

**FCC 15.407 U-NII
(Permissive Change)
5GHz Test Report**

for

Sony Group Corporation

1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

Product Name : WIFI+BT Module
Model Name : WXT2HM2001
Brand : GSD
FCC ID : AK8WXT2HM2001

**Prepared by: : AUDIX Technology Corporation,
EMC Department**



The test report is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

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APPENDIX A TEST DATA AND PLOTS

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TEST REPORT (Permissive Change)

Applicant : Sony Group Corporation
Manufacturer : Hui Zhou Gaoshengda Technology Co.,LTD
EUT Description
(1) Product : WIFI+BT Module
(2) Model : WXT2HM2001
(3) Brand : GSD
(4) Power Supply: DC 3.3V

Applicable Standards:

Title 47 FCC CFR Part 15 Subpart E

Audix Technology Corp. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Audix Technology Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens and samples.

Date of Report: 2025. 10. 07

Reviewed by:



(Annie Yu/Supervisor)

Approved by:



(Johnny Hsueh/Deputy Manager)



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1. REVISION RECORD OF TEST REPORT

Edition No	Issued Date	Revision Summary	Report Number
0	2025. 10. 07	Original Report	EM-F250489

2. SUMMARY OF TEST RESULTS

Rule	Description	Results
15.207	Conducted Emission	N/A ^{Note2}
15.205/15.209	Undesirable Emissions Limits: Radiated Band Edge and Radiated Spurious Emission	PASS
15.407(a)(5)/15.407(e)	Emission/Occupied Bandwidth	N/A ^{Note2}
15.407(a)	Maximum Output Power	PASS
15.407(b)	Conducted Band Edges	PASS
15.407(a)	Power Spectral Density	N/A ^{Note2}
15.407	Frequency Stability	N/A ^{Note2}
15.407(h)(2)	Dynamic Frequency Selection(DFS)	PASS, Please refer to test report No. EM-F250495
15.203	Antenna Requirement	Compliance
Note: 1. The uncertainties value is not used in determining the result. 2. Due to add new antennas don't influence on RF characteristics, so it is unnecessary to re-test.		

3. GENERAL INFORMATION

The EUT's information described in this section are all provided by the applicant.

3.1. Description of Application

Applicant	Sony Group Corporation 1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan
Manufacturer	Hui Zhou Gaoshengda Technology Co.,LTD No.2,Jin-da Road,Huinan High-tech Industrial Park,Hui-ao Avenue,Huizhou City,Guangdong,China
Product	WIFI+BT Module
Model	WXT2HM2001
Brand	GSD

3.2. Description of EUT

Test Model	WXT2HM2001			
Serial Number	N/A			
Power Rating	DC 3.3V			
Hardware Version	V1.0			
Software Version	V1.0			
RF Features	WLAN:802.11 a/b/g/n/ac/ax Bluetooth BR/EDR Bluetooth LE			
Transmit Type	2.4 GHz Bands		Client	Master
	802.11b	2T2R	✓	✓
	802.11g	2T2R	✓	✓
	802.11n-HT20/40	2T2R	✓	✓
	802.11ax-HE20/40	2T2R	✓	✓
	BT/BLE	1T1R		
	U-NII 5G Bands		Client	Master
	802.11a	2T2R	✓	✓
	802.11n-HT20/ ac-VHT20/ax-HE20	2T2R	✓	✓
	802.11n-HT40	2T2R	✓	
	802.11ac-VHT40/80	2T2R	✓	
	802.11ax-HE40/80	2T2R	✓	
	WLAN 6E Bands		Client	Master
	802.11ax-HE20/40/80	2T2R	✓	
	802.11ax-HE80	2T2R		✓
	The MIMO is correlated and supported Cyclic Delay Diversity (CDD).			
Device Category	☐ Outdoor Access Point			
	☐ Fixed point-to-point Access Point			
	☒ Indoor Access Point			
	☒ Mobile and Portable client device			

Test Sample	Sample No.	Test Item	Firmware
	01	RSE, RF Conducted	N/A
Sample Status	Trial sample		
Date of Receipt	2025. 07. 29		
Date of Test	2025. 08. 05 ~ 09. 09		
Interface Ports of EUT	None		
Accessories Supplied	None		

Note: Pursuant ISO 17025:2017 section 7.8.2, Audix Technology Corp. does not assume responsibility for all EUT's information including RF features, transmit type, antenna information...etc are provided by customer.

3.3. Reference Test Guidance

KDB 789033 D02 General UNII Test Procedures New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2020

3.4. Information for Permissive Change

- The EUT is an addition version with original FCC ID: AK8WXT2HM2001 is as following.
 - (a) To add new antenna without any other changes. This module has only a change in the antenna; there are no other alterations.
- The differences between this application and original's ID as clarify in following list.
- Due to above different item, there have some test item should be re-tested (see section 2), the test data are recorded in this report.

3.5. Antenna Information

Entry Name	Antenna Model	Manufacture	Antenna Type	Frequency (MHz)	Max Gain(dBi)
YY2099C	SH1-Ant-4#-V1.3	ZTX	PCB	5150~5250	4.49
				5250~5350	4.49
				5450~5750	4.24
				5750~5850	4.12
				5925~6425	4.42
				6425~6525	4.42
				6525~6875	4.48
				6875~7125	4.43
	SH1-Ant-3#-V1.0	ZTX	PCB	5150~5250	4.01
				5250~5350	3.99
				5450~5750	4.12
				5750~5850	3.76
				5925~6425	4.01
				6425~6525	3.73
				6525~6875	3.78
				6875~7125	4.08
	SH1-Ant-5#-V1.3	ZTX	PCB	2402-2480	2.79

Entry Name	Antenna Model	Manufacture	Antenna Type	Frequency (MHz)	Max Gain(dBi)
YY2100C1	ZTX-AHC-Ant-3#-V02 (WIFI 0)	ZTX	PCB	5150~5250	3.69
				5250~5350	3.52
				5450-5750	4.08
				5750-5850	4.33
				5925-6425	4.38
				6425-6525	4.08
				6525-6875	4.11
				6875-7125	4.48
	ZTX-AHC-Ant-3#-V02 (WIFI 1)	ZTX	PCB	5150~5250	4.38
				5250~5350	4.46
				5450-5750	4.46
				5750-5850	3.48
				5925-6425	4.42
				6425-6525	3.46
				6525-6875	4.06
				6875-7125	4.26
	ZTX-AHC-BT-V03	ZTX	PCB	2402-2480	3.16

Entry Name	Antenna Model	Manufacture	Antenna Type	Frequency (MHz)	Max Gain(dBi)
YY2101C	ZTX-RH5-WIFI0-V04 (WIFI0)	ZTX	PCB	2402-2480	3.47
				5150~5250	4.75
				5250~5350	4.75
				5450-5750	4.62
				5750-5850	3.65
				5925-6425	4.74
				6425-6525	3.39
				6525-6875	3.58
				6875-7125	3.56
	ZTX-RH5-WIFI1-V02 (WIFI1)	ZTX	PCB	2402-2480	3.51
				5150~5250	4.67
				5250~5350	4.69
				5450-5750	4.61
				5750-5850	4.61
				5925-6425	4.74
				6425-6525	4.31
				6525-6875	4.08
				6875-7125	4.04
	ZTX-RH5-BT-V02	ZTX	PCB	2402-2480	3.06

