TEST REPORT

CERTIFICATE OF CONFORMITY

Standard:	**47 CFR FCC Part 15, Subpart E (Section 15.407)**
Report No.:	RFBHVI-WTW-P24080244A-3
FCC ID:	N6C-PCEBE
Product:	Wi-Fi 7/BT combo module
Brand:	Silex Technology
Model No.:	SX-PCEBE
Received Date:	2025/2/5
Test Date:	2025/4/2 ~ 2025/5/19
Issued Date:	2025/6/2
Applicant:	Silex Technology, Inc.
Address:	2-3-1 Hikaridai, Seika-cho, Soraku-gun, Kyoto 619-0237, Japan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

Approved by: _____ , **Date:** 2025/6/2

May Chen / Manager

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Prepared by : Phoenix Huang / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBHVI-WTW-P24080244A-3	Original release.	2025/6/2

1 Certificate

Product:	Wi-Fi 7/BT combo module
Brand:	Silex Technology
Test Model:	SX-PCEBE
Sample Status:	Engineering sample
Applicant:	Silex Technology, Inc.
Test Date:	2025/4/2 ~ 2025/5/19
Standard:	47 CFR FCC Part 15, Subpart E (Section 15.407)
Measurement procedure:	ANSI C63.10-2013 KDB 987594 D02 U-NII 6 GHz EMC Measurement v03 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)(7) 15.407(a)(8)	Maximum RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(7) 15.407(a)(8)	Maximum Power Spectral Density	Pass	Meet the requirement of limit.
15.407(a)(11)	Emission Bandwidth	N/A	Refer to Note 1 below
---	Occupied Bandwidth	N/A	Refer to Note 1 below
15.407(b)(9)	AC Power Conducted Emissions	Pass	Minimum passing margin is -14.51 dB at 25.90625 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -2.9 dB at 57.77 MHz
15.407(b)(6) 15.407(b)(10)	Unwanted Emissions above 1 GHz	N/A	Refer to Note 1 below
15.407(b)(7)	In-Band Emission Mask	N/A	Refer to Note 1 below
15.407(d)(6)	Contention-based Protocol	N/A	Refer to Note 1 below
15.407(a)(7)	APC (Automatic Power Control) and Proper Power Adjustment	N/A	Refer to Note 1, 2 below
15.203	Antenna Requirement	Pass	Antenna connector is MHF 4L not a standard connector.

Note:
1. Only Maximum RF Output Power, Maximum Power Spectral Density, AC Power Conducted Emissions and Unwanted Emissions below 1 GHz test items were performed for this addendum. The others testing data refer to original test report (Original FCC ID: J9C-QCNCM825).
2. Since the original FCC ID J9C-QCNCM825 has already declared compliance with regulatory requirements, and this change does not impact the operation of these two mechanisms built into the module. This is why we are only re-evaluating and confirming compliance with regulations for certain items this time.
3. 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) (±)
Maximum RF Output Power	-	1.1 dB
Maximum Power Spectral Density	-	1.3 dB
AC Power Conducted Emissions	150 kHz ~ 30 MHz	1.9 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.1 dB
	30 MHz ~ 1 GHz	5.5 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	Wi-Fi 7/BT combo module
Brand	Silex Technology
Test Model	SX-PCEBE
Status of EUT	Engineering sample
Power Supply Rating	3.3 Vdc from host equipment
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	802.11a: up to 54 Mbps 802.11ax: up to 2969.7 Mbps 802.11be: up to 5764.7 Mbps
Operating Frequency	5.935 GHz ~ 6.415 GHz 6.425 GHz ~ 6.525 GHz 6.535 GHz ~ 6.865 GHz 6.875 GHz ~ 7.115 GHz
Number of Channel	802.11a, 802.11ax (HE20), 802.11be (EHT20): 60 802.11ax (HE40), 802.11be (EHT40): 29 802.11ax (HE80), 802.11be (EHT80): 14 802.11ax (HE160), 802.11be (EHT160): 7 802.11be (EHT320): 6
Resource Unit (RU)	Single RU: 26-tone, 52-tone, 106-tone, 242-tone, 484-tone, 996-tone, 2 * 996-tone, 4 * 996-tone Multi-RU (Small RU): 52-tone + 26-tone, 106-tone + 26-tone Multi-RU (Large RU): 484-tone + 242-tone, 996-tone + 484-tone, 996-tone + 484-tone + 242-tone, 2 * 996 + 484-tone, 3 * 996-tone, 3 * 996 + 484-tone
Channel Puncturing (Large RU)	80 MHz punctured by 20 MHz, 160 MHz punctured by 20 MHz, 160 MHz punctured by 40 MHz 320 MHz punctured by 40 MHz, 320 MHz punctured by 80 MHz 320 MHz punctured by 80+40 MHz
Output Power	**(under the control of a low-power indoor AP)** 5.935 GHz ~ 6.415 GHz: EIRP: 108.019 mW (20.33 dBm) 6.425 GHz ~ 6.525 GHz: EIRP: 94.697 mW (19.76 dBm) 6.535 GHz ~ 6.865 GHz: EIRP: 104.226 mW (20.18 dBm) 6.875 GHz ~ 7.115 GHz: EIRP: 98.189 mW (19.92 dBm) **(under control of a Standard power AP)** 5.935 GHz ~ 6.415 GHz: EIRP: 328.469 mW (25.16 dBm) 6.535 GHz ~ 6.865 GHz: EIRP: 364.865 mW (25.62 dBm)
Equipment Class	6CD: 15E 6 GHz Dual client

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the original design is as the following:
   - ◆ Decrease TX power of specific channels via SW, the conditions for reducing power are applicable solely to the retesting channel. (with original chip: WCN7851)
   - ◆ WLAN 2.4G BW20 ch12 and ch13; BW 40 ch10 and ch11 were disabled via software and is non-modifiable by any third-party.
2. According to above conditions, there are Maximum RF Output Power, Maximum Power Spectral Density, AC Power Conducted Emissions and Unwanted Emissions below 1 GHz test items need to be performed. All data for meeting the requirement is verified.
3. Since the original FCC ID J9C-QCNCM825 has already declared compliance with regulatory requirements, and this change does not impact the operation of these two mechanisms built into the module. This is why we are only re-evaluating and confirming compliance with regulations for certain items this time.
4. There are Bluetooth (EDR, BLE, QHS) and WLAN (2.4 GHz & 5 GHz & 6 GHz) technology used for the EUT.
5. Simultaneously transmission combination.

