

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)

Report No.: RFCDVB-WTW-P25040433-5

FCC ID: QYLBE200NG

Product: 2x2 Wi-Fi and BT, M.2 2230 adapter card

Brand: Getac

Model No.: BE200NGW

Received Date: 2025/4/21

Test Date: 2025/5/14 ~ 2025/6/19

Issued Date: 2025/7/9

Applicant: Getac Technology Corporation.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration / 788550 / TW0003

Designation Number:

Approved by: _____

Jeremy Lin / Project Engineer

, Date: _____

2025/7/9

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Prepared by : Gina Liu / Specialist



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Release Control Record

Issue No.	Description	Date Issued
RFCDVB-WTW-P25040433-5	Original release.	2025/7/9

1 Certificate

Product: 2x2 Wi-Fi and BT, M.2 2230 adapter card

Brand: Getac

Test Model: BE200NGW

Sample Status: Engineering sample

Applicant: Getac Technology Corporation.

Test Date: 2025/5/14 ~ 2025/6/19

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)

Measurement ANSI C63.10-2013

procedure: KDB 789033 D02 General UNII Test Procedure New Rules v02r01

KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
Clause	Test Item	Result	Remark
15.407(a)(2)	26 dB Bandwidth	N/A	Refer to Note
15.407(a)(1) 15.407(a)(2) 15.407(a)(3)	RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(1) 15.407(a)(2) 15.407(a)(3)	Power Spectral Density	N/A	Refer to Note
15.407(e)	6 dB Bandwidth	N/A	Refer to Note
---	Occupied Bandwidth	N/A	Refer to Note
15.407(b)(9)	AC Power Conducted Emissions	Pass	Minimum passing margin is -16.63 dB at 0.40180 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -1.7 dB at 792.42 MHz
15.407(b) (1/10) 15.407(b) (2/10) 15.407(b) (3/10) 15.407(b) (4(i)/10)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -8.5 dB at 10400.00 MHz
15.203	Antenna Requirement	Pass	Antenna connector is MHF-4 not a standard connector.

Notes:

- Only test item of RF Output Power, AC Power Conducted Emissions and Unwanted Emissions were performed for this report. Other testing data please refer to module report No.: 230526-08.TR10, 230526-08.TR17 and 230526-08.TR18 (Brand: Intel® BE200NGW, Model: BE200NGW).
- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Specification	Expanded Uncertainty (k=2) (±)
RF Output Power	-	1.371 dB
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.90 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	2.44 dB
	30 MHz ~ 1 GHz	2.95 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	2x2 Wi-Fi and BT, M.2 2230 adapter card
Brand	Getac
Test Model	BE200NGW
Host Marketing Name (HMN)	V120,V120Y(Y= 10 characters, Y can be 0 to 9, A to Z, a to z, "/", "\", "-", "_" or blank for marketing purpose)
Status of EUT	Engineering sample
Power Supply Rating	End-product: 19.0 Vdc (from adapter) 7.74 / 11.61 Vdc (from battery)
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM for OFDMA in 11ax mode 4096QAM for OFDMA in 11be mode
Modulation Technology	OFDM, OFDMA
Transfer Rate	Up to 2401.9 Mbps (11ax mode) Up to 2882.4 Mbps (11be mode)
Operating Frequency	5.18 GHz ~ 5.25 GHz 5.25 GHz ~ 5.32 GHz 5.5 GHz ~ 5.72 GHz 5.745 GHz ~ 5.825 GHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20), 802.11be (EHT20): 25 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40), 802.11be (EHT40): 12 802.11ac (VHT80), 802.11ax (HE80), 802.11be (EHT80): 6 802.11ac (VHT160), 802.11ax (HE160), 802.11be (EHT160): 2
Resource Unit (RU)	Single RU: 26-tone, 52-tone, 106-tone, 242-tone, 484-tone, 996-tone
Output Power	5.18 GHz ~ 5.24 GHz : 43.755 mW (16.41 dBm) 5.25 GHz ~ 5.32 GHz : 43.706 mW (16.41 dBm) 5.5 GHz ~ 5.72 GHz : 38.463 mW (15.85 dBm) 5.745 GHz ~ 5.825 GHz : 37.584 mW (15.75 dBm)
EUT Category	Client device

Note:

1. The EUT is authorized for use in specific End-product. Please refer to below for more details.

Product	Brand	Model	Difference
Notebook	Getac	V120	Marketing purpose
		V120Y(Y= 10 characters, Y can be 0 to 9, A to Z, a to z, "/", "\", "-", "_" or blank for marketing purpose)	

2. The End-product contains following accessory devices.

Item	Brand	Model	Specification
Battery 1	Getac	BP2S1P4070P	Power Rating : Rating: 7.74Vdc , 3800mAh, 29.42Wh Typical Capacity: 4070mAh, 31.51Wh
Battery 2	Getac	BP3S1P4070P	Power Rating : Rating: 11.61Vdc , 3800mAh, 44.12Wh Typical Capacity: 4070mAh, 47.26Wh
AC Adapter	FSP	FSP065-RBBN3	AC Input : 100-240 Vac ; 50-60 Hz ; 1.5 A DC Output : 19.0Vdc ; 3.42A, 65.0W DC Output Cable : 1.45M / 1core AC Power Cord : 1.75M
Touch Pen	Getac	340GA8900001	-

*After the pretesting, battery 1 mode is found to be the worse case and therefore had been chosen for final test.

3. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna	2.4GHz 2400-2483.5 MHz	5.2GHz 5150-5250 MHz	5.3GHz 5250-5350 MHz	5.6GHz 5470-5725 MHz	5.8GHz 5725-5850 MHz	5.9GHz 5850-5895 MHz	6.2GHz 5925-6425 MHz	6.5GHz 6425-6525 MHz	6.7GHz 6525-6875 MHz	7.0GHz 6875-7125 MHz	Antenna Type	Connector Type
Main	2.23	2.25	2.25	2.48	2.48	1.44	2.4	2.28	2.28	1.57	PIFA	MHF-4
Aux.	2.48	1.67	1.67	2.12	2.12	1.42	2.41	2.41	1.99	1.82	PIFA	MHF-4

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

2. The EUT incorporates a MIMO function:

5 GHz Band		
Modulation Mode	TX & RX Configuration	
802.11a	1TX	1RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
802.11ac (VHT20)	2TX	2RX
802.11ac (VHT40)	2TX	2RX
802.11ac (VHT80)	2TX	2RX
802.11ac (VHT160)	2TX	2RX
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX
802.11ax (HE80)	2TX	2RX
802.11ax (HE160)	2TX	2RX
802.11be (EHT20)	2TX	2RX
802.11be (EHT40)	2TX	2RX
802.11be (EHT80)	2TX	2RX
802.11be (EHT160)	2TX	2RX
802.11ax (RU26/52/106/242/484/996)	2TX	2RX
802.11be (RU26/52/106/242/484/996)	2TX	2RX

Note:

- The modulation and bandwidth are similar for 802.11n mode for 20 MHz (40 MHz), 802.11ac mode for 20 MHz (40 MHz, 80 MHz, 160 MHz), 802.11ax mode for 20 MHz (40 MHz, 80 MHz, 160 MHz) and 802.11be mode for 20 MHz (40 MHz, 80 MHz, 160 MHz). Therefore, the investigated worst case is the representative mode in test report.

3.3 Channel List

FOR 5180 ~ 5320 MHz

8 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20), 802.11be (EHT20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	52	5260 MHz
40	5200 MHz	56	5280 MHz
44	5220 MHz	60	5300 MHz
48	5240 MHz	64	5320 MHz

4 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40), 802.11be (EHT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	54	5270 MHz
46	5230 MHz	62	5310 MHz

2 channels are provided for 802.11ac (VHT80), 802.11ax (HE80), 802.11be (EHT80):

Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz

1 straddle channel is provided for 802.11ac (VHT160), 802.11ax (HE160), 802.11be (EHT160):

Channel	Frequency
50	5250 MHz

FOR 5500 ~ 5720 MHz

12 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20), 802.11be (EHT20):

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz	144	5720 MHz

6 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40), 802.11be (EHT40):

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz	142	5710 MHz

3 channels are provided for 802.11ac (VHT80), 802.11ax (HE80), 802.11be (EHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	138	5690 MHz
122	5610 MHz		

1 channel is provided for 802.11ac (VHT160), 802.11ax (HE160), 802.11be (EHT160):

Channel	Frequency
114	5570 MHz

FOR 5745 ~ 5825 MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20), 802.11be (EHT20):

Channel	Frequency	Channel	Frequency
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40), 802.11be (EHT40):

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80), 802.11ax (HE80), 802.11be (EHT80):

Channel	Frequency
155	5775 MHz

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis/NB-axis. Pre-scan these ways and find the worst case as a representative test condition.
Worst Case:	1. X-axis/ Y-axis/ Z-axis/NB-axis Worst Condition:X-axis

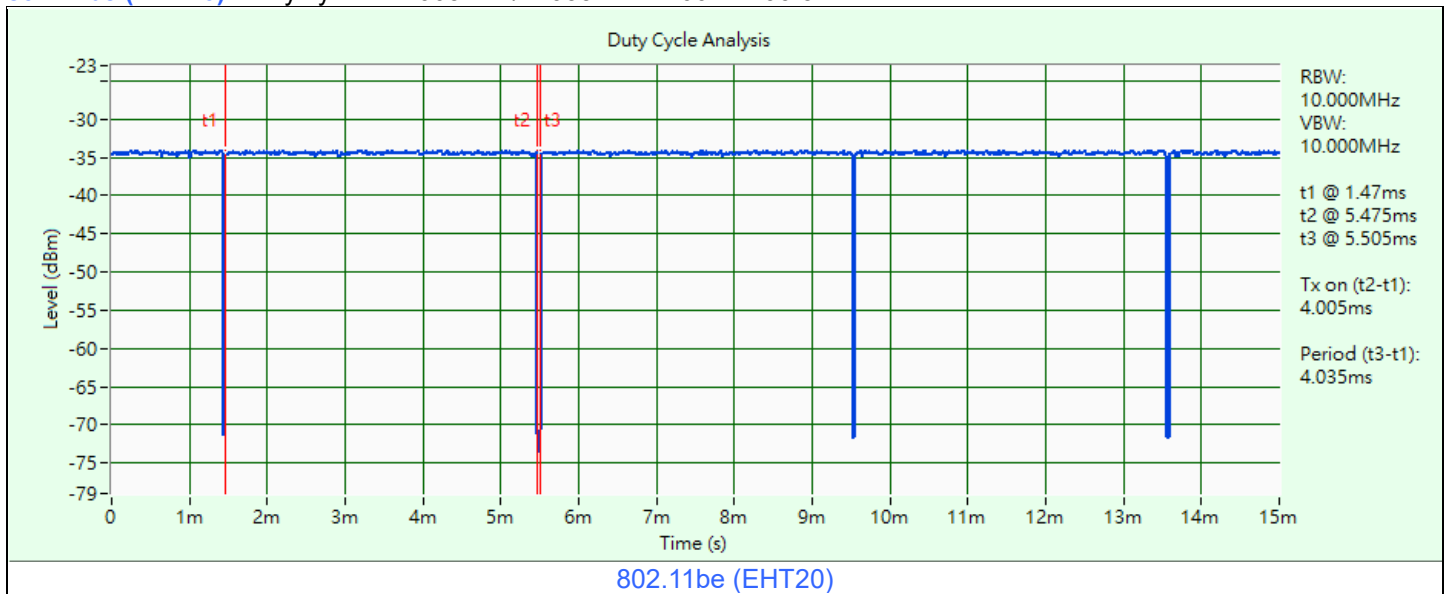
Following channel(s) was (were) selected for the final test as listed below:

Test Item	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index
RF Output Power	802.11a	1TX	36, 40, 48, 52, 60, 64, 100, 116, 140, 144, 149, 157, 165	BPSK	6Mb/s	NA
	802.11be (EHT20)	1TX	36, 40, 48, 52, 60, 64, 100, 116, 140, 144, 149, 157, 165	BPSK	MCS0	NA
	802.11be (EHT40)	1TX	38, 46, 54, 62, 102, 110, 134, 142, 151, 159	BPSK	MCS0	NA
	802.11be (EHT80)	1TX	42, 58, 106, 122, 138, 155	BPSK	MCS0	NA
	802.11be (EHT160)	1TX	50, 114	BPSK	MCS0	NA
	802.11be (EHT20) 26-tone RU	1TX	36, 64, 100, 140, 149	BPSK	MCS0	0, 8, 0, 8, 0
	802.11be (EHT20) 52-tone RU	1TX	36, 64, 100, 140, 149	BPSK	MCS0	37, 40, 37, 40, 37
	802.11be (EHT20) 106-tone RU	1TX	36, 64, 100, 140, 149	BPSK	MCS0	53, 54, 53, 54, 53
	802.11be (EHT40) 242-tone RU	1TX	38, 62, 102, 134, 151	BPSK	MCS0	61, 62, 62, 62, 61
	802.11be (EHT80) 484-tone RU	1TX	42, 58, 106, 155	BPSK	MCS0	65, 66, 65, 65
	802.11be (EHT160) 996-tone RU	1TX	50, 114	BPSK	MCS0	67, S67, 67, S67
	802.11be (EHT20)	2TX	36, 40, 48, 52, 60, 64, 100, 116, 140, 144, 149, 157, 165	BPSK	MCS0	NA
	802.11be (EHT40)	2TX	38, 46, 54, 62, 102, 110, 134, 142, 151, 159	BPSK	MCS0	NA
	802.11be (EHT80)	2TX	42, 58, 106, 122, 138, 155	BPSK	MCS0	NA
	802.11be (EHT160)	2TX	50, 114	BPSK	MCS0	NA
	802.11be (EHT20) 26-tone RU	2TX	36, 64, 100, 140, 149	BPSK	MCS0	0, 8, 0, 8, 0
	802.11be (EHT20) 52-tone RU	2TX	36, 64, 100, 140, 149	BPSK	MCS0	37, 40, 37, 40, 37
	802.11be (EHT20) 106-tone RU	2TX	36, 64, 100, 140, 149	BPSK	MCS0	53, 54, 53, 54, 53
	802.11be (EHT40) 242-tone RU	2TX	38, 62, 102, 134, 151	BPSK	MCS0	61, 62, 62, 62, 61
	802.11be (EHT80) 484-tone RU	2TX	42, 58, 106, 155	BPSK	MCS0	65, 66, 65, 65
	802.11be (EHT160) 996-tone RU	2TX	50, 114	BPSK	MCS0	67, S67, 67, S67

Test Item	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index
AC Power Conducted Emissions	802.11be (EHT20)	2TX	40	BPSK	MCS0	NA
Unwanted Emissions below 1 GHz	802.11be (EHT20)	2TX	40	BPSK	MCS0	NA
Unwanted Emissions above 1 GHz	802.11be (EHT20)	1TX	40	BPSK	MCS0	NA
		2TX	40	BPSK	MCS0	NA

3.5 Duty Cycle of Test Signal

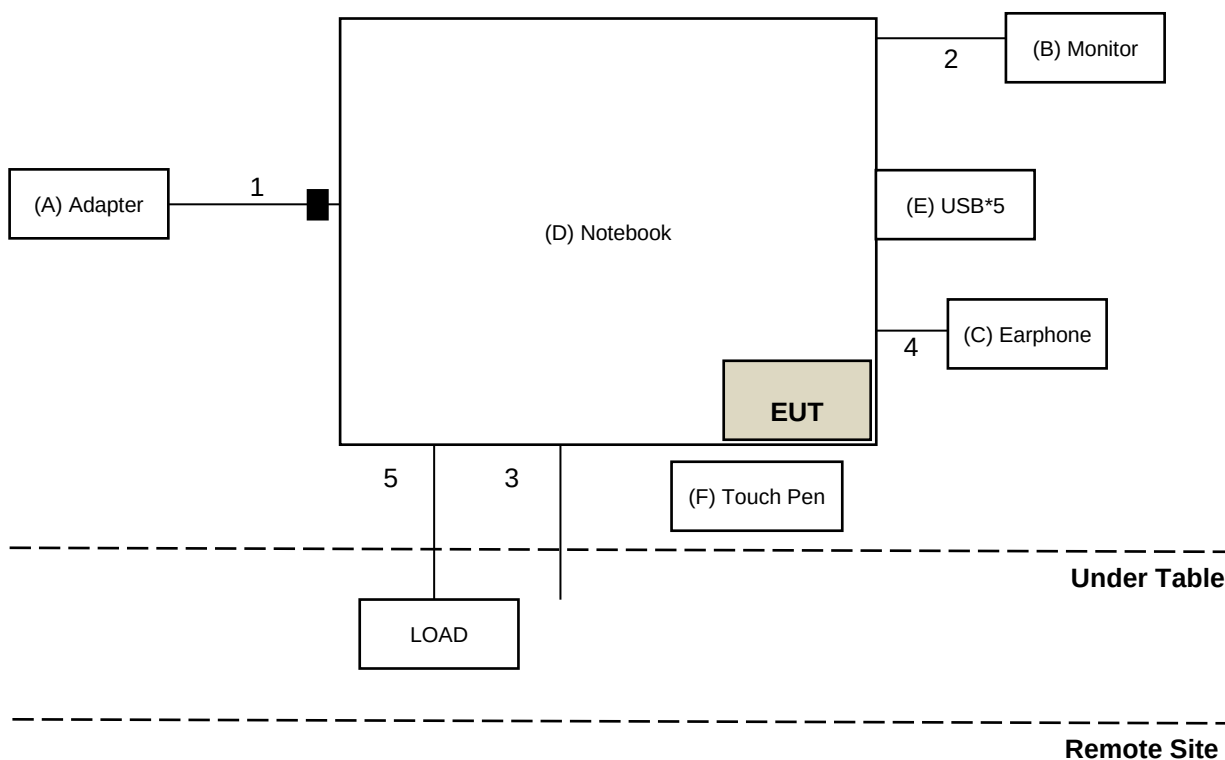
802.11be (EHT20): Duty cycle = 4.005 ms / 4.035 ms x 100% = 99.3%