Entry Name	Antenna Model	Manufacture	Antenna Type	Frequency (MHz)	Max Gain(dBi)
YY2100C2, YY2100C3	ZTX-AHS-Ant-1#-V03 (WIFI0)	ZTX	PCB	5150~5250	3.58
				5250~5350	3.49
				5450~5750	3.71
				5750~5850	3.68
				5925~6425	3.90
				6425~6525	3.90
				6525~6875	3.58
				6875~7125	3.53
	ZTX-AHS-Ant-3#-V02 (WIFI0)	ZTX	PCB	5150~5250	3.11
				5250~5350	3.15
				5450~5750	3.55
				5750~5850	3.60
				5925~6425	3.83
				6425~6525	3.32
				6525~6875	3.27
				6875~7125	3.13

Entry Name	Antenna Model	Manufacture	Antenna Type	Frequency (MHz)	Max Gain(dBi)
YY2103C	ZTX-SWH3-WIFI-0-V04 (WIFI0)	ZTX	PCB	2402-2480	2.69
				5150~5250	3.28
				5250~5350	3.89
				5450-5750	3.95
				5750-5850	3.95
				5925-6425	3.85
				6425-6525	3.76
				6525-6875	3.28
				6875-7125	3.78
	ZTX-SWH3-WIFI-1-V02 (WIFI1)	ZTX	PCB	2402-2480	2.86
				5150~5250	3.27
				5250~5350	3.85
				5450-5750	3.98
				5750-5850	3.29
				5925-6425	3.99
				6425-6525	3.96
				6525-6875	3.96
				6875-7125	3.90
	ZTX-SWH3-BT-V04	ZTX	PCB	2402-2480	2.99

Entry Name	Antenna Model	Manufacture	Antenna Type	Frequency (MHz)	Max Gain(dBi)
YY2102C	ZTX-SWH5-WIFI-0-V02 (WIFI0)	ZTX	PCB	2402-2480	2.81
				5150~5250	1.98
				5250~5350	3.01
				5450-5750	2.85
				5750-5850	1.75
				5925-6425	3.02
				6425-6525	3.21
				6525-6875	3.32
				6875-7125	3.24
	ZTX-SWH5-WIFI-1-V02 (WIFI1)	ZTX	PCB	2402-2480	2.98
				5150~5250	3.88
				5250~5350	3.86
				5450-5750	4.01
				5750-5850	4.56
				5925-6425	4.30
				6425-6525	2.76
				6525-6875	2.73
				6875-7125	2.86
	ZTX-SWH5-BT-V01	ZTX	PCB	2402-2480	2.94

According to KDB 662911 D01 d) i), transmit signals are completely uncorrelated, then

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}]$ dBi

Note 1. 2.4G: Directional gain =

2400~2500MHz: Directional gain = $10 \log[(10^{3.47/20} + 10^{3.51/20})^2 / 2] = 6.5$ dBi

Note 2. 5G: Directional gain =

5150~5350MHz: $= 10 \log[(10^{4.75/20} + 10^{4.67/20})^2 / 2] = 7.72$ dBi

Note 3. UNII Band (WLAN 6G):

UNII Band 5: Directional gain = $10 \log[(10^{4.74/10} + 10^{4.74/10})^2 / 2] = 7.75$ dBi

UNII Band 6: Directional gain = $10 \log[(10^{4.42/10} + 10^{3.73/10})^2 / 2] = 7.09$ dBi

UNII Band 7: Directional gain = $10 \log[(10^{4.48/10} + 10^{3.78/10})^2 / 2] = 7.15$ dBi

UNII Band 8: Directional gain = $10 \log[(10^{4.48/10} + 10^{4.29/10})^2 / 2] = 7.40$ dBi

Remark: The EUT supports multiple antenna configurations for WXT2HM2001 module (WiFi 2.4GHz/5GHz/6GHz and BT).

For FCC testing, all antenna configurations were evaluated, and the antenna with the worst-case performance was selected for final measurements to represent the compliance results.

Therefore, only the worst-case antenna configuration was reported in this test report.

3.6. EUT Specifications Assessed in Current Report

Mode	U-NII Band	Fundamental Range (MHz)	Channel Number
802.11a	1	5180-5240	4
	2A	5260-5320	4
	2C	5500-5720	12
	3	5745-5825	5
802.11n-HT20 802.11ac-VHT20 802.11ax-HE20	1	5180-5240	4
	2A	5260-5320	4
	2C	5500-5720	12
	3	5745-5825	5
802.11n-HT40 802.11ac-VHT40 802.11ax-HE40	1	5190-5230	2
	2A	5270-5310	2
	2C	5510-5710	6
	3	5755-5795	2
802.11ac-VHT80 802.11ax-HE80	1	5210	1
	2A	5290	1
	2C	5530-5690	3
	3	5775	1

Mode	Modulation	Data Rate (Mbps)
802.11a	OFDM (BPSK/QPSK/16QAM/64QAM)	Up to 54
802.11n-HT20	OFDM (BPSK/QPSK/16QAM/64QAM)	Up to 144.4
802.11n-HT40		Up to 300
802.11ac-VHT20	OFDM (BPSK/QPSK/16QAM/64QAM/256QAM)	Up to 173.3
802.11ac-VHT40		Up to 400
802.11ac-VHT80		Up to 866.7
802.11ax-HE20	OFDMA (BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM/1024QAM)	Up to 287
802.11ax-HE40		Up to 574
802.11ax-HE80		Up to 1201

Channel List					
802.11a/802.11n-HT20/802.11ac-VHT20/802.11ax-HE20					
U-NII Band	Channel Number	Frequency (MHz)	U-NII Band	Channel Number	Frequency (MHz)
1	36	5180	2C	120	5600
	40	5200		124	5620
	44	5220		128	5640
	48	5240		132	5660
2A	52	5260		136	5680
	56	5280		140	5700
	60	5300		144	5720
	64	5320		149	5745
2C	100	5500	3	153	5765
	104	5520		157	5785
	108	5540		161	5805
	112	5560		165	5825
	116	5580			

Channel List					
802.11n-HT40/802.11ac-VHT40/802.11ax-HE40					
U-NII Band	Channel Number	Frequency (MHz)	U-NII Band	Channel Number	Frequency (MHz)
1	38	5190	2C	118	5590
	46	5230		126	5630
2A	54	5270		134	5670
	62	5310		142	5710
2C	102	5510	3	151	5755
	110	5550		159	5795

Channel List					
802.11ac-VHT80/802.11ax-HE80					
U-NII Band	Channel Number	Frequency (MHz)	U-NII Band	Channel Number	Frequency (MHz)
1	42	5210	2C	138	5690
2A	58	5290	3	155	5775
2C	106	5530			
	122	5610			

Note: Test modes are presented at section 3.8.

