

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)

Report No.: RFBCKS-WTW-P22051021G

FCC ID: TVE-3918T05646

Product: Secured Wireless Access Point

Brand: FORTINET

Model No.: FAP-431G, FAP-433G

Variant Model: FortiAP 431Gxxxxxx, FAP-431Gxxxxxx, FORTIAP-431Gxxxxxx, FortiAP 433Gxxxxxx, FAP-433Gxxxxxx, FORTIAP-433Gxxxxxx (Where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only) (refer to item 3.1 for more details)

Received Date: 2024/3/19

Test Date: 2024/3/27 ~ 2024/4/20

Issued Date: 2024/5/17

Applicant: Fortinet, Inc.

Address: 899 Kifer Rd. Sunnyvale CA. 94086 United States

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location(1): No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kewi Shan Dist., Taoyuan City 33383, Taiwan

Test Location(2): No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

FCC Registration / 788550 / TW0003 for Test Location(1)

Designation Number: 281270 / TW0032 for Test Location(2)

Approved by:

Jeremy Lin

, **Date:**

2024/5/17

Jeremy Lin / Project Engineer

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Prepared by : Pettie Chen / Senior Specialist



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Table of Contents

Release Control Record	3
1 Certificate	4
2 Summary of Test Results	5
2.1 Measurement Uncertainty	5
2.2 Supplementary Information	5
3 General Information	6
3.1 General Description	6
3.2 Antenna Description of EUT	8
3.3 Channel List	18
3.4 Test Mode Applicability and Tested Channel Detail	19
3.5 Duty Cycle of Test Signal	20
3.6 Test Program Used and Operation Descriptions	22
3.7 Connection Diagram of EUT and Peripheral Devices	22
3.8 Configuration of Peripheral Devices and Cable Connections	24
4 Test Instruments	25
4.1 RF Output Power	25
4.2 Power Spectral Density	25
4.3 AC Power Conducted Emissions	25
4.4 Unwanted Emissions below 1 GHz	26
4.5 Unwanted Emissions above 1 GHz	27
5 Limits of Test Items	28
5.1 RF Output Power	28
5.2 Power Spectral Density	28
5.3 AC Power Conducted Emissions	28
5.4 Unwanted Emissions below 1 GHz	28
5.5 Unwanted Emissions above 1 GHz	29
6 Test Arrangements	30
6.1 RF Output Power	30
6.1.1 Test Setup	30
6.1.2 Test Procedure	30
6.2 Power Spectral Density	30
6.2.1 Test Setup	30
6.2.2 Test Procedure	30
6.3 AC Power Conducted Emissions	31
6.3.1 Test Setup	31
6.3.2 Test Procedure	31
6.4 Unwanted Emissions below 1 GHz	32
6.4.1 Test Setup	32
6.4.2 Test Procedure	33
6.5 Unwanted Emissions above 1 GHz	34
6.5.1 Test Setup	34
6.5.2 Test Procedure	34
7 Test Results of Test Item	35
7.1 RF Output Power	35
7.2 Power Spectral Density	43
7.3 AC Power Conducted Emissions	47
7.4 Unwanted Emissions below 1 GHz	51
7.5 Unwanted Emissions above 1 GHz	55
8 Pictures of Test Arrangements	95
9 Information of the Testing Laboratories	96

Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P22051021G	Original release.	2024/5/17

1 Certificate

Product: Secured Wireless Access Point

Brand: FORTINET

Test Model: FAP-431G, FAP-433G

Variant Model: FortiAP 431Gxxxxxx, FAP-431Gxxxxxx, FORTIAP-431Gxxxxxx, FortiAP 433Gxxxxxx, FAP-433Gxxxxxx, FORTIAP-433Gxxxxxx (Where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only) (refer to item 3.1 for more details)

Sample Status: Engineering sample

Applicant: Fortinet, Inc.

Test Date: 2024/3/27 ~ 2024/4/20

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)

Measurement procedure: ANSI C63.10-2013

KDB 558074 D01 15.247 Meas Guidance v05r02

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 C (Section 15.247)			
Standard / Clause	Test Item	Result	Remark
15.247(b)	RF Output Power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.247(a)(2)	6 dB Bandwidth	Pass	Refer to Note
15.247(d)	Conducted Out of Band Emissions	Pass	Refer to Note
15.207	AC Power Conducted Emissions	Pass	Minimum passing margin is -11.85 dB at 0.59000 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -4.1 dB at 77.53 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.3 dB at 2390.00 and 2483.50 MHz
15.203	Antenna Requirement	Pass	For internal antenna: Antenna connector is ipex(MHF) not a standard connector. For external antenna: Antenna connector is R-SMA (ANT0 ~ ANT3) & ipex (ANT4 ~ ANT7) & RPSMA plug (ANT 9~11) not a standard connector.

Note:

1. RF Output Power, Power Spectral Density, AC Power Conducted Emissions and Unwanted Emissions are performed for the addendum. Refer to original report for the other test data.
2. 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
Power Spectral Density	-	1.017 dB
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.88 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3 dB
	30 MHz ~ 1 GHz	2.93 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	1.76 dB
	18 GHz ~ 40 GHz	1.77 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	Secured Wireless Access Point
Brand	FORTINET
Test Model	FAP-431G, FAP-433G
Variant Model	FortiAP 431Gxxxxxx, FAP-431Gxxxxxx, FORTIAP-431Gxxxxxx, FortiAP 433Gxxxxxx, FAP-433Gxxxxxx, FORTIAP-433Gxxxxxx (Where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only) (refer to item 3.1 for more details)
Model Difference	Refer to note
Status of EUT	Engineering sample
Power Supply Rating	12Vdc from Adapter 55Vdc from PoE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n (HT20/40): up to 600Mbps VHT20/40: up to 800Mbps 802.11ax: up to 1147.1Mbps
Operating Frequency	2.412 GHz ~ 2.462 GHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20), VHT20, 802.11ax (HE20): 13 802.11n (HT40), VHT40, 802.11ax (HE40): 9
Output Power	Model: FAP-433G Radio 1: (Antenna: Omnidirectional Antenna) CDD: 812.047 mW (29.10 dBm) Beamforming: 240.029 mW (23.80dBm) Model: FAP-433G Radio 1: (Antenna: Quad Patch Antenna) CDD: 812.047 mW (29.10 dBm) Beamforming: 340.679 mW (25.32dBm)

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report to the original BV CPS report no.: RFBCKS-WTW-P22051021C-2. The difference is adding 3 antennas (ANT 9 ~ 11) for Model: FAP-433G. Only RF Output Power, Power Spectral Density, AC Power Conducted Emissions and Unwanted Emissions were performed for this addendum.
2. The following models are provided to this EUT. The model FAP-431G, FAP-433G were chosen for final test.

Brand	Test Model	Series Model	Difference
Fortinet	FAP-431G	FortiAP 431Gxxxxxx, FAP-431Gxxxxxx, FORTIAP-431Gxxxxxx (Where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only)	internal antenna
	FAP-433G	FortiAP 433Gxxxxxx, FAP-433Gxxxxxx, FORTIAP-433Gxxxxxx (Where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only)	external antenna

3. The EUT consumes power from the following adapter and POE.

Adapter (support units only)	
Brand	Asian Power Devices Inc.
Model	WA-48A12R
Input Power	100-240Vac~50-60Hz, 1.5A Max
Output Power	12.0Vdc, 4.0A, 48.0W
Power Line	1.47m cable without core attached on adapter

POE (support units only)	
Brand	Microsemi
Model	PD-9501-10GC/AC
Input Power	100-240Vac~50-60Hz, 1.5A Max
Output Power	55Vdc, 1.1A

4. 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.
5. Radio 1, Radio 2, Radio 3 (5G_H) and Radio 4 can transmit simultaneously.
But Radio 2 (5G), Radio 3 (5G_H) cannot transmit in the same band simultaneously.
Radio 4 (BLE) and Radio 4 (Zigbee) cannot transmit simultaneously.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Model	Radio	Chip	Mode	Antennas	Ant. Type	Bands Supported
FAP-433G	Radio 1	QCN-5124	4x4 MIMO	ANT 0/1/2/3/9/10/11	External	2.4GHz WLAN
	Radio 2	QCN-5154	4x4 MIMO	ANT 0/1/2/3/9/10/11	External	U-NII-1, 2A, 2C, 3 WLAN up to 80MHz+80MHz
	Radio 3_6G	QCN-9074	4x4 MIMO	ANT 4/5/6/7	Integrated (Non-detachable external antenna)	6GHz WLAN
	Radio 3_5GH	QCN-9074	4x4 MIMO	ANT 4/5/6/7	Integrated (Non-detachable external antenna)	U-NII-2C, 3, 4 WLAN up to 160MHz
	Radio 3_Scanning	QCN-9074	2x2 MIMO	ANT 4/6	Integrated (Non-detachable external antenna)	2.4GHz WLAN, U-NII-1, 3, 4 WLAN, 6GHz WLAN (TX/RX), U-NII-2A, 2C (Receiver only)
	Radio 4	EFR32MG21	-	ANT 8	Integrated	BT / Zigbee
FAP-431G	Radio 1	QCN-5124	4x4 MIMO	ANT 0/1/2/3	Integrated	2.4GHz WLAN
	Radio 2	QCN-5154	4x4 MIMO	ANT 0/1/2/3	Integrated	U-NII-1, 2A, 2C, 3, 4 WLAN up to 80MHz+80MHz
	Radio 3_6G	QCN-9074	4x4 MIMO	ANT 4/5/6/7	Integrated	6GHz WLAN
	Radio 3_5GH	QCN-9074	4x4 MIMO	ANT 4/5/6/7	Integrated	U-NII-2C, 3 WLAN up to 160MHz U-NII-4 WLAN up to 160 MHz
	Radio 3_Scanning	QCN-9074	2x2 MIMO	ANT 4/6	Integrated	2.4GHz WLAN, U-NII-1, 3, 4 WLAN, 6GHz WLAN (TX/RX), U-NII-2A, 2C (Receiver only)
	Radio 4	EFR32MG21	-	ANT 8	Integrated	BT / Zigbee

Model: FAP-431G

Antenna Type		PIFA			
Connector Type		ipex(MHF)			
Antenna NO.	RF Chain NO.	Brand	Model	Antenna Net Gain (dBi)	Frequency range
ANT0(DB4)	Rdaio1 2G CH0 Rdaio2 5G CH0 Rdaio2 5GL CH0	WNC	FortiAP-431G	1.41	2.4~2.4835GHz
				4.62	5.15~5.25GHz
				4.62	5.25~5.35GHz
				4.35	5.47~5.725GHz
				3.91	5.725~5.85GHz
				3.91	5.85~5.895GHz
ANT1(DB3)	Rdaio1 2G CH1 Rdaio2 5G CH1 Rdaio2 5GL CH1	WNC	FortiAP-431G	1.72	2.4~2.4835GHz
				3.38	5.15~5.25GHz
				3.61	5.25~5.35GHz
				3.72	5.47~5.725GHz
				3.72	5.725~5.85GHz
				3.72	5.85~5.895GHz
ANT2(DB1)	Rdaio1 2G CH2 Rdaio2 5G CH2 Rdaio2 5GL CH2	WNC	FortiAP-431G	1.54	2.4~2.4835GHz
				4.85	5.15~5.25GHz
				4.85	5.25~5.35GHz
				4.51	5.47~5.725GHz
				4.30	5.725~5.85GHz
				4.30	5.85~5.895GHz
ANT3(DB2)	Rdaio1 2G CH3 Rdaio2 5G CH3 Rdaio2 5GL CH3	WNC	FortiAP-431G	2.38	2.4~2.4835GHz
				3.48	5.15~5.25GHz
				3.52	5.25~5.35GHz
				3.58	5.47~5.725GHz
				3.55	5.725~5.85GHz
				3.55	5.85~5.895GHz
ANT4(TB4)	Radio3 5GH CH0 Radio3 6G CH0 Radio 3 Scanning 2/5/6G CH0 (U-NII-2A, 2C receiver only)	WNC	FortiAP-431G	3.50	2.4~2.4835GHz
				4.98	5.15~5.25GHz
				4.98	5.25~5.35GHz
				4.98	5.47~5.725GHz
				4.50	5.725~5.85GHz
				4.50	5.85~5.895GHz
				4.80	5.925~6.425GHz
				4.80	6.425~6.525GHz
				5.50	6.525~6.875GHz
ANT5(TB1)	Rdaio3 5GH CH1 Rdaio3 6G CH1	WNC	FortiAP-431G	5.50	6.875~7.125GHz
				4.76	5.47~5.725GHz
				4.38	5.725~5.85GHz
				4.38	5.85~5.895GHz
				4.32	5.925~6.425GHz
				4.32	6.425~6.525GHz
				4.84	6.525~6.875GHz
				4.84	6.875~7.125GHz

Antenna NO.	RF Chain NO.	Brand	Model	Antenna Net Gain (dBi)	Frequency range
ANT6(TB2)	Radio3 5GH CH2 Radio3 6G CH2 Radio 3 Scanning 2/5/6G CH1 (U-NII-2A, 2C receiver only)	WNC	FortiAP-431G	2.58	2.4~2.4835GHz
				4.47	5.15~5.25GHz
				4.81	5.25~5.35GHz
				5.30	5.47~5.725GHz
				5.30	5.725~5.85GHz
				5.30	5.85~5.895GHz
				4.60	5.925~6.425GHz
				4.60	6.425~6.525GHz
				5.20	6.525~6.875GHz
				5.20	6.875~7.125GHz
ANT7(TB3)	Rdaio3 5GH CH3 Rdaio3 6G CH3	WNC	FortiAP-431G	5.09	5.47~5.725GHz
				5.09	5.725~5.85GHz
				5.09	5.85~5.895GHz
				4.20	5.925~6.425GHz
				3.94	6.425~6.525GHz
				4.50	6.525~6.875GHz
				4.50	6.875~7.125GHz

Radio 1

Frequency Range	Directional Gain (dBi)
2400~2483.5MHz	6.37

Radio 2

Frequency Range	Directional Gain (dBi)
5150~5250MHz	6.94
5250~5350MHz	6.98
5470~5725MHz	6.06
5725~5850MHz	6.31
5850~5895MHz	6.03

For 802.11ac (VHT80+VHT80) and 802.11ax (HE80+ HE80)

Chan.	Chan. Freq. (MHz)	Directional Gain (dBi)
42+58(L)	5210	4.36
42+58(H)	5290	4.39
106+122(L)	5530	4.03
106+122(H)	5610	3.92

Radio 3

Frequency Range	Directional Gain (dBi)
5470~5725MHz	7.11
5725~5850MHz	6.91
5850~5895MHz	6.61
5925~6425MHz	6.37
6425~6525MHz	6.98
6525~6875MHz	7.11
6875~7125MHz	7.62

Model: FAP-433G

Antenna Type		Dipole			
Connector Type		R-SMA (ANT0 ~ ANT3); ipex (ANT4 ~ ANT7)			
Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency range
ANT0	Radio 1 2G CH0 Radio 2 5G CH0 Radio 2 5GL CH0	MAGLAYERS	EDA-1410-6G0R2-A3	5.65	2.4~2.4835GHz
				5.31	5.15~5.25GHz
				5.37	5.25~5.35GHz
				5.94	5.47~5.725GHz
				5.45	5.725~5.85GHz
ANT1	Radio 1 2G CH1 Radio 2 5G CH1 Radio 2 5GL CH1	MAGLAYERS	EDA-1410-6G0R2-A3	5.65	2.4~2.4835GHz
				5.31	5.15~5.25GHz
				5.37	5.25~5.35GHz
				5.94	5.47~5.725GHz
				5.45	5.725~5.85GHz
ANT2	Radio 1 2G CH2 Radio 2 5G CH2 Radio 2 5GL CH2	MAGLAYERS	EDA-1410-6G0R2-A3	5.65	2.4~2.4835GHz
				5.31	5.15~5.25GHz
				5.37	5.25~5.35GHz
				5.94	5.47~5.725GHz
				5.45	5.725~5.85GHz
ANT3	Radio 1 2G CH3 Radio 2 5G CH3 Radio 2 5GL CH3	MAGLAYERS	EDA-1410-6G0R2-A3	5.65	2.4~2.4835GHz
				5.31	5.15~5.25GHz
				5.37	5.25~5.35GHz
				5.94	5.47~5.725GHz
				5.45	5.725~5.85GHz
ANT4	Radio 3 5GH CH0 Radio 3 6G CH0 2/5/6G CH0 (U-NII-2A, 2C receiver only)	MAGLAYERS	BTEAWT14136G0C1A02	3.11	2.4~2.4835GHz
				2.27	5.15~5.25GHz
				2.27	5.25~5.35GHz
				2.81	5.47~5.725GHz
				2.81	5.725~5.85GHz
				2.81	5.85~5.895GHz
				2.55	5.925~6.425GHz
				2.55	6.425~6.525GHz
				2.74	6.525~6.875GHz
				2.74	6.875~7.125GHz

Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency range
ANT5	Radio 3 5GH CH1 Radio 3 6G CH1	MAGLAYERS	BTEAWT14136G0C1A02	2.81	5.47~5.725GHz
				2.81	5.725~5.85GHz
				2.81	5.85~5.895GHz
				2.55	5.925~6.425GHz
				2.55	6.425~6.525GHz
				2.74	6.525~6.875GHz
				2.74	6.875~7.125GHz
ANT6	Radio 3 5GH CH2 Radio 3 6G CH2 2/5/6G CH1 (U-NII-2A, 2C receiver only)	MAGLAYERS	BTEAWT14136G0C1A01	2.81	2.4~2.4835GHz
				2.39	5.15~5.25GHz
				2.39	5.25~5.35GHz
				2.39	5.47~5.725GHz
				2.39	5.725~5.85GHz
				2.21	5.85~5.895GHz
				2.71	5.925~6.425GHz
				2.71	6.425~6.525GHz
				2.61	6.525~6.875GHz
				2.61	6.875~7.125GHz
ANT7	Radio 3 5GH CH3 Radio 3 6G CH3	MAGLAYERS	BTEAWT14136G0C1A01	2.39	5.47~5.725GHz
				2.39	5.725~5.85GHz
				2.21	5.85~5.895GHz
				2.71	5.925~6.425GHz
				2.71	6.425~6.525GHz
				2.61	6.525~6.875GHz
				2.61	6.875~7.125GHz

Radio 1

Antenna Gain	Directional Gain (dBi)
2400~2483.5MHz	6.59

Radio 2

Antenna Gain	Directional Gain (dBi)
5150~5250MHz	7.06
5250~5350MHz	7.16
5470~5725MHz	7.52
5725~5850MHz	7.16

For 802.11ac (VHT80+VHT80) and 802.11ax (HE80+ HE80)

Chan.	Chan. Freq. (MHz)	Directional Gain (dBi)
42+58(L)	5210	5.16
42+58(H)	5290	5.13
106+122(L)	5530	5.44
106+122(H)	5610	5.46

Radio 3

Antenna Gain	Directional Gain (dBi)
5470~5725MHz	8.35
5725~5850MHz	8.26
5850~5895MHz	8.10
5925~6425MHz	7.12
6425~6525MHz	7.29
6525~6875MHz	7.33
6875~7125MHz	7.43

Antenna Type		Omindirectional Antenna			
Connector Type		RPSMA plug			
Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency range
ANT9 (New 1)	Chain 0	TERRAWAVE	FANT-04ABGN-0606-O-R (M6060060MO1D43620)	6.11	2400~2500Mhz
	Chain 1			6.30	2400~2500Mhz
	Chain 2			6.34	2400~2500Mhz
	Chain 3			5.94	2400~2500Mhz
	Chain 0			5.49	5.15~5.25GHz
				5.49	5.25~5.35GHz
				5.80	5.47~5.725GHz
				5.40	5.725~5.85GHz
	Chain 1			6.51	5.15~5.25GHz
				6.58	5.25~5.35GHz
				6.54	5.47~5.725GHz
				5.60	5.725~5.85GHz
	Chain 2			6.34	5.15~5.25GHz
				6.31	5.25~5.35GHz
				6.02	5.47~5.725GHz
				5.01	5.725~5.85GHz
	Chain 3			7.61	5.15~5.25GHz
				7.76	5.25~5.35GHz
				6.93	5.47~5.725GHz
				6.45	5.725~5.85GHz
ANT10 (New 2)	Chain 0	TERRAWAVE	FANT-04ABGN-2504-O-R (M6025040O3D420MW)	3.97	2400~2500Mhz
	Chain 1			3.76	2400~2500Mhz
	Chain 2			3.99	2400~2500Mhz
	Chain 3			3.77	2400~2500Mhz
	Chain 0			4.23	5.15~5.25GHz
				4.18	5.25~5.35GHz
				4.81	5.47~5.725GHz
				4.52	5.725~5.85GHz
	Chain 1			4.00	5.15~5.25GHz
				4.78	5.25~5.35GHz
				5.32	5.47~5.725GHz
				4.31	5.725~5.85GHz
	Chain 2			4.03	5.15~5.25GHz
				4.42	5.25~5.35GHz
				4.83	5.47~5.725GHz
				4.75	5.725~5.85GHz
	Chain 3			3.76	5.15~5.25GHz
				4.58	5.25~5.35GHz
				5.35	5.47~5.725GHz
				5.09	5.725~5.85GHz

* Ant 9 and Ant 10 are the same type of antenna. Ant. 9 has larger gain, therefore it was chosen for the final test.

Antenna Type		Quad Patch Antenna			
Connector Type		RPSMA plug			
Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency range
ANT11 (New 3)	Chain 0	TERRAWAVE	FANT-04ABGN-0606-P-R (M6060060MP1D43620)	4.81	2400~2500Mhz
	Chain 1			4.13	2400~2500Mhz
	Chain 2			4.77	2400~2500Mhz
	Chain 3			4.26	2400~2500Mhz
	Chain 0			5.71	5.15~5.25GHz
				5.71	5.25~5.35GHz
				6.13	5.47~5.725GHz
				6.14	5.725~5.85GHz
	Chain 1			5.81	5.15~5.25GHz
				5.77	5.25~5.35GHz
				6.78	5.47~5.725GHz
				6.40	5.725~5.85GHz
	Chain 2			6.28	5.15~5.25GHz
				5.69	5.25~5.35GHz
				6.31	5.47~5.725GHz
				7.09	5.725~5.85GHz
	Chain 3			6.08	5.15~5.25GHz
				6.08	5.25~5.35GHz
				6.05	5.47~5.725GHz
				7.16	5.725~5.85GHz

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

2. The EUT incorporates a MIMO function:

2.4 GHz Band		
Radio 1		
Modulation Mode	TX & RX Configuration	
802.11b	4TX	4RX
802.11g	4TX	4RX
802.11n (HT20)	4TX	4RX
802.11n (HT40)	4TX	4RX
VHT20	4TX	4RX
VHT40	4TX	4RX
802.11ax (HE20)	4TX	4RX
802.11ax (HE40)	4TX	4RX
Note:		
1. All of modulation mode support beamforming function except 802.11b/g modulation mode.		
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.		

