Partial FCC Test Report

Report No.:	RFCDVB-WTW-P22100008
FCC ID:	QYLAX211NG
Test Model:	AX211NGW
Received Date:	Oct. 11, 2022
Test Date:	Nov. 03 ~ Dec. 08, 2022
Issued Date:	Dec. 26, 2022
Applicant:	Getac Technology Corporation.
Address:	5F., Building A, No. 209, Sec.1, Nangang Rd.,Nangang Dist., Taipei City 11568, Taiwan, R.O.C.
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., Kwei Shan Dist., Taoyuan City 33383, Taiwan
Test Location (2):	No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
FCC Registration / Designation Number (1):	788550 / TW0003
FCC Registration / Designation Number (2):	281270 / TW0032

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RFCDVB-WTW-P22100008	Original release.	Dec. 26, 2022

1 Certificate of Conformity

Product:	Wireless Module
Brand:	Getac
Test Model:	AX211NGW
Sample Status:	Engineering sample
Applicant:	Getac Technology Corporation.
Test Date:	Nov. 03 ~ Dec. 08, 2022
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10-2013

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.

Prepared by : Polly Chien , **Date:** Dec. 26, 2022

Polly Chien / Specialist

Approved by : Jeremy Lin , **Date:** Dec. 26, 2022

Jeremy Lin / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -6.93dB at 0.41400MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -3.7dB at 2483.50MHz.
15.247(d)	Antenna Port Emission	N/A	Refer to Note
15.247(a)(2)	6dB bandwidth	N/A	Refer to Note
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	N/A	Refer to Note
15.203	Antenna Requirement	Pass	Antenna connector is I-PEX not a standard connector.

Note:

1. This report is a partial report, only test item of Conducted Emission, Radiated Emissions and Conducted power were performed according to customer requirements. Other testing data please refer to Intel report no.: 200611-01.TR04 for module (Brand: Intel® Wi-Fi 6E AX211, Model: AX211NGW).
2. For 2.4G band compliance with rule 15.247(d) of the band-edge items, the test plots were recorded in Annex A. Test Procedures refer to report 4.1.3.
3. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.79 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~1000MHz	2.93 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Wireless Module
Brand	Getac
Test Model	AX211NGW
Sample Status	Engineering sample
Power Supply Rating	End-product: 19Vdc (from adapter) 11.1Vdc (from battery)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to 300.0 Mbps 802.11ax: up to 573.5 Mbps
Operating Frequency	2412~2472MHz
Number of Channel	13 for 802.11b, 802.11g, 802.11n (HT20), 802.11ax (HE20) 9 for 802.11n (HT40), 802.11ax (HE40)
Output Power	216.568mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Refer to note
Cable Supplied	NA

Note:

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

Product	Brand	Model	Description
Notebook	Getac	V110	For marketing purpose.
		V110G7	
		V110Y (Y= 10 characters, Y can be 0 to 9, A to Z, a to z, "/", "\", "-", "_" or blank for marketing purpose)	

2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	TX Function
802.11b	1TX
802.11g	1TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX
802.11ax (HE20)	2TX
802.11ax (HE40)	2TX

* The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ax mode for HE20 / HE40, the EUT support OFDMA and Partial RU mode, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

3. The End-product contains following accessory devices.

Product	Brand	Model	Description
Adapter 1	FSP	FSP065-RBBN3	I/P: 100-240 Vac, 50-60Hz, 1.5 A O/P: 19.0 Vdc, 3.42 A Power Line: 1.5m, with one core
Adapter 2	Getac	MTA190474W4	I/P: 100-240 Vac, 50-60Hz Hz, 1.6 A O/P: 19.0Vdc, 4.74A Power Line: 1.55m, with two cores
Battery	Getac	BP3S1P2100-S	Rating: 11.1Vdc, 2040mAh, 23Wh Typical name: 2100mAh, 24Wh

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

4. The EUT uses the following antennas.

Antenna Type		PIFA								
Antenna Connector		I-PEX								
Antenna Peak Gain (dBi)										
Ant.	BT	2400-2483.5MHz	5150-5250MHz	5250-5350MHz	5470-5725MHz	5725-5 850MHz	5925-6425MHz	6425-6525MHz	6525-6875MHz	6875-7125MHz
Main	-	2.79	1.96	1.65	1.88	1.90	0.56	2.99	2.99	2.76
Aux.	2.31	2.31	1.76	1.31	2.07	2.90	2.92	1.48	2.29	2.29

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

5. The End-product configurations of all SKU are listed as below, and SKU2 was the worst case for final test

Part	Brand	Model	Specification	Configuration		
				SKU 1	SKU 2	SKU 3
CPU	Intel	Alder Lake	i5-1235U (Non Vpro)	V		V
			i7-1265U (Vpro)		V	
DDR	Kingston	---	16GB (8GB+8GB)	V		
		---	32GB (16GB+16GB)		V	
		---	64GB (32GB+32GB)			V
SSD	SSSTC	---	256GB	V		
		---	512GB		V	
		---	1TB			V
LCD Panel	AUO	G116HAN01	11.6"	V	V	V
Touchscreen	Getac	---	---	V	V	V
Finger Print	Egistec	---	---	V	V	V
WLAN Module	Intel	AX211NGW	---	V	V	V
GPS	GlobalSat	MC1010G	---	V	V	V
RFID Module	NXP	PN-7462	---		V	V
Digitizer Module	Getac	EMR116-UA00	---		V	V
Bottom Camera	FOXLINK	FN80AF-443H	---	V	V	V
	Chicony	CKAM816	---	V	V	V
Camera	FOXLINK	FN20FF-679H	---	V	V	V
IR Camera	FOXLINK	FN23FF-678H	---		V	V
Option Bay	Honeywell	N6703	Barcode	V		V
	Getac	---	SD Card reader		V	
	Getac	---	Smart Card		V	

3.2 Description of Test Modes

13 channels are provided for 802.11b, 802.11g and 802.11n (HT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
1	2412MHz	8	2447MHz
2	2417MHz	9	2452MHz
3	2422MHz	10	2457MHz
4	2427MHz	11	2462MHz
5	2432MHz	12	2467MHz
6	2437MHz	13	2472MHz
7	2442MHz		

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

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE≥1G	RE<1G	PLC	Power	
-	√	√	√	√	-

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission Power: Transmit Power Measurement

Note: For radiated emission (below 1GHz) and power line conducted emission test items chosen the worst maximum fundamental emission level channel.

Radiated Emission Test (Above 1GHz):

☒ 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).

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	DBPSK	1.0
-	802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.0
-	802.11ax (HE20)	1 to 13	1, 6, 11, 12, 13	OFDMA	BPSK	HE0
-	802.11ax (HE40)	3 to 11	3, 6, 9, 10, 11	OFDMA	BPSK	HE0

Radiated Emission Test (Below 1GHz):

☒ 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).

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11ax (HE20)	1 to 11	6	OFDMA	BPSK	HE0

Power Line Conducted Emission Test:

☒ 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).

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11ax (HE20)	1 to 11	6	OFDMA	BPSK	HE0

Maximum Output Power Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ 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).

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	DBPSK	1.0
-	802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.0
-	802.11n (HT20)	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	HT8
-	802.11n (HT40)	3 to 11	3, 6, 9, 10, 11	OFDM	BPSK	HT8
-	802.11ax (HE20)	1 to 13	1, 6, 11, 12, 13	OFDMA	BPSK	HE0
-	802.11ax (HE40)	3 to 11	3, 6, 9, 10, 11	OFDMA	BPSK	HE0

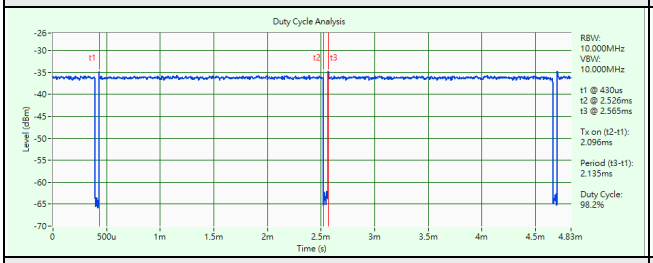
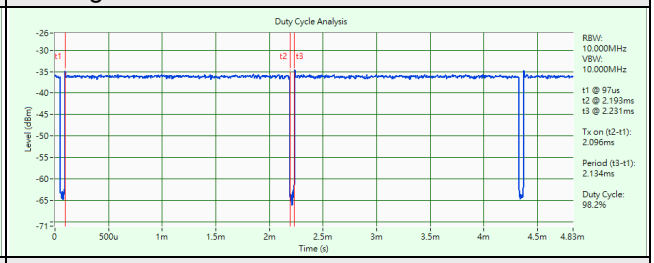
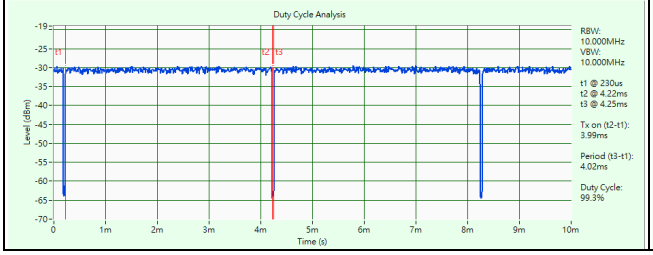
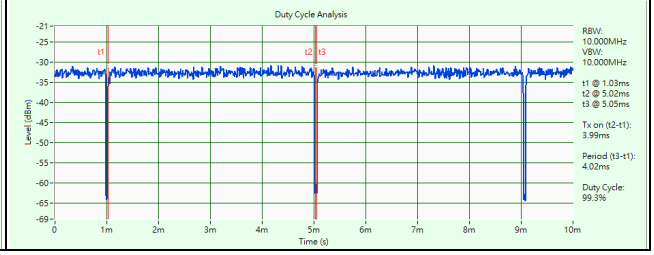
Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	21 deg. C, 73% RH	120Vac, 60Hz	Adair Peng
RE<1G	23 deg. C, 67% RH	120Vac, 60Hz	Adair Peng
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Rex Wang
Power	25 deg. C, 60% RH	120Vac, 60Hz	Vincent Huang

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is > 98 %, duty factor is not required.
Duty cycle of test signal is < 98 %, duty factor is required.