Combination	Technology	
1	WLAN(2.4 GHz)_Ant 0+1	WLAN(5 GHz)_Ant 0+1
2	WLAN(2.4 GHz)_Ant 0+1	WLAN(6 GHz)_Ant 0+1
3	WLAN(5 GHz)_Ant 0+1	Bluetooth_Ant 0
4	WLAN(5 GHz)_Ant 0+1	Bluetooth_Ant 1
5	WLAN(5 GHz)_Ant 0+1	Bluetooth_Ant 0+1
6	WLAN(6 GHz)_Ant 0+1	Bluetooth_Ant 0
7	WLAN(6 GHz)_Ant 0+1	Bluetooth_Ant 1
8	WLAN(6 GHz)_Ant 0+1	Bluetooth_Ant 0+1
9	WLAN(2.4 GHz)_Ant 0	Bluetooth_Ant 1
10	WLAN(2.4 GHz)_Ant 1	Bluetooth_Ant 0

6. The EUT support OFDMA and Partial RU mode, therefore partial RU combination were investigated and the worst case scenario was identified.
7. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna Set	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length (mm)
1	Chain0/1	Hong-Bo	260-25094	3.53 3.06 3.07 4.81 4.2	2.4~2.4835 5.15~5.25 5.25~5.35 5.47~5.725 5.725~5.850	0.74 1.16 1.18 1.26 1.28	PIFA	MHF 4L	300
2	Chain0/1	Hong-Bo	260-25083	5.09 5.14 5.09 5.16 5.12	5.850~5.895 5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	1.29 1.35 1.38 1.45 1.50	PIFA	MHF 4L	300
3	Chain0/1	Hong-Bo	260-25084	3.22 3.35 3.42 4.77 4.72 4.71 4.75 4.29 4.81 4.74	2.4~2.4835 5.150~5.250 5.250~5.350 5.470~5.725 5.725~5.850 5.850~5.895 5.925~6.425 6.425~6.525 6.525~6.875 6.875~7.125	0.49 0.76 0.77 0.80 0.84 0.84 0.86 0.91 0.96 0.98	Monopole	MHF 4L	200

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

2. The EUT incorporates a MIMO function:

6 GHz Band		
Modulation Mode	**Tx & Rx Configuration**	
802.11a	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
802.11be (EHT320)	2Tx	2Rx
802.11ax (RU26/52/106/242/484/996/2*996)	2Tx	2Rx
802.11be (RU26/52/106/242/484/996/2*996/4*996/ MRU52+26/106+26/484+242/996+484/ 996+484+242/ 2*996+484/3*996/3*996+484)	2Tx	2Rx
Note: The modulation and bandwidth are similar for 802.11ax/be mode for 20 MHz (40 MHz, 80 MHz, 160 MHz).		

3.3 Channel List

U-NII-5:

25 channels are provided for 802.11a, 802.11ax (HE20), 802.11be (EHT20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
2	5935 MHz	1	5955 MHz	5	5975 MHz	9	5995 MHz
13	6015 MHz	17	6035 MHz	21	6055 MHz	25	6075 MHz
29	6095 MHz	33	6115 MHz	37	6135 MHz	41	6155 MHz
45	6175 MHz	49	6195 MHz	53	6215 MHz	57	6235 MHz
61	6255 MHz	65	6275 MHz	69	6295 MHz	73	6315 MHz
77	6335 MHz	81	6355 MHz	85	6375 MHz	89	6395 MHz
93	6415 MHz						

12 channels are provided for 802.11ax (HE40), 802.11be (EHT40):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
3	5965 MHz	11	6005 MHz	19	6045 MHz	27	6085 MHz
35	6125 MHz	43	6165 MHz	51	6205 MHz	59	6245 MHz
67	6285 MHz	75	6325 MHz	83	6365 MHz	91	6405 MHz

6 channels are provided for 802.11ax (HE80), 802.11be (EHT80):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
7	5985 MHz	23	6065 MHz	39	6145 MHz	55	6225 MHz
71	6305 MHz	87	6385 MHz				

3 channels are provided for 802.11ax (HE160), 802.11be (EHT160):

Channel	Frequency	Channel	Frequency	Channel	Frequency
15	6025 MHz	47	6185 MHz	79	6345 MHz

2 channels are provided for 802.11be (EHT320):

Channel	Frequency	Channel	Frequency
31	6105 MHz	63	6265 MHz

U-NII-6: (under control of a low-power indoor access point only)

5 channels are provided for 802.11a, 802.11ax (HE20), 802.11be (EHT20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
97	6435 MHz	101	6455 MHz	105	6475 MHz	109	6495 MHz
113	6515 MHz						

3 channels are provided for 802.11ax (HE40), 802.11be (EHT40):

Channel	Frequency	Channel	Frequency	Channel	Frequency
99	6445 MHz	107	6485 MHz	*115	6525 MHz

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

Channel	Frequency
103	6465 MHz

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

Channel	Frequency
*111	6505 MHz

1 channel is provided for 802.11be (EHT320):

Channel	Frequency
*95	6425 MHz

U-NII-7:

17 channels are provided for 802.11a, 802.11ax (HE20), 802.11be (EHT20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
117	6535 MHz	121	6555 MHz	125	6575 MHz	129	6595 MHz
133	6615 MHz	137	6635 MHz	141	6655 MHz	145	6675 MHz
149	6695 MHz	153	6715 MHz	157	6735 MHz	161	6755 MHz
165	6775 MHz	169	6795 MHz	173	6815 MHz	177	6835 MHz
181	6855 MHz						

8 channels are provided for 802.11ax (HE40), 802.11be (EHT40):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
123	6565 MHz	131	6605 MHz	139	6645 MHz	147	6685 MHz
155	6725 MHz	163	6765 MHz	171	6805 MHz	179	6845 MHz

5 channels are provided for 802.11ax (HE80), 802.11be (EHT80):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
*119	6545 MHz	135	6625 MHz	151	6705 MHz	167	6785 MHz
*183	6865 MHz						

2 channels are provided for 802.11ax (HE160), 802.11be (EHT160):

Channel	Frequency	Channel	Frequency
143	6665 MHz	*175	6825 MHz

2 channels are provided for 802.11be (EHT320):

Channel	Frequency	Channel	Frequency
*127	6585 MHz	*159	6745 MHz

U-NII-8: (under control of a low-power indoor access point only)

13 channels are provided for 802.11a, 802.11ax (HE20), 802.11be (EHT20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
185	6875 MHz	189	6895 MHz	193	6915 MHz	197	6935 MHz
201	6955 MHz	205	6975 MHz	209	6995 MHz	213	7015 MHz
217	7035 MHz	221	7055 MHz	225	7075 MHz	229	7095 MHz
233	7115 MHz						

6 channels are provided for 802.11ax (HE40), 802.11be (EHT40):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
187	6885 MHz	195	6925 MHz	203	6965 MHz	211	7005 MHz
219	7045 MHz	227	7085 MHz				

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

Channel	Frequency	Channel	Frequency
199	6945 MHz	215	7025 MHz

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

Channel	Frequency
207	6985 MHz

1 channel is provided for 802.11be (EHT320):

Channel	Frequency
*191	6905 MHz

Note: * mean these are straddle channels and operating under control by under control of a low-power indoor access point only.