Radio 3_Scanning Radio		
Modulation Mode	TX & RX Configuration	
802.11b	2TX	2RX
802.11g	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
VHT20	2TX	2RX
VHT40	2TX	2RX
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX

3.3 Channel List

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20), VHT20, 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

7 channels are provided for 802.11n (HT40), VHT40, 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
3	2422 MHz	7	2442 MHz
4	2427 MHz	8	2447 MHz
5	2432 MHz	9	2452 MHz
6	2437 MHz		

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. The Power Source has the following models: AC Adapter/PoE. Pre-scan these models of Power Source and find the worst case as a representative test condition. 2. The antenna of EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition. 3. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
Worst Case:	1. PoE 2. Omnidirectional Antenna: Z-Axis & Quad Patch Antenna: Z-Axis (90 degree)

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

Test Item	EUT Configure Mode	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	A, B	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		802.11n (HT20)	CDD & Beamforming	1, 6, 11	BPSK	MCS0
		802.11n (HT40)	CDD & Beamforming	3, 6, 9	BPSK	MCS0
		VHT20	CDD & Beamforming	1, 6, 11	BPSK	MCS0
		VHT40	CDD & Beamforming	3, 6, 9	BPSK	MCS0
		802.11ax (HE20)	CDD & Beamforming	1, 6, 11	BPSK	MCS0
		802.11ax (HE40)	CDD & Beamforming	3, 6, 9	BPSK	MCS0
Power Spectral Density	A, B	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		802.11ax (HE20)	CDD	1, 6, 11	BPSK	MCS0
		802.11ax (HE40)	CDD	3, 6, 9	BPSK	MCS0
AC Power Conducted Emissions	A, B	802.11b	CDD	1	DBPSK	1Mb/s
Unwanted Emissions below 1 GHz	A, B	802.11b	CDD	1	DBPSK	1Mb/s
Unwanted Emissions above 1 GHz	A, B	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		802.11ax (HE20)	CDD	1, 6, 11	BPSK	MCS0
		802.11ax (HE40)	CDD	3, 6, 9	BPSK	MCS0
EUT Configure Mode:	A	EUT (FAP-433G) with Omnidirectional Antenna: FANT-04ABGN-0606-O-R				
	B	EUT (FAP-433G) with Quad Patch Antenna: FANT-04ABGN-0606-P-R				

Note 1: Partial RU (resource unit) mechanism is not supported.

Note 2: Newly Antennas only support on Radio 1 and Radio 2 for FAP-433G.

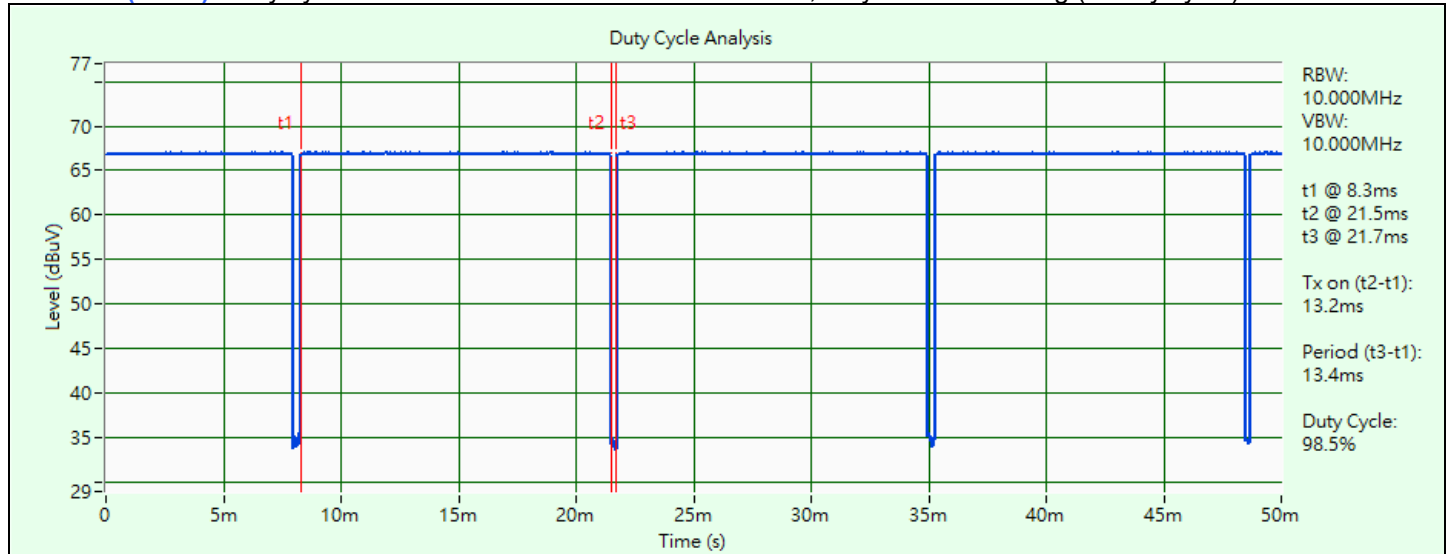
3.5 Duty Cycle of Test Signal

802.11b: Duty cycle = 13.2 ms / 13.4 ms x 100% = 98.5%

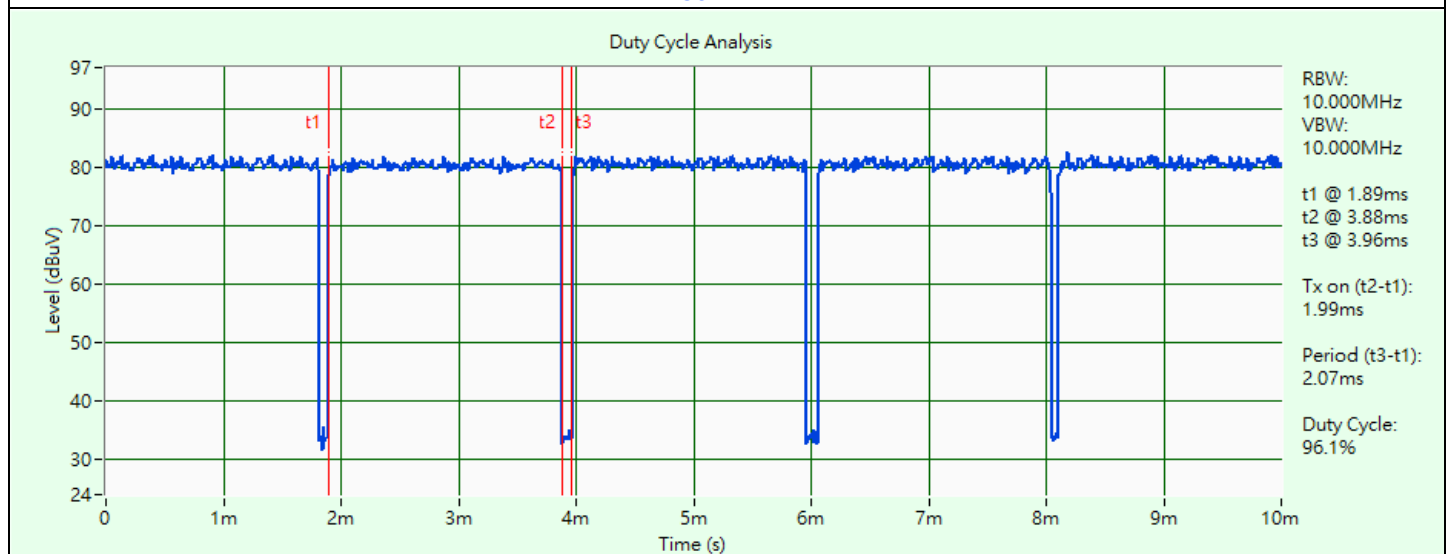
802.11g: Duty cycle = 1.99 ms / 2.07 ms x 100% = 96.1%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.17 \text{ dB}$

802.11ax (HE20): Duty cycle = 5.5 ms / 5.75 ms x 100% = 95.7%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.19 \text{ dB}$

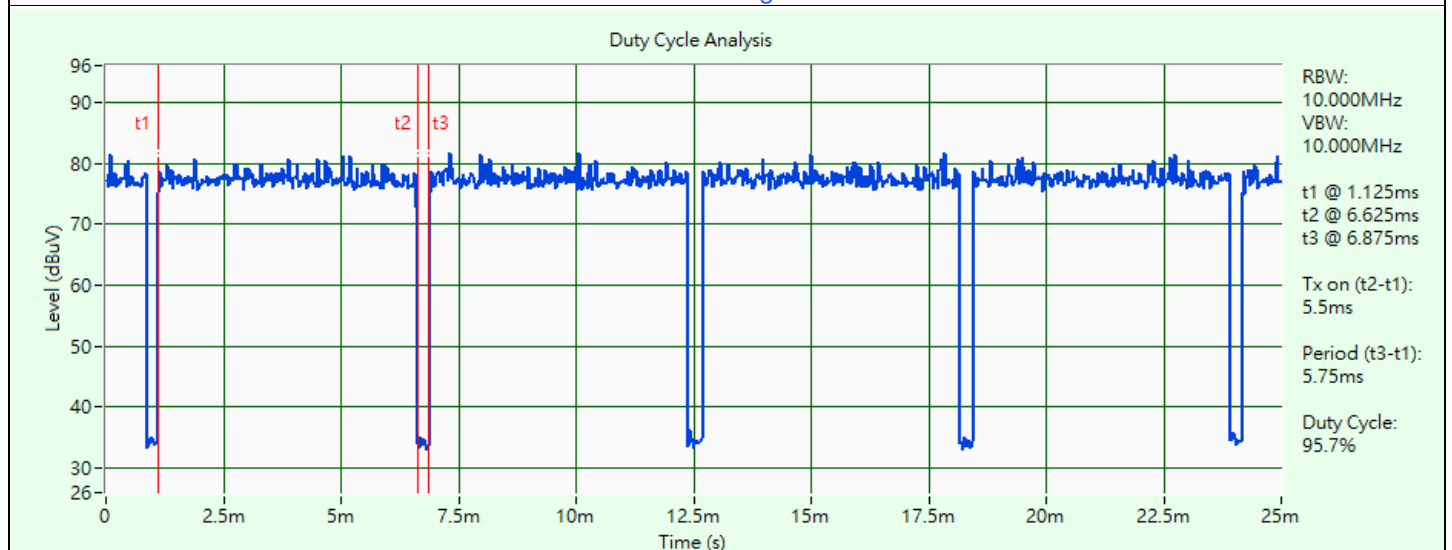
802.11ax (HE40): Duty cycle = 5.475 ms / 5.75 ms x 100% = 95.2%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.21 \text{ dB}$



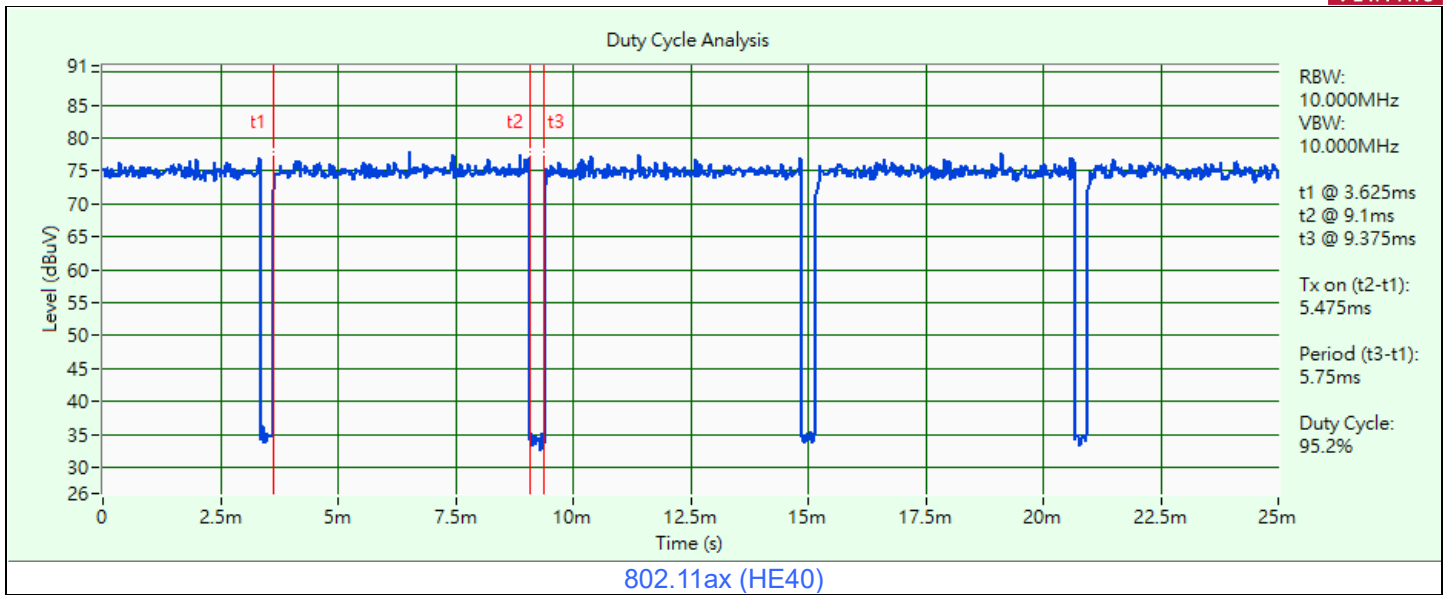
802.11b



802.11g



802.11ax (HE20)

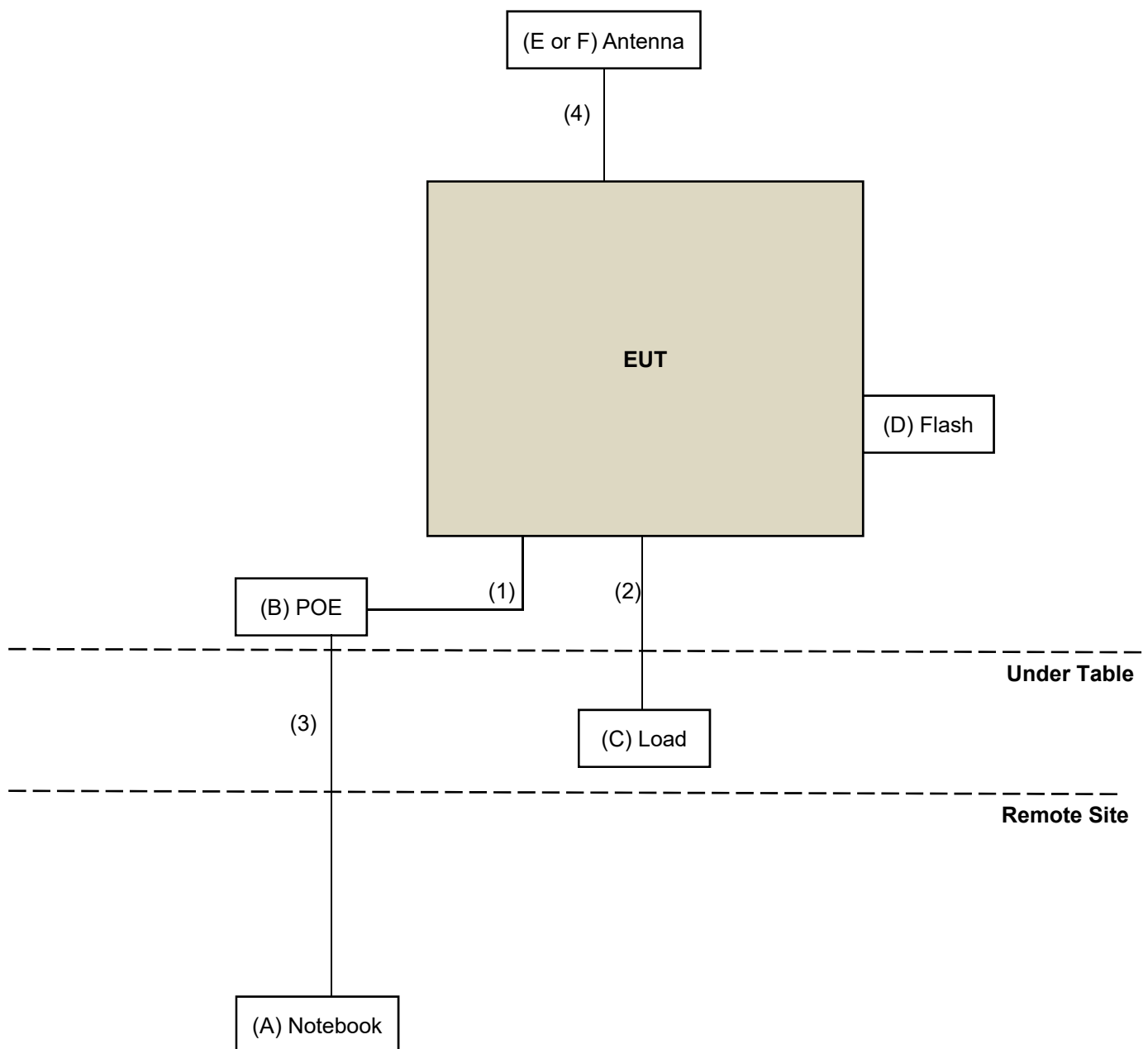


3.6 Test Program Used and Operation Descriptions

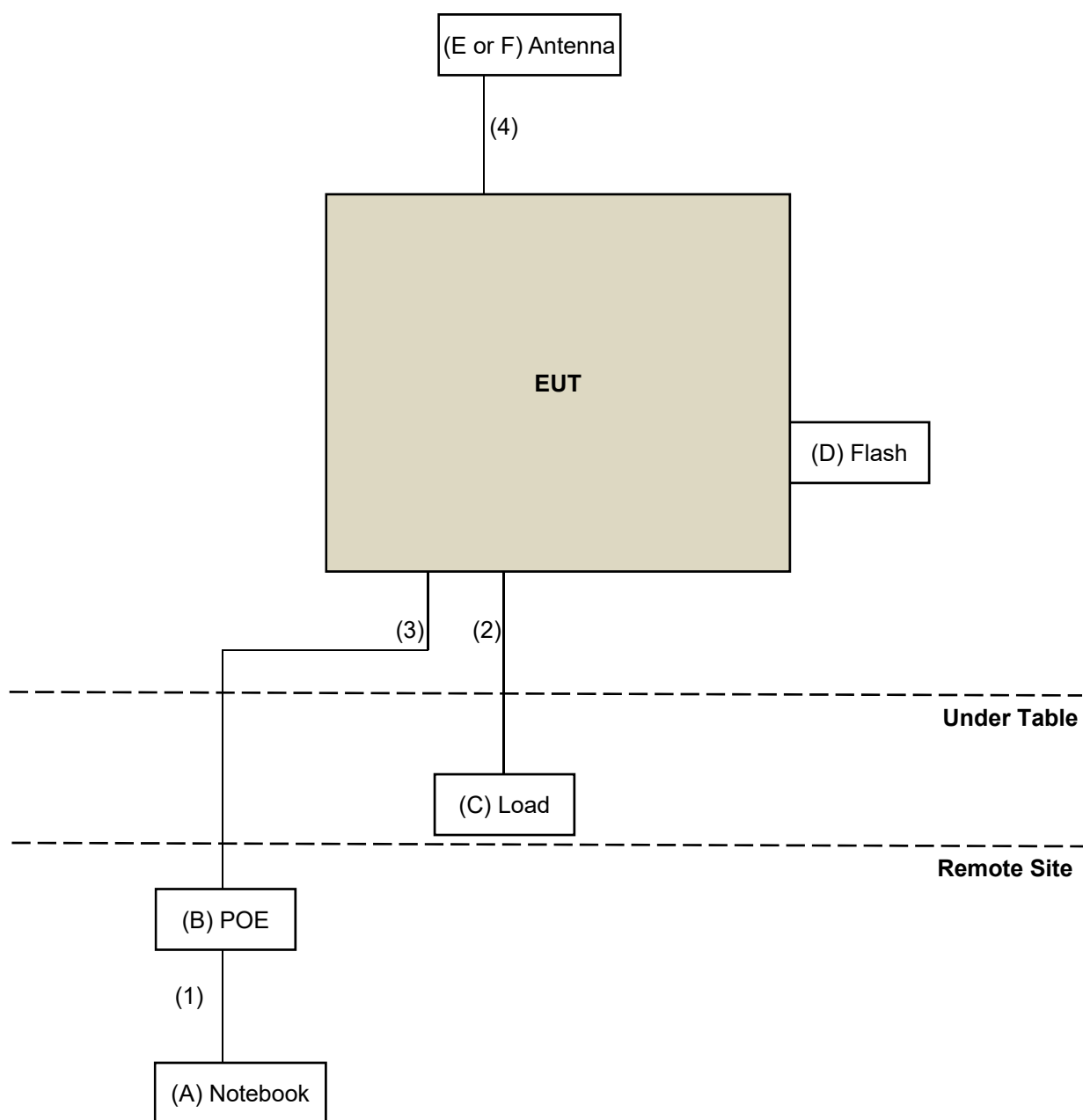
Controlling software QSPR V5.0.188.0 has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

AC Power Conducted Emissions



Unwanted Emissions



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Notebook	Lenovo	L470	N/A	N/A	Provided by Lab
B	POE	Microsemi	PD-9501-10GC/AC	N/A	N/A	Supplied by applicant
C	Load	N/A	N/A	N/A	N/A	Provided by Lab
D	USB Flash	SanDisk	SDDDC3-032G	N/A	N/A	Provided by Lab
E	Antenna	TERRAWAVE	FANT-04ABGN-0606-O-R	N/A	N/A	Supplied by applicant
F	Antenna	TERRAWAVE	FANT-04ABGN-0606-P-R	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	RJ-45 Cable	1	2	N	0	Provided by Lab
2	RJ-45 Cable	2	2	N	0	Provided by Lab
3	RJ-45 Cable	1	10	N	0	Provided by Lab
4	RF Cable	4	0.5	N	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 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Peak Power Analyzer Keysight	8990B	MY51000485	2024/1/21	2025/1/20
Wideband Power Sensor Keysight	N1923A	MY58020002	2024/1/18	2025/1/17
		MY58140009	2024/1/18	2025/1/17

