12.00									
		167	6785		12.00			12.00			9.00		9.00		12.00									
		215	7025		12.00			12.00			9.00		9.00		12.00									
	802.11be-EHT160 MCS0	15	6025		15.00			15.00			12.00		12.00		15.00									
		47	6185		15.00			15.00			12.00		12.00		15.00									
		111	6505		15.00			15.00			12.00		12.00		15.00									
		143	6665		15.00			15.00			12.00		12.00		15.00									
		207	6985		15.00			15.00			12.00		12.00		15.00									
	802.11be-EHT320 MCS0	31	6105		17.80			18.00			97.50		17.90		18.00		96.80	14.40	15.00	14.90	15.00	17.67	18.00	97.80
		63	6265		16.90			18.00					17.70		18.00			14.30	15.00	14.60	15.00	17.46	18.00	
		95	6425		17.40			18.00					17.50		18.00			14.30	15.00	14.50	15.00	17.41	18.00	
		127	6585		17.50			18.00					17.20		18.00			14.40	15.00	14.20	15.00	17.31	18.00	
		159	6745		17.80			18.00					17.70		18.00			14.80	15.00	14.70	15.00	17.76	18.00	
		191	6905		16.80			18.00					16.50		18.00			14.60	15.00	14.80	15.00	17.71	18.00	



<WLAN 6GHz (SP)_Sensor off>																
WLAN 6GHz (SP)	Mode	Channel	Frequency (MHz)	Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11ax-HE20 MCS0	1	5955	Not Required	23.00	Not Required	Not Required	23.00	Not Required	Not Required	20.00	Not Required	20.00	Not Required	23.00	Not Required
		57	6235		23.00			23.00			20.00		20.00		23.00	
		173	6815		23.00			23.00			20.00		20.00		23.00	
	802.11ax-HE40 MCS0	3	5965		23.00			23.00			20.00		20.00		23.00	
		59	6245		23.00			23.00			20.00		20.00		23.00	
		171	6805		23.00			23.00			20.00		20.00		23.00	
	802.11ax-HE80 MCS0	7	5985		22.60	23.00	96.28	22.90	23.00	96.79	19.40	20.00	19.90	20.00	22.67	23.00
		71	6305		22.00	23.00		22.40	23.00		19.10	20.00	19.40	20.00	22.26	23.00
		119	6545		22.43	23.00		22.35	23.00		19.03	20.00	19.25	20.00	22.15	23.00
		167	6785		22.40	23.00		22.30	23.00		19.50	20.00	19.70	20.00	22.61	23.00
	802.11ax-HE160 MCS0	15	6025	Not Required	22.00	Not Required	Not Required	22.00	Not Required	Not Required	19.00	Not Required	19.00	Not Required	22.00	Not Required
		47	6185		22.00			22.00			19.00		19.00		22.00	
		143	6665		22.00			22.00			19.00		19.00		22.00	
	802.11be-EHT20 MCS0	1	5955		23.00			23.00			20.00		20.00		23.00	
		57	6235		23.00			23.00			20.00		20.00		23.00	
		173	6815		23.00			23.00			20.00		20.00		23.00	
	802.11be-EHT40 MCS0	3	5965		23.00			23.00			20.00		20.00		23.00	
		59	6245		23.00			23.00			20.00		20.00		23.00	
		171	6805		23.00			23.00			20.00		20.00		23.00	
	802.11be-EHT80 MCS0	7	5985		23.00			23.00			20.00		20.00		23.00	
		71	6305		23.00			23.00			20.00		20.00		23.00	
		167	6785		23.00			23.00			20.00		20.00		23.00	
	802.11be-EHT160 MCS0	15	6025		22.00			22.00			19.00		19.00		22.00	
		47	6185		22.00			22.00			19.00		19.00		22.00	
		143	6665		22.00			22.00			19.00		19.00		22.00	
	802.11be-EHT320 MCS0	31	6105		19.00			19.00			16.00		16.00		19.00	
		63	6265		19.00			19.00			16.00		16.00		19.00	



<2.4GHz WLAN_Sensor on>																
	Mode	Channel	Frequency (MHz)	Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	17.80	18.00	98.10	17.10	17.50	98.57							
		6	2437	17.80	18.00		17.00	17.50								
		11	2462	18.00	18.00		17.20	17.50								
		12	2467	17.90	18.00		17.10	17.50								
		13	2472	17.90	18.00		17.19	17.50								
	802.11g 6Mbps	1	2412	Not Required	18.00	Not Required	Not Required	17.50	Not Required							
		6	2437		18.00			17.50								
		11	2462		18.00			17.50								
		12	2467		17.00			17.00								
		13	2472		14.50			14.50								
	802.11n-HT20 MCS0	1	2412		18.00			17.50		14.00	14.50	13.80	14.50	16.91	17.50	98.00
		6	2437		18.00			17.50		14.00	14.50	13.80	14.50	16.91	17.50	
		11	2462		18.00			17.50		14.10	14.50	13.90	14.50	17.01	17.50	
		12	2467		17.00			17.00		13.80	14.00	13.80	14.00	16.81	17.00	
		13	2472		14.50			14.50		11.20	11.50	11.20	11.50	14.21	14.50	
	802.11n-HT40 MCS0	3	2422		18.00			17.50		14.20	14.50	14.10	14.50	17.16	17.50	98.00
		6	2437		18.00			17.50		14.30	14.50	14.40	14.50	17.36	17.50	
		9	2452		18.00			17.50		14.20	14.50	14.20	14.50	17.21	17.50	
		10	2457		16.00			16.00		12.90	13.00	12.90	13.00	15.91	16.00	
		11	2462		13.00			13.00		9.80	10.00	9.90	10.00	12.86	13.00	
	802.11ax-HE20 MCS0	1	2412		18.00			17.50		Not Required	14.50	Not Required	14.50	Not Required	17.50	Not Required
		6	2437		18.00			17.50			14.50		14.50		17.50	
		11	2462		18.00			17.50			14.50		14.50		17.50	
		12	2467		17.00			17.00			14.00		14.00		17.00	
		13	2472		14.50			14.50			11.50		11.50		14.50	
	802.11ax-HE40 MCS0	3	2422		18.00			17.50			14.50		14.50		17.50	
		6	2437		18.00			17.50			14.50		14.50		17.50	
		9	2452		18.00			17.50			14.50		14.50		17.50	
		10	2457		16.00			16.00			13.00		13.00		16.00	
		11	2462		13.00			13.00			10.00		10.00		13.00	
	802.11be-EHT20 MCS0	1	2412		18.00			17.50			14.50		14.50		17.50	
		6	2437		18.00			17.50			14.50		14.50		17.50	
		11	2462		18.00			17.50			14.50		14.50		17.50	
		12	2467		17.00			17.00			14.00		14.00		17.00	
		13	2472		14.50			14.50			11.50		11.50		14.50	
	802.11be-EHT40 MCS0	3	2422		18.00			17.50			14.50		14.50		17.50	
		6	2437		18.00			17.50			14.50		14.50		17.50	
		9	2452		18.00			17.50			14.50		14.50		17.50	
		10	2457		16.00			16.00			13.00		13.00		16.00	
		11	2462		13.00			13.00			10.00		10.00		13.00	