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates.

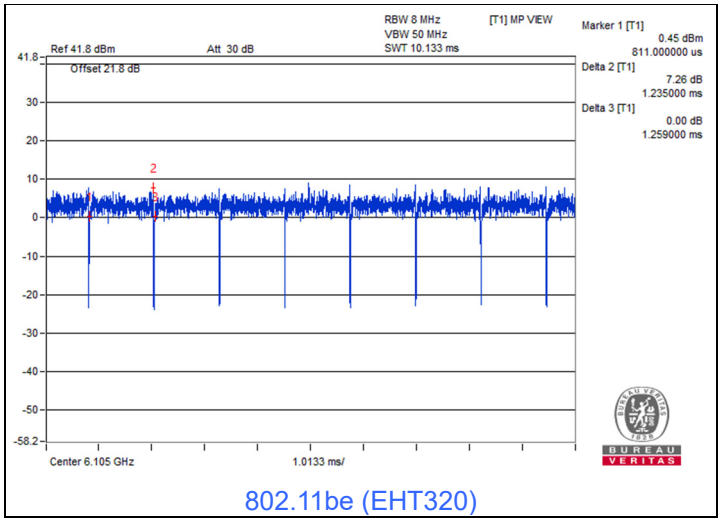
Following channel(s) was (were) selected for the final test as listed below:

Test Item	EUT Configure Mode	Mode	Category	Tested Channel	Modulation	Data Rate Parameter
Maximum RF Output Power / Maximum Power Spectral Density	A	802.11be (EHT320)	6CD Indoor client	31, 63, 95 ,127, 159, 191	BPSK	MCS0
	B	802.11be (EHT20)	6CD Outdoor client	2, 1, 45, 93, 117, 149 ,181	BPSK	MCS0
AC Power Conducted Emissions	E	802.11be (EHT20)	6CD Outdoor client	1	BPSK	MCS0
Unwanted Emissions below 1 GHz	C, D	802.11be (EHT20)	6CD Outdoor client	1	BPSK	MCS0
EUT Configure Mode:	A	EUT only (w/o antenna)_indoor client_Nss 1 with CDD				
	B	EUT only (w/o antenna)_outdoor client_Nss 1 with CDD				
	C	EUT only (w/o antenna)_outdoor client Nss 2 with MIMO (SDM)				
	D	EUT with 50 ohm terminator_outdoor client Nss 2 with MIMO (SDM)				
	E	EUT with antenna set 2 (Model: 260-25083)				

3.5 Duty Cycle of Test Signal

Indoor Client

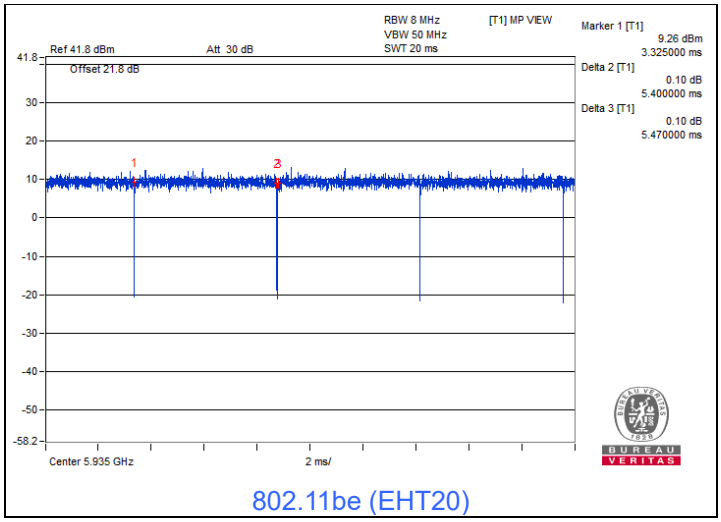
802.11be (EHT320): Duty cycle = 1.235 ms / 1.259 ms x 100% = 98.1%



802.11be (EHT320)

Outdoor Client

802.11be (EHT20): Duty cycle = 5.4 ms / 5.47 ms x 100% = 98.7%



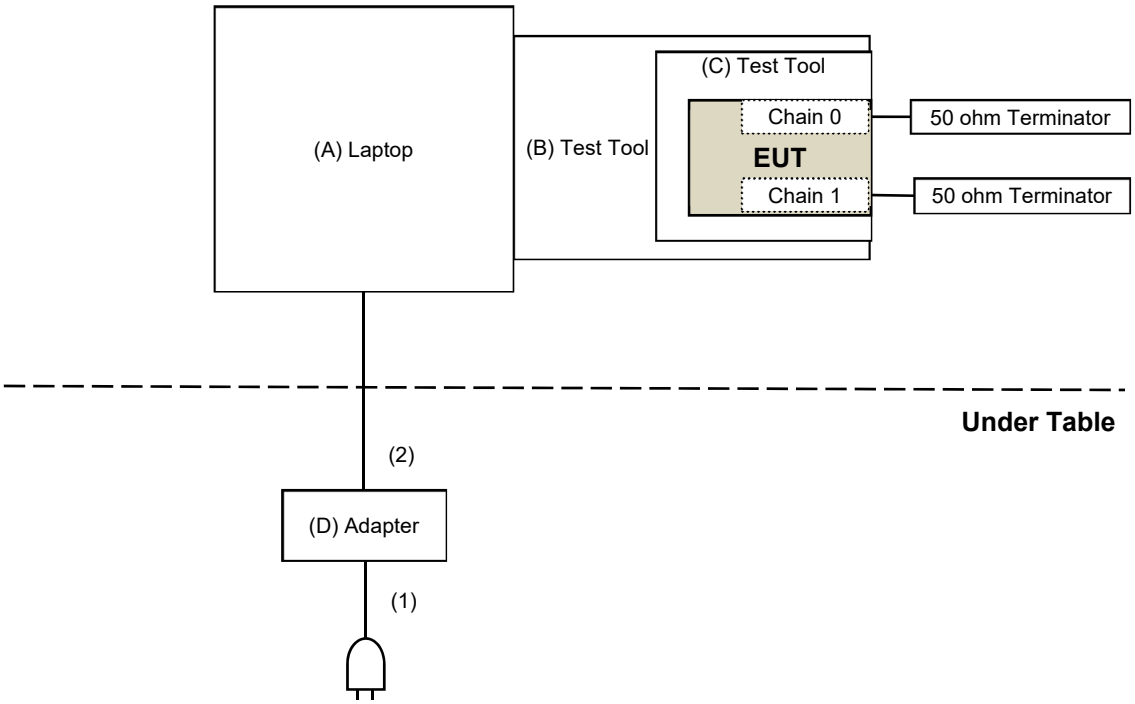
802.11be (EHT20)