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/4/20

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Signal & Spectrum Analyzer R&S	FSV3044	101504	2023/6/5	2024/6/4
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/4/20

4.3 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal resistance HUBER+SUHNER	E1-011315	13	2023/11/22	2024/11/21
50 ohm terminal resistance	E1-011279	04	2023/11/22	2024/11/21
	E1-011280	05	2023/11/22	2024/11/21
DC-LISN Schwarzbeck	NNBM 8126G	8126G-069	2023/11/7	2024/11/6
EMI Test Receiver R&S	ESCI	100613	2023/12/4	2024/12/3
Fixed Attenuator Mini-Circuits	HAT-10+	PAD-COND1-01	2024/1/6	2025/1/5
LISN R&S	ESH3-Z5	100311	2023/9/6	2024/9/5
		100312	2023/9/12	2024/9/11
RF Coaxial Cable Woken	5D-FB	Cable-cond1-01	2024/1/6	2025/1/5
Software BVADT	BVADT_Cond_ V7.4.1.0	N/A	N/A	N/A
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2023/8/31	2024/8/30

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2024/4/8

4.4 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-1213	2023/10/13	2024/10/12
EMI Test Receiver R&S	ESR3	102782	2023/12/7	2024/12/6
Loop Antenna Electro-Metrics	EM-6879	269	2023/9/23	2024/9/22
Loop Antenna TESEQ	HLA 6121	45745	2023/8/8	2024/8/7
MXA Signal Analyzer Keysight	N9020B	MY60110513	2023/12/22	2024/12/21
Preamplifier EMCI	EMC330N	980782	2024/1/15	2025/1/14
	EMC001340	980201	2023/9/27	2024/9/26
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-500	201233	2024/1/15	2025/1/14
	EMCCFD400-NM-NM-3000	201235	2024/1/15	2025/1/14
	EMCCFD400-NM-NM-9000	201236(with PAD)	2024/1/15	2025/1/14
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MF-7802BS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208674	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2024/3/27 ~ 2024/3/30

4.5 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
EMI Test Receiver R&S	ESR3	102782	2023/12/7	2024/12/6
Horn Antenna RFSPIN	DRH18-E	210103A18E	2023/11/12	2024/11/11
Horn Antenna Schwarzbeck	BBHA 9170	9170-1049	2023/11/12	2024/11/11
MXA Signal Analyzer Keysight	N9020B	MY60110513	2023/12/22	2024/12/21
Preamplifier EMCI	EMC118A45SE	980808	2023/12/28	2024/12/27
	EMC184045SE	980788	2024/1/15	2025/1/14
RF Coaxial Cable EMCI	EMC101G-KM-KM-2000	201254	2024/1/15	2025/1/14
	EMC101G-KM-KM-3000	201258	2024/1/15	2025/1/14
	EMC101G-KM-KM-5000	201261	2024/1/15	2025/1/14
	EMC104-SM-SM-1000	210102	2024/1/15	2025/1/14
	EMC104-SM-SM-3000	201231	2024/1/15	2025/1/14
	EMC104-SM-SM-9000	201243	2024/1/15	2025/1/14
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MF-7802BS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208674	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2024/3/28 ~ 2024/4/2

5 Limits of Test Items

5.1 RF Output Power

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30 dBm)

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 Power Spectral Density

The Maximum of Power Spectral Density Measurement is 8 dBm in any 3 kHz.

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 up to 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	$2400/F(\text{kHz})$	300
0.490 ~ 1.705	$24000/F(\text{kHz})$	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).

5.5 Unwanted Emissions above 1 GHz

Radiated emissions above 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30 dB below the highest level of the desired power:

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

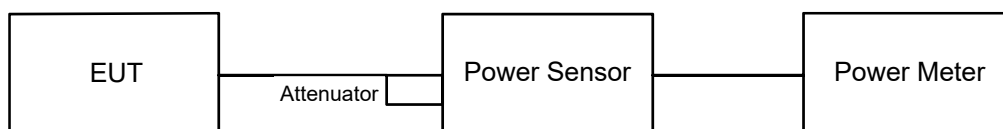
Notes:

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.

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup



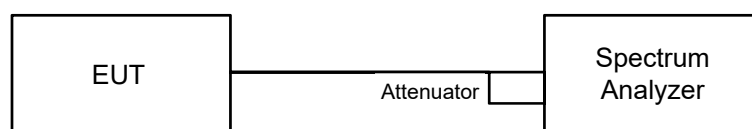
6.1.2 Test Procedure

Average Power:

Average power sensor was 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. Duty factor is not added to measured value.

6.2 Power Spectral Density

6.2.1 Test Setup



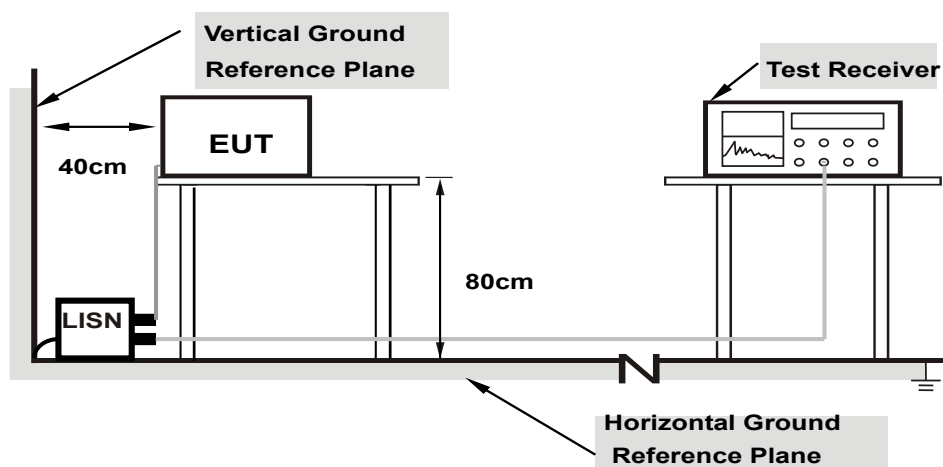
6.2.2 Test Procedure

- Measure the duty cycle (x).
- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: 3 kHz.
- Set VBW $\geq 3 \times$ RBW.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times$ span/RBW.
- Sweep time = auto couple.
- Do not use sweep triggering. Allow sweep to "free run".
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.

Note: If Duty cycle < 98%, Add $10 \log (1/x)$, where x is the duty cycle measured in step (a), to the measured PSD to compute the average PSD during the actual transmission time.

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

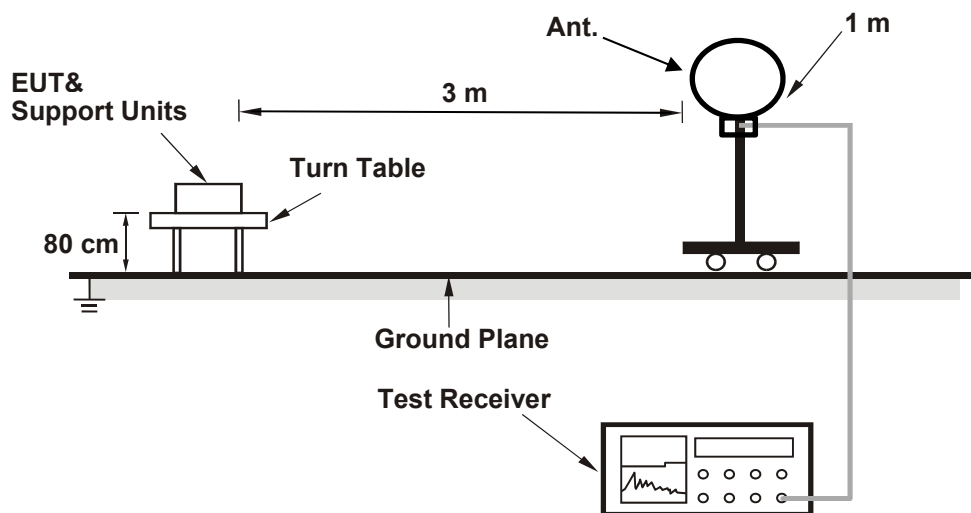
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The 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.

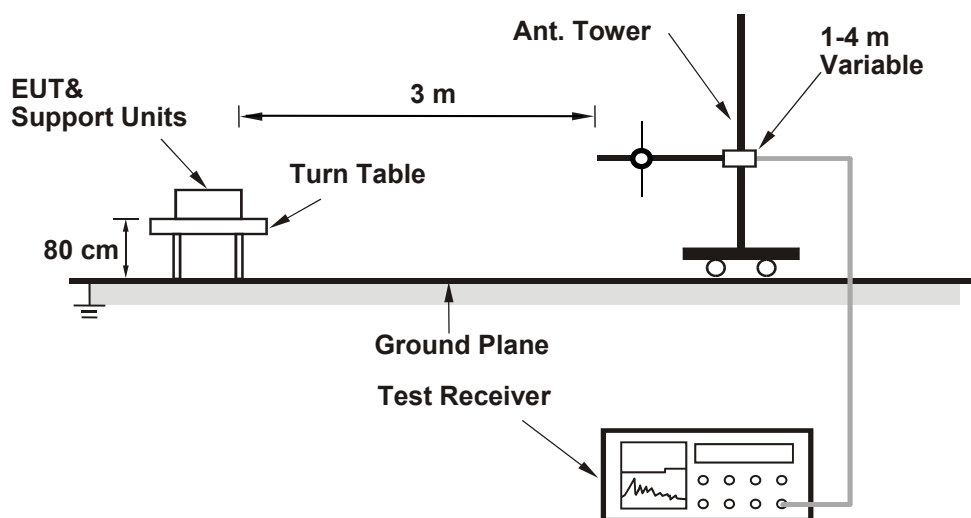
6.4 Unwanted Emissions below 1 GHz

6.4.1 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).

6.4.2 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

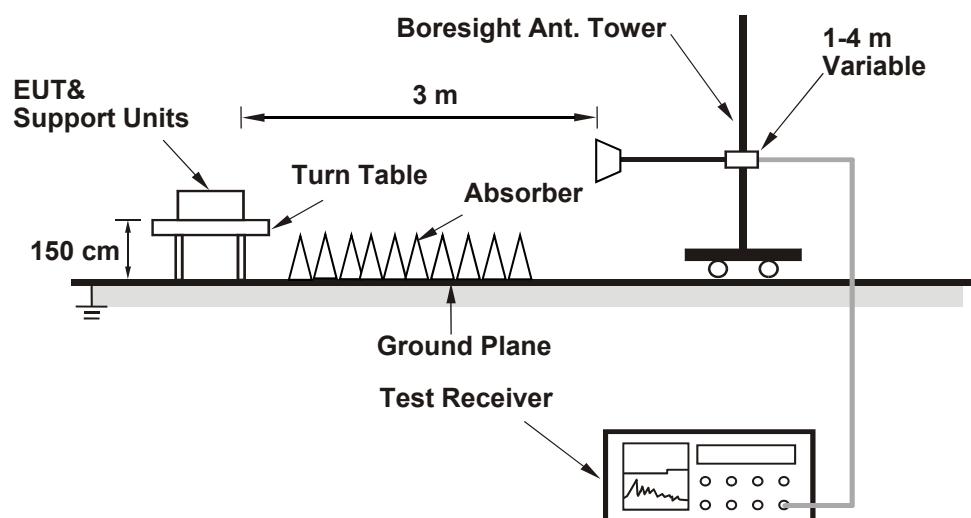
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the 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.

6.5 Unwanted Emissions above 1 GHz

6.5.1 Test Setup



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

6.5.2 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:	55 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Jisyoung Wang
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Mode A

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	23.19	23.12	23.70	22.15	812.047	29.10	29.66	Pass
6	2437	22.99	22.95	23.34	22.03	771.672	28.87	29.66	Pass
11	2462	21.30	21.15	21.68	20.33	520.339	27.16	29.66	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 6.34 dBi > 6 dBi, so the output power limit shall be reduced to $30-(6.34-6) = 29.66$ dBm.

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	20.15	20.10	19.84	19.50	391.352	25.93	29.66	Pass
6	2437	22.54	22.32	22.60	22.51	710.29	28.51	29.66	Pass
11	2462	16.21	16.00	15.84	15.65	156.693	21.95	29.66	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 6.34 dBi > 6 dBi, so the output power limit shall be reduced to $30-(6.34-6) = 29.66$ dBm.

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	19.98	19.90	20.15	19.86	397.606	25.99	29.66	Pass
6	2437	22.27	22.06	22.35	22.08	662.576	28.21	29.66	Pass
11	2462	13.99	13.52	13.50	13.14	90.545	19.57	29.66	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 6.34 dBi > 6 dBi, so the output power limit shall be reduced to $30-(6.34-6) = 29.66$ dBm.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	18.97	18.63	18.64	18.55	296.56	24.72	29.66	Pass
6	2437	17.12	17.33	17.04	16.96	205.84	23.14	29.66	Pass
9	2452	13.10	12.95	12.90	12.84	78.871	18.97	29.66	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 6.34 dBi > 6 dBi, so the output power limit shall be reduced to $30-(6.34-6) = 29.66$ dBm.

VHT20

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	20.03	19.95	20.21	19.92	402.678	26.05	29.66	Pass
6	2437	22.32	22.14	22.42	22.15	672.931	28.28	29.66	Pass
11	2462	14.04	13.56	13.54	13.20	91.537	19.62	29.66	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 6.34 dBi > 6 dBi, so the output power limit shall be reduced to $30-(6.34-6) = 29.66$ dBm.

VHT40

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	19.02	18.70	18.72	18.59	300.681	24.78	29.66	Pass
6	2437	17.15	17.38	17.07	17.00	207.633	23.17	29.66	Pass
9	2452	13.15	13.00	12.97	12.90	79.92	19.03	29.66	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 6.34 dBi > 6 dBi, so the output power limit shall be reduced to $30-(6.34-6) = 29.66$ dBm.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	20.20	20.07	20.30	20.01	413.72	26.17	29.66	Pass
6	2437	22.39	22.18	22.47	22.20	681.139	28.33	29.66	Pass
11	2462	14.20	13.68	13.64	13.32	94.236	19.74	29.66	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 6.34 dBi > 6 dBi, so the output power limit shall be reduced to $30-(6.34-6) = 29.66$ dBm.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	19.07	18.74	18.75	18.66	303.981	24.83	29.66	Pass
6	2437	17.24	17.50	17.14	17.08	212.012	23.26	29.66	Pass
9	2452	13.22	13.05	13.00	12.94	80.805	19.07	29.66	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 6.34 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (6.34 - 6) = 29.66$ dBm.

802.11n (HT20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	17.64	17.51	17.73	17.45	229.323	23.60	23.81	Pass
6	2437	17.82	17.62	17.90	17.61	237.68	23.76	23.81	Pass
11	2462	13.99	13.52	13.50	13.14	90.545	19.57	23.81	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
2. The directional gain is 12.19 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (12.19 - 6) = 23.81$ dBm.

802.11n (HT40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	18.02	17.64	17.65	17.57	236.822	23.74	23.81	Pass
6	2437	17.12	17.33	17.04	16.96	205.84	23.14	23.81	Pass
9	2452	13.10	12.95	12.90	12.84	78.871	18.97	23.81	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
2. The directional gain is 12.19 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (12.19 - 6) = 23.81$ dBm.

VHT20 Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	17.67	17.53	17.75	17.47	230.516	23.63	23.81	Pass
6	2437	17.84	17.64	17.93	17.64	239.053	23.78	23.81	Pass
11	2462	14.04	13.56	13.54	13.20	91.537	19.62	23.81	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
2. The directional gain is 12.19 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (12.19 - 6) = 23.81$ dBm.

VHT40 Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	18.04	17.67	17.68	17.60	238.316	23.77	23.81	Pass
6	2437	17.15	17.38	17.07	17.00	207.633	23.17	23.81	Pass
9	2452	13.15	13.00	12.97	12.90	79.92	19.03	23.81	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}} + 10^{\text{Chain2/20}} + 10^{\text{Chain3/20}})^2 / 4]$
2. The directional gain is 12.19 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (12.19 - 6) = 23.81$ dBm.

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	17.68	17.55	17.78	17.49	231.583	23.65	23.81	Pass
6	2437	17.87	17.65	17.95	17.65	240.029	23.80	23.81	Pass
11	2462	14.20	13.68	13.64	13.32	94.236	19.74	23.81	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}} + 10^{\text{Chain2/20}} + 10^{\text{Chain3/20}})^2 / 4]$
2. The directional gain is 12.19 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (12.19 - 6) = 23.81$ dBm.

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	18.07	17.70	17.71	17.62	239.835	23.80	23.81	Pass
6	2437	17.24	17.50	17.14	17.08	212.012	23.26	23.81	Pass
9	2452	13.22	13.05	13.00	12.94	80.805	19.07	23.81	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}} + 10^{\text{Chain2/20}} + 10^{\text{Chain3/20}})^2 / 4]$
2. The directional gain is 12.19 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (12.19 - 6) = 23.81$ dBm.

Input Power:	55 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Jisyong Wang
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Mode B

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	23.19	23.12	23.70	22.15	812.047	29.10	30	Pass
6	2437	22.99	22.95	23.34	22.03	771.672	28.87	30	Pass
11	2462	20.71	20.64	21.02	19.90	457.836	26.61	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	20.15	20.10	19.84	19.50	391.352	25.93	30	Pass
6	2437	21.32	21.06	21.48	21.11	532.89	27.27	30	Pass
11	2462	16.90	16.74	16.58	16.23	183.659	22.64	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	19.98	19.90	20.15	19.86	397.606	25.99	30	Pass
6	2437	20.42	20.08	20.51	20.27	430.888	26.34	30	Pass
11	2462	13.99	13.52	13.50	13.14	90.545	19.57	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	18.97	18.59	18.57	18.54	294.558	24.69	30	Pass
6	2437	15.08	15.23	14.90	14.73	126.173	21.01	30	Pass
9	2452	9.70	9.57	9.50	9.45	36.113	15.58	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.

VHT20

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	20.03	19.95	20.21	19.92	402.678	26.05	30	Pass
6	2437	20.48	20.15	20.57	20.33	437.12	26.41	30	Pass
11	2462	14.04	13.56	13.54	13.20	91.537	19.62	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.

VHT40

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	19.00	18.65	18.65	18.59	298.275	24.75	30	Pass
6	2437	15.12	15.29	14.94	14.80	127.704	21.06	30	Pass
9	2452	9.77	9.62	9.55	9.51	36.595	15.63	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	20.20	20.07	20.30	20.01	413.72	26.17	30	Pass
6	2437	20.54	20.21	20.62	20.40	443.187	26.47	30	Pass
11	2462	14.20	13.68	13.64	13.32	94.236	19.74	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	19.07	18.74	18.70	18.66	303.123	24.82	30	Pass
6	2437	15.20	15.36	15.00	14.88	129.853	21.13	30	Pass
9	2452	9.80	9.67	9.61	9.58	37.038	15.69	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	19.13	19.02	19.23	18.95	323.922	25.10	25.48	Pass
6	2437	19.00	18.91	19.47	19.20	328.924	25.17	25.48	Pass
11	2462	13.99	13.52	13.50	13.14	90.545	19.57	25.48	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}} + 10^{\text{Chain2/20}} + 10^{\text{Chain3/20}})^2 / 4]$
2. The directional gain is 10.52 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (10.52 - 6) = 25.48$ dBm.

802.11n (HT40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	18.97	18.59	18.57	18.54	294.558	24.69	25.48	Pass
6	2437	15.08	15.23	14.90	14.73	126.173	21.01	25.48	Pass
9	2452	9.70	9.57	9.50	9.45	36.113	15.58	25.48	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}} + 10^{\text{Chain2/20}} + 10^{\text{Chain3/20}})^2 / 4]$
2. The directional gain is 10.52 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (10.52 - 6) = 25.48$ dBm.

VHT20 Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	19.16	19.04	19.26	18.97	325.801	25.13	25.48	Pass
6	2437	19.42	18.93	19.50	19.23	338.539	25.30	25.48	Pass
11	2462	14.04	13.56	13.54	13.20	91.537	19.62	25.48	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}} + 10^{\text{Chain2/20}} + 10^{\text{Chain3/20}})^2 / 4]$
2. The directional gain is 10.52 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (10.52 - 6) = 25.48$ dBm.

VHT40 Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	19.00	18.65	18.65	18.59	298.275	24.75	25.48	Pass
6	2437	15.12	15.29	14.94	14.80	127.704	21.06	25.48	Pass
9	2452	9.77	9.62	9.55	9.51	36.595	15.63	25.48	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}} + 10^{\text{Chain2/20}} + 10^{\text{Chain3/20}})^2 / 4]$
2. The directional gain is 10.52 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (10.52 - 6) = 25.48$ dBm.

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	19.18	19.06	19.28	19.00	327.488	25.15	25.48	Pass
6	2437	19.45	18.96	19.52	19.26	340.679	25.32	25.48	Pass
11	2462	14.20	13.68	13.64	13.32	94.236	19.74	25.48	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}} + 10^{\text{Chain2/20}} + 10^{\text{Chain3/20}})^2 / 4]$
2. The directional gain is 10.52 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (10.52 - 6) = 25.48$ dBm.

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	19.07	18.74	18.70	18.66	303.123	24.82	25.48	Pass
6	2437	15.20	15.36	15.00	14.88	129.853	21.13	25.48	Pass
9	2452	9.80	9.67	9.61	9.58	37.038	15.69	25.48	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}} + 10^{\text{Chain2/20}} + 10^{\text{Chain3/20}})^2 / 4]$
2. The directional gain is 10.52 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (10.52 - 6) = 25.48$ dBm.

7.2 Power Spectral Density

Input Power:	55 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Jisyoung Wang
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Mode A

802.11b

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)				Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3			
1	2412	-9.90	-11.84	-11.03	-10.36	-4.70	1.81	Pass
6	2437	-10.70	-10.68	-9.84	-12.61	-4.83	1.81	Pass
11	2462	-12.03	-12.75	-10.33	-14.14	-6.07	1.81	Pass

Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
- The directional gain is 12.19 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (12.19 - 6) = 1.81$ dBm/3kHz.