802.11b: Duty cycle = 2.096ms/2.135ms = 0.982
802.11g: Duty cycle = 2.096ms/2.134ms = 0.982
802.11ax (HE20): Duty cycle = 3.99ms/4.02ms = 0.993
802.11ax (HE40): Duty cycle = 3.99ms/4.02ms = 0.993

802.11b	802.11g
	
802.11ax (HE20)	802.11ax (HE40)
	

3.4 Description of Support Units

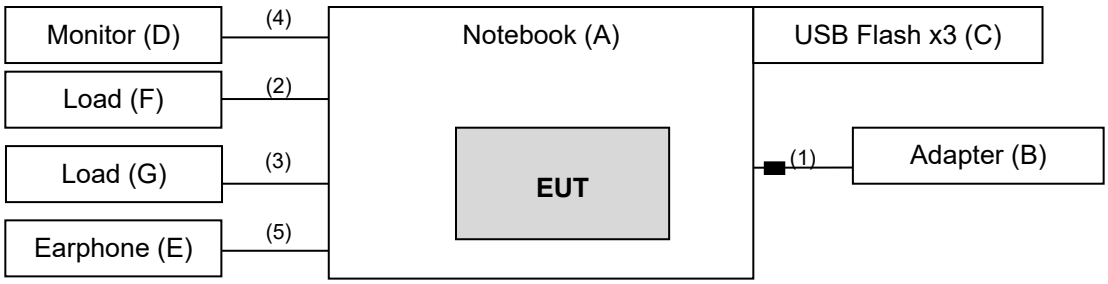
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	Getac	V110G7	N/A	N/A	Provided by Client
B.	Adapter	FSP	FSP065-RBBN3	N/A	N/A	Provided by Client
C.	USB Flash x3	SanDisk	SDDDC3-032G	N/A	N/A	Provided by Lab
D.	Monitor	ASUS	VA24EHE	LCLMTF243824	N/A	Provided by Lab
E.	Earphone	Apple	MB77PFEB	N/A	N/A	Provided by Lab
F.	Load	N/A	N/A	N/A	N/A	Provided by Lab
G.	Load	N/A	N/A	N/A	N/A	Provided by Lab

Note: All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Cable	1	1.5	N	1	Provided by Client
2.	RJ-45 Cable	1	1.5	N	0	Provided by Lab
3.	Console Cable	1	1	Y	0	Provided by Lab
4.	HDMI Cable	1	1	Y	0	Provided by Lab
5.	Earphone Cable	1	1.5	N	0	Provided by Lab

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test standard:

FCC Part 15, Subpart C (15.247)
ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

References Test Guidance:
KDB 558074 D01 15.247 Meas Guidance v05r02
KDB 662911 D01 Multiple Transmitter Output v02r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

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 1000MHz, 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 20dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Rohde & Schwarz	ESR3	102783	Dec. 21, 2021	Dec. 20, 2022
Spectrum Analyzer KEYSIGHT	N9020B	MY60110513	Dec. 24, 2021	Dec. 23, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-1214	Oct. 20, 2022	Oct. 19, 2023
HORN Antenna RF SPIN	DRH18-E	210101A18E	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	9170-1048	Nov. 14, 2021	Nov. 13, 2022
Loop Antenna EMCI	EM-6879	269	Sep. 19, 2022	Sep. 18, 2023
Loop Antenna TESEQ	HLA 6121	45745	Jul. 27, 2022	Jul. 26, 2023
Preamplifier EMCI	EMC330N	980798	Jan. 17, 2022	Jan. 16, 2023
Preamplifier EMCI	EMC118A45SE	980809	Dec. 30, 2021	Dec. 29, 2022
Preamplifier EMCI	EMC184045SE	980786	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC104-SM-SM-(9000+3000+1000)	201244+ 201232+ 210103	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMCCFD400-NM-NM-(9000+300+500)	201251+ 201249+ 201248	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC101G-KM-KM-(5000+3000+2000)	201261+201258+ 201255	Jan. 17, 2022	Jan. 16, 2023
Software BV ADT	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFA-515BSN	NA	NA	NA
Turn Table Max-Full	MFT-201SS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208676	NA	NA
Peak Power Analyzer KEYSIGHT	8990B	MY51000485	Jan. 18, 2022	Jan. 17, 2023
Wideband Power Sensor KEYSIGHT	N1923A	MY58020002	Jan. 17, 2022	Jan. 16, 2023

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in WM Chamber 9.
3. Tested date: Nov. 03 ~ Nov. 10, 2022

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. 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.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) 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.

f. The test-receiver system was set to peak and average detect 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.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.

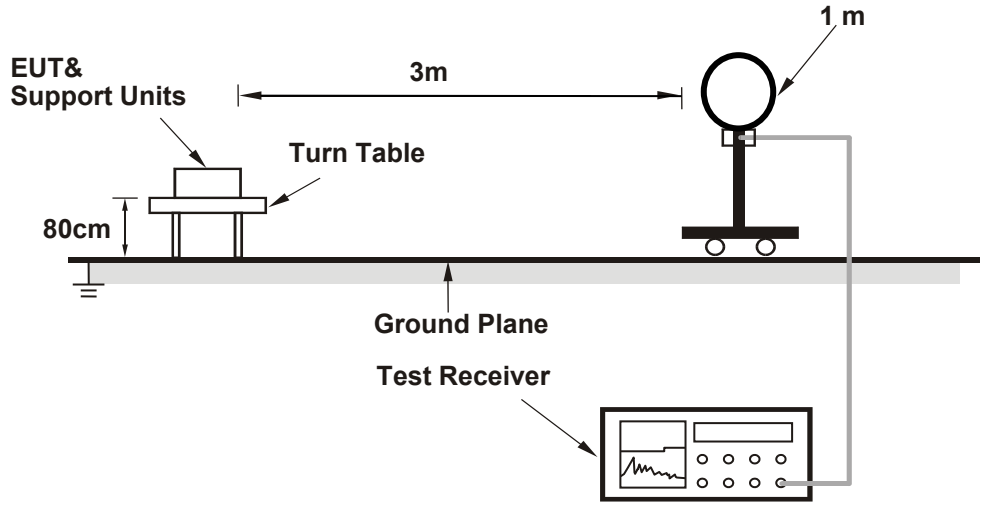
   (RBW = 1MHz, VBW = 10Hz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

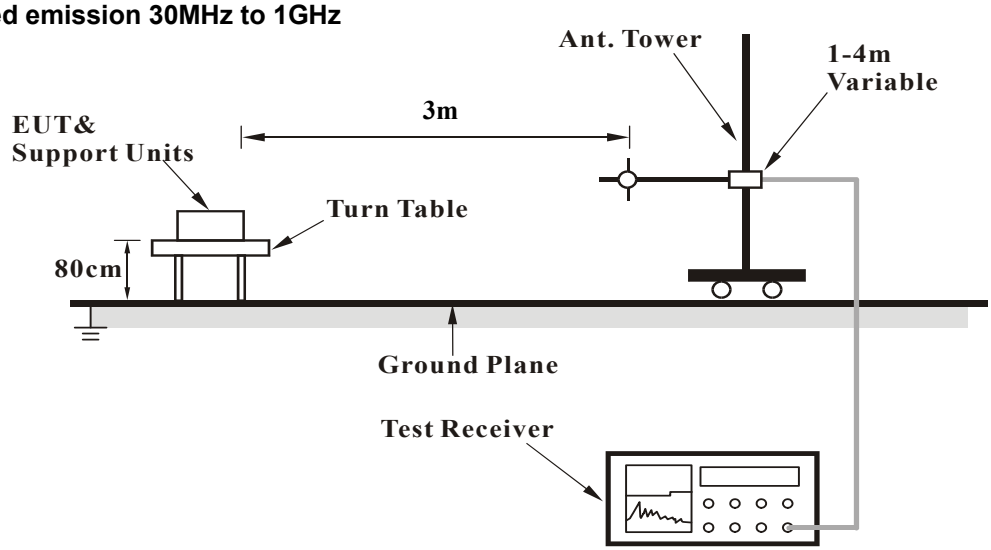
No deviation.