3.6 Test Program Used and Operation Descriptions

Controlling software DRTU has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Adapter	FSP	FSP090-ABBN3	N/A	N/A	Supplied by applicant
B	Monitor	DELL	A14S2421HSXmTW	CN-01KWWF-WSL00-24C-711B	N/A	Provided by Lab
C	Earphone	APPLE	MB77PFEB	N/A	N/A	Provided by Lab
D	Notebook	Getac	V120	N/A	N/A	Supplied by applicant
E	USB*5	SanDisk	SDDDC3-032G	N/A	N/A	Provided by Lab
F	Touch Pen	Getac	340GA8900001	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DC Cable	1	1.45	Y	1	Supplied by applicant
2	HDMI	1	1.8	Y	0	Provided by Lab
3	RS232	1	1.5	N	0	Provided by Lab
4	AUDIO	1	1.2	N	0	Provided by Lab
5	LAN	1	1.5	N	0	Provided by Lab

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
Peak Power Analyzer Keysight	8990B	MY51000485	2025/1/20	2026/1/19
Signal & Spectrum Analyzer R&S	FSV3044	101504	2025/6/18	2026/6/17
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
Wideband Power Sensor Keysight	N1923A	MY58020002	2025/1/21	2026/1/20
		MY58140009	2025/1/21	2026/1/20

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/6/19

4.2 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal resistance	E1-011279	04	2024/11/28	2025/11/27
	E1-011280	05	2024/11/28	2025/11/27
	E1-011311	09	2024/11/28	2025/11/27
DC-LISN Schwarzbeck	NNBM 8126G	8126G-069	2024/11/5	2025/11/4
EMI Test Receiver R&S	ESR3	102783	2024/12/17	2025/12/16
Fixed Attenuator STI	BNC5W10dB	PAD-COND2-01	2024/8/25	2025/8/24
LISN R&S	ESH2-Z5	100100	2025/3/5	2026/3/4
	ESH3-Z5	100312	2024/9/9	2025/9/8
RF Coaxial Cable Woken	5D-FB	Cable-cond2-01	2024/8/25	2025/8/24
Software BVADT	BVADT_Cond_ V7.4.1.0	N/A	N/A	N/A
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2024/8/28	2025/8/27

Notes:

1. The test was performed in HY - Conduction 2.
2. Tested Date: 2025/5/14

4.3 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Max-Full	MFA-440H	AT93021705	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-472	2024/10/14	2025/10/13
EXA Signal Analyzer Agilent	N9010A	MY52220207	2024/12/30	2025/12/29
Loop Antenna TESEQ	HLA 6121	45745	2024/8/21	2025/8/20
MXE EMI Receiver Agilent	N9038A	MY51210203	2024/8/27	2025/8/26
Preamplifier EMCI	EMC 330H	980112	2024/9/24	2025/9/23
	EMC001340	980201	2024/9/24	2025/9/23
RF Coaxial Cable Woken	8D-FB	Cable-Ch10-01	2024/9/24	2025/9/23
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MFT-201SS	N/A	N/A	N/A
Turn Table Controller Max-Full	MG-7802	N/A	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 5.
2. Tested Date: 2025/5/27

4.4 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Max-Full	MFA-440H	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	7	N/A	N/A
EXA Signal Analyzer Agilent	N9010A	MY52220207	2024/12/30	2025/12/29
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-969	2024/11/10	2025/11/9
	BBHA 9170	148	2024/11/10	2025/11/9
MXE EMI Receiver Agilent	N9038A	MY51210203	2024/8/27	2025/8/26
Preamplifier EMCI	EMC 012645	980115	2024/9/24	2025/9/23
	EMC 184045	980116	2024/9/24	2025/9/23
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2024/7/6	2025/7/5
	EMC102-KM-KM-3000	150929	2024/7/6	2025/7/5
	EMC104-SM-SM- 8000+3000	171005	2024/9/24	2025/9/23
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	EMC104-SM-SM- 1000(140807)	2024/9/24	2025/9/23
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MFT-201SS	N/A	N/A	N/A
Turn Table Controller Max-Full	MG-7802	N/A	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 5.
2. Tested Date: 2025/5/27 ~ 2025/6/19

5 Limits of Test Items

5.1 RF Output Power

Operation Band	EUT Category	Limit
U-NII-1	Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
	Fixed point-to-point Access Points	1 Watt (30 dBm)
	Indoor Access Point	1 Watt (30 dBm)
	Client devices	250mW (24 dBm)

Operation Band	Limit
U-NII-2A	250 mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	250 mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

5.2 AC Power Conducted Emissions

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Notes:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.3 Unwanted Emissions below 1 GHz

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

5.4 Unwanted Emissions above 1 GHz

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
Above 960	500	3

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Applicable To	Limit	
789033 D02 General UNII Test Procedure New Rules v02r01	Field Strength at 3 m	
	PK: 74 (dBμV/m)	AV: 54 (dBμV/m)

For transmitters operating in the 5.15-5.25 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)

For transmitters operating in the 5.25-5.35 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(2)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)

For transmitters operating in the 5.47-5.725 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(3)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)

For transmitters operating in the 5.725-5.850 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(4)(i)	PK: -27 (dBm/MHz) ^{*1} PK: 10 (dBm/MHz) ^{*2} PK: 15.6 (dBm/MHz) ^{*3} PK: 27 (dBm/MHz) ^{*4}	PK: 68.2 (dBμV/m) ^{*1} PK: 105.2 (dBμV/m) ^{*2} PK: 110.8 (dBμV/m) ^{*3} PK: 122.2 (dBμV/m) ^{*4}
^{*1} beyond 75 MHz or more above of the band edge. ^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. ^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. ^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

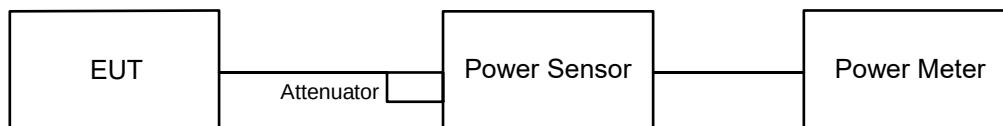
Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \text{ } \mu\text{V/m, where P is the eirp (Watts).}$$

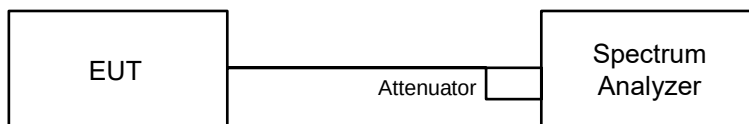
6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup



For channel straddling:



6.1.2 Test Procedure

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to average. Duty factor is not added to measured value.