802.11g

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)				Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	-13.04	-12.89	-13.40	-13.32	0.17	-6.97	1.81	Pass
6	2437	-9.89	-10.49	-10.18	-10.26	0.17	-4.01	1.81	Pass
11	2462	-16.45	-16.42	-16.75	-16.96	0.17	-10.45	1.81	Pass

Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
- The directional gain is 12.19 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (12.19 - 6) = 1.81$ dBm/3kHz.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)				Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	-16.04	-16.42	-16.43	-16.18	0.19	-10.05	1.81	Pass
6	2437	-13.43	-13.25	-14.07	-13.71	0.19	-7.39	1.81	Pass
11	2462	-22.43	-23.03	-23.12	-22.79	0.19	-16.62	1.81	Pass

Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
- The directional gain is 12.19 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (12.19 - 6) = 1.81$ dBm/3kHz.

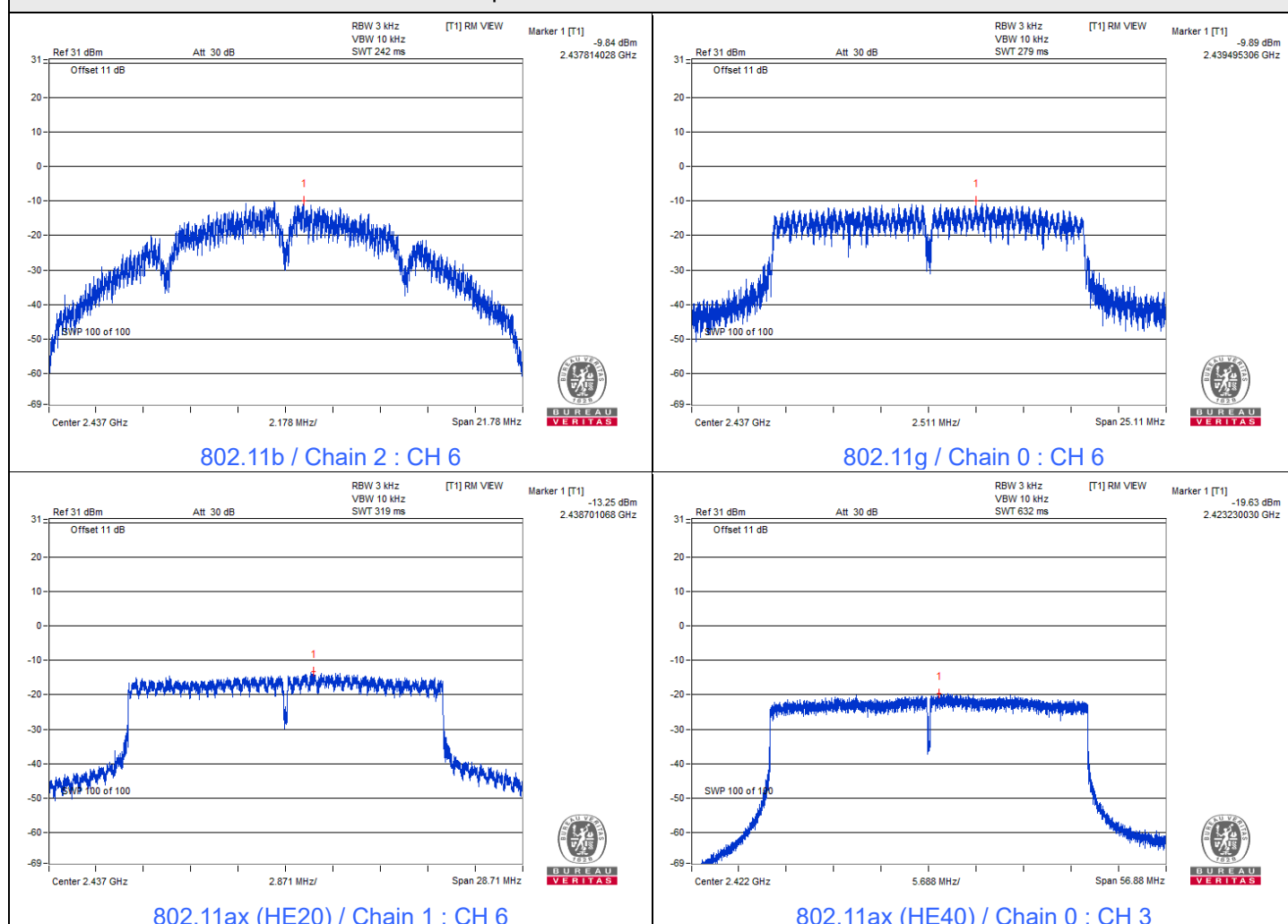
802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)				Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	-19.63	-19.81	-19.88	-20.05	0.21	-13.61	1.81	Pass
6	2437	-21.41	-20.36	-21.16	-21.27	0.21	-14.80	1.81	Pass
9	2452	-25.76	-25.33	-26.20	-26.56	0.21	-19.70	1.81	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
3. The directional gain is 12.19 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (12.19 - 6) = 1.81$ dBm/3kHz.

Spectrum Plot of Maximum Value



Input Power:	55 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Jisyong Wang
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Mode B

802.11b

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)				Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3			
1	2412	-9.90	-11.84	-11.03	-10.36	-4.70	3.48	Pass
6	2437	-10.70	-10.68	-9.84	-12.61	-4.83	3.48	Pass
11	2462	-12.90	-12.93	-12.43	-13.91	-6.99	3.48	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
3. The directional gain is 10.52 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (10.52 - 6) = 3.48$ dBm/3kHz.

802.11g

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)				Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	-13.04	-12.89	-13.40	-13.32	0.17	-6.97	3.48	Pass
6	2437	-11.42	-11.83	-11.49	-10.97	0.17	-5.22	3.48	Pass
11	2462	-16.12	-15.62	-16.28	-16.29	0.17	-9.88	3.48	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
3. The directional gain is 10.52 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (10.52 - 6) = 3.48$ dBm/3kHz.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)				Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	-16.04	-16.42	-16.43	-16.18	0.19	-10.05	3.48	Pass
6	2437	-15.70	-15.72	-15.21	-15.87	0.19	-9.40	3.48	Pass
11	2462	-22.43	-23.03	-23.12	-22.79	0.19	-16.62	3.48	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
3. The directional gain is 10.52 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (10.52 - 6) = 3.48$ dBm/3kHz.

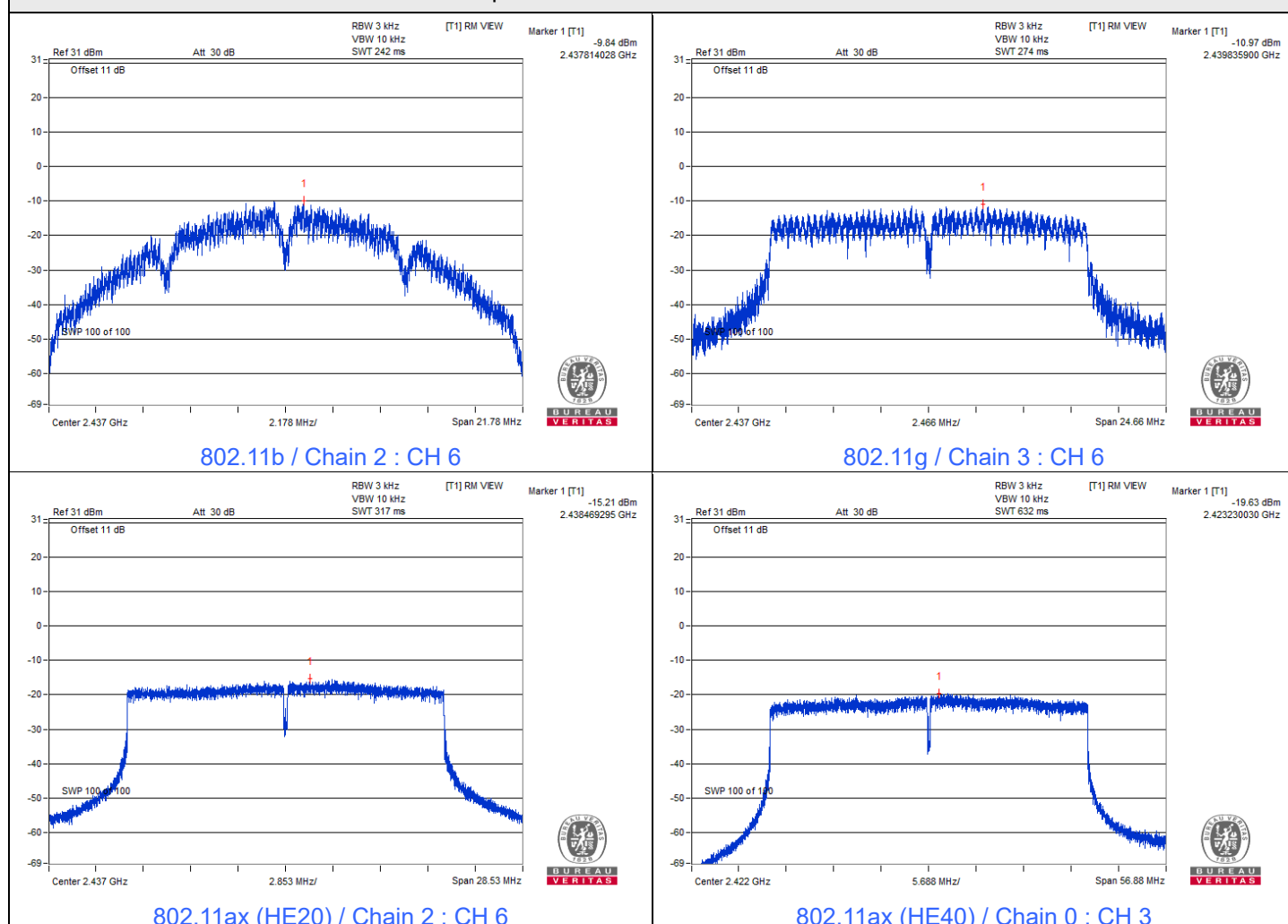
802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)				Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	-19.63	-19.81	-19.88	-20.05	0.21	-13.61	3.48	Pass
6	2437	-23.00	-23.22	-22.95	-23.86	0.21	-17.01	3.48	Pass
9	2452	-28.84	-29.25	-29.55	-29.01	0.21	-22.92	3.48	Pass

Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
- The directional gain is 10.52 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (10.52 - 6) = 3.48$ dBm/3kHz.

Spectrum Plot of Maximum Value



7.3 AC Power Conducted Emissions

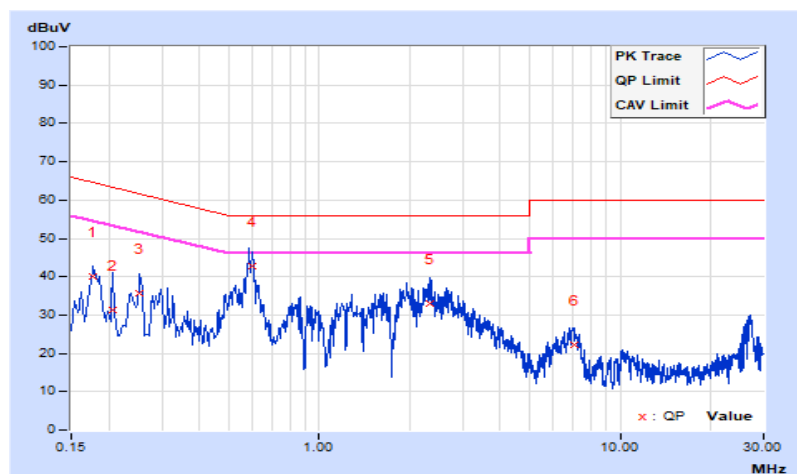
Mode A

RF Mode	802.11b	Channel	CH 1 : 2412 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	25°C, 75% RH
Tested By	Karl Li		

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	0.17708	9.66	30.29	20.94	39.95	30.60	64.62	54.62	-24.67	-24.02
2	0.20600	9.66	21.72	5.15	31.38	14.81	63.37	53.37	-31.99	-38.56
3	0.25400	9.67	26.10	14.67	35.77	24.34	61.63	51.63	-25.86	-27.29
4	0.59800	9.70	32.94	13.96	42.64	23.66	56.00	46.00	-13.36	-22.34
5	2.33000	9.77	23.32	5.59	33.09	15.36	56.00	46.00	-22.91	-30.64
6	7.05400	9.83	12.53	-0.43	22.36	9.40	60.00	50.00	-37.64	-40.60

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

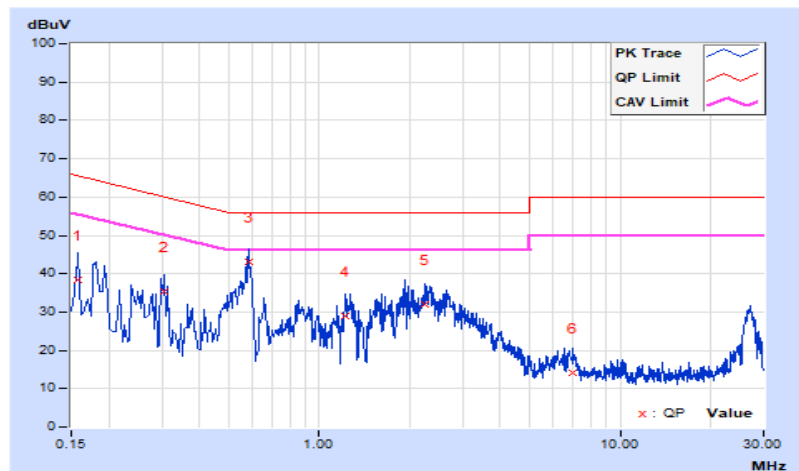


RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% RH
Tested By	Karl Li		

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	9.64	28.89	10.35	38.53	19.99	65.57	55.57	-27.04	-35.58
2	0.30600	9.68	25.76	13.67	35.44	23.35	60.08	50.08	-24.64	-26.73
3	0.58200	9.72	33.32	14.78	43.04	24.50	56.00	46.00	-12.96	-21.50
4	1.22600	9.74	19.14	3.96	28.88	13.70	56.00	46.00	-27.12	-32.30
5	2.25800	9.76	22.31	4.73	32.07	14.49	56.00	46.00	-23.93	-31.51
6	6.95800	9.86	4.38	-3.53	14.24	6.33	60.00	50.00	-45.76	-43.67

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



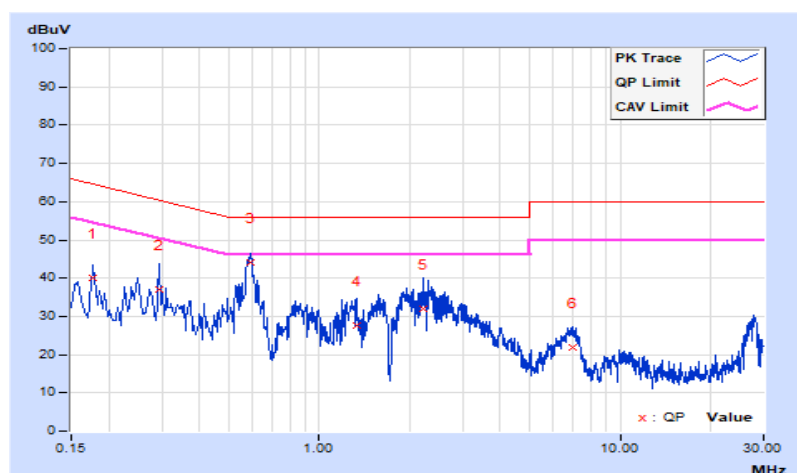
Mode B

RF Mode	802.11b	Channel	CH 1 : 2412 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	25°C, 75% RH
Tested By	Karl Li		

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	0.17800	9.66	30.31	21.93	39.97	31.59	64.58	54.58	-24.61	-22.99
2	0.29400	9.67	27.43	14.85	37.10	24.52	60.41	50.41	-23.31	-25.89
3	0.59000	9.70	34.45	16.30	44.15	26.00	56.00	46.00	-11.85	-20.00
4	1.32600	9.74	18.00	3.83	27.74	13.57	56.00	46.00	-28.26	-32.43
5	2.20600	9.77	22.21	4.68	31.98	14.45	56.00	46.00	-24.02	-31.55
6	6.94200	9.82	11.90	-0.90	21.72	8.92	60.00	50.00	-38.28	-41.08

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

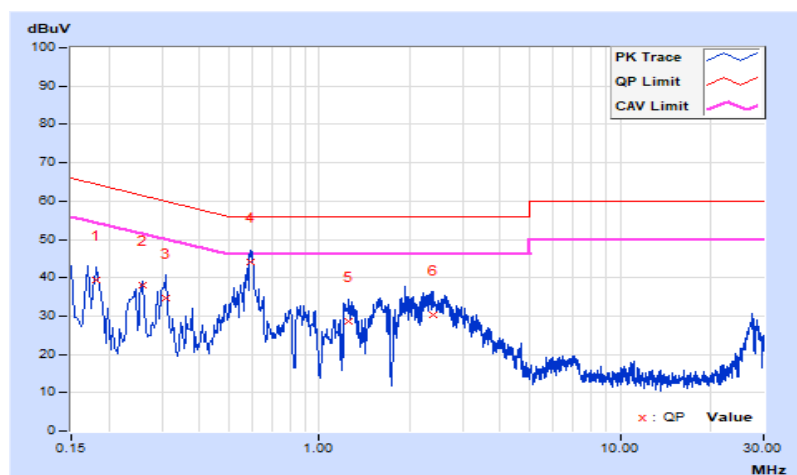


RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% RH
Tested By	Karl Li		

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	0.18180	9.65	29.63	20.31	39.28	29.96	64.40	54.40	-25.12	-24.44
2	0.25800	9.67	28.45	22.25	38.12	31.92	61.50	51.50	-23.38	-19.58
3	0.31000	9.68	24.90	12.73	34.58	22.41	59.97	49.97	-25.39	-27.56
4	0.59000	9.72	34.28	16.27	44.00	25.99	56.00	46.00	-12.00	-20.01
5	1.24600	9.74	19.02	4.25	28.76	13.99	56.00	46.00	-27.24	-32.01
6	2.39000	9.76	20.55	3.80	30.31	13.56	56.00	46.00	-25.69	-32.44

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

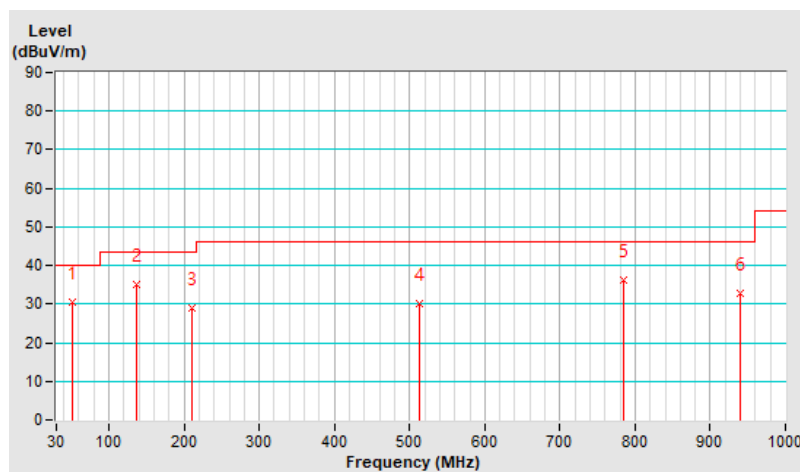
Mode A

RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Karl Lee		

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	51.25	30.6 QP	40.0	-9.4	1.63 H	119	43.7	-13.1
2	136.84	35.2 QP	43.5	-8.3	2.24 H	160	48.9	-13.7
3	209.60	28.9 QP	43.5	-14.6	1.21 H	286	45.7	-16.8
4	512.61	30.2 QP	46.0	-15.8	1.66 H	204	37.7	-7.5
5	785.12	36.2 QP	46.0	-9.8	1.22 H	94	38.5	-2.3
6	939.64	32.8 QP	46.0	-13.2	1.77 H	269	33.2	-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.

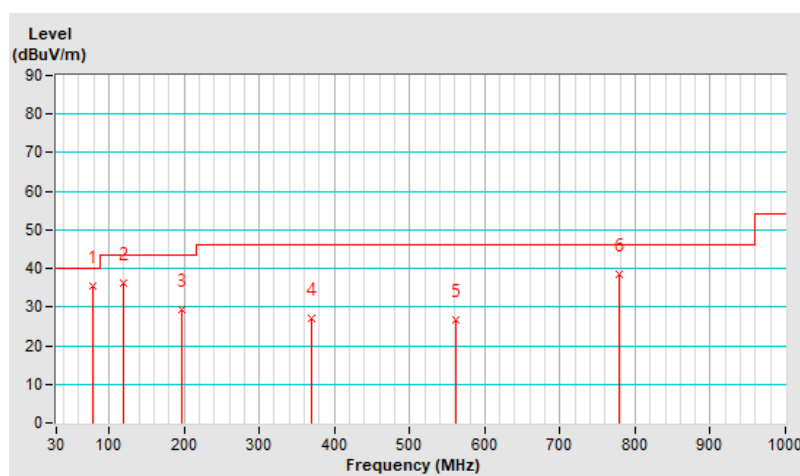


RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Karl Lee		

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	78.12	35.6 QP	40.0	-4.4	2.25 V	187	53.1	-17.5
2	119.64	36.2 QP	43.5	-7.3	1.55 V	20	51.6	-15.4
3	195.96	29.2 QP	43.5	-14.3	1.32 V	174	45.7	-16.5
4	369.63	27.1 QP	46.0	-18.9	1.96 V	304	38.0	-10.9
5	561.49	26.6 QP	46.0	-19.4	1.37 V	153	33.2	-6.6
6	779.14	38.6 QP	46.0	-7.4	2.92 V	146	41.1	-2.5

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.