4.1.5 Test Setup

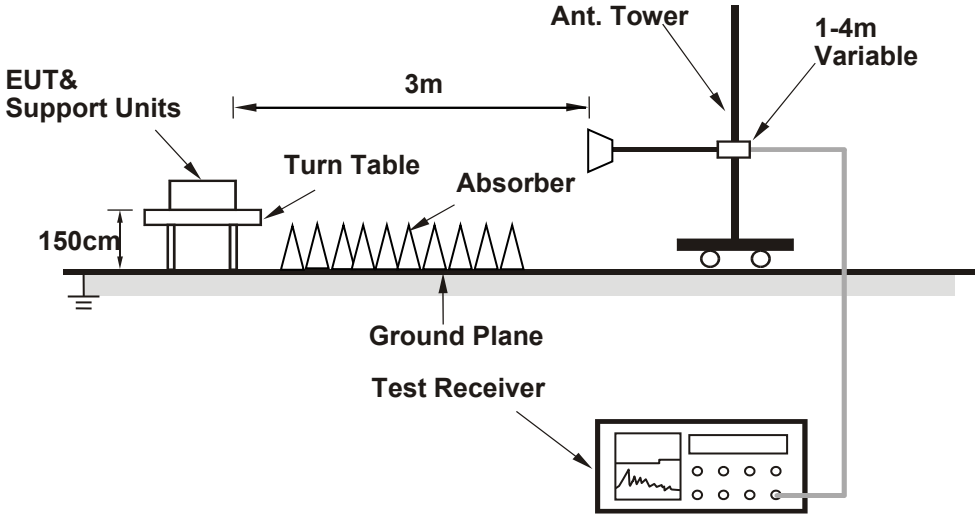
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

a. The EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz worst-Case data:

RF Mode	TX 802.11b	Channel	CH 1：2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	59.3 PK	74.0	-14.7	1.58 H	240	25.4	33.9
2	2390.00	46.0 AV	54.0	-8.0	1.58 H	240	12.1	33.9
3	*2412.00	107.6 PK			1.58 H	240	73.8	33.8
4	*2412.00	103.7 AV			1.58 H	240	69.9	33.8
5	4824.00	52.3 PK	74.0	-21.7	3.86 H	20	41.4	10.9
6	4824.00	39.8 AV	54.0	-14.2	3.86 H	20	28.9	10.9
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	59.2 PK	74.0	-14.8	3.63 V	145	25.3	33.9
2	2390.00	45.7 AV	54.0	-8.3	3.63 V	145	11.8	33.9
3	*2412.00	106.6 PK			3.63 V	145	72.8	33.8
4	*2412.00	102.8 AV			3.63 V	145	69.0	33.8
5	4824.00	52.9 PK	74.0	-21.1	2.67 V	349	42.0	10.9
6	4824.00	43.3 AV	54.0	-10.7	2.67 V	349	32.4	10.9

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.

RF Mode	TX 802.11b	Channel	CH 6：2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	108.6 PK			1.54 H	240	74.8	33.8
2	*2437.00	104.7 AV			1.54 H	240	70.9	33.8
3	4874.00	52.0 PK	74.0	-22.0	3.75 H	18	40.9	11.1
4	4874.00	42.2 AV	54.0	-11.8	3.75 H	18	31.1	11.1
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	*2437.00	107.7 PK			3.57 V	148	73.9	33.8
2	*2437.00	103.8 AV			3.57 V	148	70.0	33.8
3	4874.00	52.8 PK	74.0	-21.2	2.71 V	350	41.7	11.1
4	4874.00	45.6 AV	54.0	-8.4	2.71 V	350	34.5	11.1

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.

RF Mode	TX 802.11b	Channel	CH 11：2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	107.5 PK			1.68 H	243	73.7	33.8
2	*2462.00	103.7 AV			1.68 H	243	69.9	33.8
3	2483.50	58.7 PK	74.0	-15.3	1.68 H	243	24.9	33.8
4	2483.50	47.6 AV	54.0	-6.4	1.68 H	243	13.8	33.8
5	4924.00	52.3 PK	74.0	-21.7	3.72 H	38	41.2	11.1
6	4924.00	42.3 AV	54.0	-11.7	3.72 H	38	31.2	11.1
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	*2462.00	106.6 PK			3.67 V	143	72.8	33.8
2	*2462.00	102.7 AV			3.67 V	143	68.9	33.8
3	2483.50	58.6 PK	74.0	-15.4	3.67 V	143	24.8	33.8
4	2483.50	47.5 AV	54.0	-6.5	3.67 V	143	13.7	33.8
5	4924.00	53.1 PK	74.0	-20.9	2.63 V	353	42.0	11.1
6	4924.00	45.9 AV	54.0	-8.1	2.63 V	353	34.8	11.1

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.

RF Mode	TX 802.11b	Channel	CH 12：2467 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2467.00	105.8 PK			1.68 H	243	72.0	33.8
2	*2467.00	101.7 AV			1.68 H	243	67.9	33.8
3	2483.50	58.5 PK	74.0	-15.5	1.68 H	243	24.7	33.8
4	2483.50	47.5 AV	54.0	-6.5	1.68 H	243	13.7	33.8
5	4934.00	50.9 PK	74.0	-23.1	3.88 H	41	39.8	11.1
6	4934.00	39.4 AV	54.0	-14.6	3.88 H	41	28.3	11.1
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	*2467.00	104.6 PK			3.60 V	142	70.8	33.8
2	*2467.00	100.6 AV			3.60 V	142	66.8	33.8
3	2483.50	58.4 PK	74.0	-15.6	3.60 V	142	24.6	33.8
4	2483.50	47.3 AV	54.0	-6.7	3.60 V	142	13.5	33.8
5	4934.00	51.9 PK	74.0	-22.1	2.72 V	345	40.8	11.1
6	4934.00	42.9 AV	54.0	-11.1	2.72 V	345	31.8	11.1

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.

RF Mode	TX 802.11b	Channel	CH 13：2472 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2472.00	102.3 PK			1.66 H	246	68.5	33.8
2	*2472.00	98.2 AV			1.66 H	246	64.4	33.8
3	2483.50	59.0 PK	74.0	-15.0	1.66 H	246	25.2	33.8
4	2483.50	47.4 AV	54.0	-6.6	1.66 H	246	13.6	33.8
5	4944.00	51.4 PK	74.0	-22.6	3.82 H	37	40.4	11.0
6	4944.00	38.0 AV	54.0	-16.0	3.82 H	37	27.0	11.0
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	*2472.00	101.3 PK			3.62 V	145	67.5	33.8
2	*2472.00	97.1 AV			3.62 V	145	63.3	33.8
3	2483.50	58.8 PK	74.0	-15.2	3.62 V	145	25.0	33.8
4	2483.50	47.3 AV	54.0	-6.7	3.62 V	145	13.5	33.8
5	4944.00	52.2 PK	74.0	-21.8	2.63 V	347	41.2	11.0
6	4944.00	41.5 AV	54.0	-12.5	2.63 V	347	30.5	11.0

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.

RF Mode	TX 802.11g	Channel	CH 1：2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	60.4 PK	74.0	-13.6	1.93 H	244	26.5	33.9
2	2390.00	46.5 AV	54.0	-7.5	1.93 H	244	12.6	33.9
3	*2412.00	108.2 PK			1.93 H	244	74.4	33.8
4	*2412.00	98.6 AV			1.93 H	244	64.8	33.8
5	4824.00	50.8 PK	74.0	-23.2	3.75 H	32	39.9	10.9
6	4824.00	37.7 AV	54.0	-16.3	3.75 H	32	26.8	10.9
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	59.4 PK	74.0	-14.6	3.60 V	149	25.5	33.9
2	2390.00	46.1 AV	54.0	-7.9	3.60 V	149	12.2	33.9
3	*2412.00	106.5 PK			3.60 V	149	72.7	33.8
4	*2412.00	96.9 AV			3.60 V	149	63.1	33.8
5	4824.00	51.1 PK	74.0	-22.9	2.73 V	340	40.2	10.9
6	4824.00	37.9 AV	54.0	-16.1	2.73 V	340	27.0	10.9

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.

RF Mode	TX 802.11g	Channel	CH 6：2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	110.1 PK			1.53 H	240	76.3	33.8
2	*2437.00	99.9 AV			1.53 H	240	66.1	33.8
3	4874.00	51.3 PK	74.0	-22.7	3.69 H	38	40.2	11.1
4	4874.00	38.1 AV	54.0	-15.9	3.69 H	38	27.0	11.1
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	*2437.00	108.4 PK			3.61 V	147	74.6	33.8
2	*2437.00	98.2 AV			3.61 V	147	64.4	33.8
3	4874.00	51.7 PK	74.0	-22.3	2.75 V	346	40.6	11.1
4	4874.00	38.3 AV	54.0	-15.7	2.75 V	346	27.2	11.1

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.

RF Mode	TX 802.11g	Channel	CH 11：2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	106.7 PK			1.67 H	241	72.9	33.8
2	*2462.00	96.6 AV			1.67 H	241	62.8	33.8
3	2483.50	60.7 PK	74.0	-13.3	1.67 H	241	26.9	33.8
4	2483.50	48.0 AV	54.0	-6.0	1.67 H	241	14.2	33.8
5	4924.00	50.9 PK	74.0	-23.1	3.77 H	35	39.8	11.1
6	4924.00	37.8 AV	54.0	-16.2	3.77 H	35	26.7	11.1
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	*2462.00	104.9 PK			3.64 V	151	71.1	33.8
2	*2462.00	94.8 AV			3.64 V	151	61.0	33.8
3	2483.50	60.1 PK	74.0	-13.9	3.64 V	151	26.3	33.8
4	2483.50	47.8 AV	54.0	-6.2	3.64 V	151	14.0	33.8
5	4924.00	51.3 PK	74.0	-22.7	2.69 V	342	40.2	11.1
6	4924.00	38.0 AV	54.0	-16.0	2.69 V	342	26.9	11.1

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.

RF Mode	TX 802.11g	Channel	CH 12：2467 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2467.00	103.3 PK			1.68 H	245	69.5	33.8
2	*2467.00	93.6 AV			1.68 H	245	59.8	33.8
3	2483.50	59.4 PK	74.0	-14.6	1.68 H	245	25.6	33.8
4	2483.50	47.9 AV	54.0	-6.1	1.68 H	245	14.1	33.8
5	4934.00	50.8 PK	74.0	-23.2	3.71 H	30	39.7	11.1
6	4934.00	37.7 AV	54.0	-16.3	3.71 H	30	26.6	11.1
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	*2467.00	101.3 PK			3.65 V	147	67.5	33.8
2	*2467.00	91.8 AV			3.65 V	147	58.0	33.8
3	2483.50	58.7 PK	74.0	-15.3	3.65 V	147	24.9	33.8
4	2483.50	47.4 AV	54.0	-6.6	3.65 V	147	13.6	33.8
5	4934.00	51.1 PK	74.0	-22.9	2.75 V	350	40.0	11.1
6	4934.00	37.9 AV	54.0	-16.1	2.75 V	350	26.8	11.1

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.