For channel straddling:

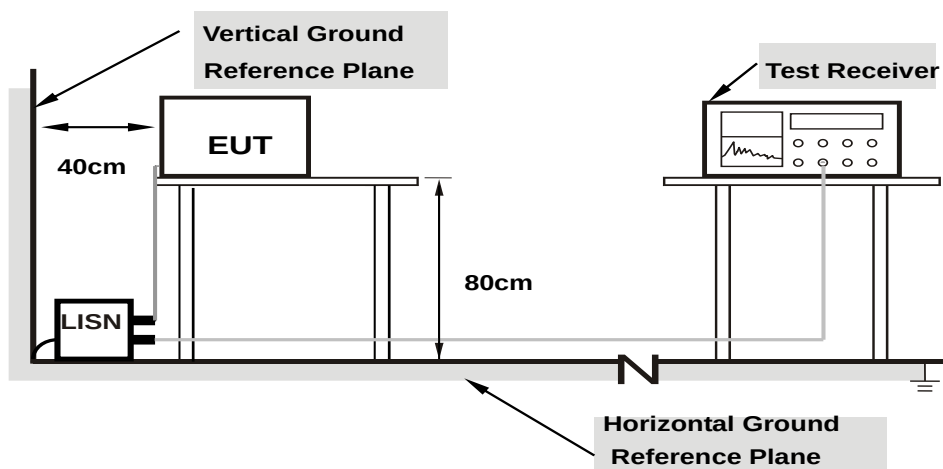
Method SA-2

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz, Set VBW $\geq$ 3 MHz, Detector = RMS
- Sweep points $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.) Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value and add $10 \log (1/\text{duty cycle})$.

Note: When measuring straddle channel power, use compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument's band power measurement function, with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.

6.2 AC Power Conducted Emissions

6.2.1 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.2.2 Test Procedure

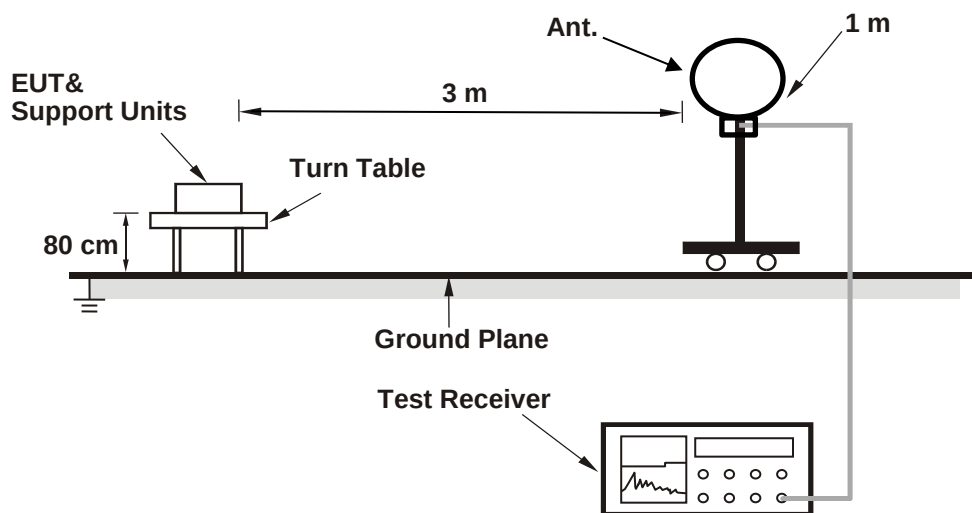
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.

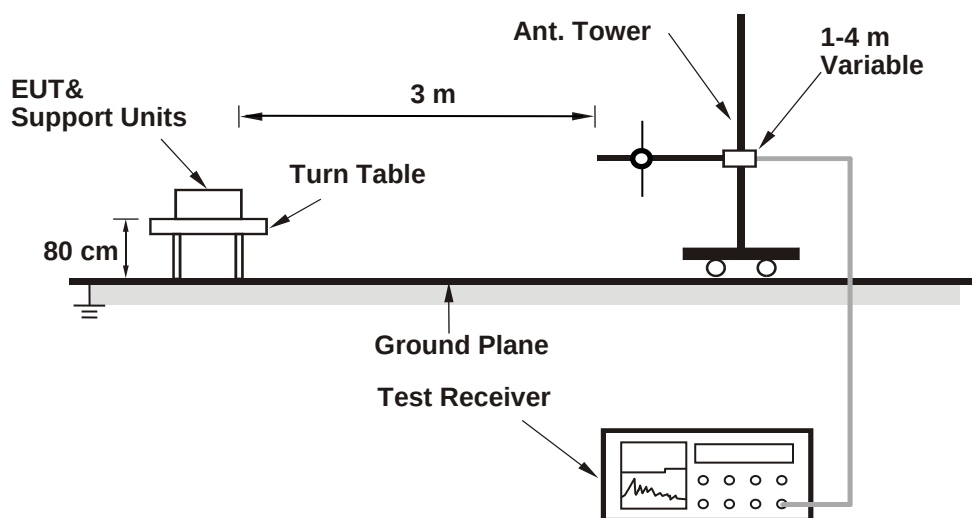
6.3 Unwanted Emissions below 1 GHz

6.3.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.3.2 Test Procedure

For Radiated emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30 MHz

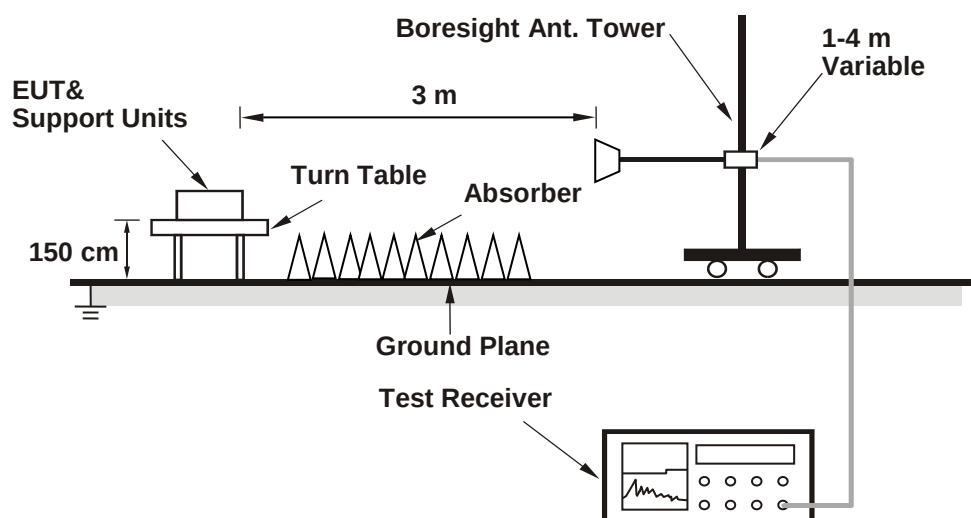
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