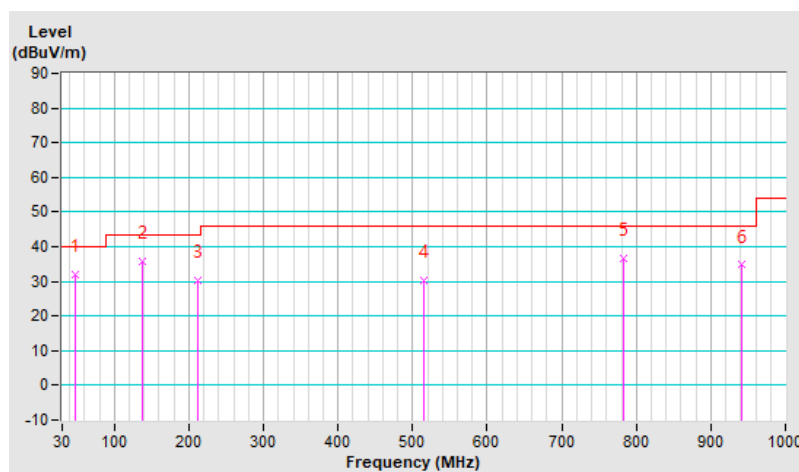
Mode B

RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Karl Lee		

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	48.43	31.9 QP	40.0	-8.1	1.12 H	184	44.9	-13.0
2	137.67	35.7 QP	43.5	-7.8	2.74 H	153	49.3	-13.6
3	212.36	30.1 QP	43.5	-13.4	1.62 H	314	46.7	-16.6
4	515.00	30.4 QP	46.0	-15.6	1.51 H	223	37.9	-7.5
5	783.69	36.7 QP	46.0	-9.3	2.61 H	27	39.1	-2.4
6	941.80	34.7 QP	46.0	-11.3	1.48 H	83	35.1	-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.

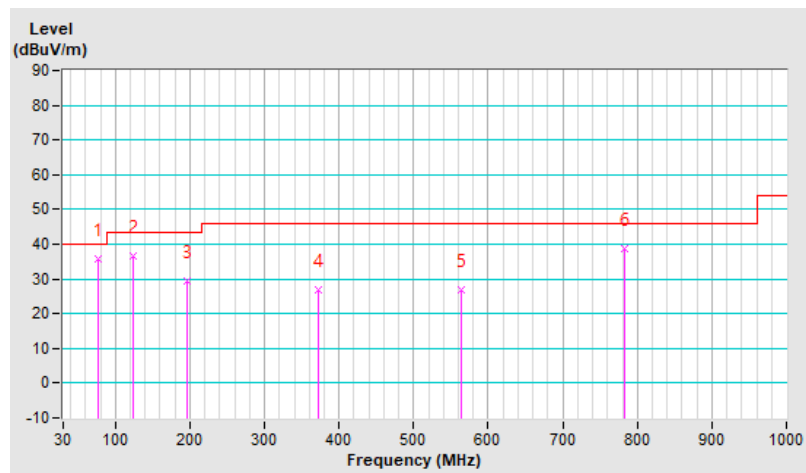


RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Karl Lee		

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	77.53	35.9 QP	40.0	-4.1	2.96 V	214	53.3	-17.4
2	123.12	36.7 QP	43.5	-6.8	2.11 V	149	51.8	-15.1
3	196.84	29.4 QP	43.5	-14.1	1.36 V	82	46.0	-16.6
4	371.44	26.9 QP	46.0	-19.1	2.10 V	172	37.7	-10.8
5	563.50	27.0 QP	46.0	-19.0	1.66 V	189	33.6	-6.6
6	783.69	38.9 QP	46.0	-7.1	2.87 V	115	41.3	-2.4

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.



7.5 Unwanted Emissions above 1 GHz

Mode A

RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	2390.00	58.1 PK	74.0	-15.9	2.06 H	42	25.8	32.3
2	2390.00	45.4 AV	54.0	-8.6	2.06 H	42	13.1	32.3
3	*2412.00	112.5 PK			2.06 H	42	80.2	32.3
4	*2412.00	110.0 AV			2.06 H	42	77.7	32.3
5	4824.00	50.8 PK	74.0	-23.2	2.41 H	91	47.7	3.1
6	4824.00	41.5 AV	54.0	-12.5	2.41 H	91	38.4	3.1
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	2390.00	58.7 PK	74.0	-15.3	1.73 V	10	26.4	32.3
2	2390.00	48.8 AV	54.0	-5.2	1.73 V	10	16.5	32.3
3	*2412.00	123.5 PK			1.73 V	10	91.2	32.3
4	*2412.00	121.1 AV			1.73 V	10	88.8	32.3
5	4824.00	54.6 PK	74.0	-19.4	1.71 V	17	51.5	3.1
6	4824.00	50.2 AV	54.0	-3.8	1.71 V	17	47.1	3.1

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.

RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2437.00	111.3 PK			1.64 H	45	79.0	32.3
2	*2437.00	108.8 AV			1.64 H	45	76.5	32.3
3	4874.00	48.3 PK	74.0	-25.7	2.12 H	194	45.1	3.2
4	4874.00	38.1 AV	54.0	-15.9	2.12 H	194	34.9	3.2
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	*2437.00	122.1 PK			2.34 V	6	89.8	32.3
2	*2437.00	119.6 AV			2.34 V	6	87.3	32.3
3	4874.00	52.8 PK	74.0	-21.2	1.43 V	16	49.6	3.2
4	4874.00	47.5 AV	54.0	-6.5	1.43 V	16	44.3	3.2

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.

RF Mode	802.11b	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2462.00	109.8 PK			1.33 H	47	77.6	32.2
2	*2462.00	107.4 AV			1.33 H	47	75.2	32.2
3	2483.50	59.6 PK	74.0	-14.4	1.33 H	47	27.2	32.4
4	2483.50	50.1 AV	54.0	-3.9	1.33 H	47	17.7	32.4
5	4924.00	48.1 PK	74.0	-25.9	2.42 H	276	44.8	3.3
6	4924.00	35.7 AV	54.0	-18.3	2.42 H	276	32.4	3.3
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	*2462.00	121.5 PK			1.69 V	11	89.3	32.2
2	*2462.00	119.1 AV			1.69 V	11	86.9	32.2
3	2483.50	61.7 PK	74.0	-12.3	1.69 V	11	29.3	32.4
4	2483.50	53.2 AV	54.0	-0.8	1.69 V	11	20.8	32.4
5	4924.00	52.2 PK	74.0	-21.8	1.49 V	18	48.9	3.3
6	4924.00	46.4 AV	54.0	-7.6	1.49 V	18	43.1	3.3

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.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11g	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	2390.00	21.0 PK	74.0	-53.0	1.27 H	68	24.6	-3.6
2	2390.00	8.0 AV	54.0	-46.0	1.27 H	68	11.6	-3.6
3	*2412.00	111.4 PK			1.27 H	68	79.1	32.3
4	*2412.00	101.7 AV			1.27 H	68	69.4	32.3
5	4824.00	48.2 PK	74.0	-25.8	1.64 H	112	45.1	3.1
6	4824.00	35.2 AV	54.0	-18.8	1.64 H	112	32.1	3.1
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	2390.00	62.7 PK	74.0	-11.3	1.57 V	128	30.4	32.3
2	2390.00	48.0 AV	54.0	-6.0	1.57 V	128	15.7	32.3
3	*2412.00	120.6 PK			1.57 V	128	88.3	32.3
4	*2412.00	111.3 AV			1.57 V	128	79.0	32.3
5	4824.00	48.3 PK	74.0	-25.7	1.73 V	125	45.2	3.1
6	4824.00	35.8 AV	54.0	-18.2	1.73 V	125	32.7	3.1

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.

RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2437.00	114.2 PK			1.37 H	75	81.9	32.3
2	*2437.00	104.6 AV			1.37 H	75	72.3	32.3
3	2483.50	63.8 PK	74.0	-10.2	1.37 H	75	31.4	32.4
4	2483.50	49.0 AV	54.0	-5.0	1.37 H	75	16.6	32.4
5	4874.00	48.3 PK	74.0	-25.7	1.55 H	109	45.1	3.2
6	4874.00	35.3 AV	54.0	-18.7	1.55 H	109	32.1	3.2
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	*2437.00	124.3 PK			1.71 V	17	92.0	32.3
2	*2437.00	114.3 AV			1.71 V	17	82.0	32.3
3	2483.50	68.0 PK	74.0	-6.0	1.71 V	17	35.6	32.4
4	2483.50	53.2 AV	54.0	-0.8	1.71 V	17	20.8	32.4
5	4874.00	49.3 PK	74.0	-24.7	1.88 V	235	46.1	3.2
6	4874.00	36.1 AV	54.0	-17.9	1.88 V	235	32.9	3.2

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.

RF Mode	802.11g	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2462.00	107.2 PK			1.04 H	67	75.0	32.2
2	*2462.00	97.1 AV			1.04 H	67	64.9	32.2
3	2483.50	58.1 PK	74.0	-15.9	1.04 H	67	25.7	32.4
4	2483.50	46.3 AV	54.0	-7.7	1.04 H	67	13.9	32.4
5	4924.00	49.2 PK	74.0	-24.8	1.49 H	123	45.9	3.3
6	4924.00	36.0 AV	54.0	-18.0	1.49 H	123	32.7	3.3
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	*2462.00	116.7 PK			1.99 V	28	84.5	32.2
2	*2462.00	107.6 AV			1.99 V	28	75.4	32.2
3	2483.50	70.7 PK	74.0	-3.3	1.99 V	28	38.3	32.4
4	2483.50	53.7 AV	54.0	-0.3	1.99 V	28	21.3	32.4
5	4924.00	49.0 PK	74.0	-25.0	1.69 V	225	45.7	3.3
6	4924.00	35.9 AV	54.0	-18.1	1.69 V	225	32.6	3.3

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.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11ax (HE20)	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	2390.00	58.3 PK	74.0	-15.7	1.16 H	343	26.0	32.3
2	2390.00	44.7 AV	54.0	-9.3	1.16 H	343	12.4	32.3
3	*2412.00	115.4 PK			1.16 H	343	83.1	32.3
4	*2412.00	102.0 AV			1.16 H	343	69.7	32.3
5	4824.00	48.4 PK	74.0	-25.6	1.63 H	119	45.3	3.1
6	4824.00	35.0 AV	54.0	-19.0	1.63 H	119	31.9	3.1
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	2390.00	60.8 PK	74.0	-13.2	1.58 V	316	28.5	32.3
2	2390.00	47.3 AV	54.0	-6.7	1.58 V	316	15.0	32.3
3	*2412.00	122.7 PK			1.58 V	316	90.4	32.3
4	*2412.00	110.0 AV			1.58 V	316	77.7	32.3
5	4824.00	49.2 PK	74.0	-24.8	1.77 V	221	46.1	3.1
6	4824.00	36.3 AV	54.0	-17.7	1.77 V	221	33.2	3.1

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.

RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2437.00	117.1 PK			1.44 H	318	84.8	32.3
2	*2437.00	103.3 AV			1.44 H	318	71.0	32.3
3	2483.50	62.1 PK	74.0	-11.9	1.44 H	318	29.7	32.4
4	2483.50	47.3 AV	54.0	-6.7	1.44 H	318	14.9	32.4
5	4874.00	48.1 PK	74.0	-25.9	1.50 H	117	44.9	3.2
6	4874.00	35.5 AV	54.0	-18.5	1.50 H	117	32.3	3.2
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	*2437.00	126.5 PK			1.71 V	12	94.2	32.3
2	*2437.00	113.4 AV			1.71 V	12	81.1	32.3
3	2483.50	70.1 PK	74.0	-3.9	1.71 V	12	37.7	32.4
4	2483.50	53.4 AV	54.0	-0.6	1.71 V	12	21.0	32.4
5	4874.00	49.4 PK	74.0	-24.6	1.80 V	236	46.2	3.2
6	4874.00	36.3 AV	54.0	-17.7	1.80 V	236	33.1	3.2

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.

RF Mode	802.11ax (HE20)	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2462.00	108.4 PK			1.12 H	320	76.2	32.2
2	*2462.00	95.4 AV			1.12 H	320	63.2	32.2
3	2483.50	59.2 PK	74.0	-14.8	1.12 H	320	26.8	32.4
4	2483.50	46.7 AV	54.0	-7.3	1.12 H	320	14.3	32.4
5	4924.00	48.4 PK	74.0	-25.6	1.51 H	118	45.1	3.3
6	4924.00	35.6 AV	54.0	-18.4	1.51 H	118	32.3	3.3
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	*2462.00	118.1 PK			1.61 V	131	85.9	32.2
2	*2462.00	104.1 AV			1.61 V	131	71.9	32.2
3	2483.50	64.0 PK	74.0	-10.0	1.61 V	131	31.6	32.4
4	2483.50	49.4 AV	54.0	-4.6	1.61 V	131	17.0	32.4
5	4924.00	49.0 PK	74.0	-25.0	1.76 V	231	45.7	3.3
6	4924.00	35.9 AV	54.0	-18.1	1.76 V	231	32.6	3.3

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.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11ax (HE40)	Channel	CH 3 : 2422 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	2390.00	57.1 PK	74.0	-16.9	1.61 H	214	24.8	32.3
2	2390.00	44.0 AV	54.0	-10.0	1.61 H	214	11.7	32.3
3	*2422.00	110.9 PK			1.61 H	214	78.6	32.3
4	*2422.00	98.1 AV			1.61 H	214	65.8	32.3
5	2483.50	58.6 PK	74.0	-15.4	1.61 H	214	26.2	32.4
6	2483.50	46.5 AV	54.0	-7.5	1.61 H	214	14.1	32.4
7	4844.00	48.0 PK	74.0	-26.0	1.71 H	141	44.9	3.1
8	4844.00	34.9 AV	54.0	-19.1	1.71 H	141	31.8	3.1
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	2390.00	57.3 PK	74.0	-16.7	1.59 V	3	25.0	32.3
2	2390.00	44.0 AV	54.0	-10.0	1.59 V	3	11.7	32.3
3	*2422.00	121.1 PK			1.59 V	3	88.8	32.3
4	*2422.00	108.2 AV			1.59 V	3	75.9	32.3
5	2483.50	66.9 PK	74.0	-7.1	1.59 V	3	34.5	32.4
6	2483.50	53.1 AV	54.0	-0.9	1.59 V	3	20.7	32.4
7	4844.00	49.0 PK	74.0	-25.0	1.59 V	224	45.9	3.1
8	4844.00	35.3 AV	54.0	-18.7	1.59 V	224	32.2	3.1

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.

RF Mode	802.11ax (HE40)	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2437.00	108.9 PK			1.83 H	214	76.6	32.3
2	*2437.00	96.3 AV			1.83 H	214	64.0	32.3
3	4874.00	48.1 PK	74.0	-25.9	1.44 H	138	44.9	3.2
4	4874.00	35.0 AV	54.0	-19.0	1.44 H	138	31.8	3.2
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	*2437.00	119.7 PK			1.51 V	358	87.4	32.3
2	*2437.00	106.6 AV			1.51 V	358	74.3	32.3
3	4874.00	48.5 PK	74.0	-25.5	1.70 V	229	45.3	3.2
4	4874.00	35.4 AV	54.0	-18.6	1.70 V	229	32.2	3.2

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.

RF Mode	802.11ax (HE40)	Channel	CH 9 : 2452 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2452.00	104.9 PK			1.18 H	317	72.7	32.2
2	*2452.00	91.6 AV			1.18 H	317	59.4	32.2
3	2483.50	60.5 PK	74.0	-13.5	1.18 H	317	28.1	32.4
4	2483.50	48.1 AV	54.0	-5.9	1.18 H	317	15.7	32.4
5	4924.00	49.4 PK	74.0	-24.6	1.79 H	233	46.1	3.3
6	4924.00	36.3 AV	54.0	-17.7	1.79 H	233	33.0	3.3
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	*2452.00	114.9 PK			1.53 V	357	82.7	32.2
2	*2452.00	102.6 AV			1.53 V	357	70.4	32.2
3	2483.50	67.6 PK	74.0	-6.4	1.53 V	357	35.2	32.4
4	2483.50	53.4 AV	54.0	-0.6	1.53 V	357	21.0	32.4
5	4904.00	48.4 PK	74.0	-25.6	1.51 V	127	45.1	3.3
6	4904.00	35.5 AV	54.0	-18.5	1.51 V	127	32.2	3.3

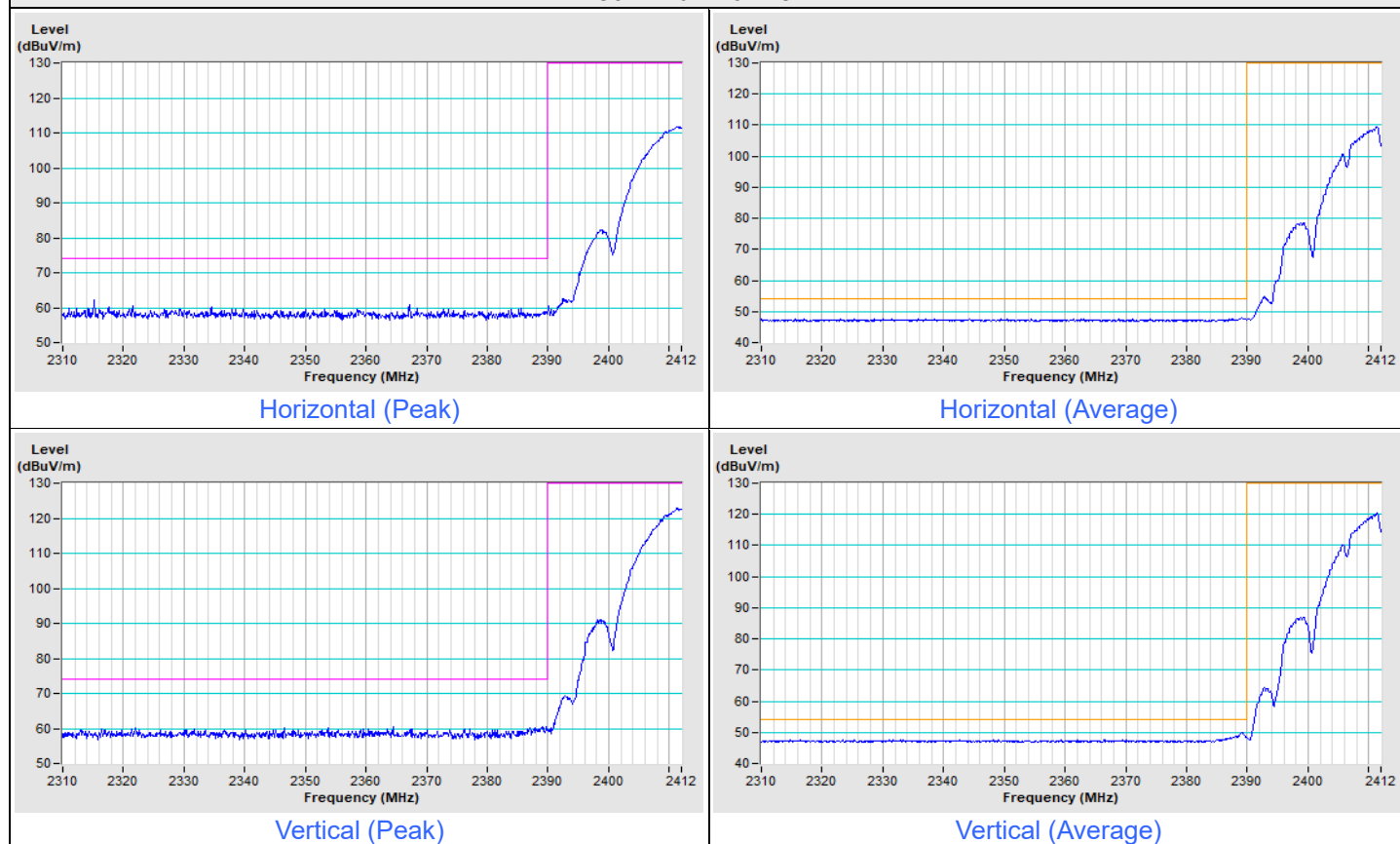
Remarks:

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.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

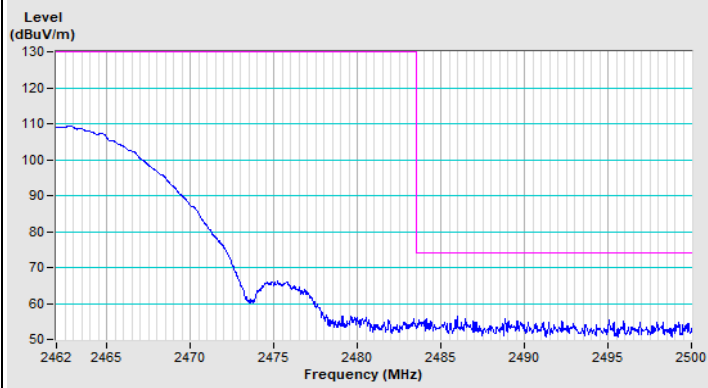
Plot of Band Edge

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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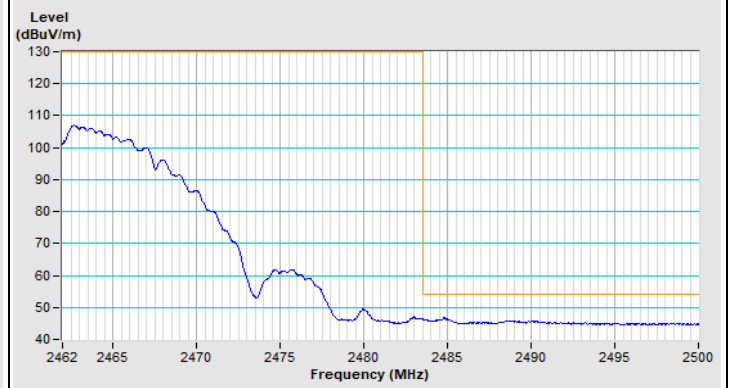
802.11b Channel 1