FCC SAR TEST REPORT

Report No. : FA4D0220-01

<5.2GHz WLAN_Sensor on>																
				Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	10.50	Not Required	Not Required	12.00	Not Required							
		40	5200		10.50			12.00								
		44	5220		10.50			12.00								
		48	5240		10.50			12.00								
	802.11n-HT20 MCS0	36	5180		10.50			12.00		Not Required	9.00	Not Required	9.00	Not Required	12.00	Not Required
		40	5200		10.50			12.00			9.00		9.00		12.00	
		44	5220		10.50			12.00			9.00		9.00		12.00	
		48	5240		10.50			12.00			9.00		9.00		12.00	
	802.11n-HT40 MCS0	38	5190		10.50			12.00			9.00		9.00		12.00	
		46	5230		10.50			12.00			9.00		9.00		12.00	
	802.11ac-VHT80 MCS0	42	5210		10.50			12.00			9.00		9.00		12.00	
		36	5180		10.50			12.00			9.00		9.00		12.00	
	802.11ax-HE20 MCS0	40	5200		10.50			12.00			9.00		9.00		12.00	
		44	5220		10.50			12.00			9.00		9.00		12.00	
		48	5240		10.50			12.00			9.00		9.00		12.00	
	802.11ax-HE40 MCS0	38	5190		10.50			12.00			9.00		9.00		12.00	
		46	5230		10.50			12.00			9.00		9.00		12.00	
	802.11ax-HE80 MCS0	42	5210		10.50			12.00			9.00		9.00		12.00	
		36	5180		10.50			12.00			9.00		9.00		12.00	
	802.11be-EHT20 MCS0	40	5200		10.50			12.00			9.00		9.00		12.00	
		44	5220		10.50			12.00			9.00		9.00		12.00	
		48	5240		10.50			12.00			9.00		9.00		12.00	
	802.11be-EHT40 MCS0	38	5190		10.50			12.00			9.00		9.00		12.00	
		46	5230		10.50			12.00			9.00		9.00		12.00	
	802.11be-EHT80 MCS0	42	5210		10.50			12.00			9.00		9.00		12.00	



<5.3GHz WLAN_Sensor on>																
				Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260		10.50			12.00								
		56	5280		10.50			12.00								
		60	5300		10.50			12.00								
		64	5320		10.50			12.00								
	802.11n-HT20 MCS0	52	5260	Not Required	10.50	Not Required	Not Required	12.00	Not Required	Not Required	9.00	Not Required	9.00	Not Required	12.00	Not Required
		56	5280		10.50			12.00			9.00		9.00		12.00	
		60	5300		10.50			12.00			9.00		9.00		12.00	
		64	5320		10.50			12.00			9.00		9.00		12.00	
	802.11n-HT40 MCS0	54	5270		10.50			12.00			9.00		9.00		12.00	
		62	5310		10.50			12.00			9.00		9.00		12.00	
	802.11ac-VHT80 MCS0	58	5290	10.20	10.50	96.28	11.50	12.00	96.79	8.31	9.00	8.91	9.00	11.63	12.00	97.03
	802.11ac-VHT160 MCS0	50	5250	10.20	10.50	97.45	11.50	12.00	97.74	8.46	9.00	8.99	9.00	11.74	12.00	96.50
	802.11ax-HE20 MCS0	52	5260		10.50			12.00			9.00		9.00		12.00	
		56	5280		10.50			12.00			9.00		9.00		12.00	
		60	5300		10.50			12.00			9.00		9.00		12.00	
		64	5320		10.50			12.00			9.00		9.00		12.00	
	802.11ax-HE40 MCS0	54	5270		10.50			12.00			9.00		9.00		12.00	
		62	5310		10.50			12.00			9.00		9.00		12.00	
	802.11ax-HE80 MCS0	58	5290		10.50			12.00			9.00		9.00		12.00	
	802.11ax-HE160 MCS0	50	5250		10.50			12.00			9.00		9.00		12.00	
	802.11be-EHT20 MCS0	52	5260		10.50			12.00			9.00		9.00		12.00	
		56	5280		10.50			12.00			9.00		9.00		12.00	
		60	5300		10.50			12.00			9.00		9.00		12.00	
		64	5320		10.50			12.00			9.00		9.00		12.00	
	802.11be-EHT40 MCS0	54	5270		10.50			12.00			9.00		9.00		12.00	
		62	5310		10.50			12.00			9.00		9.00		12.00	
	802.11be-EHT80 MCS0	58	5290		10.50			12.00			9.00		9.00		12.00	
	802.11be-EHT160 MCS0	50	5250		10.50			12.00			9.00		9.00		12.00	



FCC SAR TEST REPORT

Report No. : FA4D0220-01

<5.5GHz WLAN_Sensor on>																														
				Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO																
5.5GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %														
	802.11a 6Mbps	100	5500	Not Required	13.00	Not Required	Not Required	10.00	Not Required																					
		116	5580		13.00			10.00																						
		124	5620		13.00			10.00																						
		132	5660		13.00			10.00																						
		140	5700		13.00			10.00																						
		144	5720		13.00			10.00																						
	802.11n-HT20 MCS0	100	5500		13.00			10.00		Not Required	10.00	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required											
		116	5580		13.00			10.00			10.00			10.00		13.00														
		124	5620		13.00			10.00			10.00			10.00		13.00														
		132	5660		13.00			10.00			10.00			10.00		13.00														
		140	5700		13.00			10.00			10.00			10.00		13.00														
		144	5720		13.00			10.00			10.00			10.00		13.00														
	802.11n-HT40 MCS0	102	5510		13.00			10.00			Not Required		10.00	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required									
		110	5550		13.00			10.00					10.00			10.00		13.00												
		126	5630		13.00			10.00					10.00			10.00		13.00												
		134	5670		13.00			10.00					10.00			10.00		13.00												
		142	5710		13.00			10.00					10.00			10.00		13.00												
	802.11ac-VHT80 MCS0	106	5530	12.60	13.00	96.28	9.60	10.00	96.79	9.80		10.00	9.60		10.00	12.71	13.00	97.03												
		122	5610	12.70	13.00		9.60	10.00		9.70		10.00	9.60		10.00	12.66	13.00													
		138	5690	12.80	13.00		9.70	10.00		9.90		10.00	9.70		10.00	12.81	13.00													
	802.11ac-VHT160 MCS0	114	5570	12.70	13.00	97.45	9.70	10.00	97.74	9.70		10.00	9.70		10.00	12.71	13.00	96.50												
	802.11ax-HE20 MCS0	100	5500	Not Required	13.00	Not Required	Not Required	10.00	Not Required	Not Required		10.00	Not Required		10.00	Not Required	13.00	Not Required												
		116	5580		13.00			10.00				10.00			10.00		13.00													
		124	5620		13.00			10.00			10.00	10.00		13.00																
		132	5660		13.00			10.00			10.00	10.00		13.00																
		140	5700		13.00			10.00			10.00	10.00		13.00																
		144	5720		13.00			10.00			10.00	10.00		13.00																
	802.11ax-HE40 MCS0	102	5510		13.00			10.00			Not Required	10.00		Not Required	Not Required		10.00		Not Required	10.00	Not Required	13.00	Not Required							
		110	5550		13.00			10.00				10.00					10.00			13.00										
		126	5630		13.00			10.00				10.00					10.00			13.00										
134		5670	13.00		10.00			10.00				10.00					13.00													
142		5710	13.00		10.00			10.00				10.00					13.00													
802.11ax-HE80 MCS0	106	5530	13.00		10.00			Not Required				10.00					Not Required			Not Required		10.00		Not Required	10.00	Not Required	13.00	Not Required		
	122	5610	13.00		10.00							10.00										10.00			13.00					
	138	5690	13.00		10.00							10.00										10.00			13.00					
802.11ax-HE160 MCS0	114	5570	Not Required		13.00			Not Required				Not Required					10.00			Not Required		Not Required		10.00	Not Required	10.00	Not Required	13.00	Not Required	
802.11be-EHT20 MCS0	100	5500	Not Required		13.00			Not Required				Not Required					10.00			Not Required		Not Required		10.00	Not Required	10.00	Not Required	13.00	Not Required	
	116	5580			13.00												10.00							10.00		10.00		13.00		
	124	5620			13.00						10.00			10.00	10.00		13.00													
	132	5660			13.00						10.00			10.00	10.00		13.00													
	140	5700			13.00						10.00			10.00	10.00		13.00													
	144	5720			13.00						10.00			10.00	10.00		13.00													
802.11be-EHT40 MCS0	102	5510			13.00						10.00			Not Required	10.00		Not Required		Not Required		10.00		Not Required	10.00		Not Required		13.00		Not Required
	110	5550			13.00						10.00				10.00						10.00			13.00						
	126	5630		13.00	10.00	10.00	10.00		13.00																					
	134	5670		13.00	10.00	10.00	10.00		13.00																					
	142	5710		13.00	10.00	10.00	10.00		13.00																					
802.11be-EHT80 MCS0	106	5530		13.00	10.00	Not Required	10.00		Not Required	Not Required	10.00		Not Required		10.00	Not Required		13.00			Not Required									
	122	5610		13.00	10.00		10.00				10.00				13.00															
	138	5690		13.00	10.00		10.00				10.00				13.00															
802.11be-EHT160 MCS0	114	5570		Not Required	13.00	Not Required	Not Required		10.00	Not Required	Not Required		10.00		Not Required	10.00		Not Required			13.00			Not Required						