3.7. Description of Key Components

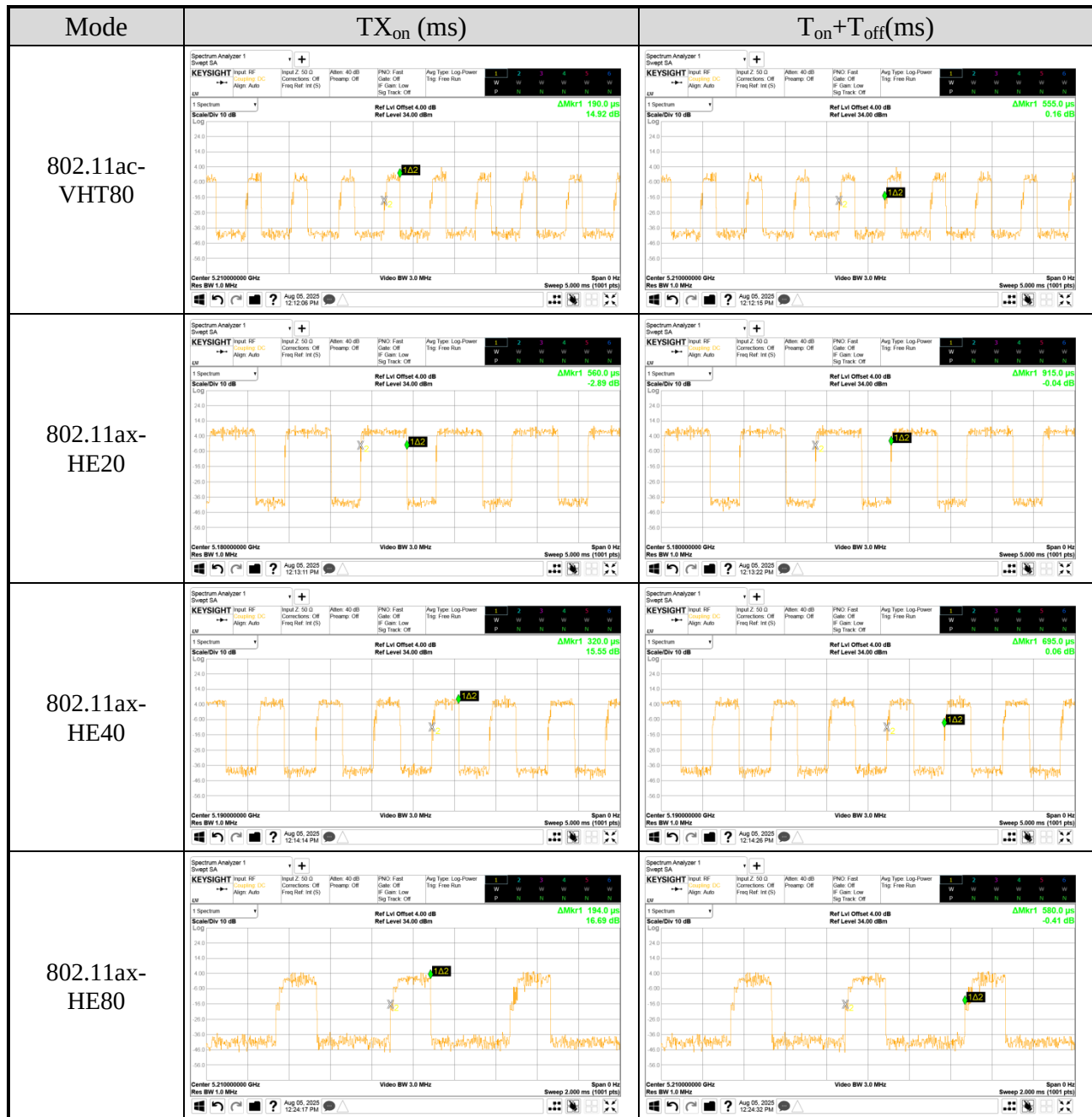
None

3.8. Test Configuration

Mode	TX _{on} (ms)	TX _{on+off} (ms)	Duty Cycle (x)	Duty Cycle Factor [10log(1/x)] (dB)
802.11a	1.390	1.770	0.785	1.051
802.11n-HT20	0.675	1.040	0.649	1.878
802.11n-HT40	0.350	0.735	0.476	3.224
802.11ac-VHT20	0.680	1.040	0.654	1.844
802.11ac-VHT40	0.355	0.740	0.480	3.188
802.11ac-VHT80	0.190	0.555	0.342	4.660
802.11ax-HE20	0.560	0.915	0.612	2.132
802.11ax-HE40	0.320	0.695	0.460	3.372
802.11ax-HE80	0.194	0.580	0.334	4.763
802.11ax-HE20 (RU Config 26)	1.540	1.890	0.815	0.888
802.11ax-HE20 (RU Config 52)	1.495	1.855	0.806	0.937
802.11ax-HE20 (RU Config 106)	2.680	3.080	0.870	0.605
802.11ax-HE40 (RU Config 242)	2.340	2.810	0.833	0.794
802.11ax-HE80 (RU Config 484)	1.210	1.680	0.720	1.427

Note: When duty cycle is less than 98% (0.98) that duty cycle factor 10log(1/x) is needed to add in conducted test items measured in average detector.





Mode	TX _{on} (ms)	T _{on} +T _{off} (ms)
802.11ax-HE20 (RU Config 26)		
802.11ax-HE20 (RU Config 52)		
802.11ax-HE20 (RU Config 106)		
802.11ax-HE40 (RU Config 242)		
802.11ax-HE80 (RU Config 484)		

Item	Entry Name ^{Note6}	Mode	Data Rate	Test Channel
Radiated Test Case	YY2101C	802.11ax-HE80	MCS0	42

Item		Entry Name Note6	Mode	Data Rate	Test Channel
Radiated Test Case	Radiated Band Edge Note1	YY2101C & YY2100C1	802.11a	6 Mbps	36/64/100/140/144/149/165
			802.11n-HT20	MCS8	36/64/100/140/144/149/165
			802.11n-HT40	MCS8	38/62/102/134/142/151/15
			802.11ac-VHT20	MCS0	36/64/100/140/144/149/165
			802.11ac-VHT40	MCS0	38/62/102/134/142/151/15
			802.11ac-VHT80	MCS0	42/58/106/122/138/155
			802.11ax-HE20	MCS0	36/64/100/140/144/149/165
			802.11ax-HE40	MCS0	38/62/102/134/142/151/159
			802.11ax-HE80	MCS0	42/58/106/122/138/155
	Radiated Spurious Emission Note1 & 2	YY2101C & YY2100C1	802.11a	6 Mbps	36/64/140/144/165
			802.11n-HT20	MCS8	40/64/140/144/165
			802.11n-HT40	MCS8	46/62/134/142/159
			802.11ac-VHT20	MCS0	36/64/140/144/165
			802.11ac-VHT40	MCS0	38/62/134/142/159
			802.11ac-VHT80	MCS0	42/58/106/138/155
			802.11ax-HE20	MCS0	48/64/140/144/165
			802.11ax-HE40	MCS0	46/62/134/142/159
			802.11ax-HE80	MCS0	42/58/122/138/155

Item	Entry Name ^{Note6}	Mode	Data Rate	RU Configuration	Test Channel
Radiated Test Case	Radiated Band Edge ^{Note1}	802.11ax-HE20	MCS0	26/0	36/100/149
				52/37	
				106/53	
		802.11ax-HE40	MCS0	26/8	64/140/165
				52/40	
				106/54	
		802.11ax-HE80	MCS0	242/61	38/102/151
			MCS0	242/62	62/134/159
			MCS0	484/65	42/106/155
			MCS0	484/66	58/122/155