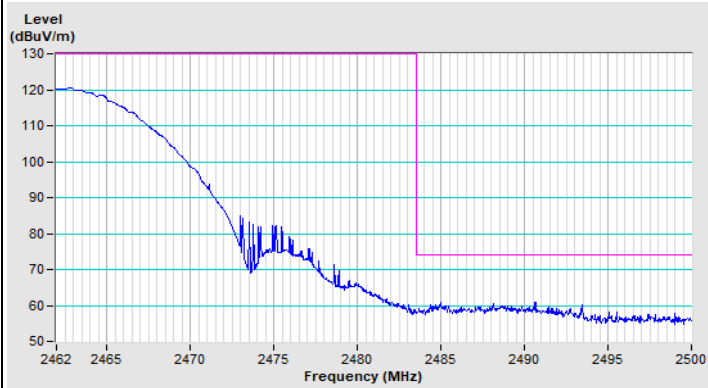
802.11b Channel 11



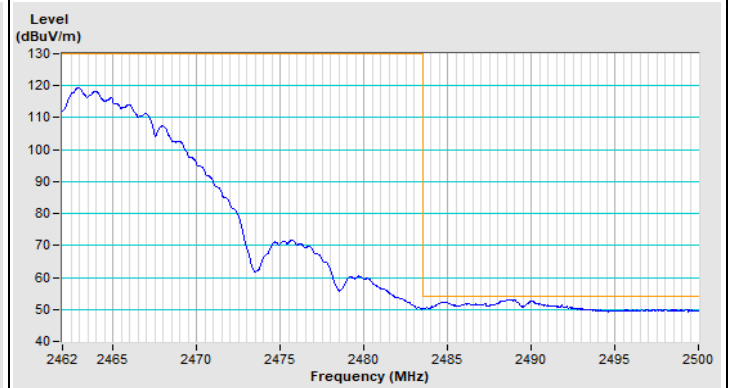
Horizontal (Peak)



Horizontal (Average)



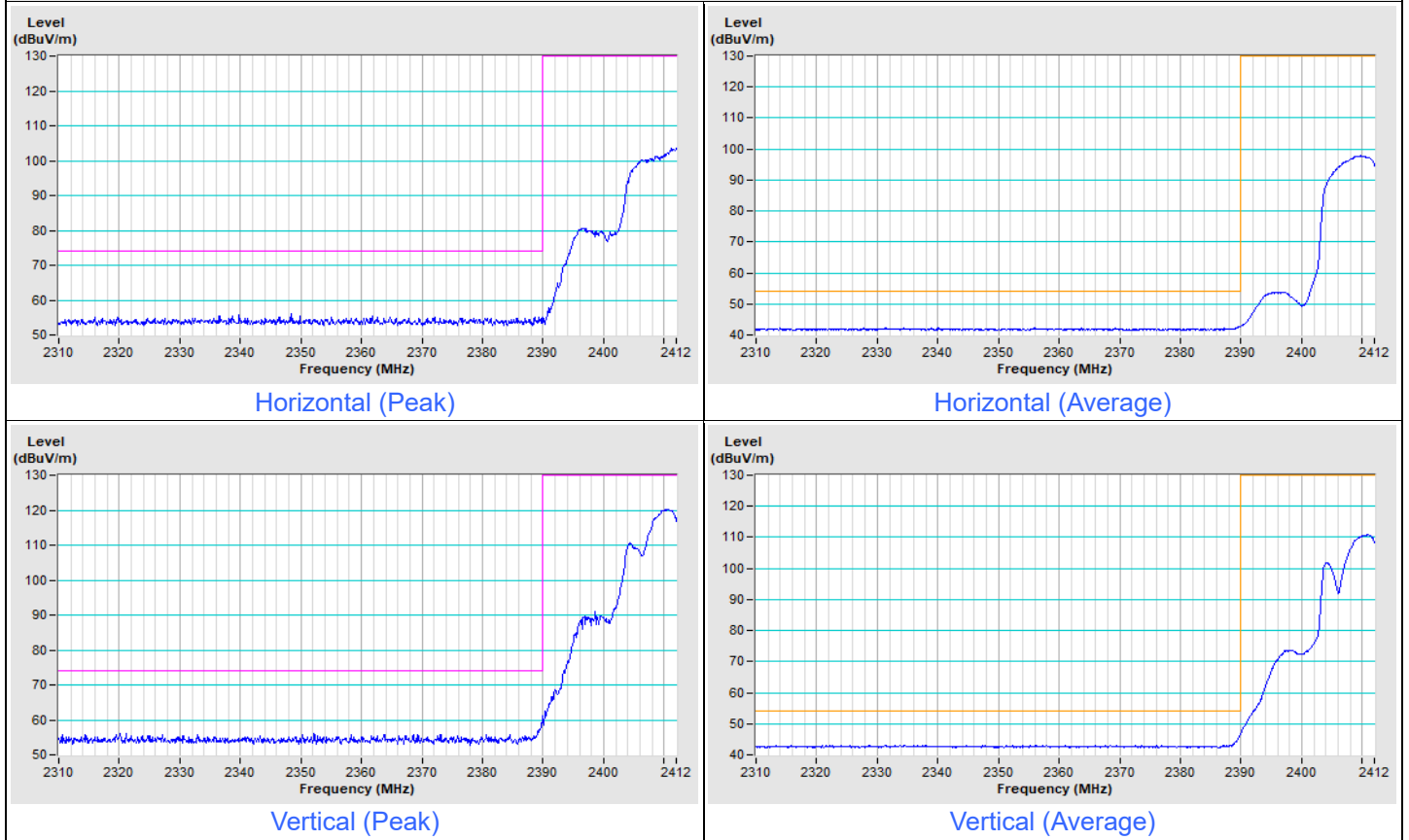
Vertical (Peak)



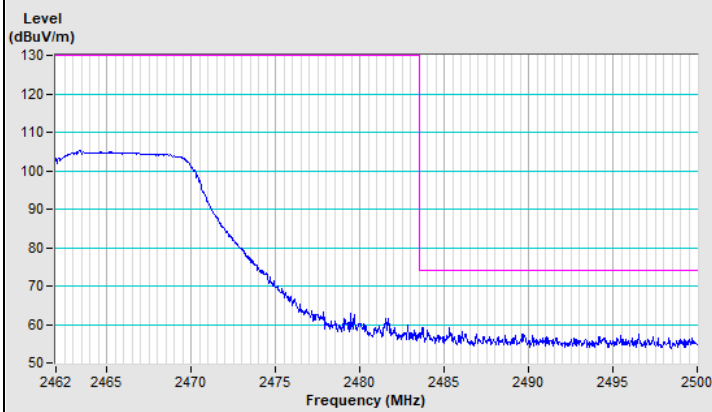
Vertical (Average)

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
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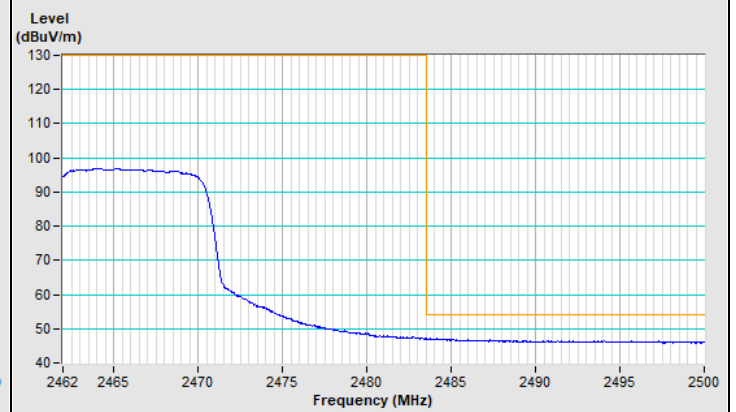
802.11g Channel 1



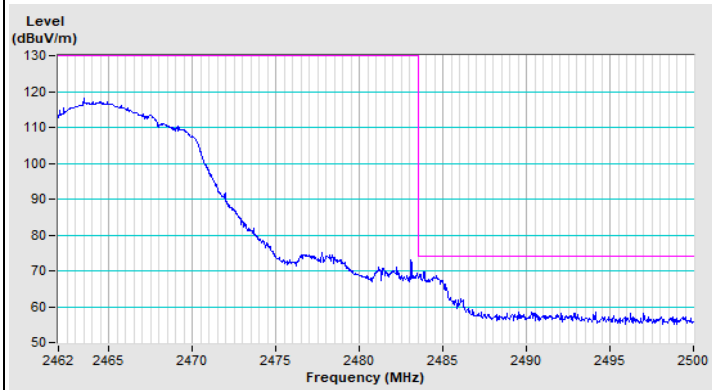
802.11g Channel 11



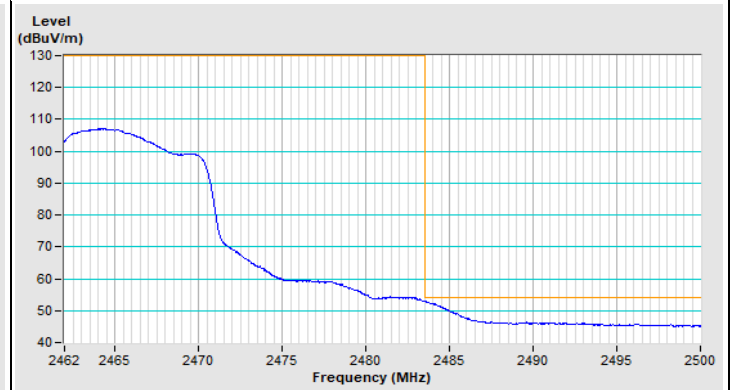
Horizontal (Peak)



Horizontal (Average)



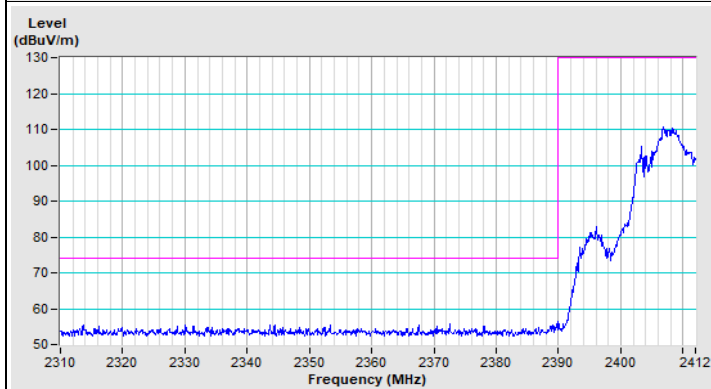
Vertical (Peak)



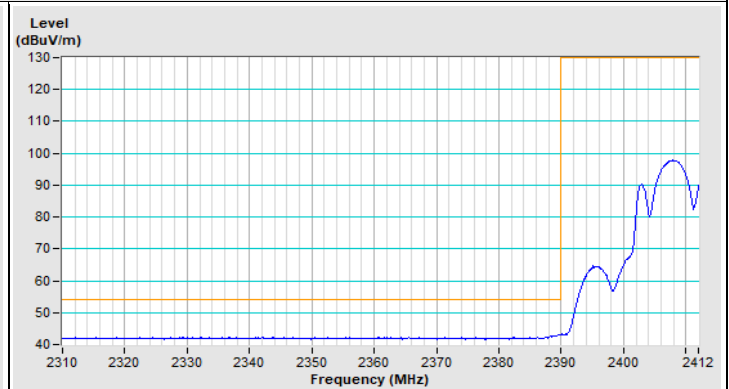
Vertical (Average)

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
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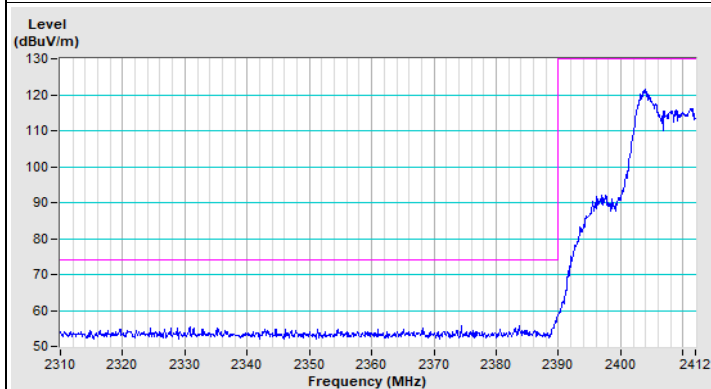
802.11ax (HE20) Channel 1



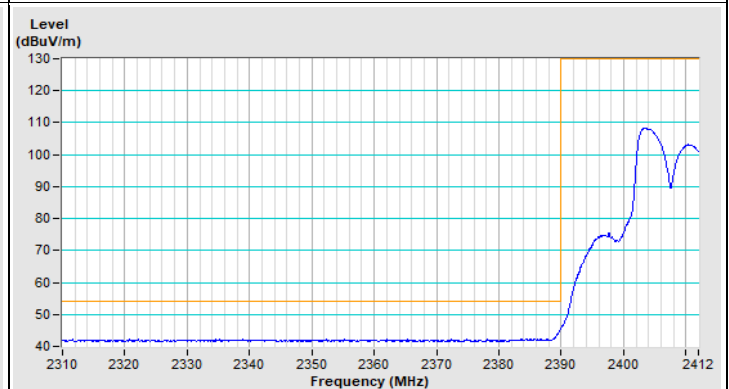
Horizontal (Peak)



Horizontal (Average)

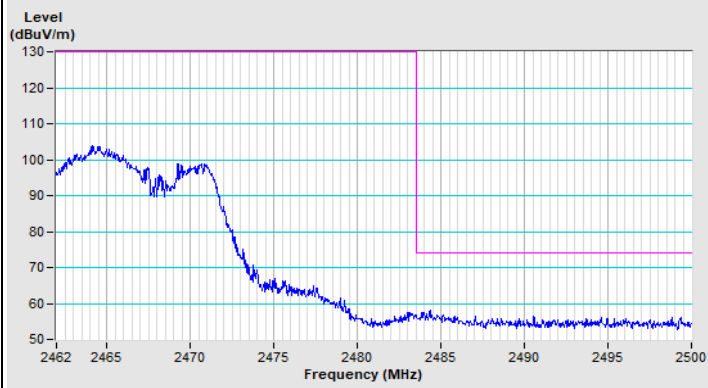


Vertical (Peak)

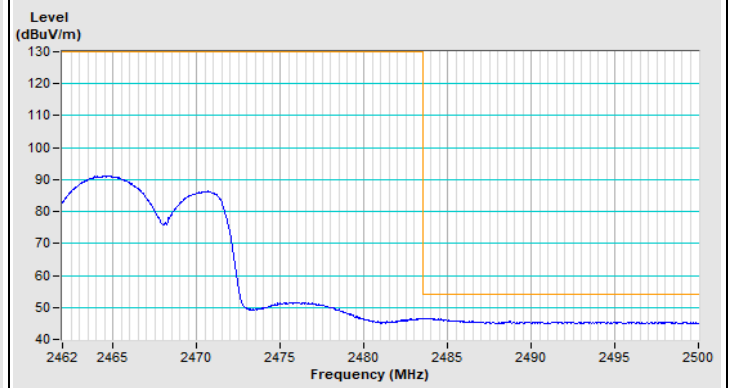


Vertical (Average)

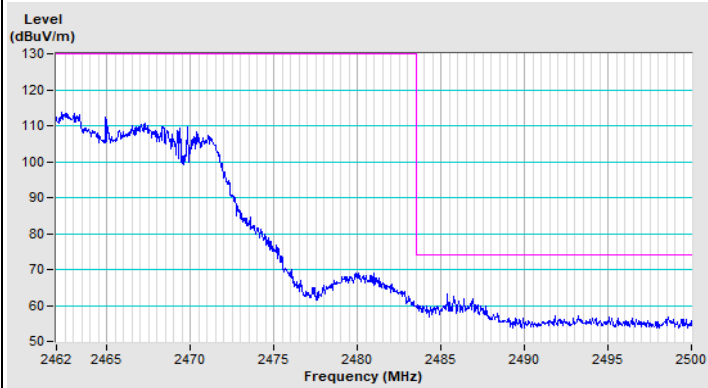
802.11ax (HE20) Channel 11



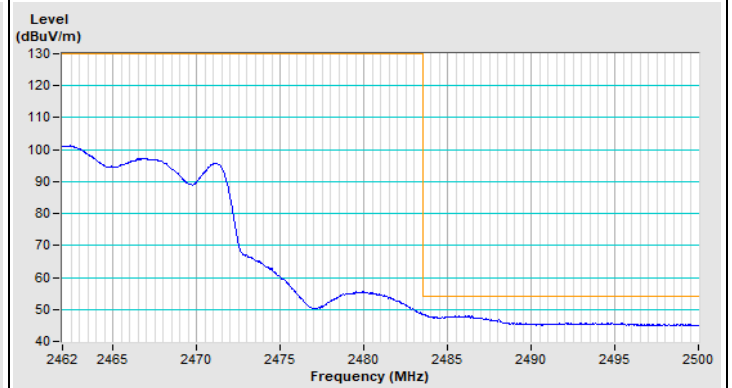
Horizontal (Peak)



Horizontal (Average)



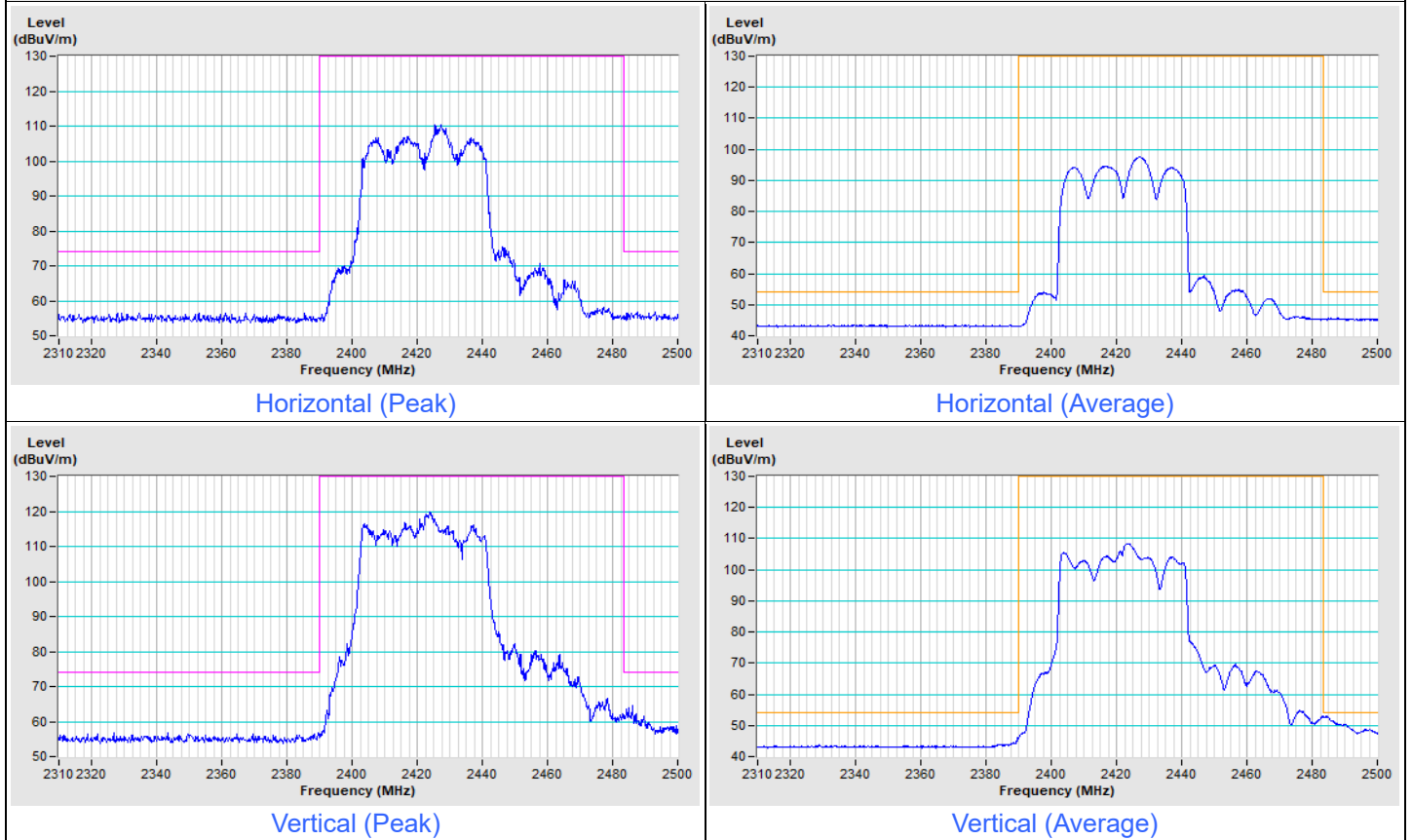
Vertical (Peak)



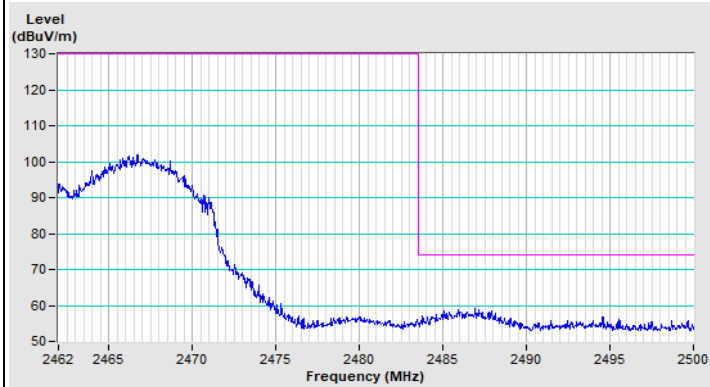
Vertical (Average)

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
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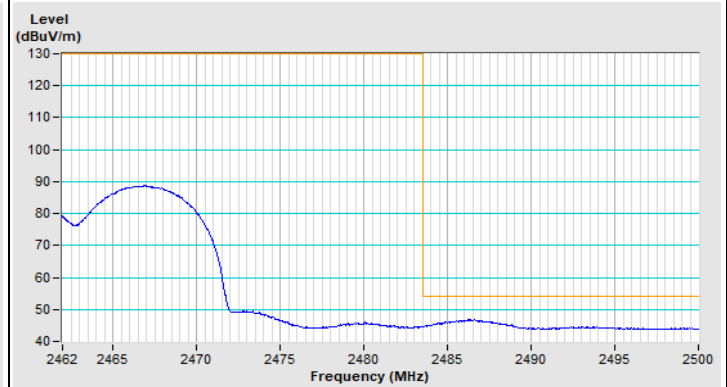
802.11ax (HE40) Channel 3



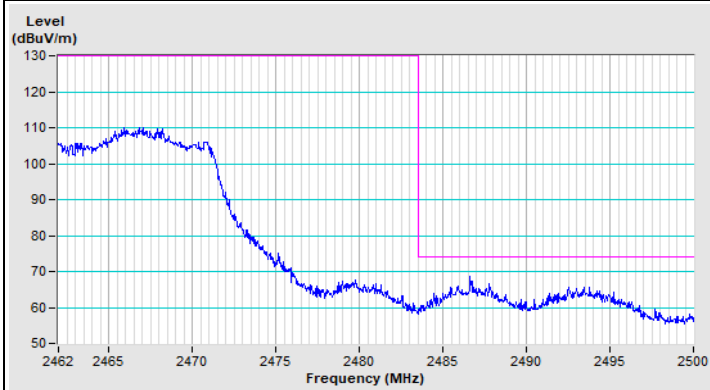
802.11ax (HE40) Channel 9



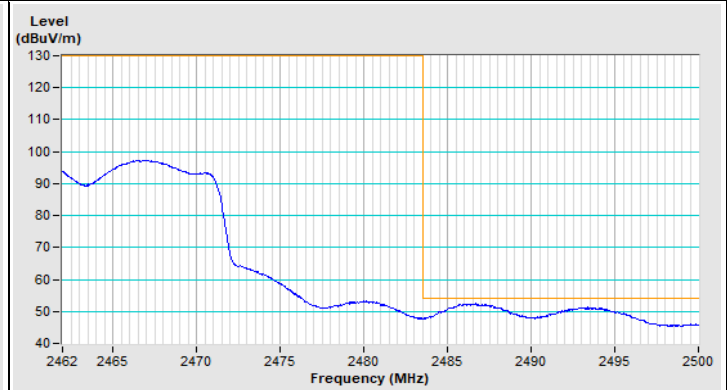
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)



Vertical (Average)

Mode B

RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	2390.00	59.5 PK	74.0	-14.5	1.72 H	142	27.2	32.3
2	2390.00	50.6 AV	54.0	-3.4	1.72 H	142	18.3	32.3
3	*2412.00	122.3 PK			1.72 H	142	90.0	32.3
4	*2412.00	120.2 AV			1.72 H	142	87.9	32.3
5	4824.00	52.6 PK	74.0	-21.4	1.51 H	185	49.5	3.1
6	4824.00	46.3 AV	54.0	-7.7	1.51 H	185	43.2	3.1
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	2390.00	62.8 PK	74.0	-11.2	1.63 V	152	30.5	32.3
2	2390.00	53.5 AV	54.0	-0.5	1.63 V	152	21.2	32.3
3	*2412.00	125.2 PK			1.63 V	152	92.9	32.3
4	*2412.00	122.7 AV			1.63 V	152	90.4	32.3
5	4824.00	57.0 PK	74.0	-17.0	2.60 V	170	53.9	3.1
6	4824.00	53.6 AV	54.0	-0.4	2.60 V	170	50.5	3.1

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.

RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2437.00	122.2 PK			1.92 H	142	89.9	32.3
2	*2437.00	119.7 AV			1.92 H	142	87.4	32.3
3	4874.00	51.2 PK	74.0	-22.8	1.56 H	182	48.0	3.2
4	4874.00	43.1 AV	54.0	-10.9	1.56 H	182	39.9	3.2
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	*2437.00	124.3 PK			1.66 V	153	92.0	32.3
2	*2437.00	121.8 AV			1.66 V	153	89.5	32.3
3	4874.00	52.6 PK	74.0	-21.4	1.57 V	185	49.4	3.2
4	4874.00	45.8 AV	54.0	-8.2	1.57 V	185	42.6	3.2

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.

RF Mode	802.11b	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2462.00	120.6 PK			1.67 H	132	88.4	32.2
2	*2462.00	118.1 AV			1.67 H	132	85.9	32.2
3	2488.70	61.0 PK	74.0	-13.0	1.67 H	132	28.6	32.4
4	2488.70	51.5 AV	54.0	-2.5	1.67 H	132	19.1	32.4
5	4924.00	49.4 PK	74.0	-24.6	1.51 H	140	46.1	3.3
6	4924.00	37.7 AV	54.0	-16.3	1.51 H	140	34.4	3.3
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	*2462.00	121.0 PK			1.21 V	221	88.8	32.2
2	*2462.00	118.7 AV			1.21 V	221	86.5	32.2
3	2488.70	61.6 PK	74.0	-12.4	1.21 V	221	29.2	32.4
4	2488.70	53.5 AV	54.0	-0.5	1.21 V	221	21.1	32.4
5	4924.00	51.2 PK	74.0	-22.8	1.61 V	181	47.9	3.3
6	4924.00	41.6 AV	54.0	-12.4	1.61 V	181	38.3	3.3

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.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11g	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	2390.00	57.9 PK	74.0	-16.1	1.38 H	119	25.6	32.3
2	2390.00	44.9 AV	54.0	-9.1	1.38 H	119	12.6	32.3
3	*2412.00	119.9 PK			1.38 H	119	87.6	32.3
4	*2412.00	110.6 AV			1.38 H	119	78.3	32.3
5	4824.00	49.4 PK	74.0	-24.6	1.82 H	190	46.3	3.1
6	4824.00	35.3 AV	54.0	-18.7	1.82 H	190	32.2	3.1
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	2390.00	59.7 PK	74.0	-14.3	1.34 V	191	27.4	32.3
2	2390.00	46.1 AV	54.0	-7.9	1.34 V	191	13.8	32.3
3	*2412.00	125.9 PK			1.34 V	191	93.6	32.3
4	*2412.00	115.7 AV			1.34 V	191	83.4	32.3
5	4824.00	48.3 PK	74.0	-25.7	2.64 V	172	45.2	3.1
6	4824.00	35.1 AV	54.0	-18.9	2.64 V	172	32.0	3.1

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.

RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2437.00	121.8 PK			1.60 H	132	89.5	32.3
2	*2437.00	112.5 AV			1.60 H	132	80.2	32.3
3	2483.50	61.1 PK	74.0	-12.9	1.60 H	132	28.7	32.4
4	2483.50	45.8 AV	54.0	-8.2	1.60 H	132	13.4	32.4
5	4874.00	49.2 PK	74.0	-24.8	1.52 H	183	46.0	3.2
6	4874.00	36.0 AV	54.0	-18.0	1.52 H	183	32.8	3.2
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	*2437.00	126.8 PK			1.77 V	191	94.5	32.3
2	*2437.00	117.4 AV			1.77 V	191	85.1	32.3
3	2483.50	65.8 PK	74.0	-8.2	1.77 V	191	33.4	32.4
4	2483.50	53.2 AV	54.0	-0.8	1.77 V	191	20.8	32.4
5	4874.00	49.4 PK	74.0	-24.6	1.48 V	190	46.2	3.2
6	4874.00	36.3 AV	54.0	-17.7	1.48 V	190	33.1	3.2

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.

RF Mode	802.11g	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2462.00	117.6 PK			1.52 H	162	85.4	32.2
2	*2462.00	108.3 AV			1.52 H	162	76.1	32.2
3	2483.50	62.8 PK	74.0	-11.2	1.52 H	162	30.4	32.4
4	2483.50	47.3 AV	54.0	-6.7	1.52 H	162	14.9	32.4
5	4924.00	47.3 PK	74.0	-26.7	1.57 H	250	44.0	3.3
6	4924.00	34.8 AV	54.0	-19.2	1.57 H	250	31.5	3.3
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	*2462.00	122.3 PK			1.38 V	188	90.1	32.2
2	*2462.00	112.9 AV			1.38 V	188	80.7	32.2
3	2483.50	71.7 PK	74.0	-2.3	1.38 V	188	39.3	32.4
4	2483.50	53.5 AV	54.0	-0.5	1.38 V	188	21.1	32.4
5	4924.00	49.9 PK	74.0	-24.1	1.53 V	243	46.6	3.3
6	4924.00	35.2 AV	54.0	-18.8	1.53 V	243	31.9	3.3

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.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11ax (HE20)	Channel	CH 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	2390.00	67.4 PK	74.0	-6.6	1.39 H	114	35.1	32.3
2	2390.00	53.0 AV	54.0	-1.0	1.39 H	114	20.7	32.3
3	*2412.00	124.4 PK			1.39 H	114	92.1	32.3
4	*2412.00	110.4 AV			1.39 H	114	78.1	32.3
5	4824.00	48.9 PK	74.0	-25.1	2.22 H	178	45.8	3.1
6	4824.00	35.1 AV	54.0	-18.9	2.22 H	178	32.0	3.1
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	2390.00	67.7 PK	74.0	-6.3	1.48 V	179	35.4	32.3
2	2390.00	53.7 AV	54.0	-0.3	1.48 V	179	21.4	32.3
3	*2412.00	127.8 PK			1.48 V	179	95.5	32.3
4	*2412.00	115.3 AV			1.48 V	179	83.0	32.3
5	4824.00	49.8 PK	74.0	-24.2	2.32 V	166	46.7	3.1
6	4824.00	36.3 AV	54.0	-17.7	2.32 V	166	33.2	3.1

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.

RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2437.00	124.5 PK			1.59 H	138	92.2	32.3
2	*2437.00	112.4 AV			1.59 H	138	80.1	32.3
3	2483.50	64.5 PK	74.0	-9.5	1.59 H	138	32.1	32.4
4	2483.50	50.7 AV	54.0	-3.3	1.59 H	138	18.3	32.4
5	4874.00	50.1 PK	74.0	-23.9	1.74 H	208	46.9	3.2
6	4874.00	36.8 AV	54.0	-17.2	1.74 H	208	33.6	3.2
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	*2437.00	128.6 PK			1.31 V	280	96.3	32.3
2	*2437.00	116.6 AV			1.31 V	280	84.3	32.3
3	2483.50	70.1 PK	74.0	-3.9	1.31 V	180	37.7	32.4
4	2483.50	53.1 AV	54.0	-0.9	1.31 V	180	20.7	32.4
5	4874.00	50.3 PK	74.0	-23.7	1.61 V	208	47.1	3.2
6	4874.00	36.7 AV	54.0	-17.3	1.61 V	208	33.5	3.2

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.

RF Mode	802.11ax (HE20)	Channel	CH 11 : 2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2462.00	119.5 PK			1.48 H	179	87.3	32.2
2	*2462.00	105.6 AV			1.48 H	179	73.4	32.2
3	2483.50	66.8 PK	74.0	-7.2	1.48 H	179	34.4	32.4
4	2483.50	50.8 AV	54.0	-3.2	1.48 H	179	18.4	32.4
5	4924.00	47.2 PK	74.0	-26.8	1.55 H	218	43.9	3.3
6	4924.00	33.5 AV	54.0	-20.5	1.55 H	218	30.2	3.3
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	*2462.00	122.7 PK			1.49 V	181	90.5	32.2
2	*2462.00	109.7 AV			1.49 V	181	77.5	32.2
3	2483.50	67.6 PK	74.0	-6.4	1.49 V	181	35.2	32.4
4	2483.50	53.3 AV	54.0	-0.7	1.49 V	181	20.9	32.4
5	4924.00	48.4 PK	74.0	-25.6	1.63 V	225	45.1	3.3
6	4924.00	34.9 AV	54.0	-19.1	1.63 V	225	31.6	3.3

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.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11ax (HE40)	Channel	CH 3 : 2422 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	2390.00	58.0 PK	74.0	-16.0	1.47 H	137	25.7	32.3
2	2390.00	44.1 AV	54.0	-9.9	1.47 H	137	11.8	32.3
3	*2422.00	119.7 PK			1.47 H	137	87.4	32.3
4	*2422.00	106.7 AV			1.47 H	137	74.4	32.3
5	2483.50	66.0 PK	74.0	-8.0	1.47 H	137	33.6	32.4
6	2483.50	51.8 AV	54.0	-2.2	1.47 H	137	19.4	32.4
7	4844.00	47.8 PK	74.0	-26.2	1.70 H	205	44.7	3.1
8	4844.00	35.0 AV	54.0	-19.0	1.70 H	205	31.9	3.1
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	2390.00	66.8 PK	74.0	-7.2	1.25 V	183	34.5	32.3
2	2390.00	50.6 AV	54.0	-3.4	1.25 V	183	18.3	32.3
3	*2422.00	126.3 PK			1.25 V	183	94.0	32.3
4	*2422.00	112.8 AV			1.25 V	183	80.5	32.3
5	2483.50	69.6 PK	74.0	-4.4	1.25 V	183	37.2	32.4
6	2483.50	53.7 AV	54.0	-0.3	1.25 V	183	21.3	32.4
7	4844.00	47.9 PK	74.0	-26.1	1.72 V	209	44.8	3.1
8	4844.00	35.0 AV	54.0	-19.0	1.72 V	209	31.9	3.1

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.

RF Mode	802.11ax (HE40)	Channel	CH 6 : 2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2437.00	116.5 PK			1.59 H	138	84.2	32.3
2	*2437.00	103.7 AV			1.59 H	138	71.4	32.3
3	2483.50	61.7 PK	74.0	-12.3	1.59 H	138	29.3	32.4
4	2483.50	48.2 AV	54.0	-5.8	1.59 H	138	15.8	32.4
5	4874.00	48.8 PK	74.0	-25.2	1.68 H	220	45.6	3.2
6	4874.00	34.9 AV	54.0	-19.1	1.68 H	220	31.7	3.2
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	*2437.00	122.2 PK			1.59 V	180	89.9	32.3
2	*2437.00	108.9 AV			1.59 V	180	76.6	32.3
3	2483.50	68.5 PK	74.0	-5.5	1.59 V	180	36.1	32.4
4	2483.50	53.2 AV	54.0	-0.8	1.59 V	180	20.8	32.4
5	4874.00	49.4 PK	74.0	-24.6	1.65 V	197	46.2	3.2
6	4874.00	35.5 AV	54.0	-18.5	1.65 V	197	32.3	3.2

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.

RF Mode	802.11ax (HE40)	Channel	CH 9 : 2452 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22°C, 68% RH
Tested By	Greg Lin		

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	*2452.00	109.4 PK			1.86 H	125	77.2	32.2
2	*2452.00	97.8 AV			1.86 H	125	65.6	32.2
3	2483.50	60.5 PK	74.0	-13.5	1.86 H	125	28.1	32.4
4	2483.50	48.3 AV	54.0	-5.7	1.86 H	125	15.9	32.4
5	4904.00	47.6 PK	74.0	-26.4	1.68 H	205	44.3	3.3
6	4904.00	34.5 AV	54.0	-19.5	1.68 H	205	31.2	3.3
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	*2452.00	116.2 PK			1.35 V	180	84.0	32.2
2	*2452.00	103.5 AV			1.35 V	180	71.3	32.2
3	2483.50	65.4 PK	74.0	-8.6	1.35 V	180	33.0	32.4
4	2483.50	53.0 AV	54.0	-1.0	1.35 V	180	20.6	32.4
5	4904.00	48.0 PK	74.0	-26.0	1.69 V	201	44.7	3.3
6	4904.00	35.0 AV	54.0	-19.0	1.69 V	201	31.7	3.3

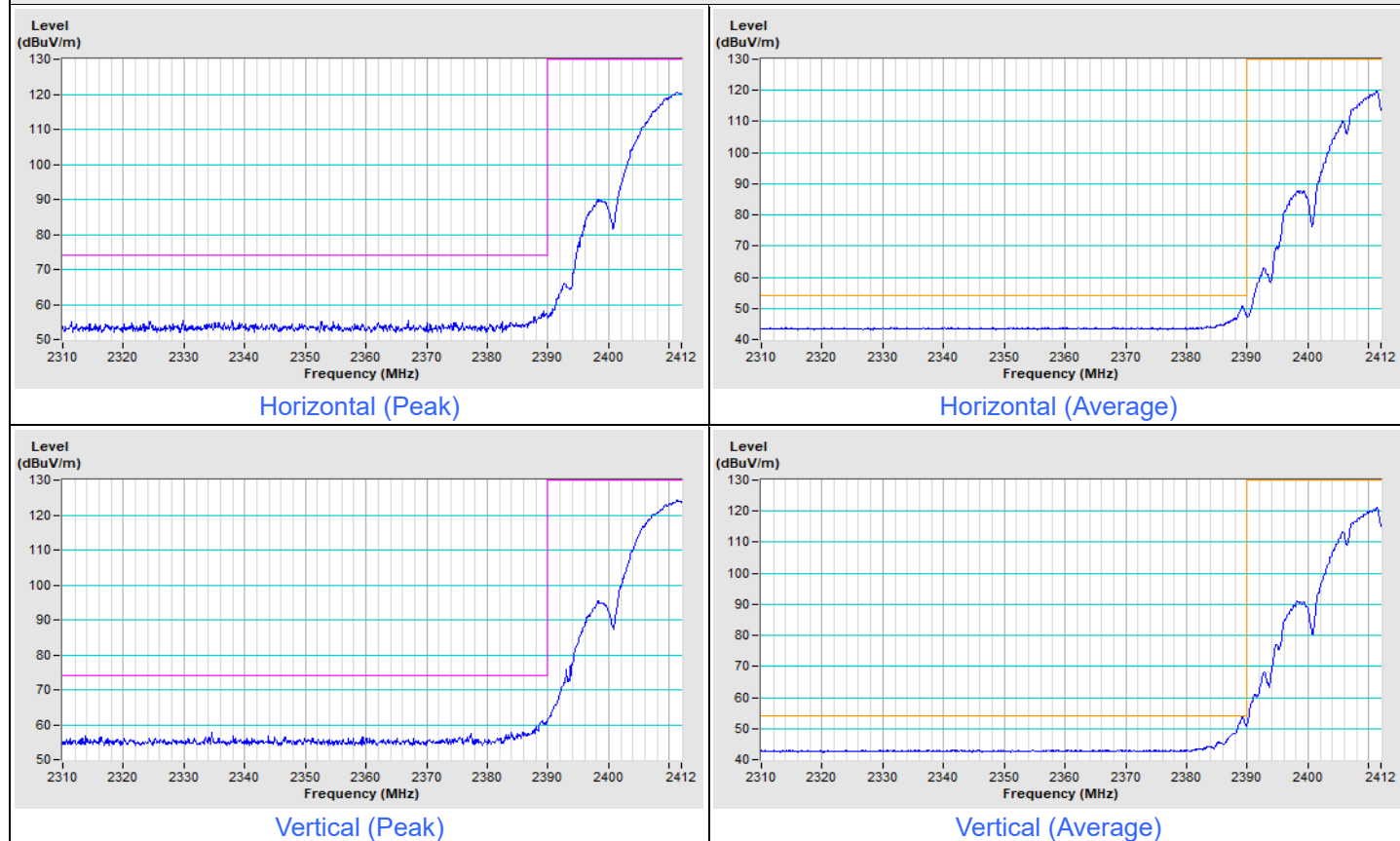
Remarks:

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.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

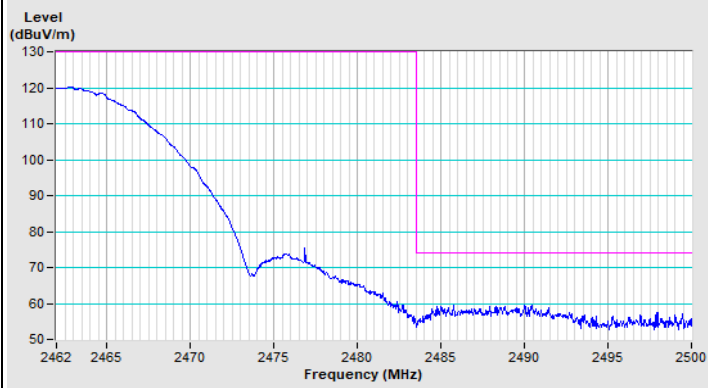
Plot of Band Edge

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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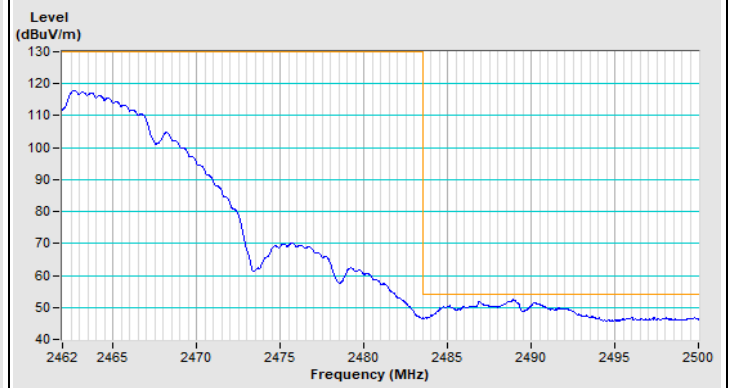
802.11b Channel 1



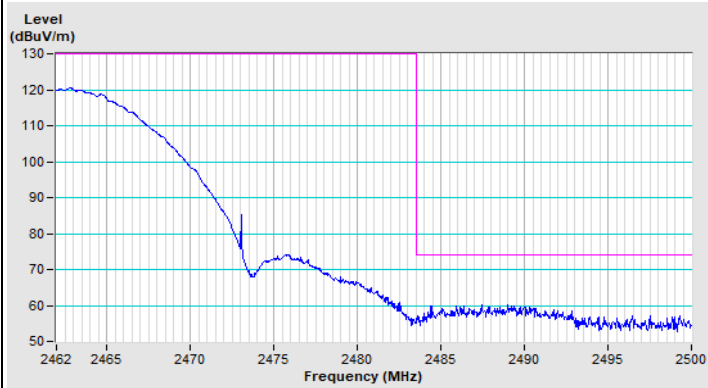
802.11b Channel 11



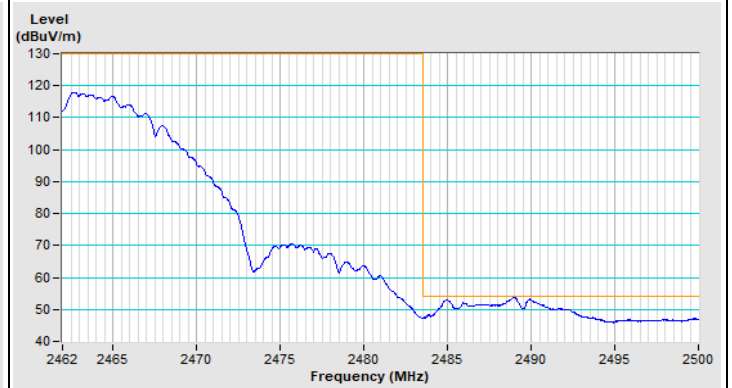
Horizontal (Peak)



Horizontal (Average)