6.4 Unwanted Emissions above 1 GHz

6.4.1 Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.4.2 Test Procedure

- The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Notes:

- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
- For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

7 Test Results of Test Item

7.1 RF Output Power

Input Power:	7.74 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin
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1TX

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
36	5180	42.756	16.31	24	Pass
40	5200	42.855	16.32	24	Pass
48	5240	42.756	16.31	24	Pass
52	5260	42.756	16.31	24	Pass
60	5300	43.351	16.37	24	Pass
64	5320	43.351	16.37	24	Pass
100	5500	30.761	14.88	24	Pass
116	5580	30.269	14.81	24	Pass
140	5700	30.339	14.82	24	Pass
149	5745	36.983	15.68	30	Pass
157	5785	36.475	15.62	30	Pass
165	5825	36.898	15.67	30	Pass

Notes:

1. For U-NII-1, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-3, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
36	5180	43.251	16.36	24	Pass
40	5200	43.752	16.41	24	Pass
48	5240	42.954	16.33	24	Pass
52	5260	43.451	16.38	24	Pass
60	5300	43.251	16.36	24	Pass
64	5320	43.152	16.35	24	Pass
100	5500	30.62	14.86	24	Pass
116	5580	30.409	14.83	24	Pass
140	5700	30.409	14.83	24	Pass
144	5720	30.62	14.86	24	Pass
149	5745	36.898	15.67	30	Pass
157	5785	36.813	15.66	30	Pass
165	5825	37.584	15.75	30	Pass

Notes:

1. For U-NII-1, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-3, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT40)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
38	5190	42.954	16.33	24	Pass
46	5230	42.855	16.32	24	Pass
54	5270	42.954	16.33	24	Pass
62	5310	43.451	16.38	24	Pass
102	5510	30.69	14.87	24	Pass
110	5550	30.409	14.83	24	Pass
134	5670	30.832	14.89	24	Pass
142	5710	30.549	14.85	24	Pass
151	5755	36.898	15.67	30	Pass
159	5795	36.559	15.63	30	Pass

Notes:

1. For U-NII-1, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-3, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT80)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
42	5210	43.152	16.35	24	Pass
58	5290	43.251	16.36	24	Pass
106	5530	30.339	14.82	24	Pass
122	5610	30.339	14.82	24	Pass
138	5690	30.269	14.81	24	Pass
155	5775	36.475	15.62	30	Pass

Notes:

1. For U-NII-1, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-3, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT160)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
50	5250	42.756	16.31	24	Pass
114	5570	33.189	15.21	24	Pass

Notes:

1. For U-NII-1, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20) 26-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
36	5180	21.777	13.38	24	Pass
64	5320	21.281	13.28	24	Pass
100	5500	14.962	11.75	24	Pass
140	5700	21.038	13.23	24	Pass
149	5745	36.308	15.60	30	Pass

Notes:

1. For U-NII-1, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-3, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20) 52-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
36	5180	42.462	16.28	24	Pass
64	5320	42.267	16.26	24	Pass
100	5500	30.269	14.81	24	Pass
140	5700	30.2	14.80	24	Pass
149	5745	36.308	15.60	30	Pass

Notes:

1. For U-NII-1, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-3, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20) 106-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
36	5180	42.855	16.32	24	Pass
64	5320	37.325	15.72	24	Pass
100	5500	30.409	14.83	24	Pass
140	5700	30.269	14.81	24	Pass
149	5745	36.475	15.62	30	Pass

Notes:

1. For U-NII-1, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-3, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT40) 242-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
38	5190	42.56	16.29	24	Pass
62	5310	43.152	16.35	24	Pass
102	5510	30.409	14.83	24	Pass
134	5670	30.479	14.84	24	Pass
151	5755	36.475	15.62	30	Pass

Notes:

1. For U-NII-1, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-3, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT80) 484-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
42	5210	42.658	16.30	24	Pass
58	5290	42.56	16.29	24	Pass
106	5530	29.923	14.76	24	Pass
155	5775	36.141	15.58	30	Pass

Notes:

1. For U-NII-1, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
2. For U-NII-2A, the antenna gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2C, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-3, the antenna gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT160) 996-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
50	5250	42.462	16.28	24	Pass
114	5570	32.961	15.18	24	Pass

2TX

802.11be (EHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	13.36	13.38	43.454	16.38	24	Pass
40	5200	13.41	13.39	43.755	16.41	24	Pass
48	5240	13.36	13.31	43.106	16.35	24	Pass
52	5260	13.32	13.39	43.306	16.37	24	Pass
60	5300	13.38	13.41	43.705	16.41	24	Pass
64	5320	13.36	13.43	43.706	16.41	24	Pass
100	5500	12.81	12.87	38.463	15.85	24	Pass
116	5580	12.76	12.91	38.423	15.85	24	Pass
140	5700	12.76	12.77	37.803	15.78	24	Pass
144	5720	12.81	12.86	38.418	15.85	24	Pass
149	5745	12.16	12.26	33.27	15.22	30	Pass
157	5785	12.16	12.18	32.963	15.18	30	Pass
165	5825	12.11	12.12	32.548	15.13	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2A, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
38	5190	13.35	13.36	43.304	16.37	24	Pass
46	5230	13.36	13.35	43.304	16.37	24	Pass
54	5270	13.31	13.33	42.957	16.33	24	Pass
62	5310	13.38	13.38	43.554	16.39	24	Pass
102	5510	12.82	12.78	38.11	15.81	24	Pass
110	5550	12.82	12.81	38.241	15.83	24	Pass
134	5670	12.77	12.79	37.934	15.79	24	Pass
142	5710	12.86	12.78	38.287	15.83	24	Pass
151	5755	12.18	12.25	33.308	15.23	30	Pass
159	5795	12.17	12.15	32.888	15.17	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2A, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
42	5210	13.37	13.33	43.255	16.36	24	Pass
58	5290	13.35	13.38	43.404	16.38	24	Pass
106	5530	12.82	12.82	38.285	15.83	24	Pass
122	5610	12.83	12.78	38.154	15.82	24	Pass
138	5690	12.81	12.83	38.285	15.83	24	Pass
155	5775	12.18	12.18	33.039	15.19	30	Pass