3.6 Test Program Used and Operation Descriptions

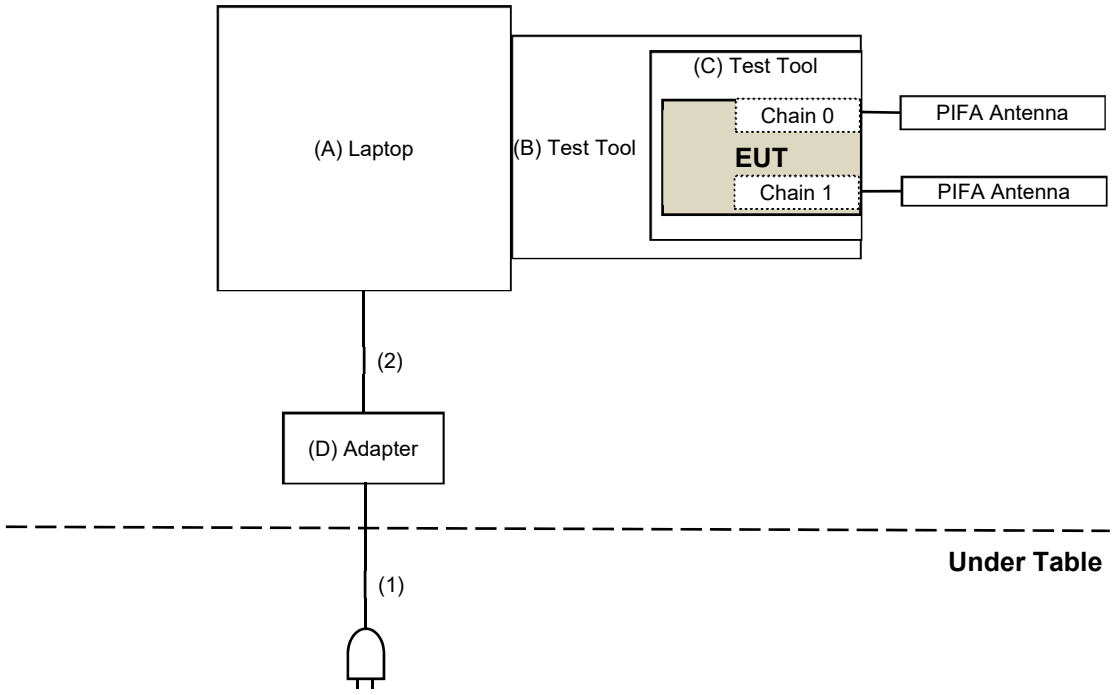
Controlling software (QRCT 1.0.00098) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

For Unwanted Emissions test:



For AC Power Conducted Emission test:



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	HP	HSN-Q32C-5	N/A	N/A	Supplied by applicant
B	Test Tool	Silex	NGFF(A+E) TO Mini PCI-E Adapter	N/A	N/A	Supplied by applicant
C	Test Tool	Silex	PW105500XX	N/A	N/A	Supplied by applicant
D	Adapter	HP	TPN-DA22	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	AC Cable	1	0.85	No	0	Supplied by applicant
2	DC Cable	1	1.6	No	0	Supplied by applicant

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 Maximum RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Pulse Power Sensor Anritsu	MA2411B	1726434	2024/6/7	2025/6/6
RF Power Meter Anritsu	ML2495A	1529002	2024/6/7	2025/6/6

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2025/4/2

4.2 Maximum Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
PXA Signal Analyzer Keysight	N9030A	MY55410176	2024/6/12	2025/6/11
Software	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2025/4/2

4.3 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal resistance Telegartner	50 ohm	3	2024/11/1	2025/10/31
EMI Test Receiver R&S	ESCS 30	100375	2024/5/20	2025/5/19
Fixed Attenuator STI	STI02-2200-10	005	2025/2/17	2026/2/16
LISN R&S	ESH3-Z5	835239/001	2025/3/27	2026/3/26
		848773/004	2024/10/7	2025/10/6
RF Coaxial Cable JYEBAO	5D-FB	COCCAB-001	2025/2/17	2026/2/16
Software BVADT	BVADT_Cond_V7.3.7.4	N/A	N/A	N/A

Notes:

1. The test was performed in Conduction 1
2. Tested Date: 2025/5/19

4.4 Unwanted Emissions below 1 GHz

Mode C

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
PXA Signal Analyzer Keysight	N9030A	MY55410176	2024/6/12	2025/6/11
Software	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2025/4/11

Mode D

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-406	2024/10/8	2025/10/7
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	N/A	N/A
Fixed Attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-03	2025/2/15	2026/2/14
Loop Antenna TESEQ	HLA 6121	63620	2024/10/17	2025/10/16
MXE EMI Receiver Agilent	N9038A	MY51210202	2024/7/29	2025/7/28
Preamplifier EMCI	EMC330N	980701	2025/2/15	2026/2/14
	EMC001340	980142	2025/2/17	2026/2/16
RF Coaxial Cable mTJ	100100-CFD400LW-200	CFD400-200	2025/2/15	2026/2/14
	100100-CFD400LW-400	CFD400-400	2025/2/15	2026/2/14
	100100-CFD400LW-800	CFD400-800	2025/2/15	2026/2/14
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

1. The test was performed in 966 Chamber No. 4.
2. Tested Date: 2025/5/16

5 Limits of Test Items

5.1 Maximum RF Output Power

Operation Band	Equipment Class	Limit
		Maximum Average Power
U-NII-5 U-NII-6 U-NII-7 U-NII-8	6CD: 15E 6 GHz Dual client (under control of a low-power indoor access point)	EIRP 24 dBm
U-NII-5 U-NII-7	6CD: 15E 6 GHz Dual client (under control of a Standard power access point)	EIRP 30 dBm

Per KDB 662911 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 Maximum Power Spectral Density

Operation Band	Equipment Class	Limit
		Maximum Power Density
U-NII-5 U-NII-6 U-NII-7 U-NII-8	6CD: 15E 6 GHz Dual client (under control of a low-power indoor access point)	EIRP -1 dBm/MHz
U-NII-5 U-NII-7	6CD: 15E 6 GHz Dual client (under control of a Standard power access point)	EIRP 17 dBm/MHz

5.3 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.

5.4 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).

6 Test Arrangements

6.1 Maximum RF Output Power

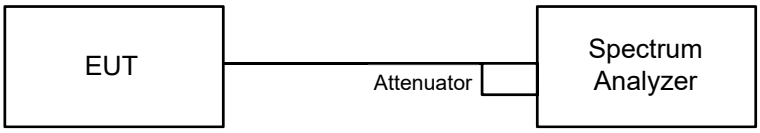
6.1.1 Test Setup

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.