<5.8GHz WLAN_Sensor on>																
				Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	13.00	Not Required	Not Required	12.00	Not Required							
		157	5785		13.00			12.00								
		165	5825		13.00			12.00								
	802.11n-HT20 MCS0	149	5745	Not Required	13.00	Not Required	Not Required	12.00	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
		157	5785		13.00			12.00			10.00		10.00		13.00	
		165	5825		13.00			12.00			10.00		10.00		13.00	
	802.11n-HT40 MCS0	151	5755	12.70	13.00	96.81	11.70	12.00	96.77	9.60	10.00	9.70	10.00	12.66	13.00	98.49
		159	5795		13.00			11.80		9.50	10.00	9.90	10.00	12.71	13.00	
	802.11ac-VHT80 MCS0	155	5775	12.80	13.00	96.28	11.80	12.00	96.79	9.70	10.00	9.80	10.00	12.76	13.00	97.03
	802.11ax-HE20 MCS0	149	5745	Not Required	13.00	Not Required	Not Required	12.00	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
		157	5785		13.00			12.00			10.00		10.00		13.00	
		165	5825		13.00			12.00			10.00		10.00		13.00	
	802.11ax-HE40 MCS0	151	5755		13.00			12.00			10.00		10.00		13.00	
		159	5795		13.00			12.00			10.00		10.00		13.00	
	802.11ax-HE80 MCS0	155	5775		13.00			12.00			10.00		10.00		13.00	
	802.11be-EHT20 MCS0	149	5745		13.00			12.00			10.00		10.00		13.00	
		157	5785		13.00			12.00			10.00		10.00		13.00	
		165	5825		13.00			12.00			10.00		10.00		13.00	
	802.11be-EHT40 MCS0	151	5755		13.00			12.00			10.00		10.00		13.00	
		159	5795		13.00			12.00			10.00		10.00		13.00	
	802.11be-EHT80 MCS0	155	5775		13.00			12.00			10.00		10.00		13.00	

**<5.9GHz WLAN UNII 4. Sensor on>**

				Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.9GHz WLAN UNII 4	802.11a 6Mbps	169	5845	Not Required	13.00	Not Required	Not Required	12.50	Not Required							
		173	5865		13.00			12.50								
		177	5885		13.00			12.50								
	802.11n-HT20 MCS0	169	5845	Not Required	13.00	Not Required	Not Required	12.50	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
		173	5865		13.00			12.50			10.00		10.00		13.00	
		177	5885		13.00			12.50			10.00		10.00		13.00	
	802.11n-HT40 MCS0	167	5835	Not Required	13.00	Not Required	Not Required	12.50	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
		175	5875		13.00			12.50			10.00		10.00		13.00	
	802.11ac-VHT80 MCS0	171	5855	12.30	13.00	96.28	12.30	12.50	96.79	9.10	10.00	9.80	10.00	12.47	13.00	97.03
	802.11ac-VHT160 MCS0	163	5815	12.40	13.00	97.45	12.30	12.50	97.74	9.40	10.00	9.90	10.00	12.67	13.00	96.50
	802.11ax-HE20 MCS0	169	5845	Not Required	13.00	Not Required	Not Required	12.50	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
		173	5865		13.00			12.50			10.00		10.00		13.00	
		177	5885		13.00			12.50			10.00		10.00		13.00	
	802.11ax-HE40 MCS0	167	5835	Not Required	13.00	Not Required	Not Required	12.50	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
		175	5875		13.00			12.50			10.00		10.00		13.00	
	802.11ax-HE80 MCS0	171	5855	Not Required	13.00	Not Required	Not Required	12.50	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
	802.11ax-HE160 MCS0	163	5815		13.00			12.50			10.00		10.00		13.00	
	802.11be-EHT20 MCS0	169	5845		13.00			12.50			10.00		10.00		13.00	
		173	5865	Not Required	13.00	Not Required	Not Required	12.50	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
		177	5885		13.00			12.50			10.00		10.00		13.00	
	802.11be-EHT40 MCS0	167	5835		13.00			12.50			10.00		10.00		13.00	
		175	5875		13.00			12.50			10.00		10.00		13.00	
	802.11be-EHT80 MCS0	171	5855	Not Required	13.00	Not Required	Not Required	12.50	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
	802.11be-EHT160 MCS0	163	5815		13.00			12.50			10.00		10.00		13.00	



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Report No. : FA4D0220-01

<WLAN 6GHz (LPI) Sensor on>																								
				Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO										
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %								
WLAN 6GHz (LPI)	802.11ax-HE20 MCS0	1	5955	Not Required	6.00	Not Required	Not Required	6.00	Not Required	Not Required	3.00	Not Required	3.00	Not Required	6.00	Not Required								
		57	6235		6.00			6.00			3.00		3.00		6.00									
		113	6515		6.00			6.00			3.00		3.00		6.00									
		173	6815		6.00			6.00			3.00		3.00		6.00									
		233	7115		2.00			2.00			-1.00		-1.00		2.00									
	802.11ax-HE40 MCS0	3	5965		9.00			9.00			6.00		6.00		9.00									
		59	6245		9.00			9.00			6.00		6.00		9.00									
		107	6485		9.00			9.00			6.00		6.00		9.00									
		171	6805		9.00			9.00			6.00		6.00		9.00									
		227	7085		9.00			9.00			6.00		6.00		9.00									
	802.11ax-HE80 MCS0	7	5985		12.00			11.50			9.00		9.00		12.00									
		71	6305		12.00			11.50			9.00		9.00		12.00									
		119	6545		12.00			11.50			9.00		9.00		12.00									
		167	6785		12.00			11.50			9.00		9.00		12.00									
		215	7025		12.00			11.50			9.00		9.00		12.00									
	802.11ax-HE160 MCS0	15	6025		12.50			11.50			9.50		9.50		12.50									
		47	6185		12.50			11.50			9.50		9.50		12.50									
		111	6505		12.50			11.50			9.50		9.50		12.50									
		143	6665		12.50			11.50			9.50		9.50		12.50									
		207	6985		12.50			11.50			9.50		9.50		12.50									
	802.11be-EHT20 MCS0	1	5955		6.00			6.00			3.00		3.00		6.00									
		57	6235		6.00			6.00			3.00		3.00		6.00									
		113	6515		6.00			6.00			3.00		3.00		6.00									
		173	6815		6.00			6.00			3.00		3.00		6.00									
		233	7115		2.00			2.00			-1.00		-1.00		2.00									
	802.11be-EHT40 MCS0	3	5965		9.00			9.00			6.00		6.00		9.00									
		59	6245		9.00			9.00			6.00		6.00		9.00									
		107	6485		9.00			9.00			6.00		6.00		9.00									
		171	6805		9.00			9.00			6.00		6.00		9.00									
		227	7085		9.00			9.00			6.00		6.00		9.00									
	802.11be-EHT80 MCS0	7	5985		12.00			11.50			9.00		9.00		12.00									
		71	6305		12.00			11.50			9.00		9.00		12.00									
		119	6545		12.00			11.50			9.00		9.00		12.00									
		167	6785		12.00			11.50			9.00		9.00		12.00									
		215	7025		12.00			11.50			9.00		9.00		12.00									
	802.11be-EHT160 MCS0	15	6025		12.50			11.50			9.50		9.50		12.50									
		47	6185		12.50			11.50			9.50		9.50		12.50									
		111	6505		12.50			11.50			9.50		9.50		12.50									
		143	6665		12.50			11.50			9.50		9.50		12.50									
		207	6985		12.50			11.50			9.50		9.50		12.50									
	802.11be-EHT320 MCS0	31	6105		12.40			12.50			97.50		11.50		11.50		96.80	8.60	9.50	9.50	9.50	12.08	12.50	97.80
		63	6265		12.30			12.50					11.20		11.50			8.40	9.50	9.30	9.50	11.88	12.50	
		95	6425		12.30			12.50					11.47		11.50			8.50	9.50	9.10	9.50	11.82	12.50	
		127	6585		12.40			12.50					11.18		11.50			8.70	9.50	8.80	9.50	11.76	12.50	
		159	6745		12.40			12.50					11.13		11.50			9.00	9.50	9.20	9.50	12.11	12.50	
		191	6905		12.30			12.50					11.25		11.50			9.00	9.50	9.30	9.50	12.16	12.50	