Item		Entry Name Note6	Mode	Data Rate	Test Channel
Conducted Test Case	Maximum output power	YY2101 C & YY2100 C1	802.11a	6 Mbps	36/40/48/52/60/64/100/116/140/144/149/157/165
			802.11n-HT20	MCS8	36/40/48/52/60/64/100/116/140/144/149/157/165
			802.11n-HT40	MCS8	38/46/54/62/102/110/134/142/151/159
			802.11ac-VHT20	MCS0	36/40/48/52/60/64/100/116/140/144/149/157/165
			802.11ac-VHT40	MCS0	38/46/54/62/102/110/134/142/151/159
			802.11ac-VHT80	MCS0	42/58/106/122/138/155
			802.11ax-HE20	MCS0	36/40/48/52/60/64/100/116/140/144/149/157/165
			802.11ax-HE40	MCS0	38/46/54/62/102/110/134/142/151/159
			802.11ax-HE80	MCS0	42/58/106/122/138/155

Item		Entry Name Note6	Mode	Data Rate	RU Configuration	Test Channel
Conducted Test Case	Maximum output power	YY2101 C & YY2100 C1	802.11ax-HE20	MCS0	26/0	36/100/149
					52/37	
					106/53	
			802.11ax-HE40	MCS0	26/8	64/140/165
					52/40	
					106/5	
			802.11ax-HE80	MCS0	242/61	38/102/151
				MCS0	242/62	62/134/159
				MCS0	484/65	42/106/155
				MCS0	484/66	58/122/155

Note 1: ☐ Mobile Device ☒ Portable Device

and 3 axis were assessed. The worst scenario for Radiated Spurious Emission as follow:

☒ Lie ☐ Side ☐ Stand

Note 2: Low, mid, and high channels were measured, only the worst channel of each modulation was presented in this report.

Note 3: The modulation and bandwidth are similar for 802.11n mode for HT20/HT40 and 802.11ac mode for VHT20/VHT40, therefore investigated worst case to representative mode in the test report.

Note 4: The data rates were selected based on preliminary testing that identified rate as the worst case for output power.

Note 5: According to the manufacturer's declaration, the Master mode only supports a 20 MHz bandwidth and uses the same power settings as the Client mode. Therefore, additional DFS testing is required. Other test items remain the same.

Note 6: According to the antenna information provided by the manufacturer, there are six antennas with same type for the application. According to KDB 178919 guidelines, select the antenna with the highest antenna gain for testing.

3.9. Output Power Setting

Mode	U-NII Band	Centre Frequency (MHz)	Power Setting	
			WiFi 0	WiFi 1
802.11a	1	5180	14.000	14.000
		5200	14.000	14.000
		5240	14.000	14.000
	2A	5260	14.000	14.000
		5300	14.000	14.000
		5320	14.000	14.000
	2C	5500	14.000	14.000
		5580	14.000	14.000
		5700	14.000	14.000
		5720	14.000	14.000
	3	5745	14.000	14.000
		5785	14.000	14.000
		5825	14.000	14.000

Mode	U-NII Band	Centre Frequency (MHz)	Power		Mode	U-NII Band	Centre Frequency (MHz)	Power Setting	
			WiFi 0	WiFi 1				WiFi 0	WiFi 1
802.11n-HT20	1	5180	14.000	14.000	802.11ax-HE20	1	5180	14.000	14.000
		5200	14.000	14.000			5200	14.000	14.000
		5240	14.000	14.000			5240	14.000	14.000
	2A	5260	14.000	14.000		2A	5260	14.000	14.000
		5300	14.000	14.000			5300	14.000	14.000
		5320	14.000	14.000			5320	14.000	14.000
	2C	5500	14.000	14.000		2C	5500	14.000	14.000
		5580	14.000	14.000			5580	14.000	14.000
		5700	14.000	14.000			5700	14.000	14.000
		5720	14.000	14.000			5720	14.000	14.000
	3	5745	14.000	14.000		3	5745	14.000	14.000
		5785	14.000	14.000			5785	14.000	14.000
		5825	14.000	14.000			5825	14.000	14.000

Mode	U-NII Band	Centre Frequency (MHz)	Power	
			WiFi 0	WiFi 1
802.11ac-VHT20	1	5180	14.000	14.000
		5200	14.000	14.000
		5240	14.000	14.000
	2A	5260	14.000	14.000
		5300	14.000	14.000
		5320	14.000	14.000
	2C	5500	14.000	14.000
		5580	14.000	14.000
		5700	14.000	14.000
		5720	14.000	14.000
	3	5745	14.000	14.000
		5785	14.000	14.000
		5825	14.000	14.000

Mode	U-NII Band	Centre Frequency (MHz)	Power Setting		Mode	U-NII Band	Centre Frequency (MHz)	Power Setting	
			WiFi 0	WiFi 1				WiFi 0	WiFi 1
802.11n-HT40	1	5190	14.000	14.000	802.11ax-HE40	1	5190	14.000	14.000
		5230	14.000	14.000			5230	14.000	14.000
	2A	5270	14.000	14.000		2A	5270	14.000	14.000
		5310	14.000	14.000			5310	14.000	14.000
	2C	5510	14.000	14.000		2C	5510	14.000	14.000
		5550	14.000	14.000			5550	14.000	14.000
		5670	14.000	14.000			5670	14.000	14.000
		5710	14.000	14.000			5710	14.000	14.000
	3	5755	14.000	14.000		3	5755	14.000	14.000
		5795	14.000	14.000			5795	14.000	14.000

Mode	U-NII Band	Centre Frequency (MHz)	Power Setting	
			WiFi 0	WiFi 1
802.11ac-VHT40	1	5190	14.000	14.000
		5230	14.000	14.000
	2A	5270	14.000	14.000
		5310	14.000	14.000
	2C	5510	14.000	14.000
		5550	14.000	14.000
		5670	14.000	14.000
		5710	14.000	14.000
	3	5755	14.000	14.000
		5795	14.000	14.000

Mode	U-NII Band	Centre Frequency (MHz)	Power Setting		Mode	U-NII Band	Centre Frequency (MHz)	Power Setting	
			WiFi 0	WiFi 1				WiFi 0	WiFi 1
802.11 ac-VHT 80	1	5210	13.000	13.000	802.11ax-HE80	1	5210	13.000	13.000
	2A	5290	13.000	13.000		2A	5290	13.000	13.000
	2C	5530	13.000	13.000		2C	5530	13.000	13.000
		5610	13.000	13.000			5610	13.000	13.000
		5690	13.000	13.000			5690	13.000	13.000
	3	5775	13.000	13.000		3	5775	13.000	13.000