6.2 Maximum Power Spectral Density

6.2.1 Test Setup



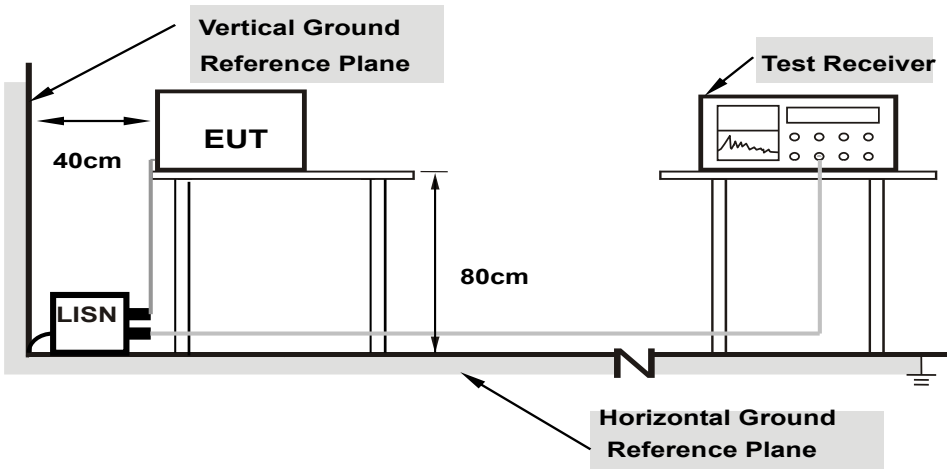
6.2.2 Test Procedure

For specified measurement bandwidth 1 MHz:
Method SA-1

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
c. Sweep points ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)
d. Sweep time = auto, trigger set to “free run”.
e. Trace average at least 100 traces in power averaging mode.
f. Record the max value

6.3 AC Power Conducted Emissions

6.3.1 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).

6.3.2 Test Procedure

a. 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.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

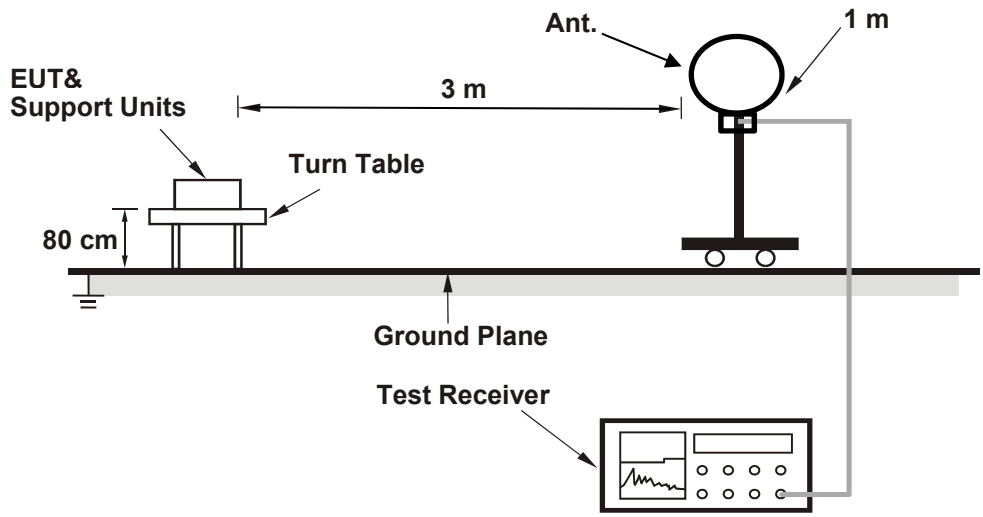
Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.

6.4 Unwanted Emissions below 1 GHz

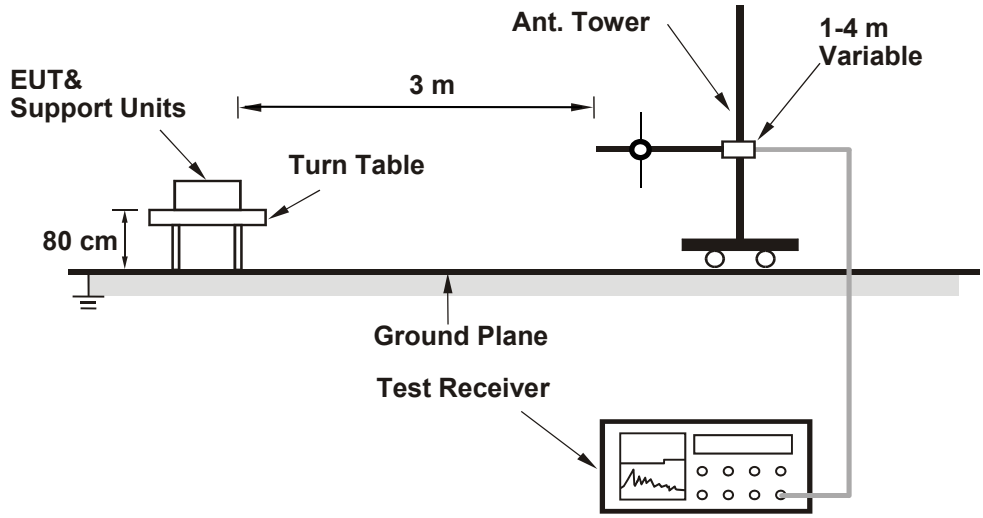
6.4.1 Test Setup

For Radiated Configuration:

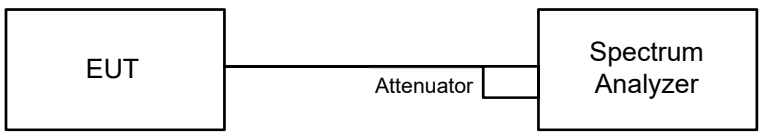
For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For Conducted Configuration:



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

6.4.2 Test Procedure

Radiated versus Conducted Measurement.
The unwanted emission limits in both the restricted and non-restricted bands are based on antenna-port conducted measurements in conjunction with cabinet emissions tests are permitted to demonstrate compliance.
The following steps was performed:

a. Cabinet emissions measurements. Radiated measurement was performed to ensure that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna was replaced by a termination matching the nominal impedance of the antenna.
b. Conducted tests was performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT.
c. EIRP calculation. A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands, additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater.
d. EIRP adjustments for multiple outputs. (Follow the procedures specified in FCC KDB Publication 662911)
e. For all of Radiation emission test

For Radiated emission below 30 MHz

e-1.1. 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.

e-1.2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

e-1.3. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

e-1.4. 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-1.5. 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

e-2.1. 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.

e-2.2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

e-2.3. 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.

e-2.4. 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-2.5. 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.