<WLAN 6GHz(SP)_Sensor on>																
				Main Ant			Aux Ant			MIMO-Main		MIMO-Aux		MIMO		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
WLAN 6GHz (SP)	802.11ax-HE20 MCS0	1	5955	Not Required	12.50	Not Required	Not Required	11.50	Not Required	Not Required	9.50	Not Required	9.50	Not Required	12.50	Not Required
		57	6235		12.50			11.50			9.50		9.50		12.50	
		173	6815		12.50			11.50			9.50		9.50		12.50	
	802.11ax-HE40 MCS0	3	5965		12.50			11.50			9.50		9.50		12.50	
		59	6245		12.50			11.50			9.50		9.50		12.50	
		171	6805		12.50			11.50			9.50		9.50		12.50	
	802.11ax-HE80 MCS0	7	5985		12.50			11.50			9.50		9.50		12.50	
		71	6305		12.50			11.50			9.50		9.50		12.50	
		167	6785		12.50			11.50			9.50		9.50		12.50	
	802.11ax-HE160 MCS0	15	6025		12.50			11.50			9.50		9.50		12.50	
		47	6185		12.50			11.50			9.50		9.50		12.50	
		143	6665		12.50			11.50			9.50		9.50		12.50	
	802.11be-EHT20 MCS0	1	5955		12.50			11.50			9.50		9.50		12.50	
		57	6235		12.50			11.50			9.50		9.50		12.50	
		173	6815		12.50			11.50			9.50		9.50		12.50	
	802.11be-EHT40 MCS0	3	5965		12.50			11.50			9.50		9.50		12.50	
		59	6245		12.50			11.50			9.50		9.50		12.50	
		171	6805		12.50			11.50			9.50		9.50		12.50	
	802.11be-EHT80 MCS0	7	5985		12.50			11.50			9.50		9.50		12.50	
		71	6305		12.50			11.50			9.50		9.50		12.50	
		167	6785		12.50			11.50			9.50		9.50		12.50	
	802.11be-EHT160 MCS0	15	6025		12.50			11.50			9.50		9.50		12.50	
		47	6185		12.50			11.50			9.50		9.50		12.50	
		143	6665		12.50			11.50			9.50		9.50		12.50	
	802.11be-EHT320 MCS0	31	6105		12.45	97.50	11.47	11.50	96.80	8.52	9.50	9.21	9.50	11.89	12.50	97.80
		63	6265		12.40		11.21	11.50		8.67	9.50	9.07	9.50	11.88	12.50	
		127	6585		12.39		11.40	11.50		8.45	9.50	8.84	9.50	11.66	12.50	
		159	6745		12.34		11.15	11.50		8.89	9.50	8.82	9.50	11.87	12.50	

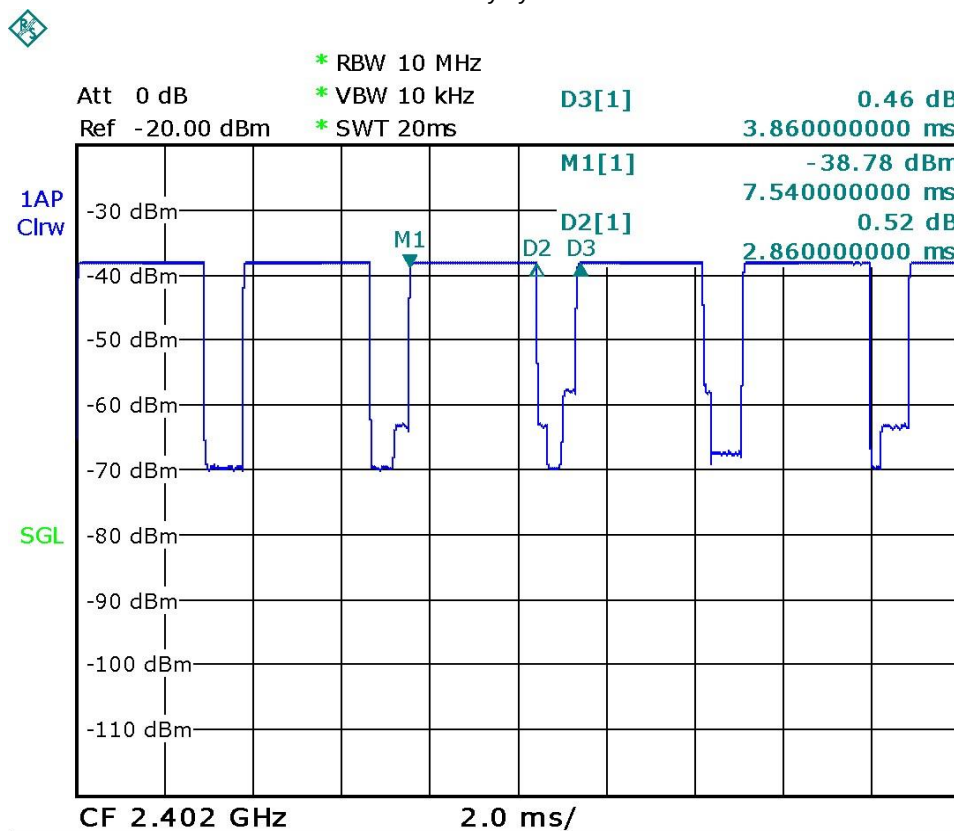
<2.4GHz Bluetooth>

				Aux Ant		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
Bluetooth	BR / EDR 1Mbps	0	2402	14.70	15.00	74.09
		39	2441	14.50	15.00	
		78	2480	14.50	15.00	
	BR / EDR 2Mbps	0	2402	Not Required	15.00	Not Required
		39	2441		15.00	
		78	2480		15.00	
	BR / EDR 3Mbps	0	2402		15.00	
		39	2441		15.00	
		78	2480		15.00	
	LE 1Mbps	0	2402		15.00	
		19	2440		15.00	
		39	2480		15.00	
	LE 2Mbps	0	2402		15.00	
		19	2440		15.00	
		39	2480		15.00	

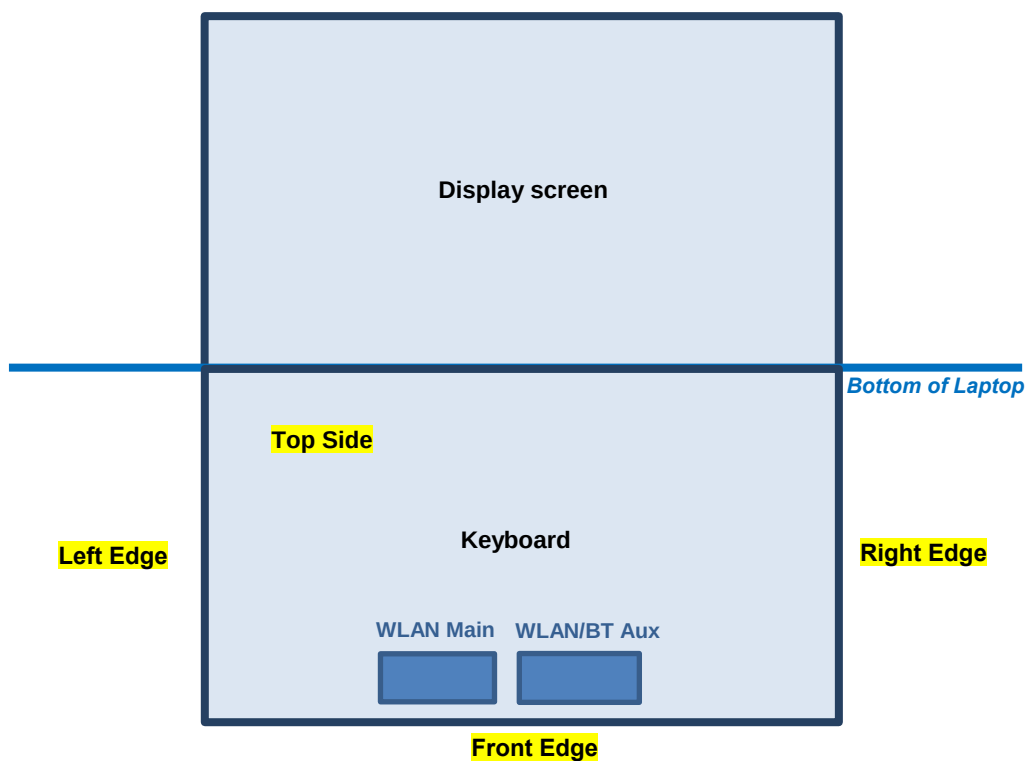
General Note:

- For 2.4GHz Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 74.09% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.