Notes:

2. For U-NII-1, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2A, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT160)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
50	5250	13.38	13.36	43.454	16.38	24	Pass
114	5570	12.78	12.82	38.11	15.81	24	Pass

Notes:

2. For U-NII-1, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2A, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20) 26-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	9.97	10.10	20.164	13.05	24	Pass
64	5320	9.72	9.68	18.665	12.71	24	Pass
100	5500	9.86	9.78	19.189	12.83	24	Pass
140	5700	9.91	9.78	19.301	12.86	24	Pass
149	5745	12.09	12.21	32.815	15.16	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2A, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20) 52-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	12.97	12.86	39.135	15.93	24	Pass
64	5320	12.85	12.69	37.853	15.78	24	Pass
100	5500	12.66	12.76	37.33	15.72	24	Pass
140	5700	12.72	12.51	36.531	15.63	24	Pass
149	5745	12.10	12.21	32.852	15.17	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2A, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20) 106-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	13.32	13.34	43.056	16.34	24	Pass
64	5320	13.32	13.40	43.356	16.37	24	Pass
100	5500	12.76	12.83	38.067	15.81	24	Pass
140	5700	12.73	12.75	37.586	15.75	24	Pass
149	5745	12.13	12.22	33.003	15.19	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2A, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT40) 242-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
38	5190	13.31	13.32	42.907	16.33	24	Pass
62	5310	13.34	13.35	43.205	16.36	24	Pass
102	5510	12.78	12.74	37.76	15.77	24	Pass
134	5670	12.73	12.76	37.63	15.76	24	Pass
151	5755	12.15	12.21	33.04	15.19	30	Pass

Notes:

2. For U-NII-1, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2A, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT80) 484-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
42	5210	13.32	13.30	42.858	16.32	24	Pass
58	5290	13.31	13.33	42.957	16.33	24	Pass
106	5530	12.78	12.74	37.76	15.77	24	Pass
155	5775	12.15	12.16	32.85	15.17	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2A, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-3, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT160) 996-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
50	5250	13.32	13.31	42.907	16.33	24	Pass
114	5570	12.75	12.80	37.891	15.79	24	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-2A, the maximum gain is 2.25 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2C, the maximum gain is 2.48 dBi $\leq$ 6 dBi, so the output power limit shall not be reduced.

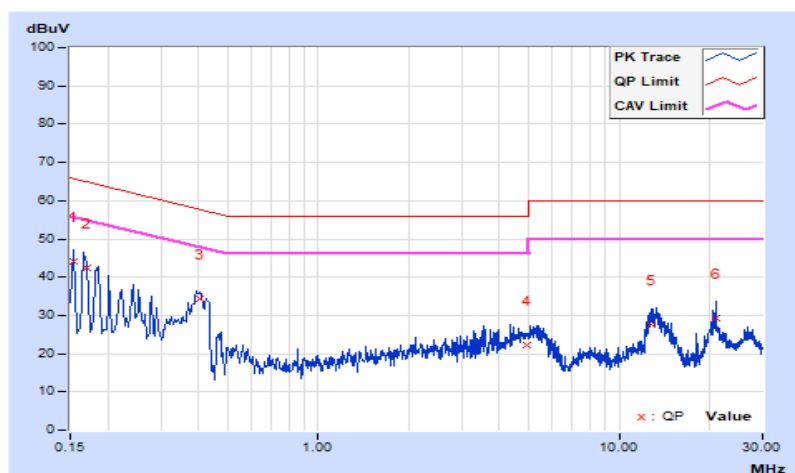
7.2 AC Power Conducted Emissions

RF Mode	802.11be (EHT20)	Channel	CH 40 : 5200 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 71% RH
Tested By	Thomas Cheng		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.25	33.94	18.49	44.19	28.74	65.78	55.78	-21.59	-27.04
2	0.17000	10.25	32.06	15.60	42.31	25.85	64.96	54.96	-22.65	-29.11
3	0.40499	10.29	23.98	15.46	34.27	25.75	57.75	47.75	-23.48	-22.00
4	4.94200	10.42	11.75	5.81	22.17	16.23	56.00	46.00	-33.83	-29.77
5	12.88200	10.49	17.18	8.83	27.67	19.32	60.00	50.00	-32.33	-30.68
6	20.94200	10.62	18.77	7.80	29.39	18.42	60.00	50.00	-30.61	-31.58