Radiated versus Conducted Measurement
For Radiated measurement: The level of unwanted emissions was measured when radiated by the cabinet or structure of the equipment with the antenna connector(s) terminated by a specified load (cabinet radiation). For Conducted measurement: The level of unwanted emissions was measured as their power in a specified load (conducted spurious emissions).
Conducted Unwanted Emission Convert Formula
a. Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8 d = measurement distance in 3 meters. b. EIRP Level (dBm) = Raw Value(dBm) + Correction Factor(dB) c. Correction Factor is directional gain, and the composite gain will be used when signal support the correlated signal. For the out of band spurious the gain for the specific band may have been used rather than the highest gain across all bands. For the band edge the gain for the specific band may have been used. Notes: 1. In restricted bands below 1000 MHz, add upper bound on ground plane reflection: For frequencies between 30 MHz and 1000 MHz, add 4.7 dB. 2. The conducted emission test was considered some factor to compute test result.

7 Test Results of Test Item

7.1 Maximum RF Output Power

Input Power:	3.3 Vdc	Environmental Conditions:	21°C, 61% RH	Tested By:	Katina Lu

Indoor Client

802.11be (EHT320)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
31	6105	13.21	10.84	33.075	15.19	5.14	108.019	20.33	24	Pass
63	6265	12.28	10.26	27.521	14.40	5.14	89.88	19.54	24	Pass
95	6425	12.46	10.56	28.996	14.62	5.14	94.697	19.76	24	Pass
127	6585	12.93	10.84	31.767	15.02	5.16	104.226	20.18	24	Pass
159	6745	11.85	10.92	27.67	14.42	5.16	90.784	19.58	24	Pass
191	6905	12.14	11.41	30.204	14.80	5.12	98.189	19.92	24	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-5, The maximum gain is 5.14 dBi.
3. For U-NII-6, The maximum gain is 5.09 dBi.
4. For U-NII-7, The maximum gain is 5.16 dBi.
5. For U-NII-8, The maximum gain is 5.12 dBi.

Input Power:	3.3 Vdc	Environmental Conditions:	21°C, 61% RH	Tested By:	Katina Lu

Outdoor Client

802.11be (EHT20):

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
2	5935	-14.91	-16.95	0.05247	-12.80	5.14	0.1714	-7.66	30	Pass
1	5955	17.83	16.01	100.576	20.02	5.14	328.469	25.16	30	Pass
45	6175	17.37	15.61	90.967	19.59	5.14	297.087	24.73	30	Pass
93	6415	17.11	15.72	88.729	19.48	5.14	289.778	24.62	30	Pass
117	6535	18.19	16.56	111.207	20.46	5.16	364.865	25.62	30	Pass
149	6695	17.37	16.61	100.39	20.02	5.16	329.375	25.18	30	Pass
181	6855	16.84	16.31	91.062	19.59	5.16	298.77	24.75	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-5, The maximum gain is 5.14 dBi.
3. For U-NII-7, The maximum gain is 5.16 dBi.

7.2 Maximum Power Spectral Density

Input Power:	3.3 Vdc	Environmental Conditions:	21°C, 61% RH	Tested By:	Katina Lu

Indoor Client

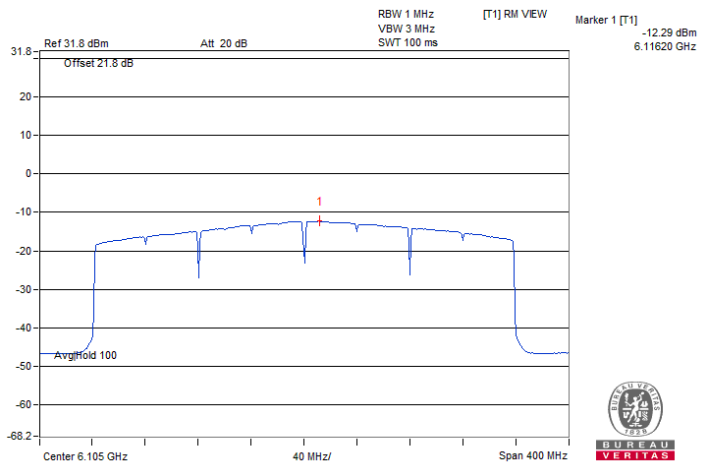
802.11be (EHT320)

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1					
31	6105	-12.29	-13.15	-9.69	8.15	-1.54	-1	Pass
63	6265	-12.76	-13.56	-10.13	8.15	-1.98	-1	Pass
95	6425	-12.44	-13.49	-9.92	8.15	-1.77	-1	Pass
127	6585	-12.44	-13.46	-9.91	8.17	-1.74	-1	Pass
159	6745	-12.80	-13.30	-10.03	8.17	-1.86	-1	Pass
191	6905	-12.34	-12.93	-9.61	8.13	-1.48	-1	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-5, The directional gain is 8.15 dBi.
4. For U-NII-6, The directional gain is 8.1 dBi.
5. For U-NII-7, The directional gain is 8.17 dBi.
6. For U-NII-8, The directional gain is 8.13 dBi.

Spectrum Plot of Maximum Value



Chain 0 : CH 31

Input Power:	3.3 Vdc	Environmental Conditions:	21°C, 61% RH	Tested By:	Katina Lu

Outdoor Client

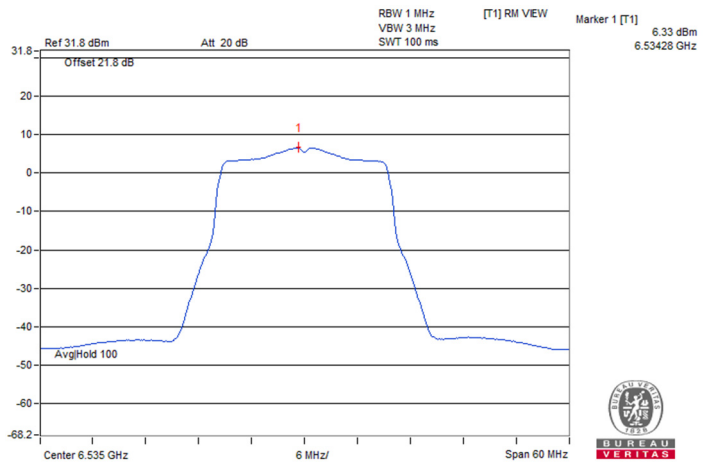
802.11be (EHT20):

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1					
2	5935	-26.85	-25.66	-23.20	8.15	-15.05	17	Pass
1	5955	6.09	5.34	8.74	8.15	16.89	17	Pass
45	6175	5.26	4.31	7.82	8.15	15.97	17	Pass
93	6415	5.42	4.01	7.78	8.15	15.93	17	Pass
117	6535	6.30	4.84	8.64	8.17	16.81	17	Pass
149	6695	6.02	5.33	8.70	8.17	16.87	17	Pass
181	6855	5.47	5.11	8.30	8.17	16.47	17	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = gain of antenna element + 10 log (2 of TX antenna elements)
3. For U-NII-5, The directional gain is 8.15 dBi.
4. For U-NII-7, The directional gain is 8.17 dBi.