BT Duty cycle



12. Antenna Location



The separation distance for antenna to edge :

Antenna	To Bottom Side (mm)
WLAN Main	10
WLAN/BT Aux	10

<SAR test exclusion table>
General Note:

1. The below table, when the distance is < 50 mm exclusion threshold is "Ratio", when the distance is > 50 mm exclusion threshold is "mW"
2. Maximum power is the source-based time-average power and represents the maximum RF output power among production units
3. Per KDB 447498 D01v06, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
4. Per KDB 447498 D01v06, standalone SAR test exclusion threshold is applied; If the test separation distance is < 5mm, 5mm is used to determine SAR exclusion threshold.
5. Per KDB 447498 D01v06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR}$$
 - f(GHz) is the RF channel transmit frequency in GHz
 - Power and distance are rounded to the nearest mW and mm before calculation
 - The result is rounded to one decimal place for comparison
6. Per KDB 447498 D01v06, at 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following
 - a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · (f(MHz)/150)] mW, at 100 MHz to 1500 MHz
 - b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · 10] mW at > 1500 MHz and ≤ 6 GHz

Exposure Position	Wireless Interface	BT ANT Aux	2.4GHz WLAN ANT Main	2.4GHz WLAN ANT Aux	5/6GHz WLAN ANT Main	5/6GHz WLAN ANT Aux
	Calculated Frequency (MHz)	2480	2472	2472	7115	7115
	Maximum power (dBm)	15.0	23.0	23.0	23.0	23.0
	Maximum rated power(mW)	31.62	199.53	199.53	199.53	199.53
Bottom Side	Separation distance(mm)	10.0	10.0	10.0	10.0	10.0
	exclusion threshold	5.0	31.4	31.4	53.2	53.2
	Testing required?	Yes	Yes	Yes	Yes	Yes

13. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
 - c. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, WLAN5.2GHz SAR testing is not required when the WLAN5.3GHz band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for WLAN5.2GHz band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. For determination of the scaling factor for report SAR of MIMO mode, if the hot spots are separated the scaling factors are individually determined from each transmit chain. If the hot spots are not spatially separated, the scaling factor is determined from the worst number of each transmit chain
6. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

WLAN PD Note:

1. The WiFi 6E PD was performed according 2020 TCB workshop RF Exposure 5G RFX Policies Interim Procedures.
2. First, evaluate SAR using 6-7 GHz parameters per IEC/IEEE 62209-1528:2020 and evaluate incident PD using the mmw near-field probe and total-field/power-density reconstruction method.
3. Per Interim Procedures. The power density results were scaled according to IEC 62479:2010 for the portion of the measurement uncertainty $> 30\%$. Total expanded uncertainty of 2.68 dB (85.4%) was used to determine the psPD measurement scaling factor
4. The manufacturer has confirmed that the devices tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. The WiFi 6E RF Exposure results are used for simultaneous transmission analysis with the other transmitters and total exposure ratio, the analysis can be found in this report section 14
6. Absorbed power density (APD) using a 4cm² averaging area is reported based on SAR measurements.
7. Power density was calculated by repeated E-field measurements on two measurement planes separated by $\lambda/4$.
8. 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.
9. The measurement procedure consists of measuring the PD_{inc} at two different distances: 2 mm (compliance distance) and $\lambda/5$. The grid extents should be large enough to fully capture the transmitted energy. The grid step should be fine enough to demonstrate that the integrated Power Density iPD_n fulfill the criterion described below. Since iPD ratio between the two distances is ≥ -1 dB, the grid step (0.0625) was sufficient for determining compliance at d=2mm.

**13.1 Body SAR****<WLAN SAR>**

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Antenna Vendor	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	25mm	Main	OFF	11	2462	Auden	22.90	23.00	1.023	98.1	1.019	0.02	0.250	0.261
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	0mm	Main	ON	11	2462	Auden	18.00	18.00	1.000	98.1	1.019	0.03	0.332	0.338
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	0mm	Main	ON	11	2462	WNC	18.00	18.00	1.000	98.1	1.019	0.02	0.314	0.320
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	25mm	Aux	OFF	6	2437	Auden	22.30	23.00	1.175	98.57	1.015	0.09	0.101	0.120
01	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	0mm	Aux	ON	11	2462	Auden	17.20	17.50	1.072	98.57	1.015	-0.03	0.354	0.385
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	0mm	Aux	ON	11	2462	WNC	17.20	17.50	1.072	98.57	1.015	0.09	0.341	0.371
	WLAN2.4GHz	802.11n-HT20 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	11	2462	Auden	18.50	19.00	1.122	98	1.020	-0.11	0.034	0.039
	WLAN2.4GHz	802.11n-HT20 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	11	2462	Auden	18.30	19.00	1.175	98	1.020	-0.11	0.040	0.048
	WLAN2.4GHz	802.11n-HT40 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	6	2437	Auden	14.30	14.50	1.047	98	1.020	0.05	0.182	0.194
	WLAN2.4GHz	802.11n-HT40 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	6	2437	Auden	14.40	14.50	1.023	98	1.020	0.05	0.137	0.143
	WLAN2.4GHz	802.11n-HT40 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	6	2437	WNC	14.30	14.50	1.047	98	1.020	0.06	0.147	0.157
	WLAN2.4GHz	802.11n-HT40 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	6	2437	WNC	14.40	14.50	1.023	98	1.020	0.06	0.077	0.080
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Main	OFF	54	5270	Auden	21.10	22.00	1.230	96.81	1.033	0.05	0.430	0.546
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Side	0mm	Main	ON	50	5250	Auden	10.20	10.50	1.072	97.45	1.026	0.06	0.182	0.200
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Main	OFF	54	5270	WNC	21.10	22.00	1.230	96.81	1.033	0.01	0.384	0.488
02	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Aux	OFF	54	5270	Auden	21.00	22.00	1.259	96.77	1.033	0.18	0.480	0.624
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Side	0mm	Aux	ON	50	5250	Auden	11.50	12.00	1.122	97.74	1.023	0.02	0.144	0.165
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Aux	OFF	54	5270	WNC	21.00	22.00	1.259	96.77	1.033	0.05	0.452	0.588
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	54	5270	Auden	18.40	19.00	1.148	98.49	1.015	0.06	0.268	0.312
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	54	5270	Auden	18.40	19.00	1.148	98.49	1.015	0.06	0.269	0.313
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	50	5250	Auden	8.46	9.00	1.132	96.5	1.036	0.06	0.122	0.143
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	50	5250	Auden	8.99	9.00	1.002	96.5	1.036	0.06	0.121	0.126
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	54	5270	WNC	18.40	19.00	1.148	98.49	1.015	0.05	0.245	0.286
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	54	5270	WNC	18.40	19.00	1.148	98.49	1.015	0.05	0.246	0.287