RF Mode	TX 802.11g	Channel	CH 13：2472 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2472.00	99.2 PK			1.70 H	241	65.4	33.8
2	*2472.00	89.1 AV			1.70 H	241	55.3	33.8
3	2483.50	64.8 PK	74.0	-9.2	1.70 H	241	31.0	33.8
4	2483.50	47.8 AV	54.0	-6.2	1.70 H	241	14.0	33.8
5	4944.00	50.8 PK	74.0	-23.2	3.72 H	34	39.8	11.0
6	4944.00	37.6 AV	54.0	-16.4	3.72 H	34	26.6	11.0
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	*2472.00	97.3 PK			3.57 V	148	63.5	33.8
2	*2472.00	87.3 AV			3.57 V	148	53.5	33.8
3	2483.50	63.6 PK	74.0	-10.4	3.57 V	148	29.8	33.8
4	2483.50	47.6 AV	54.0	-6.4	3.57 V	148	13.8	33.8
5	4944.00	51.1 PK	74.0	-22.9	2.67 V	347	40.1	11.0
6	4944.00	37.9 AV	54.0	-16.1	2.67 V	347	26.9	11.0

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.

RF Mode	TX 802.11ax (HE20)	Channel	CH 1：2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	58.9 PK	74.0	-15.1	1.14 H	306	25.0	33.9
2	2390.00	46.0 AV	54.0	-8.0	1.14 H	306	12.1	33.9
3	*2412.00	107.2 PK			1.14 H	306	73.4	33.8
4	*2412.00	95.5 AV			1.14 H	306	61.7	33.8
5	4824.00	50.8 PK	74.0	-23.2	3.91 H	56	39.9	10.9
6	4824.00	37.2 AV	54.0	-16.8	3.91 H	56	26.3	10.9
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	59.4 PK	74.0	-14.6	1.84 V	205	25.5	33.9
2	2390.00	46.6 AV	54.0	-7.4	1.84 V	205	12.7	33.9
3	*2412.00	111.2 PK			1.84 V	205	77.4	33.8
4	*2412.00	99.0 AV			1.84 V	205	65.2	33.8
5	4824.00	51.1 PK	74.0	-22.9	1.72 V	170	40.2	10.9
6	4824.00	37.3 AV	54.0	-16.7	1.72 V	170	26.4	10.9

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.

RF Mode	TX 802.11ax (HE20)	Channel	CH 6：2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	112.0 PK			1.19 H	301	78.2	33.8
2	*2437.00	100.1 AV			1.19 H	301	66.3	33.8
3	4874.00	51.6 PK	74.0	-22.4	3.88 H	52	40.5	11.1
4	4874.00	37.6 AV	54.0	-16.4	3.88 H	52	26.5	11.1
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	*2437.00	115.7 PK			2.07 V	174	81.9	33.8
2	*2437.00	103.7 AV			2.07 V	174	69.9	33.8
3	4874.00	51.8 PK	74.0	-22.2	1.70 V	167	40.7	11.1
4	4874.00	37.8 AV	54.0	-16.2	1.70 V	167	26.7	11.1

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.

RF Mode	TX 802.11ax (HE20)	Channel	CH 11：2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	109.4 PK			1.17 H	302	75.6	33.8
2	*2462.00	96.5 AV			1.17 H	302	62.7	33.8
3	2483.50	61.2 PK	74.0	-12.8	1.17 H	302	27.4	33.8
4	2483.50	49.2 AV	54.0	-4.8	1.17 H	302	15.4	33.8
5	4924.00	51.4 PK	74.0	-22.6	3.93 H	53	40.3	11.1
6	4924.00	37.5 AV	54.0	-16.5	3.93 H	53	26.4	11.1
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	*2462.00	111.7 PK			2.06 V	174	77.9	33.8
2	*2462.00	100.0 AV			2.06 V	174	66.2	33.8
3	2483.50	61.6 PK	74.0	-12.4	2.06 V	174	27.8	33.8
4	2483.50	49.8 AV	54.0	-4.2	2.06 V	174	16.0	33.8
5	4924.00	51.6 PK	74.0	-22.4	1.73 V	169	40.5	11.1
6	4924.00	37.7 AV	54.0	-16.3	1.73 V	169	26.6	11.1

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.

RF Mode	TX 802.11ax (HE20)	Channel	CH 12：2467 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2467.00	105.2 PK			1.21 H	307	71.4	33.8
2	*2467.00	92.7 AV			1.21 H	307	58.9	33.8
3	2483.50	59.1 PK	74.0	-14.9	1.21 H	307	25.3	33.8
4	2483.50	48.0 AV	54.0	-6.0	1.21 H	307	14.2	33.8
5	4934.00	51.5 PK	74.0	-22.5	3.97 H	50	40.4	11.1
6	4934.00	37.5 AV	54.0	-16.5	3.97 H	50	26.4	11.1
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	*2467.00	108.7 PK			2.05 V	172	74.9	33.8
2	*2467.00	96.3 AV			2.05 V	172	62.5	33.8
3	2483.50	59.8 PK	74.0	-14.2	2.05 V	172	26.0	33.8
4	2483.50	48.6 AV	54.0	-5.4	2.05 V	172	14.8	33.8
5	4934.00	51.7 PK	74.0	-22.3	1.80 V	175	40.6	11.1
6	4934.00	37.6 AV	54.0	-16.4	1.80 V	175	26.5	11.1

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.

RF Mode	TX 802.11ax (HE20)	Channel	CH 13：2472 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2472.00	101.9 PK			1.19 H	303	68.1	33.8
2	*2472.00	89.1 AV			1.19 H	303	55.3	33.8
3	2483.50	63.2 PK	74.0	-10.8	1.19 H	303	29.4	33.8
4	2483.50	48.1 AV	54.0	-5.9	1.19 H	303	14.3	33.8
5	4944.00	51.3 PK	74.0	-22.7	3.86 H	57	40.3	11.0
6	4944.00	37.5 AV	54.0	-16.5	3.86 H	57	26.5	11.0
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	*2472.00	105.1 PK			2.04 V	174	71.3	33.8
2	*2472.00	92.5 AV			2.04 V	174	58.7	33.8
3	2483.50	64.2 PK	74.0	-9.8	2.04 V	174	30.4	33.8
4	2483.50	49.6 AV	54.0	-4.4	2.04 V	174	15.8	33.8
5	4944.00	51.4 PK	74.0	-22.6	1.75 V	177	40.4	11.0
6	4944.00	37.6 AV	54.0	-16.4	1.75 V	177	26.6	11.0

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.

RF Mode	TX 802.11ax (HE40)	Channel	CH 3：2422 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	58.6 PK	74.0	-15.4	1.17 H	299	24.7	33.9
2	2390.00	45.6 AV	54.0	-8.4	1.17 H	299	11.7	33.9
3	*2422.00	103.6 PK			1.17 H	299	69.8	33.8
4	*2422.00	91.8 AV			1.17 H	299	58.0	33.8
5	4844.00	51.2 PK	74.0	-22.8	3.86 H	52	40.2	11.0
6	4844.00	37.5 AV	54.0	-16.5	3.86 H	52	26.5	11.0
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	2.09 V	172	24.8	33.9
2	2390.00	46.1 AV	54.0	-7.9	2.09 V	172	12.2	33.9
3	*2422.00	107.8 PK			2.09 V	172	74.0	33.8
4	*2422.00	95.2 AV			2.09 V	172	61.4	33.8
5	4844.00	51.3 PK	74.0	-22.7	1.82 V	175	40.3	11.0
6	4844.00	37.6 AV	54.0	-16.4	1.82 V	175	26.6	11.0

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.

RF Mode	TX 802.11ax (HE40)	Channel	CH 6：2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	104.5 PK			1.11 H	304	70.7	33.8
2	*2437.00	92.8 AV			1.11 H	304	59.0	33.8
3	4874.00	51.6 PK	74.0	-22.4	3.82 H	57	40.5	11.1
4	4874.00	37.7 AV	54.0	-16.3	3.82 H	57	26.6	11.1
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	*2437.00	108.4 PK			2.08 V	187	74.6	33.8
2	*2437.00	96.2 AV			2.08 V	187	62.4	33.8
3	4874.00	51.8 PK	74.0	-22.2	1.80 V	172	40.7	11.1
4	4874.00	37.9 AV	54.0	-16.1	1.80 V	172	26.8	11.1

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.

RF Mode	TX 802.11ax (HE40)	Channel	CH 9：2452 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	105.0 PK			1.20 H	300	71.2	33.8
2	*2452.00	92.1 AV			1.20 H	300	58.3	33.8
3	2483.50	59.3 PK	74.0	-14.7	1.20 H	300	25.5	33.8
4	2483.50	47.9 AV	54.0	-6.1	1.20 H	300	14.1	33.8
5	4904.00	51.6 PK	74.0	-22.4	3.93 H	55	40.5	11.1
6	4904.00	37.7 AV	54.0	-16.3	3.93 H	55	26.6	11.1
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	*2452.00	108.3 PK			2.06 V	173	74.5	33.8
2	*2452.00	95.6 AV			2.06 V	173	61.8	33.8
3	2483.50	59.7 PK	74.0	-14.3	2.06 V	173	25.9	33.8
4	2483.50	48.1 AV	54.0	-5.9	2.06 V	173	14.3	33.8
5	4904.00	51.7 PK	74.0	-22.3	1.74 V	177	40.6	11.1
6	4904.00	37.8 AV	54.0	-16.2	1.74 V	177	26.7	11.1

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.