Spectrum Plot of Maximum Value



Chain 0 : CH 117

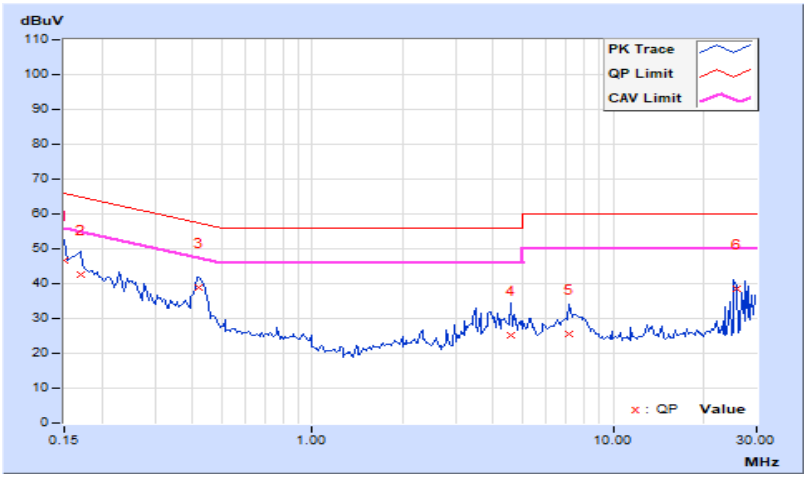
7.3 AC Power Conducted Emissions

RF Mode	802.11be (EHT20)	**Channel**	CH 1：5955 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Tank Wu		

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	0.15028	10.00	36.72	20.06	46.72	30.06	65.98	55.98	-19.26	-25.92
2	0.16953	10.01	32.62	17.10	42.63	27.11	64.98	54.98	-22.35	-27.87
3	0.41953	10.04	29.01	21.36	39.05	31.40	57.46	47.46	-18.41	-16.06
4	4.57031	10.34	14.73	5.69	25.07	16.03	56.00	46.00	-30.93	-29.97
5	7.13281	10.50	15.10	11.02	25.60	21.52	60.00	50.00	-34.40	-28.48
6	25.91016	11.21	27.19	24.03	38.40	35.24	60.00	50.00	-21.60	-14.76

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

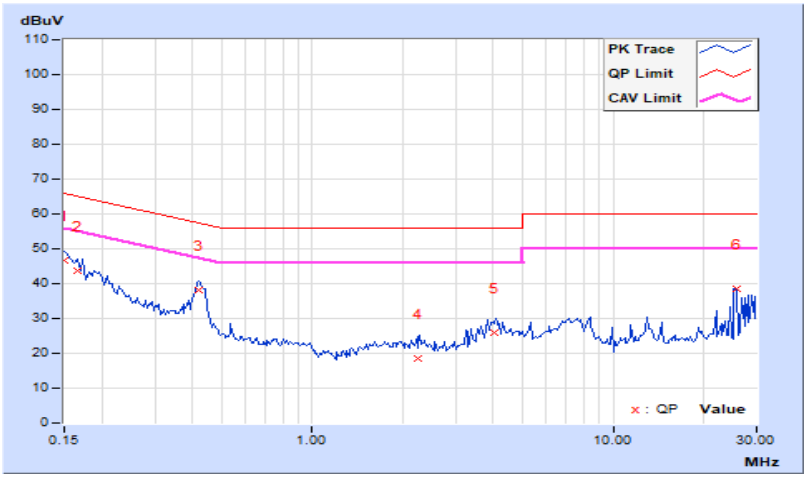


RF Mode	802.11be (EHT20)	**Channel**	CH 1：5955 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 75 % RH
Tested By	Tank Wu		

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	0.15026	10.02	36.72	19.49	46.74	29.51	65.99	55.99	-19.25	-26.48
2	0.16562	10.02	33.76	17.55	43.78	27.57	65.18	55.18	-21.40	-27.61
3	0.41953	10.02	28.04	21.04	38.06	31.06	57.46	47.46	-19.40	-16.40
4	2.23438	10.16	8.33	2.67	18.49	12.83	56.00	46.00	-37.51	-33.17
5	4.03516	10.27	15.58	6.78	25.85	17.05	56.00	46.00	-30.15	-28.95
6	**25.90625**	**11.00**	**27.49**	**24.49**	**38.49**	**35.49**	**60.00**	**50.00**	**-21.51**	**-14.51**