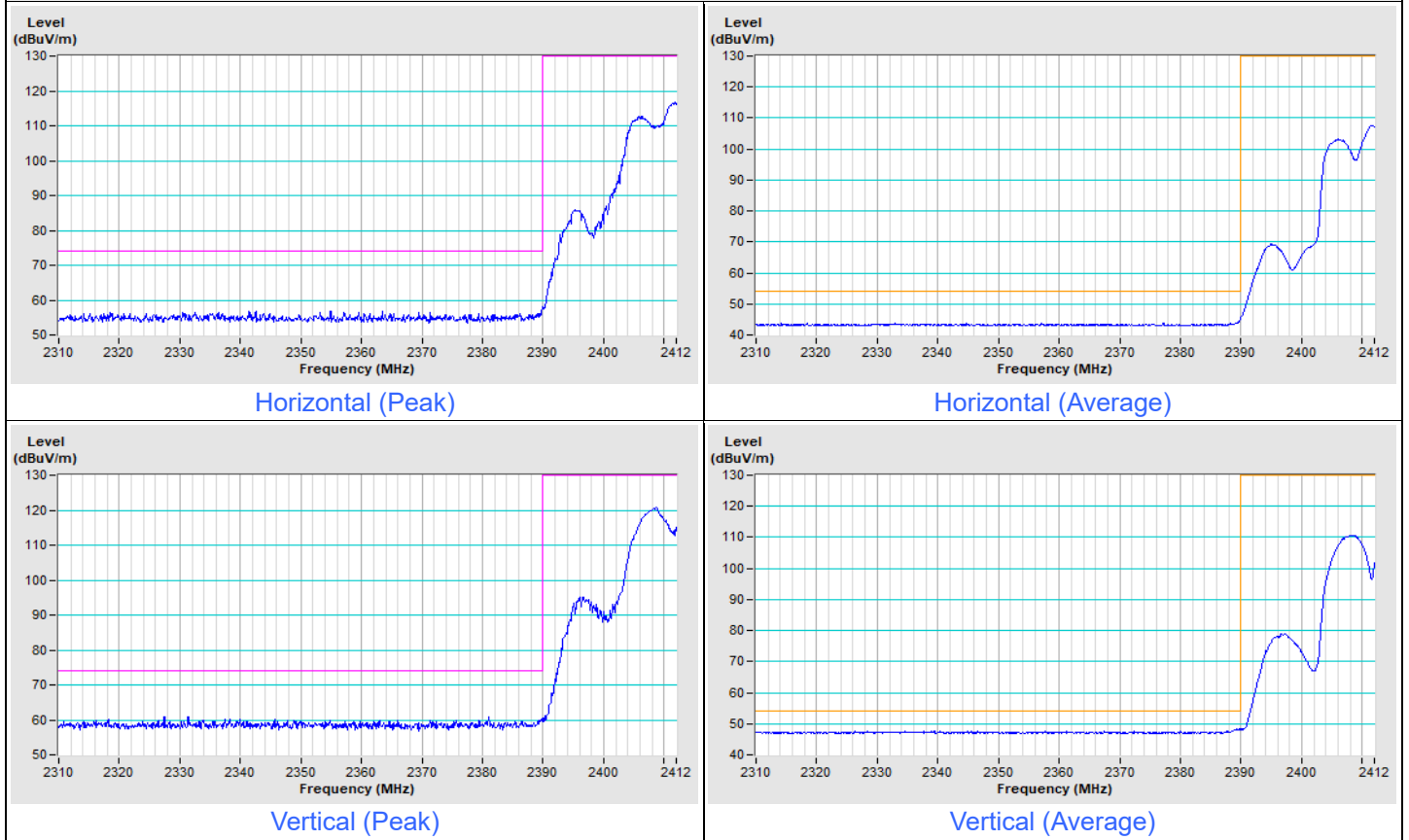
Vertical (Peak)



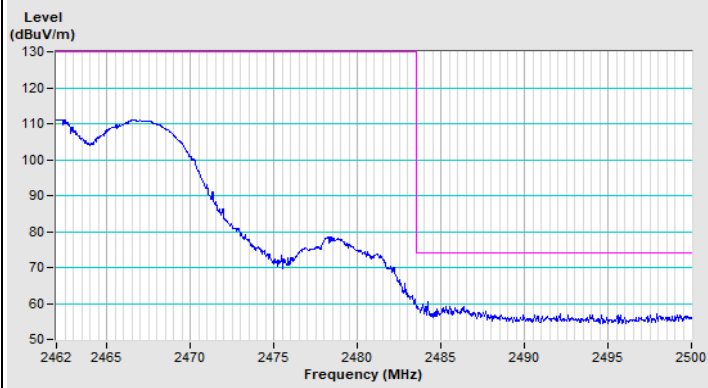
Vertical (Average)

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
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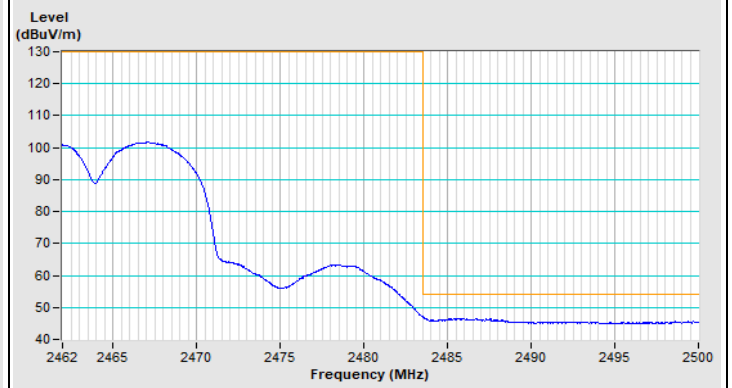
802.11g Channel 1



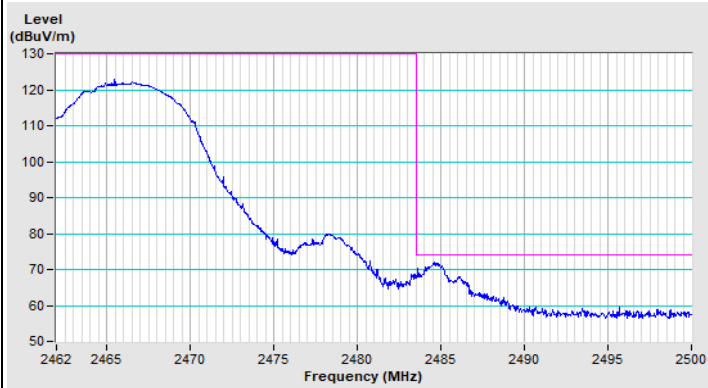
802.11g Channel 11



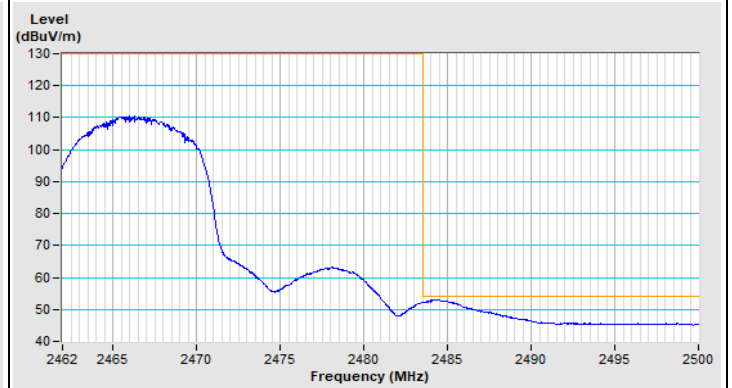
Horizontal (Peak)



Horizontal (Average)



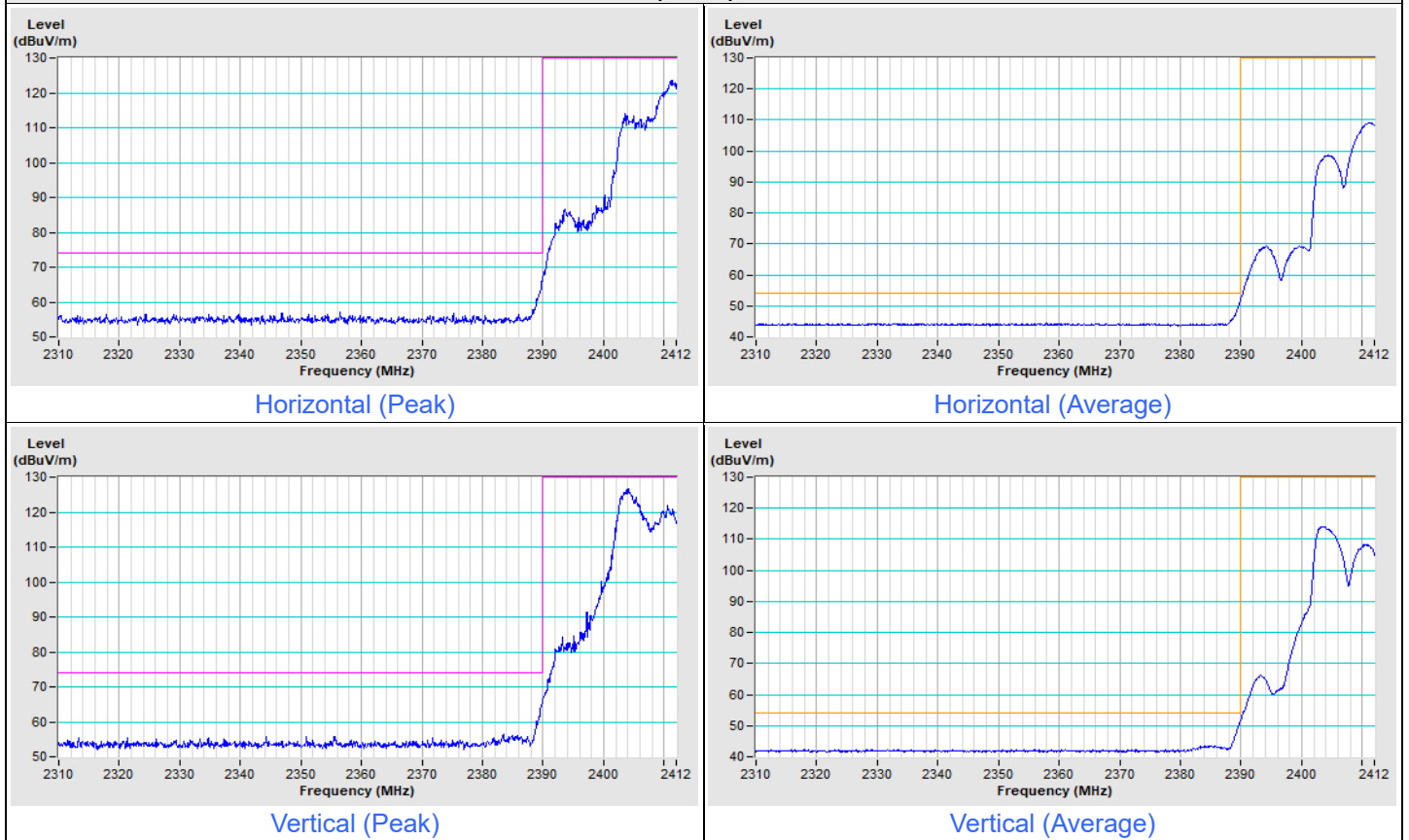
Vertical (Peak)



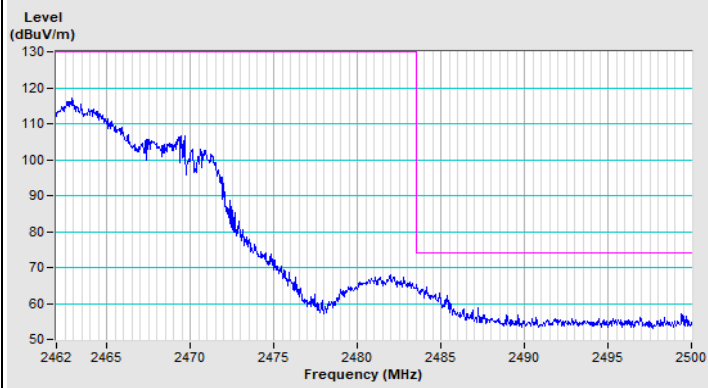
Vertical (Average)

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
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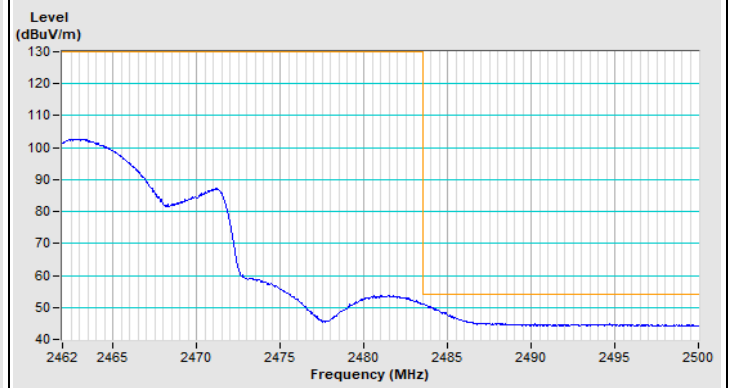
802.11ax (HE20) Channel 1



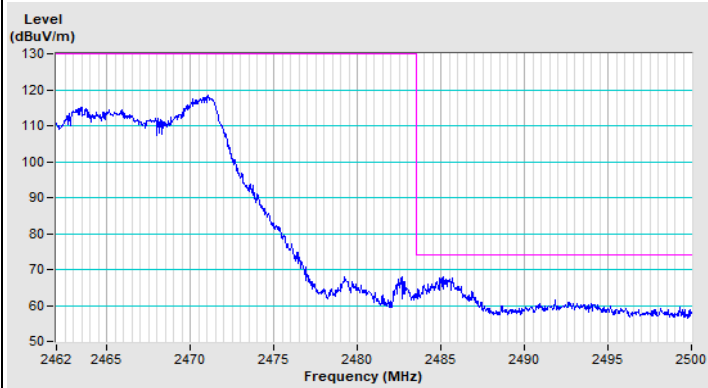
802.11ax (HE20) Channel 11



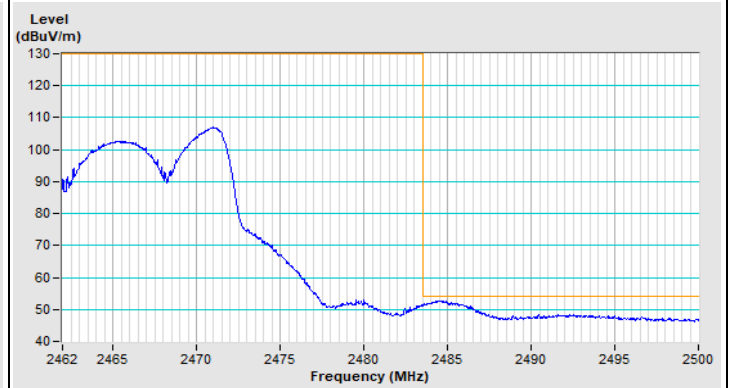
Horizontal (Peak)



Horizontal (Average)



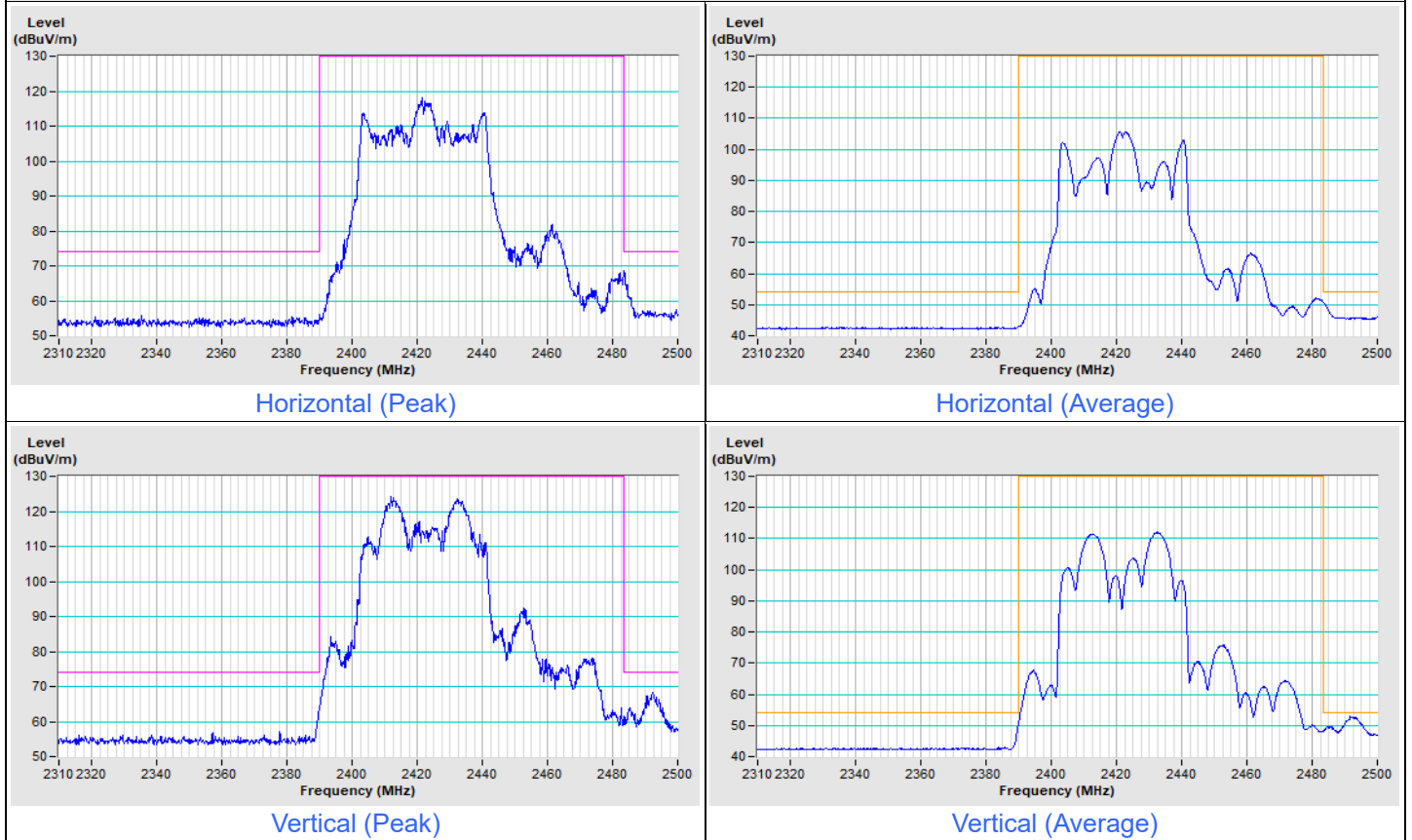
Vertical (Peak)



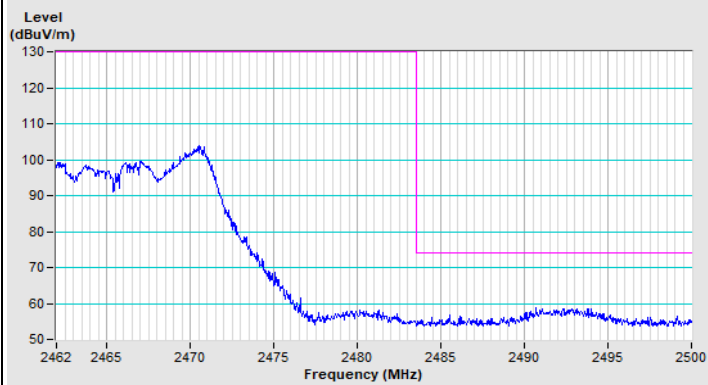
Vertical (Average)

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
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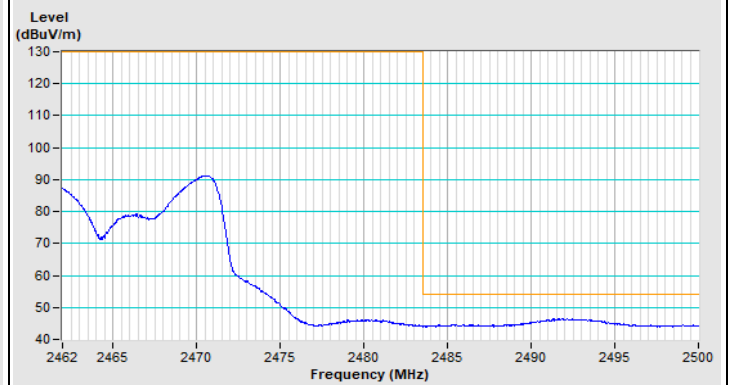
802.11ax (HE40) Channel 3



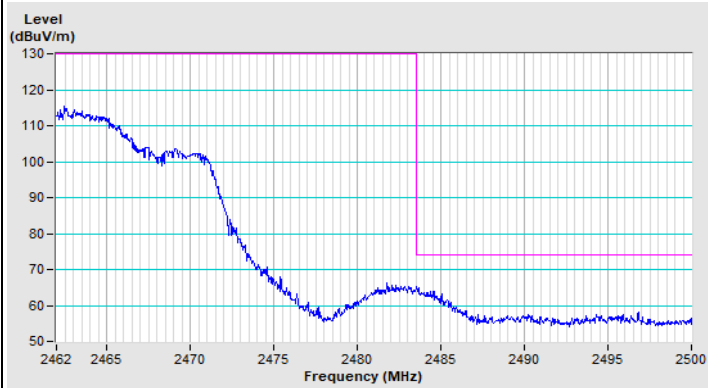
802.11ax (HE40) Channel 9



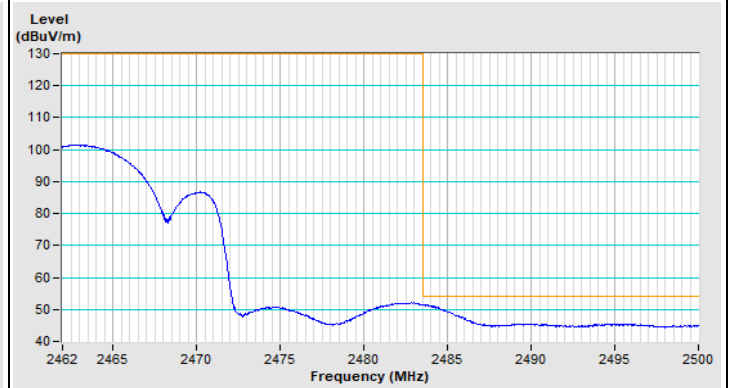
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)



Vertical (Average)

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:

Lin Kou EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@bureauveritas.com

Web Site: <http://ee.bureauveritas.com.tw>

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

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