RF Mode	TX 802.11ax (HE40)	Channel	CH 10：2457 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	*2457.00	100.8 PK			1.16 H	306	67.0	33.8
2	*2457.00	87.1 AV			1.16 H	306	53.3	33.8
3	2483.50	60.1 PK	74.0	-13.9	1.16 H	306	26.3	33.8
4	2483.50	48.3 AV	54.0	-5.7	1.16 H	306	14.5	33.8
5	4914.00	51.6 PK	74.0	-22.4	3.86 H	51	40.5	11.1
6	4914.00	37.5 AV	54.0	-16.5	3.86 H	51	26.4	11.1
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	*2457.00	103.3 PK			2.04 V	174	69.5	33.8
2	*2457.00	90.4 AV			2.04 V	174	56.6	33.8
3	2483.50	60.3 PK	74.0	-13.7	2.04 V	174	26.5	33.8
4	2483.50	49.0 AV	54.0	-5.0	2.04 V	174	15.2	33.8
5	4914.00	51.8 PK	74.0	-22.2	1.81 V	179	40.7	11.1
6	4914.00	37.6 AV	54.0	-16.4	1.81 V	179	26.5	11.1

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.

RF Mode	TX 802.11ax (HE40)	Channel	CH 11：2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

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	100.0 PK			1.19 H	309	66.2	33.8
2	*2462.00	86.8 AV			1.19 H	309	53.0	33.8
3	2483.50	62.9 PK	74.0	-11.1	1.19 H	309	29.1	33.8
4	2483.50	48.8 AV	54.0	-5.2	1.19 H	309	15.0	33.8
5	4924.00	51.6 PK	74.0	-22.4	3.85 H	57	40.5	11.1
6	4924.00	37.5 AV	54.0	-16.5	3.85 H	57	26.4	11.1
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	*2462.00	102.9 PK			2.03 V	173	69.1	33.8
2	*2462.00	90.4 AV			2.03 V	173	56.6	33.8
3	2483.50	63.7 PK	74.0	-10.3	2.03 V	173	29.9	33.8
4	**2483.50**	**50.3 AV**	**54.0**	**-3.7**	**2.03 V**	**173**	**16.5**	**33.8**
5	4924.00	51.7 PK	74.0	-22.3	1.82 V	172	40.6	11.1
6	4924.00	37.7 AV	54.0	-16.3	1.82 V	172	26.6	11.1

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.

Below 1GHz worst-case data:

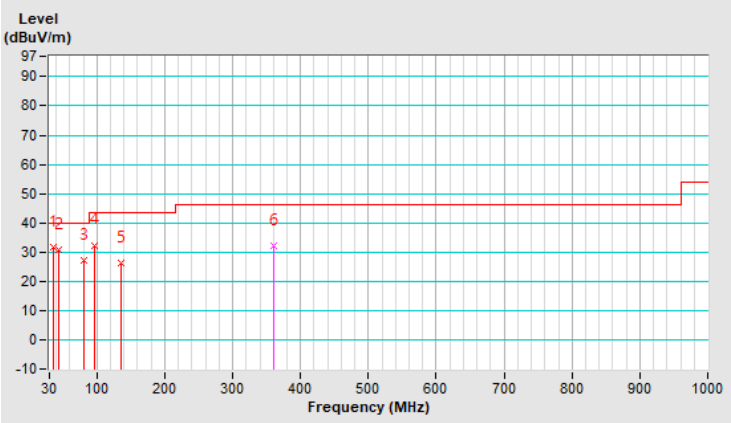
802.11ax (HE20)

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.70	31.6 QP	40.0	-8.4	1.01 H	42	41.9	-10.3
2	44.57	30.7 QP	40.0	-9.3	1.00 H	307	40.0	-9.3
3	80.01	27.3 QP	40.0	-12.7	1.01 H	12	40.9	-13.6
4	96.00	32.4 QP	43.5	-11.1	1.00 H	256	46.8	-14.4
5	136.00	26.4 QP	43.5	-17.1	1.48 H	6	36.1	-9.7
6	359.80	32.0 QP	46.0	-14.0	1.01 H	241	37.9	-5.9

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. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

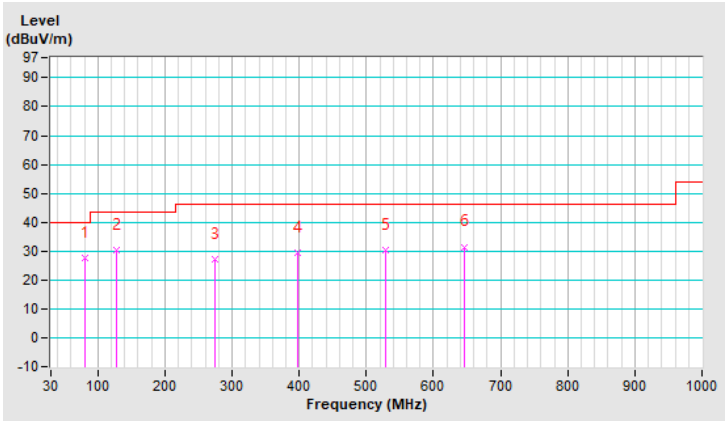


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	81.41	27.7 QP	40.0	-12.3	1.00 V	135	41.6	-13.9
2	127.97	30.5 QP	43.5	-13.0	1.50 V	47	40.9	-10.4
3	275.41	27.2 QP	46.0	-18.8	1.50 V	156	34.8	-7.6
4	397.63	29.4 QP	46.0	-16.6	1.00 V	114	34.3	-4.9
5	528.58	30.2 QP	46.0	-15.8	1.99 V	6	32.2	-2.0
6	646.92	31.5 QP	46.0	-14.5	1.99 V	6	31.0	0.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

Note: 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 0.50MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102412	Jan. 22, 2022	Jan. 21, 2023
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 03, 2022	Sep. 02, 2023
LISN/AMN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Feb. 17, 2022	Feb. 16, 2023
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Sep. 22, 2022	Sep. 21, 2023
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 2 (Conduction 2).
3. The VCCI Site Registration No. is C-12047.
4. Tested date: Nov. 17, 2022

4.2.3 Test Procedures

a. The EUT was 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/ 50uH of coupling impedance for the measuring instrument.

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

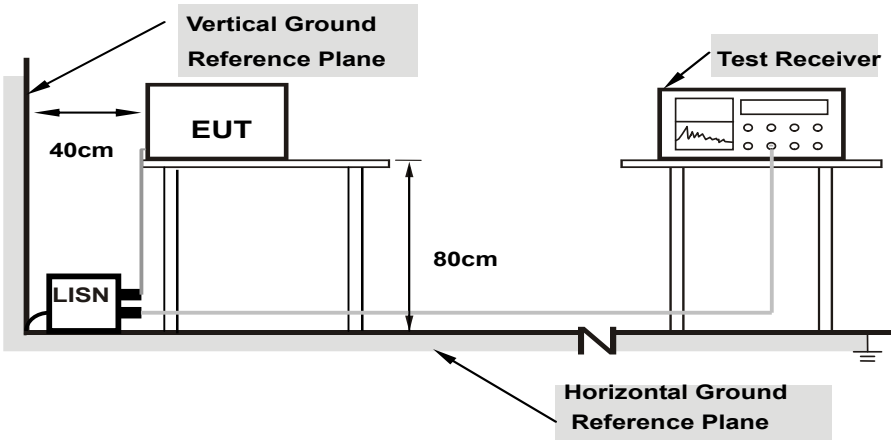
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 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).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

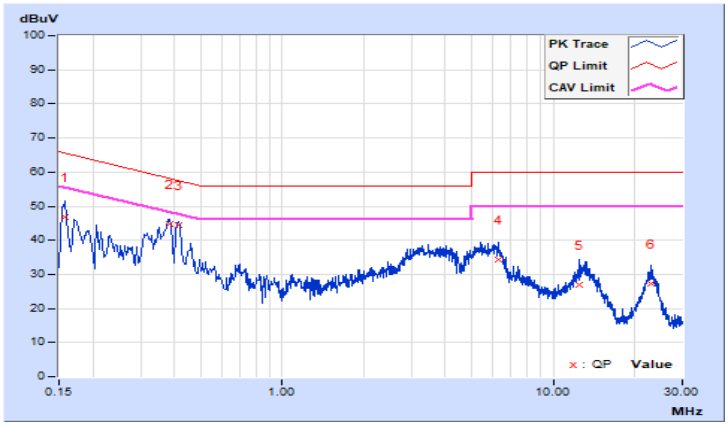
Worst-case data: 802.11ax (HE20)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15800	10.12	36.62	24.74	46.74	34.86	65.57	55.57	-18.83	-20.71
2	0.38200	10.16	34.74	29.42	44.90	39.58	58.24	48.24	-13.34	-8.66
3	**0.41400**	**10.16**	**34.38**	**30.48**	**44.54**	**40.64**	**57.57**	**47.57**	**-13.03**	**-6.93**
4	6.26200	10.27	24.06	18.19	34.33	28.46	60.00	50.00	-25.67	-21.54
5	12.48600	10.32	16.72	10.21	27.04	20.53	60.00	50.00	-32.96	-29.47
6	23.09800	10.34	17.10	10.12	27.44	20.46	60.00	50.00	-32.56	-29.54

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.