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Antenna Vendor	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5GHz	802.11a 6Mbps	Bottom Side	25mm	Main	OFF	124	5620	Auden	23.00	23.00	1.000	94.93	1.053	0.14	0.654	0.689
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Side	0mm	Main	ON	114	5570	Auden	12.70	13.00	1.072	97.45	1.026	0.02	0.282	0.310
	WLAN5GHz	802.11a 6Mbps	Bottom Side	25mm	Main	OFF	124	5620	WNC	23.00	23.00	1.000	94.93	1.053	0.02	0.644	0.678
03	WLAN5GHz	802.11a 6Mbps	Bottom Side	25mm	Aux	OFF	144	5720	Auden	22.60	23.00	1.096	95.35	1.049	0.02	0.628	0.722
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Side	0mm	Aux	ON	114	5570	Auden	9.70	10.00	1.072	97.74	1.023	0.04	0.081	0.089
	WLAN5GHz	802.11a 6Mbps	Bottom Side	25mm	Aux	OFF	144	5720	WNC	22.60	23.00	1.096	95.35	1.049	0.09	0.611	0.703
	WLAN5GHz	802.11n-HT20 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	132	5660	Auden	19.90	20.00	1.023	98.5	1.015	0.04	0.380	0.395
	WLAN5GHz	802.11n-HT20 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	132	5660	Auden	19.50	20.00	1.122	98.5	1.015	0.04	0.367	0.418
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	114	5570	Auden	9.70	10.00	1.072	96.5	1.036	0.02	0.166	0.184
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	114	5570	Auden	9.70	10.00	1.072	96.5	1.036	0.02	0.152	0.169
	WLAN5GHz	802.11n-HT20 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	132	5660	WNC	19.90	20.00	1.023	98.5	1.015	0.14	0.345	0.358
	WLAN5GHz	802.11n-HT20 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	132	5660	WNC	19.50	20.00	1.122	98.5	1.015	0.14	0.284	0.323
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Main	OFF	159	5795	Auden	22.80	23.00	1.047	96.81	1.033	-0.03	0.566	0.612
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Side	0mm	Main	ON	155	5775	Auden	12.80	13.00	1.047	96.28	1.039	0.09	0.211	0.230
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Main	OFF	159	5795	WNC	22.80	23.00	1.047	96.81	1.033	0.02	0.542	0.586
04	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Aux	OFF	159	5795	Auden	22.80	23.00	1.047	96.77	1.033	0.17	0.671	0.726
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Side	0mm	Aux	ON	155	5775	Auden	11.80	12.00	1.047	96.79	1.033	-0.05	0.159	0.172
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Aux	OFF	159	5795	WNC	22.80	23.00	1.047	96.77	1.033	-0.12	0.611	0.661
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	159	5795	Auden	19.80	20.00	1.047	98.49	1.015	0.03	0.492	0.523
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	159	5795	Auden	19.80	20.00	1.047	98.49	1.015	0.03	0.441	0.469
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	155	5775	Auden	9.70	10.00	1.072	97.03	1.031	0.01	0.141	0.156
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	155	5775	Auden	9.80	10.00	1.047	97.03	1.031	0.01	0.126	0.136
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	159	5795	WNC	19.80	20.00	1.047	98.49	1.015	0.15	0.452	0.480
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	159	5795	WNC	19.80	20.00	1.047	98.49	1.015	0.15	0.382	0.406
05	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Side	25mm	Main	OFF	171	5855	Auden	22.40	23.00	1.148	96.28	1.039	0.08	0.367	0.438
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Side	0mm	Main	ON	163	5815	Auden	12.40	13.00	1.148	97.45	1.026	0.05	0.199	0.234
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Side	25mm	Main	OFF	171	5855	WNC	22.40	23.00	1.148	96.28	1.039	0.01	0.331	0.395
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Side	25mm	Aux	OFF	171	5855	Auden	22.70	23.00	1.072	96.79	1.033	0.02	0.382	0.423
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Side	0mm	Aux	ON	163	5815	Auden	12.30	12.50	1.047	97.74	1.023	0.14	0.358	0.383
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Side	25mm	Aux	OFF	171	5855	WNC	22.70	23.00	1.072	96.79	1.033	0.04	0.311	0.344
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	171	5855	Auden	19.60	20.00	1.096	97.03	1.031	0.05	0.198	0.224
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	171	5855	Auden	19.70	20.00	1.072	97.03	1.031	0.05	0.199	0.220
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	163	5815	Auden	9.40	10.00	1.148	96.5	1.036	0.08	0.065	0.077
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	163	5815	Auden	9.90	10.00	1.023	96.5	1.036	0.08	0.066	0.070
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	171	5855	WNC	19.60	20.00	1.096	97.03	1.031	-0.14	0.188	0.213
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	171	5855	WNC	19.70	20.00	1.072	97.03	1.031	-0.14	0.189	0.209



FCC SAR TEST REPORT

Report No. : FA4D0220-01

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Antenna Vendor	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	Measured APD (W/m^2)	Reported APD (W/m^2)
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main	OFF	7	5985	Auden	22.60	23.00	1.096	96.28	1.039	0.08	0.306	0.349	2.5	2.848
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main	OFF	71	6305	Auden	22.00	23.00	1.259	96.28	1.039	0.04	0.221	0.289	1.81	2.368
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main	OFF	119	6545	Auden	22.43	23.00	1.140	96.28	1.039	0.02	0.240	0.284	1.96	2.322
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main	OFF	167	6785	Auden	22.40	23.00	1.148	96.28	1.039	0.09	0.250	0.298	2.04	2.434
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	25mm	Main	OFF	191	6905	Auden	16.80	18.00	1.318	97.5	1.026	0.02	0.112	0.151	0.915	1.238
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main	ON	31	6105	Auden	12.45	12.50	1.012	97.5	1.026	0.01	0.325	0.337	2.65	2.750
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main	ON	63	6265	Auden	12.40	12.50	1.023	97.5	1.026	0.03	0.349	0.366	2.85	2.992
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main	ON	95	6425	Auden	12.30	12.50	1.047	97.5	1.026	-0.08	0.511	0.549	4.16	4.469
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main	ON	127	6585	Auden	12.39	12.50	1.026	97.5	1.026	-0.08	0.356	0.375	2.9	3.052
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main	ON	159	6745	Auden	12.34	12.50	1.038	97.5	1.026	0.1	0.449	0.478	3.66	3.896
06	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main	ON	191	6905	Auden	12.30	12.50	1.047	97.5	1.026	0.15	0.525	0.564	4.28	4.598
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main	ON	191	6905	WNC	12.30	12.50	1.047	97.5	1.026	0.12	0.518	0.557	4.15	4.459
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Aux	OFF	7	5985	Auden	22.90	23.00	1.023	96.79	1.033	-0.18	0.251	0.265	2.09	2.209
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Aux	OFF	71	6305	Auden	22.40	23.00	1.148	96.79	1.033	0.04	0.200	0.237	1.67	1.981
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Aux	OFF	119	6545	Auden	22.35	23.00	1.161	96.79	1.033	-0.05	0.155	0.186	1.29	1.548
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Aux	OFF	167	6785	Auden	22.30	23.00	1.175	96.79	1.033	0.01	0.184	0.223	1.53	1.857
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	25mm	Aux	OFF	191	6905	Auden	16.50	18.00	1.413	96.8	1.033	-0.13	0.090	0.131	0.749	1.093
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Aux	ON	31	6105	Auden	11.47	11.50	1.007	96.8	1.033	0.1	0.268	0.279	2.2	2.288
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Aux	ON	63	6265	Auden	11.21	11.50	1.069	96.8	1.033	0.12	0.241	0.266	2.1	2.319
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Aux	ON	95	6425	Auden	11.47	11.50	1.007	96.8	1.033	0.08	0.287	0.299	2.36	2.455
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Aux	ON	127	6585	Auden	11.40	11.50	1.023	96.8	1.033	-0.17	0.313	0.331	2.61	2.759
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Aux	ON	159	6745	Auden	11.15	11.50	1.084	96.8	1.033	-0.03	0.273	0.306	2.42	2.710
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Aux	ON	191	6905	Auden	11.25	11.50	1.059	96.8	1.033	0.19	0.373	0.408	3.22	3.523
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Aux	ON	191	6905	WNC	11.25	11.50	1.059	96.8	1.033	0.04	0.344	0.376	2.89	3.162
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	7	5985	Auden	19.40	20.00	1.148	97.03	1.031	0.14	0.169	0.200	1.37	1.622
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	7	5985	Auden	19.90	20.00	1.023	97.03	1.031	0.14	0.150	0.158	1.3	1.372
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	71	6305	Auden	19.10	20.00	1.230	97.03	1.031	0.02	0.140	0.178	1.25	1.586
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	71	6305	Auden	19.40	20.00	1.148	97.03	1.031	0.02	0.138	0.163	1.22	1.444
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	119	6545	Auden	19.03	20.00	1.250	97.03	1.031	-0.04	0.120	0.155	1.18	1.521
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	119	6545	Auden	19.25	20.00	1.189	97.03	1.031	-0.04	0.115	0.141	1.16	1.421
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	167	6785	Auden	19.50	20.00	1.122	97.03	1.031	0.05	0.125	0.145	1.2	1.388
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	167	6785	Auden	19.70	20.00	1.072	97.03	1.031	0.05	0.123	0.136	1.18	1.304
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	25mm	Main+Aux (Main)	OFF	191	6905	Auden	14.60	15.00	1.096	97.8	1.022	0.01	0.099	0.111	0.994	1.114
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	25mm	Main+Aux (Aux)	OFF	191	6905	Auden	14.80	15.00	1.047	97.8	1.022	0.01	0.094	0.101	0.992	1.062
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	31	6105	Auden	8.52	9.50	1.253	97.8	1.022	0.11	0.187	0.239	1.52	1.947
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	31	6105	Auden	9.21	9.50	1.069	97.8	1.022	0.11	0.166	0.181	1.44	1.573
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	63	6265	Auden	8.67	9.50	1.211	97.8	1.022	-0.05	0.183	0.226	1.49	1.843
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	63	6265	Auden	9.07	9.50	1.104	97.8	1.022	-0.05	0.162	0.183	1.41	1.591
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	95	6425	Auden	8.50	9.50	1.259	97.8	1.022	0.18	0.183	0.235	1.49	1.917
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	95	6425	Auden	9.10	9.50	1.096	97.8	1.022	0.18	0.162	0.182	1.41	1.580
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	127	6585	Auden	8.45	9.50	1.274	97.8	1.022	0.14	0.191	0.249	1.55	2.017
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	127	6585	Auden	8.84	9.50	1.164	97.8	1.022	0.14	0.169	0.201	1.47	1.749
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	159	6745	Auden	8.89	9.50	1.151	97.8	1.022	-0.17	0.195	0.229	1.58	1.858
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	159	6745	Auden	8.82	9.50	1.169	97.8	1.022	-0.17	0.173	0.207	1.51	1.805
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	191	6905	Auden	9.00	9.50	1.122	97.8	1.022	0.12	0.251	0.288	2.04	2.339
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	191	6905	Auden	9.30	9.50	1.047	97.8	1.022	0.12	0.223	0.239	1.94	2.076
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Main)	ON	191	6905	WNC	9.00	9.50	1.122	97.8	1.022	0.05	0.218	0.250	1.84	2.110
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	0mm	Main+Aux (Aux)	ON	191	6905	WNC	9.30	9.50	1.047	97.8	1.022	0.05	0.209	0.224	1.82	1.948