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

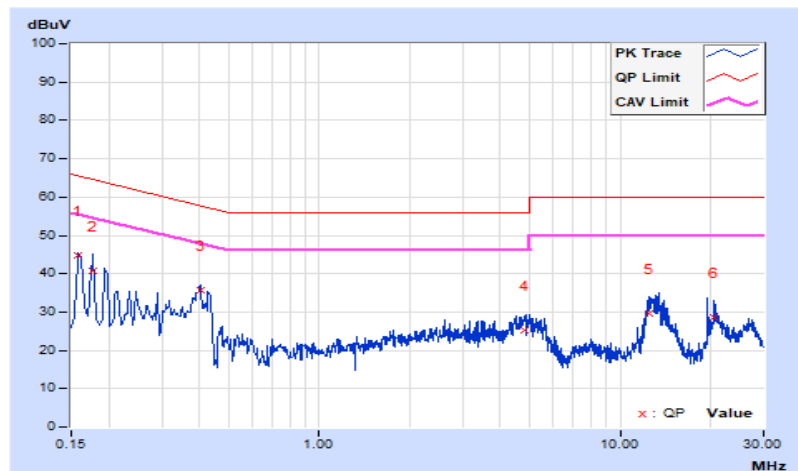


RF Mode	802.11be (EHT20)	Channel	CH 40 : 5200 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 71% RH
Tested By	Thomas Cheng		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15800	10.30	34.37	20.48	44.67	30.78	65.57	55.57	-20.90	-24.79
2	0.17800	10.30	30.48	16.52	40.78	26.82	64.58	54.58	-23.80	-27.76
3	0.40180	10.32	25.50	20.87	35.82	31.19	57.82	47.82	-22.00	-16.63
4	4.78600	10.48	14.69	7.52	25.17	18.00	56.00	46.00	-30.83	-28.00
5	12.55000	10.62	18.94	9.63	29.56	20.25	60.00	50.00	-30.44	-29.75
6	20.42600	10.83	17.64	7.59	28.47	18.42	60.00	50.00	-31.53	-31.58

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



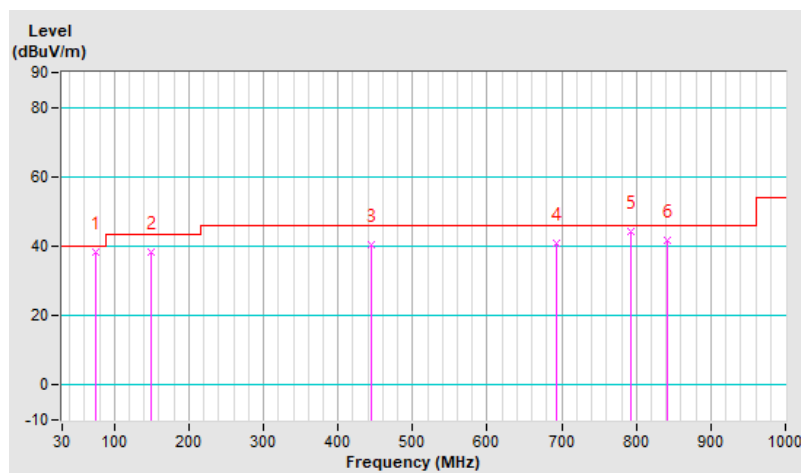
7.3 Unwanted Emissions below 1 GHz

RF Mode	802.11be (EHT20)	Channel	CH 40 : 5200 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120 kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 65% RH
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	74.62	38.1 QP	40.0	-1.9	2.00 H	255	53.7	-15.6
2	148.34	38.2 QP	43.5	-5.3	2.00 H	265	50.5	-12.3
3	445.16	40.4 QP	46.0	-5.6	2.00 H	188	48.1	-7.7
4	693.48	40.9 QP	46.0	-5.1	1.00 H	144	43.8	-2.9
5	792.42	44.3 QP	46.0	-1.7	1.00 H	56	45.1	-0.8
6	841.89	41.5 QP	46.0	-4.5	1.00 H	218	42.0	-0.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

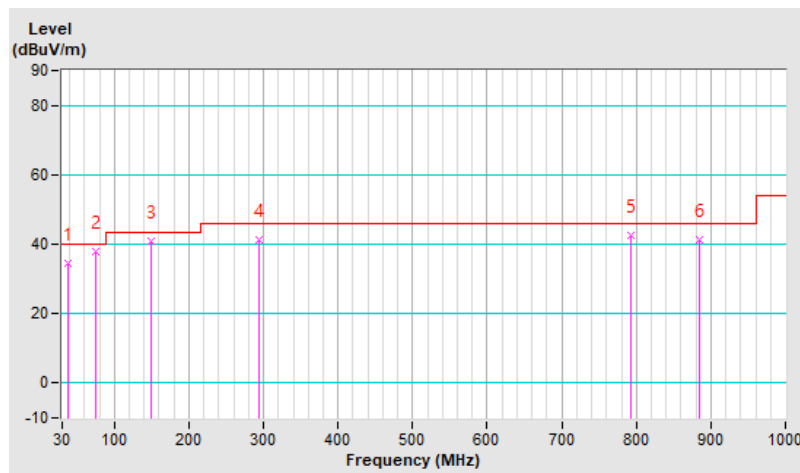


RF Mode	802.11be (EHT20)	Channel	CH 40 : 5200 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120 kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 65% RH
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	38.73	34.4 QP	40.0	-5.6	1.00 V	278	47.0	-12.6
2	74.62	37.8 QP	40.0	-2.2	1.00 V	221	53.4	-15.6
3	149.31	40.8 QP	43.5	-2.7	1.00 V	252	53.0	-12.2
4	294.81	41.1 QP	46.0	-4.9	1.00 V	213	52.9	-11.8
5	792.42	42.5 QP	46.0	-3.5	1.99 V	340	43.3	-0.8
6	885.54	41.1 QP	46.0	-4.9	1.00 V	327	41.6	-0.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



7.4 Unwanted Emissions above 1 GHz

1TX

RF Mode	802.11be (EHT20)	Channel	CH 40 : 5200 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=RMS
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 65% RH
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	111.0 PK			1.14 H	311	69.6	41.4
2	*5200.00	98.5 AV			1.14 H	311	57.1	41.4
3	#10400.00	59.7 PK	68.2	-8.5	1.88 H	252	46.9	12.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	107.1 PK			2.68 V	181	65.7	41.4
2	*5200.00	94.5 AV			2.68 V	181	53.1	41.4
3	#10400.00	59.5 PK	68.2	-8.7	2.01 V	152	46.7	12.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # " : The radiated frequency is out of the restricted band.

2TX

RF Mode	802.11be (EHT20)	Channel	CH 40 : 5200 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=RMS
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 65% RH
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	111.1 PK			2.33 H	241	69.7	41.4
2	*5200.00	98.6 AV			2.33 H	241	57.2	41.4
3	#10400.00	59.2 PK	68.2	-9.0	2.26 H	127	46.4	12.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	107.1 PK			2.59 V	184	65.7	41.4
2	*5200.00	94.6 AV			2.59 V	184	53.2	41.4
3	#10400.00	59.0 PK	68.2	-9.2	2.24 V	143	46.2	12.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.

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