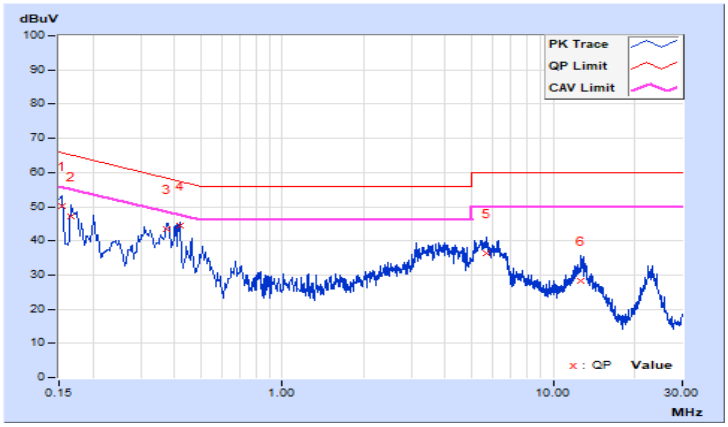


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.13	40.20	27.24	50.33	37.37	65.78	55.78	-15.45	-18.41
2	0.16600	10.14	36.91	24.76	47.05	34.90	65.16	55.16	-18.11	-20.26
3	0.37422	10.17	33.32	28.01	43.49	38.18	58.41	48.41	-14.92	-10.23
4	0.41800	10.17	34.33	28.04	44.50	38.21	57.49	47.49	-12.99	-9.28
5	5.66200	10.30	26.15	19.75	36.45	30.05	60.00	50.00	-23.55	-19.95
6	12.65400	10.41	17.95	11.39	28.36	21.80	60.00	50.00	-31.64	-28.20

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.



4.3 Conducted Output Power Measurement

4.3.1 Limits of Conducted Output Power Measurement

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

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.

4.3.2 Test Setup

4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedures

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.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

Same as item 4.3.6.

4.3.7 Test Results

Average Power

Chain 0

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	112.98	20.53	30	Pass
6	2437	125.603	20.99	30	Pass
11	2462	112.202	20.50	30	Pass
12	2467	69.823	18.44	30	Pass
13	2472	33.884	15.30	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	80.724	19.07	30	Pass
6	2437	121.619	20.85	30	Pass
11	2462	68.707	18.37	30	Pass
12	2467	34.119	15.33	30	Pass
13	2472	14.655	11.66	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	66.527	18.23	30	Pass
6	2437	122.744	20.89	30	Pass
11	2462	59.841	17.77	30	Pass
12	2467	33.189	15.21	30	Pass
13	2472	13.772	11.39	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	41.976	16.23	30	Pass
6	2437	52.723	17.22	30	Pass
9	2452	37.844	15.78	30	Pass
10	2457	11.614	10.65	30	Pass
11	2462	11.722	10.69	30	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	58.479	17.67	30	Pass
6	2437	119.95	20.79	30	Pass
11	2462	54.702	17.38	30	Pass
12	2467	32.137	15.07	30	Pass
13	2472	14.655	11.66	30	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	38.637	15.87	30	Pass
6	2437	45.709	16.60	30	Pass
9	2452	36.644	15.64	30	Pass
10	2457	12.162	10.85	30	Pass
11	2462	12.218	10.87	30	Pass

Chain 1

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	109.901	20.41	30	Pass
6	2437	111.429	20.47	30	Pass
11	2462	125.026	20.97	30	Pass
12	2467	75.336	18.77	30	Pass
13	2472	32.434	15.11	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	80.168	19.04	30	Pass
6	2437	113.24	20.54	30	Pass
11	2462	71.614	18.55	30	Pass
12	2467	34.674	15.40	30	Pass
13	2472	15.417	11.88	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	70.307	18.47	30	Pass
6	2437	124.738	20.96	30	Pass
11	2462	64.121	18.07	30	Pass
12	2467	32.885	15.17	30	Pass
13	2472	14.962	11.75	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	41.40	16.17	30	Pass
6	2437	52.36	17.19	30	Pass
9	2452	36.559	15.63	30	Pass
10	2457	11.722	10.69	30	Pass
11	2462	12.19	10.86	30	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	59.429	17.74	30	Pass
6	2437	111.429	20.47	30	Pass
11	2462	57.148	17.57	30	Pass
12	2467	32.961	15.18	30	Pass
13	2472	14.355	11.57	30	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	39.628	15.98	30	Pass
6	2437	45.29	16.56	30	Pass
9	2452	36.058	15.57	30	Pass
10	2457	12.05	10.81	30	Pass
11	2462	11.641	10.66	30	Pass

MIMO

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (dBm))		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	16.03	15.85	78.546	18.95	30.00	Pass
6	2437	20.67	20.45	227.598	23.57	30.00	Pass
11	2462	16.92	16.73	96.302	19.84	30.00	Pass
12	2467	11.70	11.50	28.916	14.61	30.00	Pass
13	2472	9.52	9.40	17.663	12.47	30.00	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (dBm))		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	15.43	15.38	69.428	18.42	30.00	Pass
6	2437	15.83	15.62	74.758	18.74	30.00	Pass
9	2452	14.47	14.38	55.406	17.44	30.00	Pass
10	2457	8.38	8.19	13.478	11.30	30.00	Pass
11	2462	9.30	9.02	16.491	12.17	30.00	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	Peak Power (dBm))		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.87	15.67	75.534	18.78	30.00	Pass
6	2437	20.42	20.27	216.568	23.36	30.00	Pass
11	2462	16.09	15.92	79.728	19.02	30.00	Pass
12	2467	12.50	12.35	34.962	15.44	30.00	Pass
13	2472	9.83	9.66	18.863	12.76	30.00	Pass

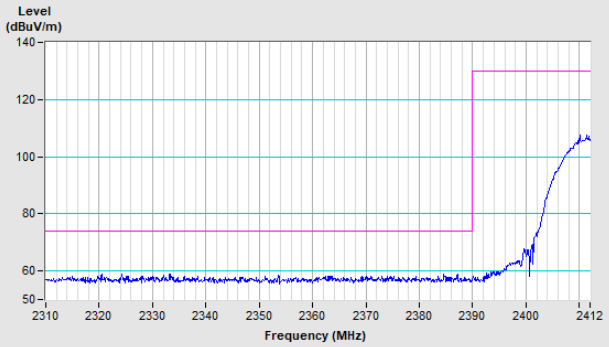
802.11ax (HE40)

Channel	Frequency (MHz)	Peak Power (dBm))		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	15.09	15.00	63.908	18.06	30.00	Pass
6	2437	15.32	15.27	67.692	18.31	30.00	Pass
9	2452	14.92	14.64	60.153	17.79	30.00	Pass
10	2457	9.50	9.34	17.503	12.43	30.00	Pass
11	2462	9.60	9.52	18.074	12.57	30.00	Pass

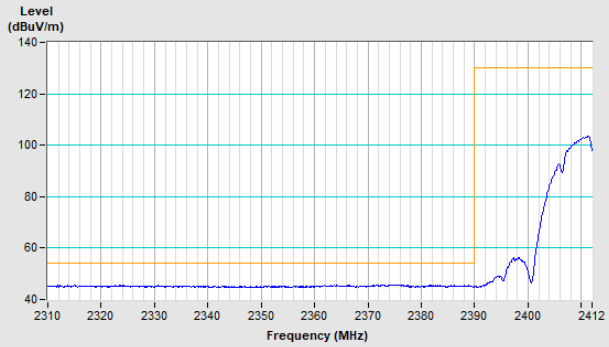
Annex A- Band Edge Measurement

802.11b Channel 1

Horizontal (Peak)



Horizontal (Average)



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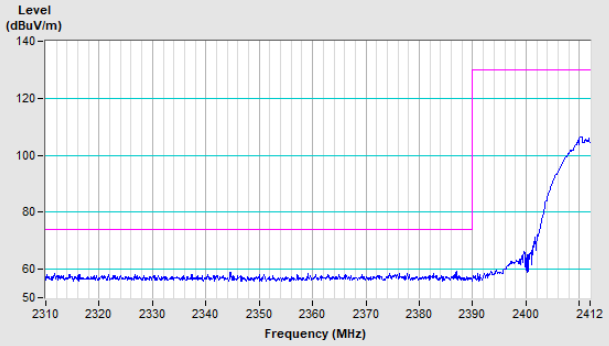
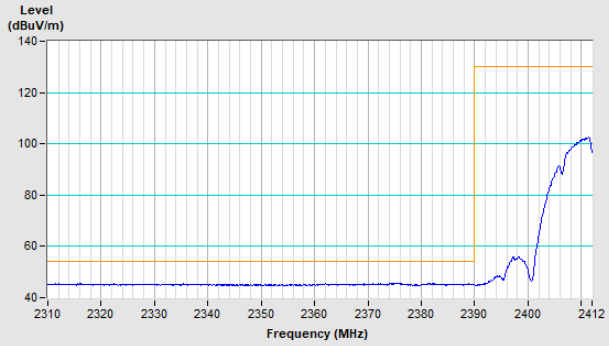
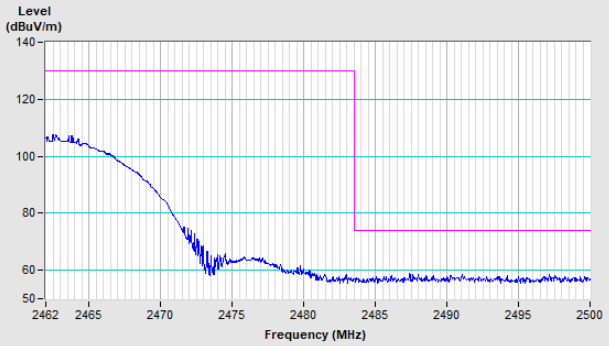


Vertical (Average)