Mode	U-NII Band	Centre Frequency (MHz)	RU Configuration	Power Setting	
				WiFi 0	WiFi 1
802.11ax- HE20	1	5180	26/0	7.000	7.000
			52/37	10.000	10.000
			106/53	12.000	12.000
	2A	5320	26/8	7.000	7.000
			52/40	10.000	10.000
			106/54	12.000	12.000
	2C	5500	26/0	7.000	7.000
			52/37	10.000	10.000
			106/53	12.000	12.000
		5700	26/8	7.000	7.000
			52/40	10.000	10.000
			106/54	12.000	12.000
	3	5745	26/0	13.000	13.000
			52/37	13.000	13.000
			106/53	13.000	13.000
		5825	26/8	13.000	13.000
			52/40	13.000	13.000
			106/54	13.000	13.000
802.11ax- HE40	1	5190	242/61	14.000	14.000
	2A	5310	242/62	14.000	14.000
	2C	5510	242/61	14.000	14.000
		5670	242/62	14.000	14.000
	3	5755	242/61	14.000	14.000
		5795	242/62	14.000	14.000
802.11ax- HE80	1	5210	484/65	14.000	14.000
	2A	5290	484/66	14.000	14.000
	2C	5530	484/65	14.000	14.000
		5610	484/66	14.000	14.000
	3	5775	484/65	14.000	14.000
			484/66	14.000	14.000

3.10. Tested Supporting System List

3.10.1. Support Peripheral Unit

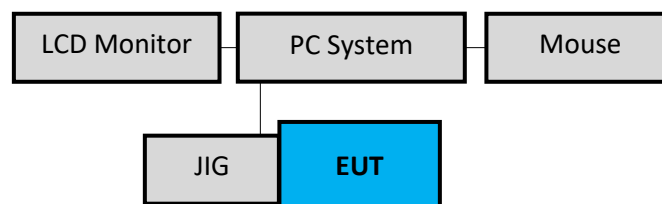
No.	Product	Brand	Model No.	Serial No.	Approval
1.	LCD Monitor	lenovo	D17195HE3	N/A	N/A
2.	PC System	lenovo	B4550-B031	N/A	N/A
3.	USB Mouse	lenovo	N/A	N/A	N/A
4.	JIG	N/A	N/A	N/A	N/A

3.10.2. Cable Lists

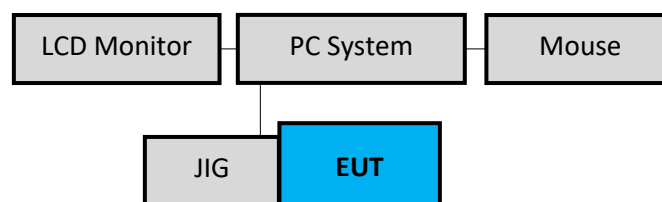
No.	Cable Description Of The Above Support Units
1.	DVI Cable: Shielded, Detachable, 1.5m AC Power Cord: Unshielded, Detachable, 1.8m
2.	USB Cable: Unshielded, Undetachable, 1.8 m
3.	Bus Cable: Unshielded, Undetachable, 0.5m

3.11. Setup Configuration

3.11.1. EUT Configuration for Radiated Emission



3.11.2. EUT Configuration for RF Conducted Test Items



3.12. Operating Condition of EUT

Test program “QA Tool” is used for enabling EUT WLAN function under continues transmitting and choosing data rate/ channel.

3.13. Description of Test Facility

Name of Test Firm	Audix Technology Corporation / EMC Department No. 491, Zhongfu Rd., Linkou Dist., New Taipei City 244, Taiwan Tel: +886-2-26092133 Fax: +886-2-26099303 Website : www.audixtech.com Contact e-mail: attemc_report@audixtech.com
Accreditations	The laboratory is accredited by following organizations under ISO/IEC 17025:2017 (1) NVLAP(USA) NVLAP Lab Code 200077-0 (2) TAF(Taiwan) No. 1724
Test Facilities	FCC OET Designation Number under APEC MRA by NCC is : TW1724 ISED CAB Identifier Number under APEC TEL MRA by NCC is TW1724 (1) No.1 3m Semi Anechoic Chamber

3.14.Measurement Uncertainty

The measurement uncertainty levels have been estimated as specified in ETSI TR 100 028-2001

Test Items/Facilities			Frequency Range	Uncertainty
Conduction Test	☐	No. 7 Shielded Room	9kHz-150kHz	±3.7dB
			150kHz-30MHz	±3.4dB
	☐	No. 8 Shielded Room	9kHz-150kHz	±3.7dB
			150kHz-30MHz	±3.4dB
Radiation Test	☒	No.1 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.0dB
			200MHz-1000MHz, 3m, Horizontal	±4.0dB
			30MHz-200MHz, 3m, Vertical	±4.8dB
			200MHz-1000MHz, 3m, Vertical	±4.5dB
			1GHz-6GHz, 3m	±4.2dB
			6GHz-18GHz, 3m	±4.0dB
	☐	No.3 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±3.9dB
			200MHz-1000MHz, 3m, Horizontal	±3.9dB
			30MHz-200MHz, 3m, Vertical	±4.6dB
			200MHz-1000MHz, 3m, Vertical	±4.3dB
			1GHz-6GHz, 3m	±4.6dB
			6GHz-18GHz, 3m	±4.1dB
	☐	No.4 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.4dB
			200MHz-1000MHz, 3m, Horizontal	±4.2dB
			30MHz-200MHz, 3m, Vertical	±4.9dB
			200MHz-1000MHz, 3m, Vertical	±5.1dB
			1GHz-6GHz, 3m	±4.4dB
			6GHz-18GHz, 3m	±4.0dB
	☐	No.5 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.2dB
			200MHz-1000MHz, 3m, Horizontal	±4.1dB
			30MHz-200MHz, 3m, Vertical	±4.9dB
			200MHz-1000MHz, 3m, Vertical	±4.6dB
			1GHz-6GHz, 3m	±4.4dB
			6GHz-18GHz, 3m	±4.0dB
	Radiated emissions (18GHz-40GHz)		18GHz-40GHz, 3m	±3.6dB

Remark : Uncertainty = $ku_c(y)$

Test Items	Uncertainty
Maximum output power	±0.42dB

4. MEASUREMENT EQUIPMENT LIST

4.1. Radiated Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Keysight	N9030B	MY61330403	2024.12.18	1 Year
2.		Agilent	N9010A-526	MY53400071	2025.08.07	1 Year
3.	Test Receiver	R&S	ESCS30	100338	2025.06.14	1 Year
4.	Amplifier	HP	8447D	2944A06305	2024.12.16	1 Year
5.	Microwave Preamplifier	HP	8449B	3008A01284	2025.07.07	1 Year
6.	Microwave Amplifier	Keysight	83051A	MY56480113	2024.09.11	1 Year
7.	Loop antenna	TESEQ	HLA 6121	60478	2025.06.05	1 Year
8.	Bilog Antenna	TESEQ	CBL6112D	33821	2025.02.08	1 Year
9.	Horn Antenna	EMCO	3115	9112-3775	2025.05.06	1 Year
10.	Horn Antenna	COM-POWER	AH-840	101092	2025.01.09	1 Year
11.	5G Notch Filter	Microwave Circuits	N0452502	459775	2025.04.09	1 Year
12.	5G Notch Filter	Microwave Circuits	N0555983	504921	2025.04.09	1 Year
13.	5G Notch Filter	Microwave Circuits	N0257881	459776	2025.04.09	1 Year
14.	Coaxial Cable	MIYAZAKI	5D2W	RE-11	2025.01.03	1 Year
15.	Coaxial Cable	HUBER+SUHNER	RG223/U	RE-33	2025.06.10	1 Year
16.	Coaxial Cable	HUBER+SUHNER	SUCOFLEX 106	RE-14	2025.01.03	1 Year
17.	Coaxial Cable	HUBER+SUHNER	SUCOFLEX 102	RE-30	2025.08.19	1 Year
18.	Digital Thermo-Hygro Meter	iMax	HTC-1	No.1 3m A/C	2025.04.09	1 Year
19.	Test Software	Audix	e3	V9 18621a	N.C.R.	N.C.R.