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



7.4 Unwanted Emissions below 1 GHz

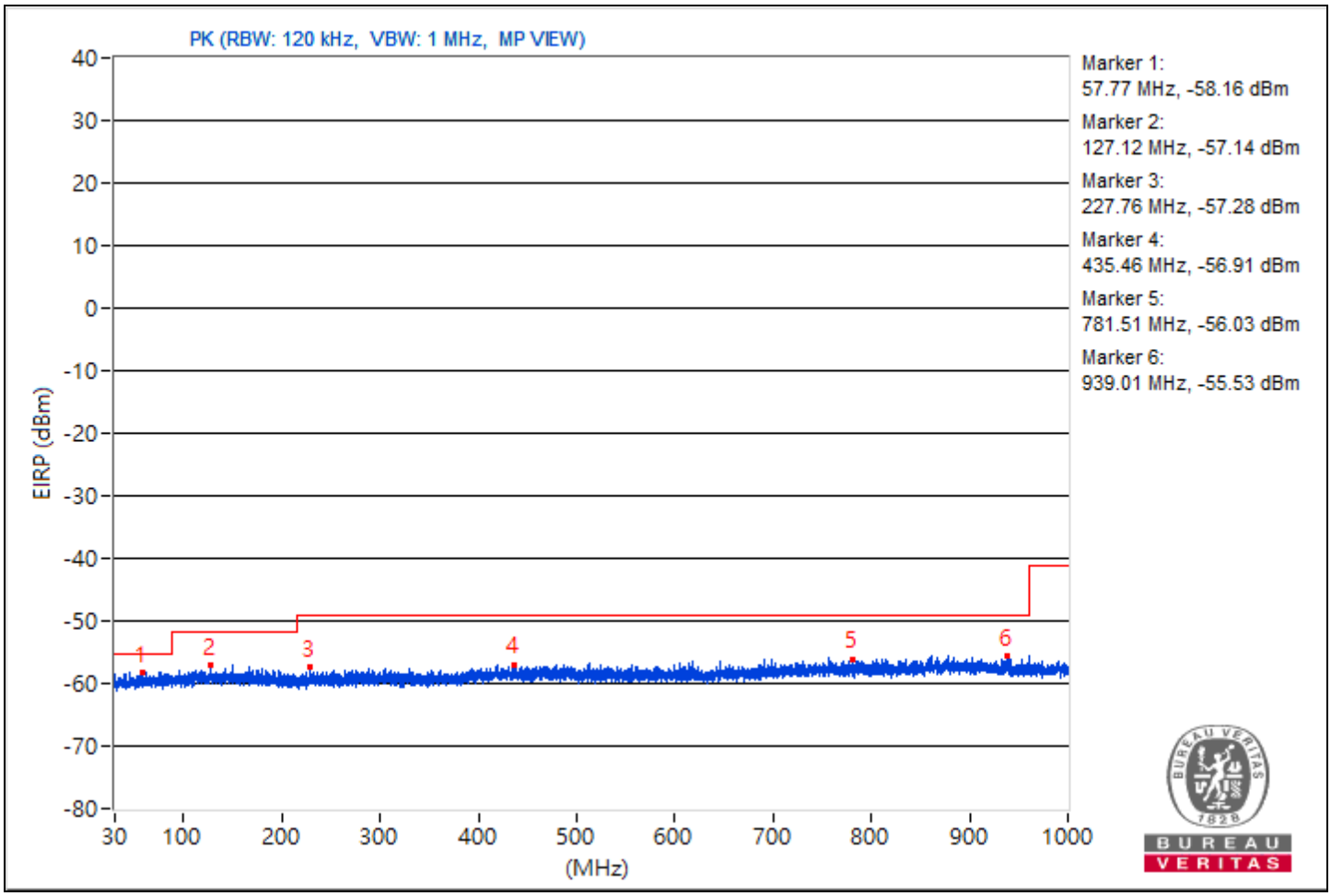
Mode C

RF Mode	802.11be (EHT20)	Channel	CH 1：5955 MHz
Frequency Range	30 MHz ~ 1 GHz	Environmental Conditions	22°C, 60% RH
Tested By	Dolly Chung		

Conducted Unwanted Emissions								
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value Chain 0 (dBm)	Raw Value Chain 1 (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	**57.77**	**37.1 PK**	**40**	**-2.9**	**-73.16**	**-75.14**	**12.87**	**-58.16**
2	127.12	38.12 PK	43.5	-5.38	-74.33	-72.02	12.87	-57.14
3	227.76	37.98 PK	46	-8.02	-72.28	-74.26	12.87	-57.28
4	435.46	38.35 PK	46	-7.65	-73.77	-72	12.87	-56.91
5	781.51	39.23 PK	46	-6.77	-70.45	-74.15	12.87	-56.03
6	939.01	39.73 PK	46	-6.27	-70.49	-72.58	12.87	-55.53

Notes:

1. Margin value = Emission Level - Limit value
2. 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.



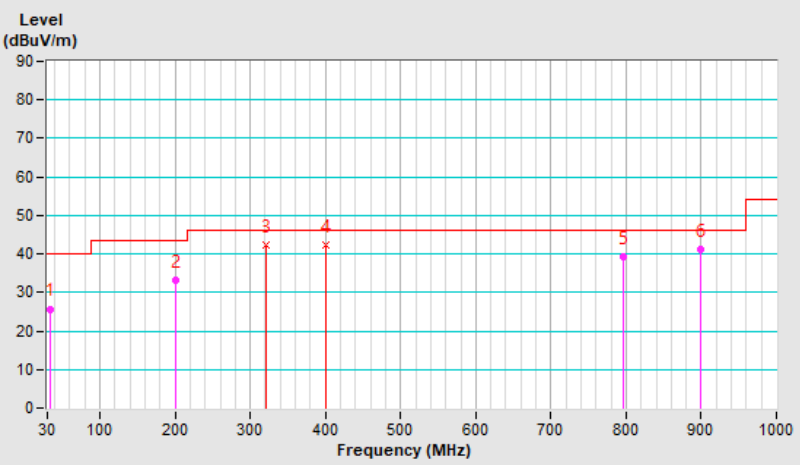
Mode D

RF Mode	802.11be (EHT20)	Channel	CH 1：5955 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	Environmental Conditions	25 °C, 65 % RH
Tested By	Tank Wu		

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	33.40	25.7 QP	40.0	-14.3	4.00 H	258	39.5	-13.8
2	199.92	33.1 QP	43.5	-10.4	2.00 H	130	49.3	-16.2
3	320.30	42.4 QP	46.0	-3.6	1.00 H	246	54.1	-11.7
4	399.87	42.3 QP	46.0	-3.7	2.98 H	195	52.1	-9.8
5	796.59	39.4 QP	46.0	-6.6	2.00 H	293	40.9	-1.5
6	899.48	41.1 QP	46.0	-4.9	1.00 H	329	41.4	-0.3

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.

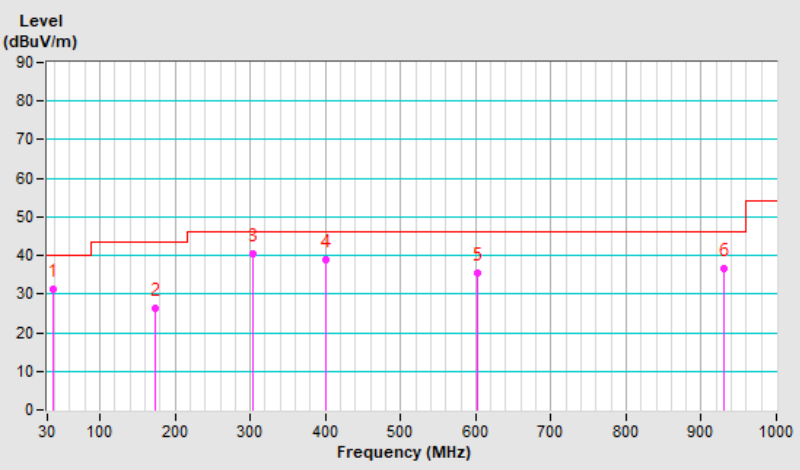


RF Mode	802.11be (EHT20)	**Channel**	CH 1：5955 MHz
Frequency Range	30 MHz ~ 1 GHz	**Detector Function & Bandwidth**	QP: RB=120kHz, DET=Quasi-Peak
Input Power (System)	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 65 % RH
Tested By	Tank Wu		

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	37.27	31.3 QP	40.0	-8.7	1.00 V	275	44.8	-13.5
2	174.41	26.3 QP	43.5	-17.2	1.00 V	113	40.2	-13.9
3	303.25	40.5 QP	46.0	-5.5	2.00 V	311	52.7	-12.2
4	399.89	38.8 QP	46.0	-7.2	1.00 V	36	48.6	-9.8
5	602.45	35.6 QP	46.0	-10.4	2.00 V	187	40.6	-5.0
6	929.99	36.5 QP	46.0	-9.5	1.00 V	229	36.1	0.4

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.



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.

If you have any comments, please feel free to contact us at the following:

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Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
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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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