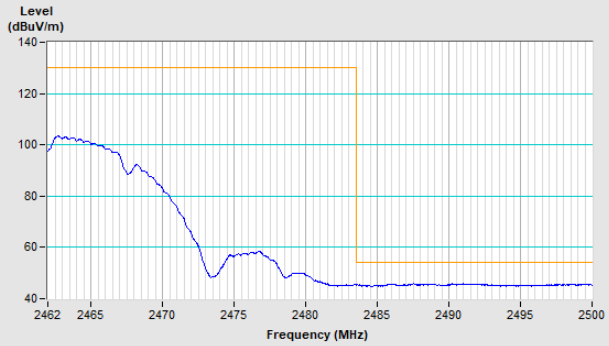


802.11b Channel 11

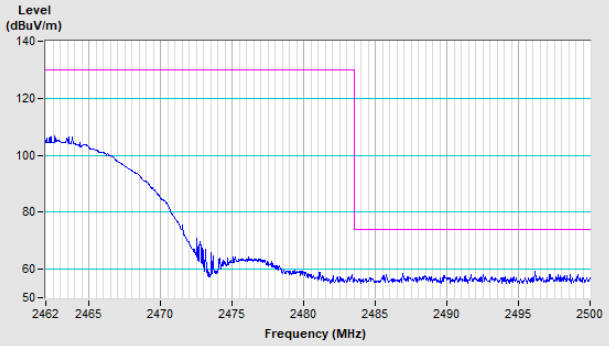
Horizontal (Peak)



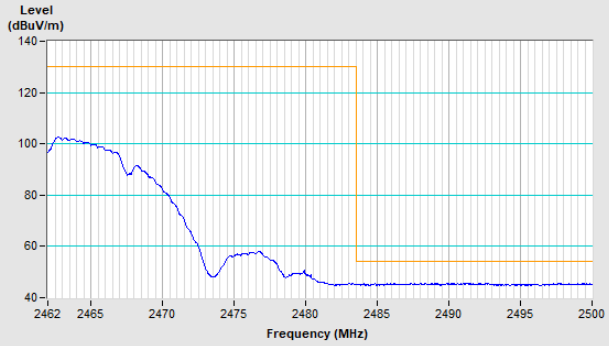
Horizontal (Average)

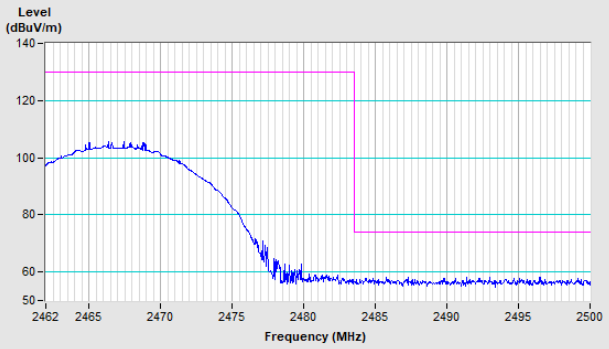
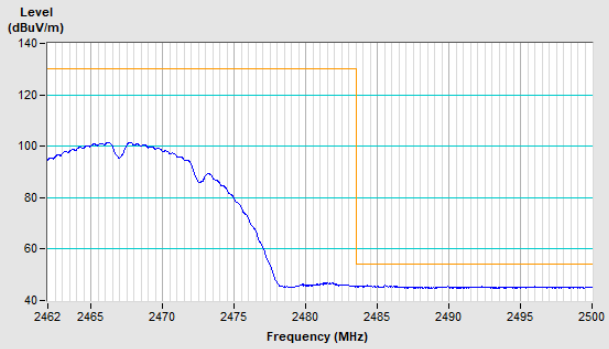
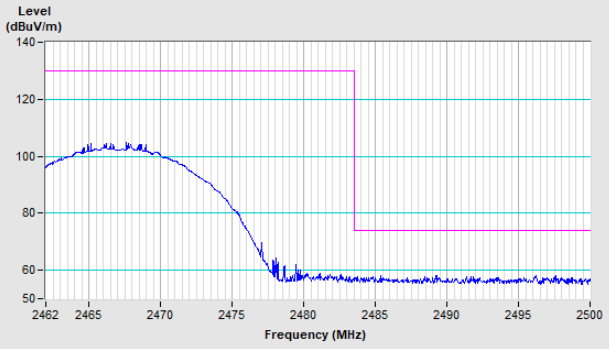
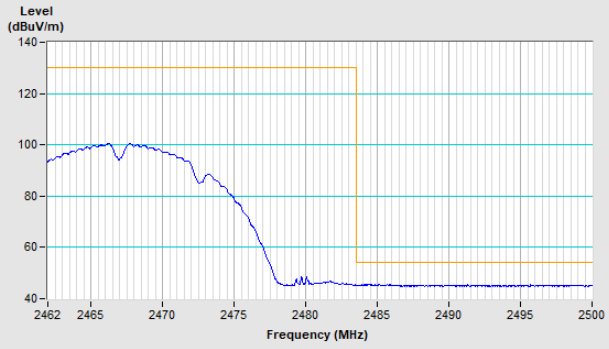


Vertical (Peak)



Vertical (Average)