4.2. RF Conducted Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Keysight	N9010B	MY59071380	2025.03.28	1 Year
2.	Power Meter	Anritsu	ML2495A	2127005	2024.11.19	1 Year
3.	Power Meter	Anritsu	ML2495A	2127004	2024.11.30	1 Year
4.	Power Sensor	Anritsu	MA2411B	1911360	2024.11.30	1 Year
5.	Power Sensor	Anritsu	MA2411B	1911356	2024.11.19	1 Year
6.	Digital Thermo-Hygro Meter	iMax	HTC-1	RF-03	2025.04.09	1 Year
7.	Coaxial Cable	woken	18GHz Stainless SMA(M)-SMA(M) for 100cm SS402 Cable Assembly	20241206-1	2025.03.21	1 Year

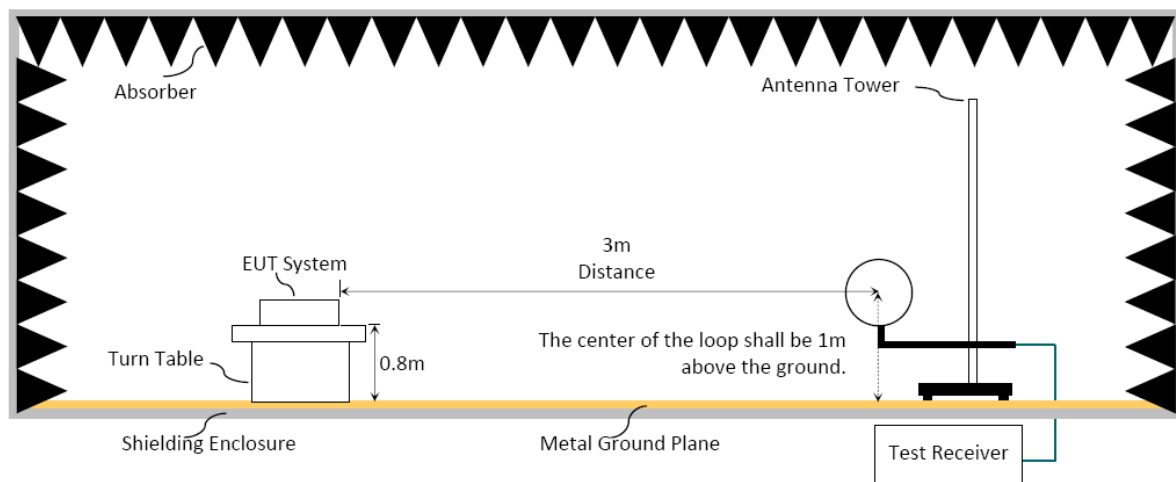
5. RADIATED EMISSION

5.1. Block Diagram of Test Setup

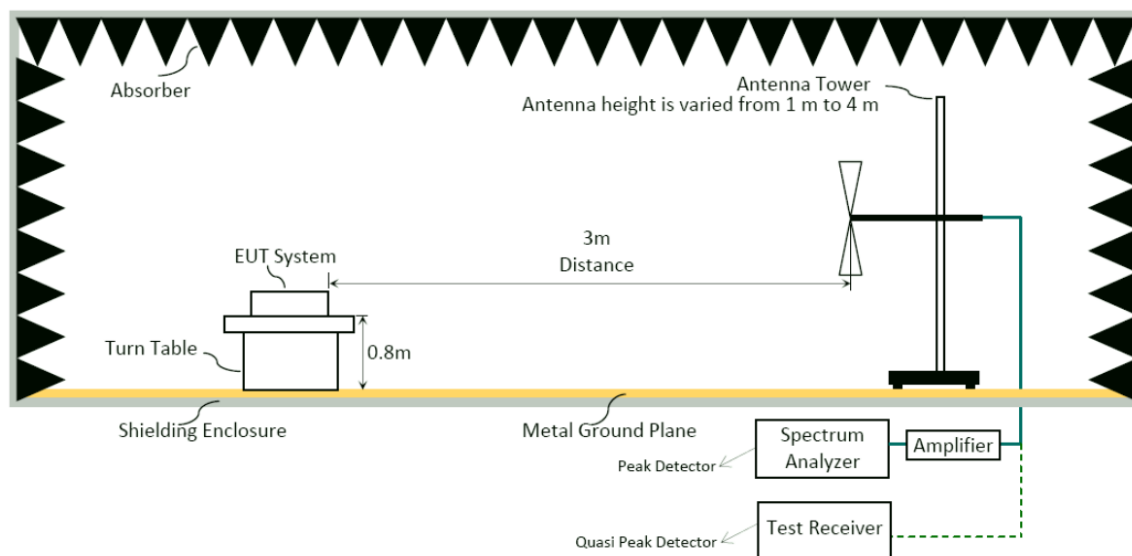
5.1.1. Block Diagram of EUT

Indicated as section 3.11

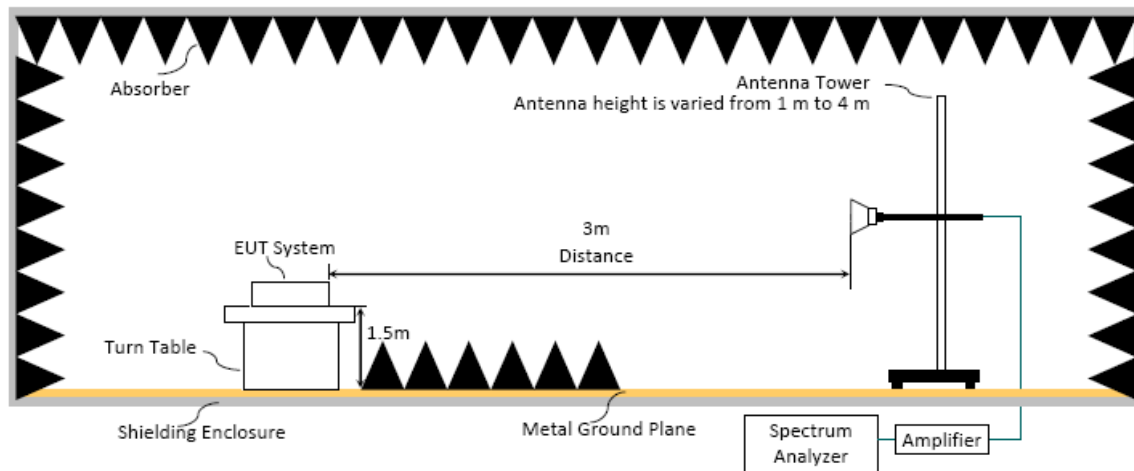
5.1.2. Setup Diagram for 9kHz-30MHz



5.1.3. Setup Diagram for 30-1000MHz



5.1.4. Setup Diagram for above 1GHz



5.2. Radiated Emission Limits

Radiated emissions fall in restricted bands, as defined in Section 15.205 must be in compliance with the radiated emission limits specified in 15.209 as below.