<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Antenna Vendor	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
07	Bluetooth	1Mbps	Bottom Side	0mm	Aux	OFF	0	2402	Auden	14.70	15.00	1.072	74.09	1.124	0.05	0.093	0.112
	Bluetooth	1Mbps	Bottom Side	0mm	Aux	OFF	0	2402	WNC	14.70	15.00	1.072	74.09	1.124	0.12	0.084	0.101

13.2 6GHz PD Test Result

Band	Mode	Test Position	Gap (mm)	Antenna	Antenna Vendor	Ch.	Freq. (MHz)	Average Power (dBm)	Grid Step (A)	iPDn	iPD ratio (≥ -1)	Normal psPD (W/m ²)	Total psPD (W/m ²)
WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main	Auden	31	6105	12.45	0.0625	2.09	-0.10267487	1.82	1.85
WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	9.83mm	Main	Auden	31	6105	12.45	0.25	2.14		0.831	0.851
WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main	Auden	191	6905	12.30	0.0625	2.75	-0.98486401	2.73	2.86
WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	8.69mm	Main	Auden	191	6905	12.30	0.25	3.45		1.67	1.82

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Antenna Vendor	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Grid Step (A)	Scaling Factor for Measurement Uncertainty	Power Drift (dB)	Normal psPD (W/m ²)	Scaled Normal psPD (W/m ²)	Total psPD (W/m ²)	Scaled Total psPD (W/m ²)
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main	Auden	7	5985	22.60	23.00	1.096	96.28	1.039	0.0625	1.5535	0.09	1.38	2.44	1.44	2.55
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main	Auden	71	6305	22.00	23.00	1.259	96.28	1.039	0.0625	1.5535	-0.05	0.997	2.03	1.04	2.11
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main	Auden	119	6545	22.43	23.00	1.140	96.28	1.039	0.0625	1.5535	0.18	1.08	1.99	1.13	2.08
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main	Auden	167	6785	22.40	23.00	1.148	96.28	1.039	0.0625	1.5535	0.14	1.12	2.08	1.17	2.17
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	25mm	Main	Auden	191	6905	16.80	18.00	1.318	97.50	1.026	0.0625	1.5535	-0.17	0.505	1.06	0.527	1.11
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main	Auden	31	6105	12.45	12.50	1.012	97.50	1.026	0.0625	1.5535	0.11	1.82	2.93	1.85	2.98
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main	Auden	63	6265	12.40	12.50	1.023	97.50	1.026	0.0625	1.5535	0.08	2.1	3.43	2.22	3.62
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main	Auden	95	6425	12.30	12.50	1.047	97.50	1.026	0.0625	1.5535	0.04	2.48	4.14	2.62	4.37
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main	Auden	127	6585	12.39	12.50	1.026	97.50	1.026	0.0625	1.5535	0.01	2.19	3.58	2.32	3.79
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main	Auden	159	6745	12.34	12.50	1.038	97.50	1.026	0.0625	1.5535	0.03	2.38	3.94	2.52	4.17
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main	Auden	191	6905	12.30	12.50	1.047	97.50	1.026	0.0625	1.5535	0.08	2.73	4.56	2.86	4.77
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main	WNC	191	6905	12.30	12.50	1.047	97.50	1.026	0.0625	1.5535	0.01	2.61	4.36	2.7	4.51
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Aux	Auden	7	5985	22.90	23.00	1.023	96.79	1.033	0.0625	1.5535	0.02	1.6	2.63	1.82	2.99
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Aux	Auden	71	6305	22.40	23.00	1.148	96.79	1.033	0.0625	1.5535	0.17	1.15	2.12	1.31	2.41
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Aux	Auden	119	6545	22.35	23.00	1.161	96.79	1.033	0.0625	1.5535	-0.05	1.26	2.35	1.43	2.67
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Aux	Auden	167	6785	22.30	23.00	1.175	96.79	1.033	0.0625	1.5535	0.01	1.3	2.45	1.48	2.79
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	25mm	Aux	Auden	191	6905	16.50	18.00	1.413	96.80	1.033	0.0625	1.5535	0.1	0.586	1.33	0.667	1.51
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Aux	Auden	31	6105	11.47	11.50	1.007	96.80	1.033	0.0625	1.5535	0.03	1.76	2.84	1.91	3.09
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Aux	Auden	63	6265	11.21	11.50	1.069	96.80	1.033	0.0625	1.5535	0.02	2.02	3.47	2.2	3.77
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Aux	Auden	95	6425	11.47	11.50	1.007	96.80	1.033	0.0625	1.5535	0.01	2.17	3.51	2.35	3.80
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Aux	Auden	127	6585	11.40	11.50	1.023	96.80	1.033	0.0625	1.5535	0.18	2.4	3.94	2.61	4.29
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Aux	Auden	159	6745	11.15	11.50	1.084	96.80	1.033	0.0625	1.5535	-0.02	2.24	3.90	2.43	4.23
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Aux	Auden	191	6905	11.25	11.50	1.059	96.80	1.033	0.0625	1.5535	0.13	0.953	1.62	1.19	2.02
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Aux	WNC	127	6585	11.40	11.50	1.023	96.80	1.033	0.0625	1.5535	0.09	2.1	3.45	2.21	3.63
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main+Aux	Auden	7	5985	22.67	23.00	1.080	97.03	1.031	0.0625	1.5535	0.08	0.821	1.42	0.994	1.72
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main+Aux	Auden	71	6305	22.26	23.00	1.185	97.03	1.031	0.0625	1.5535	-0.17	0.592	1.12	0.717	1.36
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main+Aux	Auden	119	6545	22.15	23.00	1.216	97.03	1.031	0.0625	1.5535	0.04	0.645	1.26	0.781	1.52
	WLAN6GHz	802.11ax-HE80 MCS0	Bottom Side	25mm	Main+Aux	Auden	167	6785	22.61	23.00	1.094	97.03	1.031	0.0625	1.5535	-0.01	0.667	1.17	0.807	1.41
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	25mm	Main+Aux	Auden	191	6905	17.71	18.00	1.069	97.80	1.022	0.0625	1.5535	-0.08	0.301	0.51	0.364	0.62
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main+Aux	Auden	31	6105	11.89	12.50	1.151	97.80	1.022	0.0625	1.5535	0.08	0.835	1.53	1.01	1.85
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main+Aux	Auden	63	6265	11.88	12.50	1.152	97.80	1.022	0.0625	1.5535	0.01	0.911	1.67	1.1	2.01
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main+Aux	Auden	95	6425	11.82	12.50	1.169	97.80	1.022	0.0625	1.5535	0.06	1.11	2.06	1.34	2.49
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main+Aux	Auden	127	6585	11.66	12.50	1.213	97.80	1.022	0.0625	1.5535	0.03	1.03	1.98	1.24	2.39
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main+Aux	Auden	159	6745	11.87	12.50	1.157	97.80	1.022	0.0625	1.5535	-0.08	1.08	1.98	1.3	2.39
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main+Aux	Auden	191	6905	12.16	12.50	1.081	97.80	1.022	0.0625	1.5535	0.11	1.29	2.21	1.36	2.33
	WLAN6GHz	802.11be-EHT320 MCS0	Bottom Side	2mm	Main+Aux	WNC	95	6425	11.82	12.50	1.169	97.80	1.022	0.0625	1.5535	0.08	1.21	2.25	1.28	2.38

14. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Body
1.	WLAN2.4GHz Main + Bluetooth Aux	Yes
2.	WLAN5/6GHz Main + Bluetooth Aux	Yes
3.	WLAN5/6GHz Aux + Bluetooth Aux	Yes
4.	WLAN2.4GHz MIMO	Yes
5.	WLAN5/6GHz MIMO + Bluetooth Aux	Yes

General Note:

- The worst case WLAN reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
- The Scaled SAR summation is calculated based on the same configuration and test position.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - Scalar SAR summation $< 1.6\text{W/kg}$.
 - $\text{SPLSR} = (\text{SAR1} + \text{SAR2})^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - If $\text{SPLSR} \leq 0.04$, simultaneously transmission SAR measurement is not necessary.
 - Simultaneously transmission SAR measurement, and the reported multi-band SAR $< 1.6\text{W/kg}$.

14.1 Body Exposure Conditions

Exposure Position	1	2	3	4	5	6	7	1+7	6	5+7	3+7	4+7
	WLAN2.4GHz Main 1g SAR (W/kg)	WLAN2.4GHz Aux 1g SAR (W/kg)	WLAN5/6GHz Main 1g SAR (W/kg)	WLAN5/6GHz Aux 1g SAR (W/kg)	WLAN5/6GHz MIMO 1g SAR (W/kg)	WLAN2.4GHz MIMO 1g SAR (W/kg)	Bluetooth Aux 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)
Bottom Side	0.338	0.385	0.689	0.726	0.523	0.194	0.112	0.450	0.194	0.635	0.801	0.838

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15. Uncertainty Assessment

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

Declaration of Conformity:

The test results with all measurement uncertainty excluded is presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

The component of uncertainty may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainty by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor ^(a)	$1/k^{(b)}$	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) k is the coverage factor

Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.

Applicable for SAR Measurements:

Uncertainty Budget (4 MHz - 10 GHz range)							
Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	18.60	N	2	1	1	9.3	9.3
Axial Isotropy	4.70	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.60	R	1.732	0.7	0.7	3.9	3.9
Linearity	4.70	R	1.732	1	1	2.7	2.7
Modulation Response	4.68	R	1.732	1	1	2.7	2.7
System Detection Limits	1.00	R	1.732	1	1	0.6	0.6
Boundary Effects	2.00	R	1.732	1	1	1.2	1.2
Readout Electronics	0.30	N	1	1	1	0.3	0.3
Response Time	0.00	R	1.732	1	1	0.0	0.0
Integration Time	2.60	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.00	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.00	R	1.732	1	1	1.7	1.7
Probe Positioner	0.40	R	1.732	1	1	0.2	0.2
Probe Positioning	6.70	R	1.732	1	1	3.9	3.9
Post-processing	4.00	R	1.732	1	1	2.3	2.3
Test Sample Related							
Device Holder	3.60	N	1	1	1	3.6	3.6
Test sample Positioning	3.03	N	1	1	1	3.0	3.0
Power Scaling	0.00	R	1.732	1	1	0.0	0.0
Power Drift	5.00	R	1.732	1	1	2.9	2.9
Phantom and Setup							
Phantom Uncertainty	7.60	R	1.732	1	1	4.4	4.4
SAR correction	0.00	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.03	N	1	0.78	0.77	0.0	0.0
Liquid Conductivity (target)	5.00	R	1.732	0.78	0.77	2.3	2.2
Liquid Conductivity (mea.)	2.50	R	1.732	0.78	0.77	1.1	1.1
Temp. unc. - Conductivity	3.68	R	1.732	0.78	0.77	1.7	1.6
Liquid Permittivity Repeatability	0.02	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.00	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.50	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.84	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						14.5%	14.2%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						29.0%	28.4%

Applicable for Power Density Measurements:

Error Description	Uncertainty Value (±dB)	Probability	Divisor	(Ci)	Standard Uncertainty (±dB)
Probe Calibration	0.49	N	1	1	0.49
Probe correction	0.00	R	1.732	1	0.00
Frequency response (BW ≤ 1 GHz)	0.20	R	1.732	1	0.12
Sensor cross coupling	0.00	R	1.732	1	0.00
Isotropy	0.50	R	1.732	1	0.29
Linearity	0.20	R	1.732	1	0.12
Probe scattering	0.00	R	1.732	1	0.00
Probe positioning offset	0.30	R	1.732	1	0.17
Probe positioning repeatability	0.04	R	1.732	1	0.02
Sensor mechanical offset	0.00	R	1.732	1	0.00
Probe spatial resolution	0.00	R	1.732	1	0.00
Field impedance dependance	0.00	R	1.732	1	0.00
Amplitude and phase drift	0.00	R	1.732	1	0.00
Amplitude and phase noise	0.04	R	1.732	1	0.02
Measurement area truncation	0.00	R	1.732	1	0.00
Data acquisition	0.03	N	1	1	0.03
Sampling	0.00	R	1.732	1	0.00
Field reconstruction	2.00	R	1.732	1	1.15
Forward transformation	0.00	R	1.732	1	0.00
Power density scaling	0.00	R	1.732	1	0.00
Spatial averaging	0.10	R	1.732	1	0.06
System detection limit	0.04	R	1.732	1	0.02
Uncertainty terms dependent on the DUT and environmental factors					
Probe coupling with DUT	0.00	R	1.732	1	0.0
Modulation response	0.40	R	1.732	1	0.2
Integration time	0.00	R	1.732	1	0.0
Response time	0.00	R	1.732	1	0.0
Device holder influence	0.10	R	1.732	1	0.1
DUT alignment	0.00	R	1.732	1	0.0
RF ambient conditions	0.04	R	1.732	1	0.0
Ambient reflections	0.04	R	1.732	1	0.0
Immunity / secondary reception	0.00	R	1.732	1	0.0
Drift of the DUT		R	1.732	1	
Combined Std. Uncertainty					1.34
Expanded STD Uncertainty (95%)					2.68

16. References

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- [6] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015
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- [10] IEC/IEEE 62209-1528:2020, “Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)”, Oct. 2020
- [11] SPEAG DASY6 System Handbook
- [12] SPEAG DASY6 Application Note (Interim Procedure for Device Operation at 6GHz-10GHz)