5.2.1. General Limit

Frequency (MHz)	Distance(m)	Limits	
		dB μ V/m	μ V/m
0.009 - 0.490	300	67.6-20 log f(kHz)	2400/f kHz
0.490 - 1.705	30	87.6-20 log f(kHz)	24000/f kHz
1.705 - 30	30	29.5	30
30 - 88	3	40.0	100
88- 216	3	43.5	150
216- 960	3	46.0	200
Above 960	3	54.0	500
Above 1000	3	74.0 dB μ V/m (Peak) 54.0 dB μ V/m (Average)	

Remark : (1) dB μ V/m = 20 log (μ V/m)

(2) The tighter limit applies to the edge between two frequency bands.

(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

(4) Fundamental and emission fall within operation band are exempted from this section.

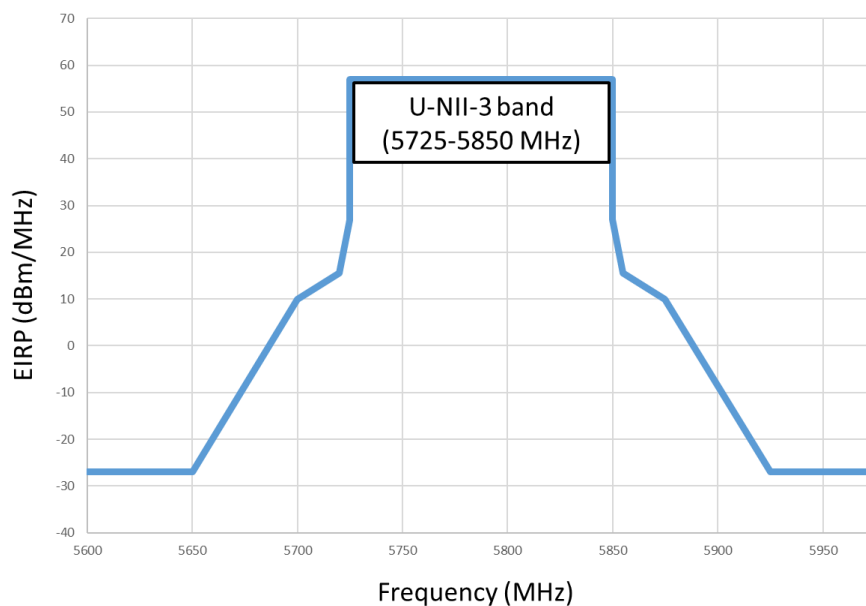
(5) Pursuant to ANSI C63.10: 6.6.4.3, if the maximized peak measured value complies with the average limit, then it is unnecessary to perform an average measurement.

5.2.2. Limit for non-restricted frequency above 1 GHz

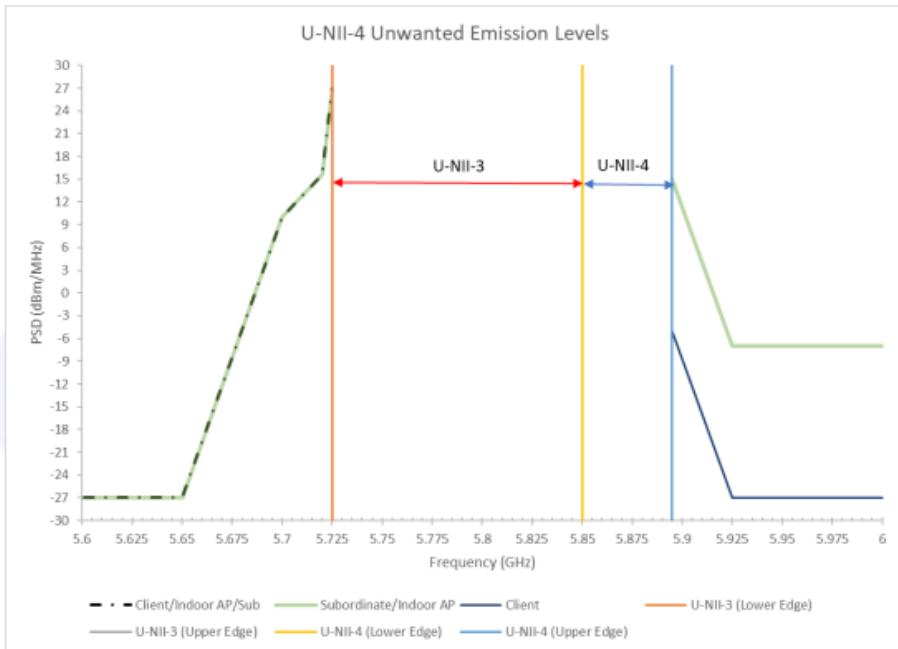
Frequency Band (MHz)	E.I.R.P. Limit	Field Strength Limit at 3 m
5150 to 5250	-27 dBm	68.2 dB μ V/m
5250 to 5350		68.2 dB μ V/m
5470 to 5725		68.2 dB μ V/m

Note: Field Strength at 3 m = E.I.R.P. + 95.2 dB

Frequency Band (MHz)	Field Strength Limit at 3 m	
5725 to 5850	☒	15.407(b)(4)(i) All emissions shall be limited to a level of 68.2 dB μ V/m at 75 MHz or more above or below the band edge increasing linearly to 105.2 dB μ V/m at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 110.8 dB μ V/m at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 122.2 dB μ V/m at the band edge.
	☐	15.407(b)(4)(ii), compliance with the emission limits in § 15.247(d) Shall be at least 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power,. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c))



Frequency Band (MHz)	Field Strength Limit at 3 m	
5850 to 5895	☐	15.407(b)(5)(i) For an indoor access point or subordinate device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of 15 dBm/MHz and shall decrease linearly to an e.i.r.p. of -7 dBm/MHz at or above 5.925 GHz.
	☒	15.407(b)(5)(ii) , For a client device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of -5 dBm/MHz and shall decrease linearly to an e.i.r.p. of -27 dBm/MHz at or above 5.925 GHz.
	☒	15.407(b)(5)(iii) , For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of -27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.



The graph, titled "U-NII-4 Unwanted Emission Levels", plots Power Spectral Density (PSD) in dBm/MHz on the y-axis (ranging from -30 to 30) against Frequency in GHz on the x-axis (ranging from 5.6 to 6.0). It shows the emission profiles for different device types and the required unwanted emission limits for U-NII-3 and U-NII-4 bands. The legend indicates: Client/Indoor AP/Sub (dashed black line), Subordinate/Indoor AP (green line), Client (blue line), U-NII-3 (Upper Edge) (grey line), U-NII-4 (Lower Edge) (yellow line), and U-NII-4 (Upper Edge) (blue line). The graph shows that the Client/Indoor AP/Sub and Subordinate/Indoor AP emissions are within the U-NII-3 and U-NII-4 limits. The Client emission profile is shown below the U-NII-4 (Upper Edge) limit.

5.3. Test Procedure

Frequency Range 9kHz~30MHz:

The EUT setup on the turntable which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2020 regulation.

- (1) RBW = 9kHz with peak and average detector.
- (2) Detector: average and peak (9kHz-490kHz)
Q.P. (490kHz-30MHz)

Frequency Range 30MHz ~ 40GHz:

The EUT setup on the turn table which has 80cm (for 30-1000MHz) and 1.5m (for above 1GHz) height to the ground. The turn table rotated 360 degrees and antenna varied from 1 m to 4 m to find the maximum emission level. Both horizontal and vertical polarization are required. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2020 regulation.

Frequency below 1GHz:

Spectrum Analyzer is used for pre-testing with following setting:

- (1) RBW = 120kHz
- (2) VBW $\geq 3 \times$ RBW.
- (3) Detector = Peak.
- (4) Sweep time = auto.
- (5) Trace mode = max hold.
- (6) Allow sweeps to continue until the trace stabilizes.

Note 1: When peak-detected value is lower than limit that the measurement using the Q.P. detector is not required, otherwise using Q.P. for final measurement.

Note 2: When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.

Frequency above 1GHz to 10th harmonic(up to 40 GHz):

Peak Detector:

- (1) RBW = 1MHz
- (2) VBW $\geq 3 \times$ RBW.
- (3) Detector = Peak.
- (4) Sweep time = auto.
- (5) Trace mode = max hold.
- (6) Allow sweeps to continue until the trace stabilizes.

Note: When peak-detected value is lower than limit that the measurement using the average detector is not required, otherwise using average detector for final measurement.

Average Detector:**■ Option 1:**

(1) RBW = 1MHz

(2) VBW $\geq 1/T$. (Duty Cycle < 98%, when duty cycle presented in section 3.8)

Mode	VBW Setting
802.11a	750Hz
802.11n-HT20	1.5kHz
802.11n-HT40	3kHz
802.11ac-VHT20	1.5kHz
802.11ac-VHT40	3kHz
802.11ac-VHT80	5.6kHz
802.11ax-HE20	1.8kHz
802.11ax-HE40	3.3kHz
802.11ax-HE80	5.6kHz
802.11ax-HE20 (RU Config 26)	680Hz
802.11ax-HE20 (RU Config 52)	680Hz
802.11ax-HE20 (RU Config 106)	390Hz
802.11ax-HE40 (RU Config 242)	430Hz
802.11ax-HE80 (RU Config 484)	910Hz

(3) VBW = set VBW $\leq$ RBW / 100, but not less than 10Hz (Duty Cycle $\geq$ 98%, when duty cycle presented in section 3.8)

(4) Detector = Peak.

(5) Sweep time = auto.

(6) Trace mode = max hold.

(7) Allow sweeps to continue until the trace stabilizes.

□ Option 2:Average Emission Level(dB μ V/m)= Peak Emission Level(dB μ V/m)+ DCCF(dB).

5.4. Measurement Result Explanation

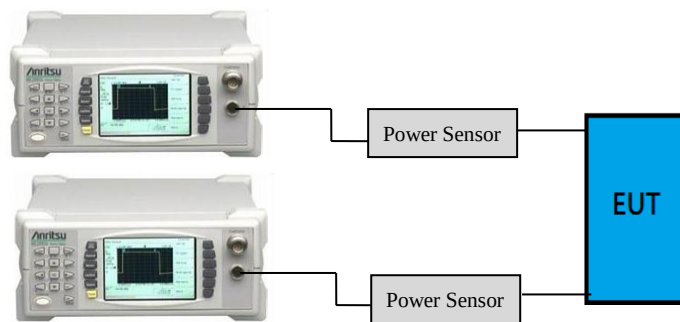
- Peak Emission Level(dB μ V/m)=Antenna Factor(dB/m) + Cable Loss (dB)– Preamp Gain (dB)+ Reading(dB μ V).
- Average Emission Level(dB μ V/m)= Antenna Factor(dB/m) + Cable Loss (dB)– Preamp Gain (dB)+ Reading(dB μ V).
- ☐ Average Emission Level(dB μ V/m)= Peak Emission Level(dB μ V/m)+ DCCF(dB)
Duty Cycle Correction Factor (DCCF)(dB)= 20log(TX_{on}/TX_{on+off}) presented in section 3.7.
- ☐ ERP(dBm)= Peak Emission Level(dB μ V/m) -95.2dB-2.14dB

5.5. Test Results

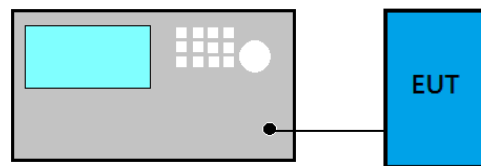
Please refer to Appendix A.

6. MAXIMUM OUTPUT POWER

6.1. Block Diagram of Test Setup



- For 802.11ac-VHT80/160, 802.11ax-HE80/160, 802.11be-EHT80/160 modes only



6.2. Specification Limits

Frequency Band (MHz)	Category	Limit
5150 to 5250	Outdoor Access Point	1 W(30 dBm)/ Max e.i.r.p. ≤ 125 mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon
	Fixed point-to-point Access Point	1 W(30 dBm)
	Indoor Access Point	1 W(30 dBm)
	Mobile and Portable client device	250 mW(24 dBm)
5250 to 5350	N/A	250 mW or $11 \text{ dBm} + 10 \log B$ ^{Note1}
5470 to 5725		250 mW or $11 \text{ dBm} + 10 \log B$ ^{Note1}
5725 to 5850	N/A	1 W(30 dBm)
5850 to 5895	indoor access point	4 W (36 dBm) (e.i.r.p.)
	client devices	1 W (30 dBm) (e.i.r.p.)
	subordinate device	4 W (36 dBm) (e.i.r.p.)

Note 1: B is the 26 dB emission bandwidth, which presented in section 7 and appendix A.1.

6.3. Test Procedure

Following measurement procedure is reference to KDB 789033 D02 General UNII Test Procedures New Rules v02r01:

■ **Method AVGPM (Measurement using an RF average power meter):**

EUT is connected to power sensor and record the maximum average output power and duty cycle factor is added when duty cycle presented in section 3.8 is < 98%.

■ **Method AVGSA-2 (Spectrum channel power) for 802.11ac-VHT80, 802.11ax-HE80 modes only**

- (1) Set span to at least 1.5 times the OBW
- (2) Set RBW = 1 MHz
- (3) Set the video bandwidth (VBW) ≥ 3 MHz.
- (4) Detector = RMS.
- (5) Trace mode = trace average at least 100 traces
- (6) Sweep = auto couple.
- (7) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges.
- (8) Duty cycle factor is added when duty cycle presented in section 3.8 is < 98%.

6.4. Test Results

Please refer to Appendix A

7. DEVIATION TO TEST SPECIFICATIONS

【NONE】



Audix Technology Corp.
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APPENDIX A

TEST DATA AND PLOTS

(Model: WXT2HM2001)



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APPENDIX B

TEST PHOTOGRAPHS

(Model: WXT2HM2001)