802.11b Channel 12	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
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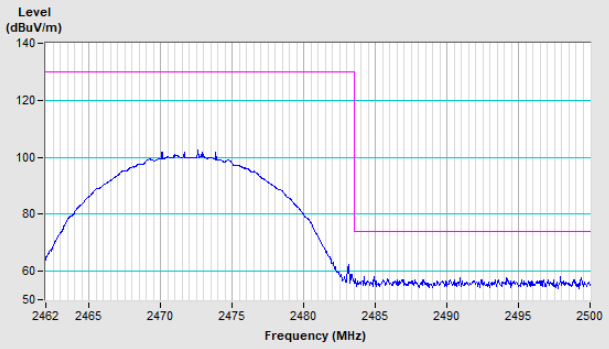
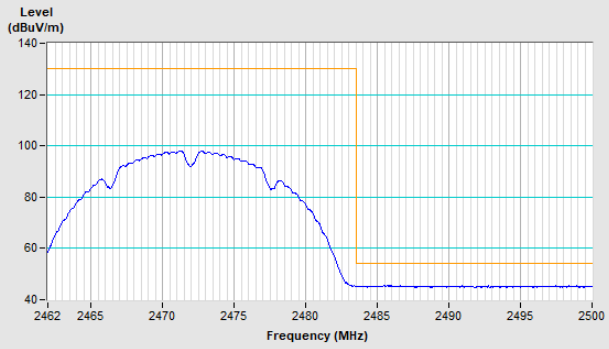
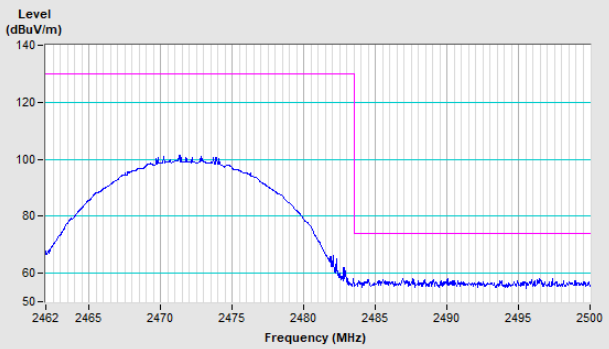
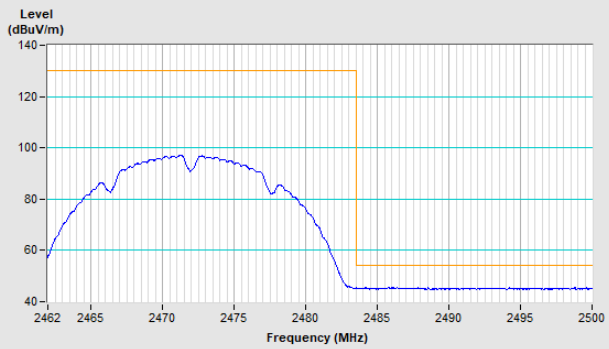
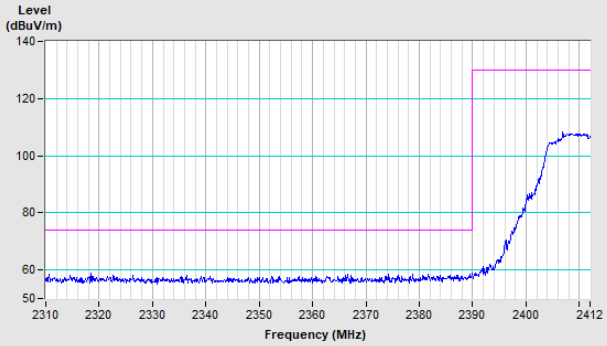
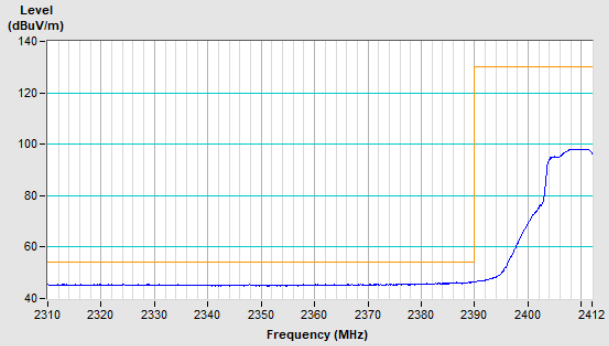
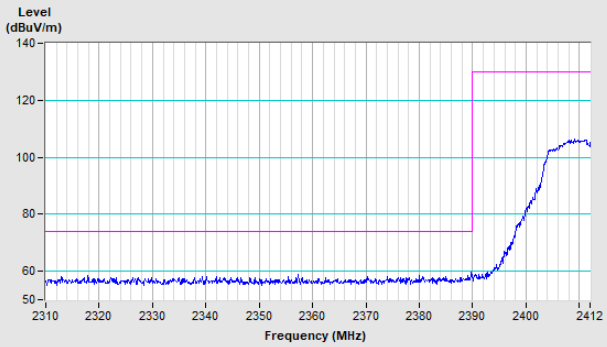
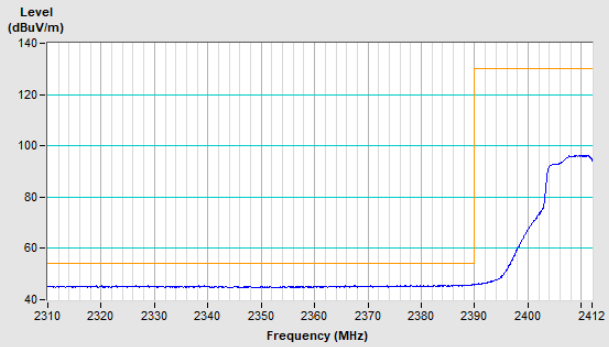
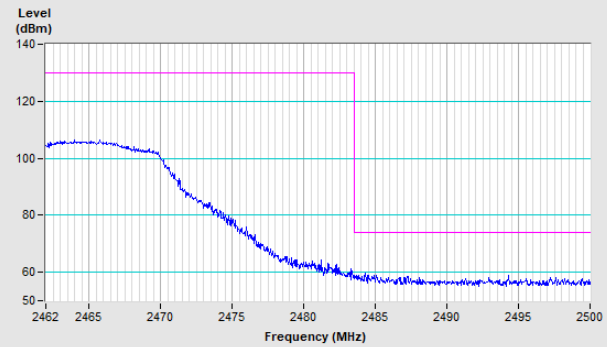
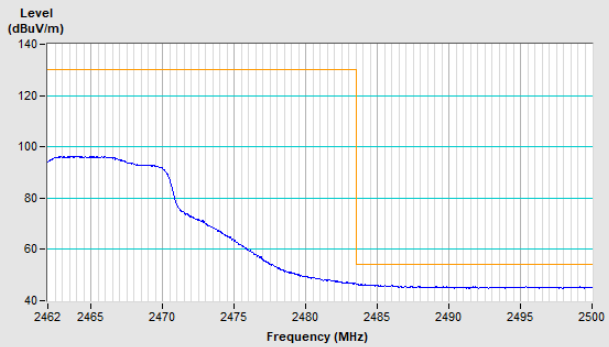
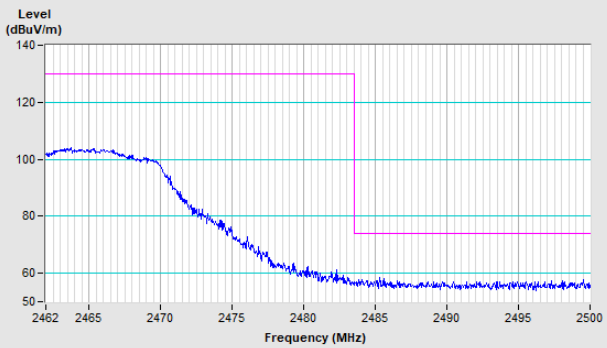
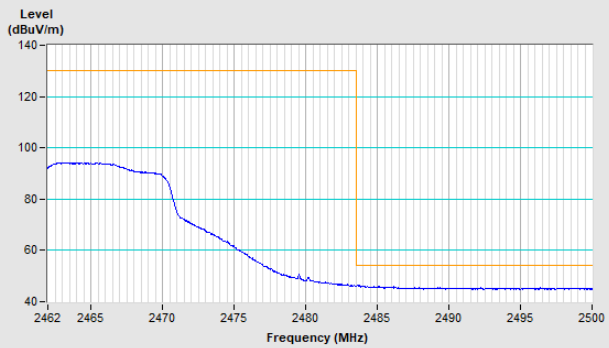
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11g Channel 1	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11g Channel 11	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11g Channel 12	
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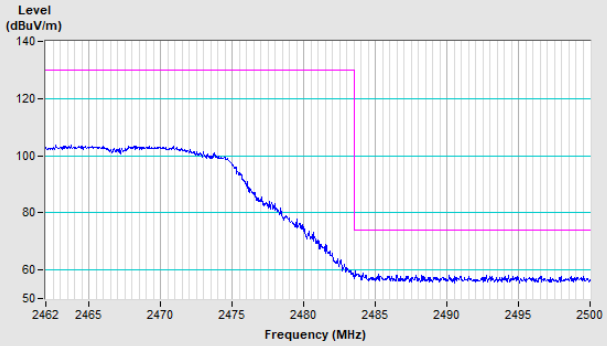
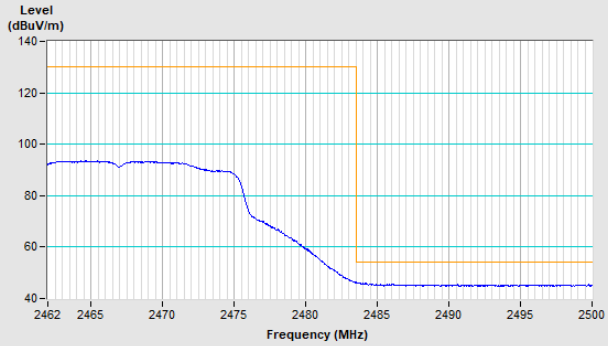
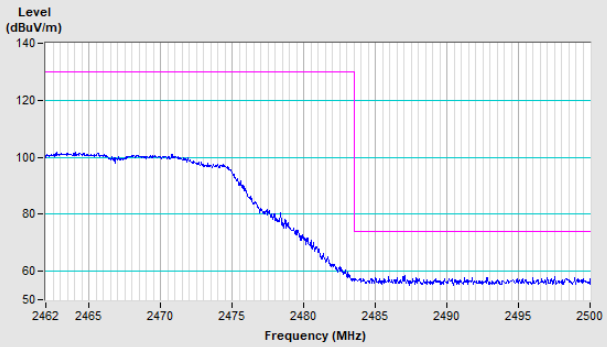
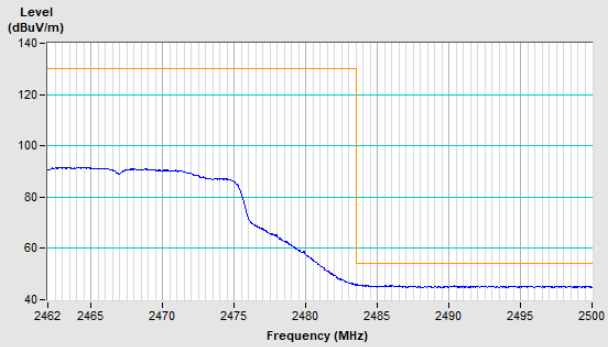
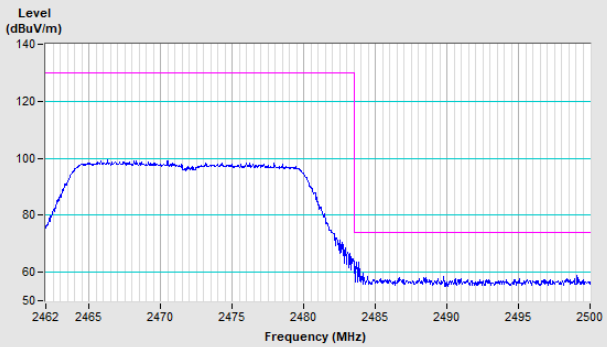
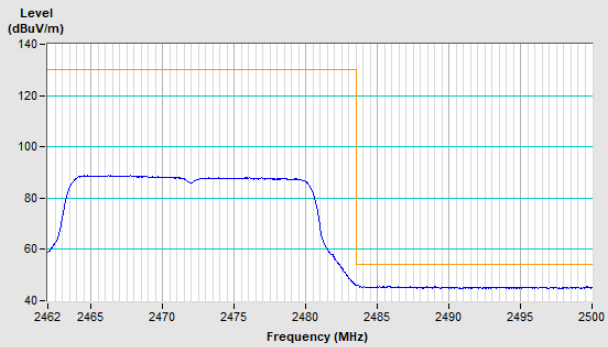
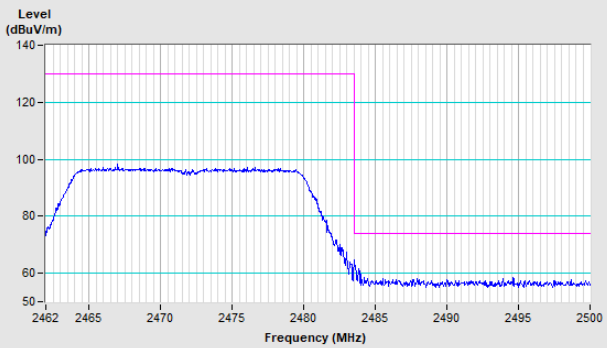
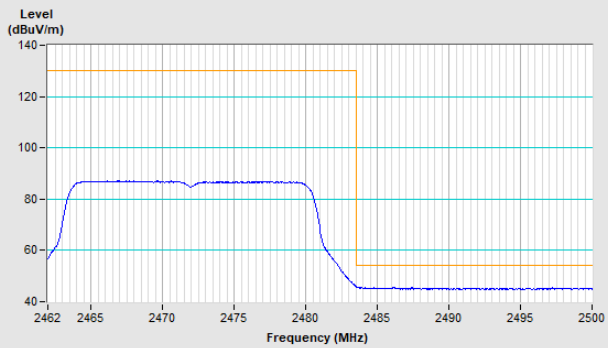
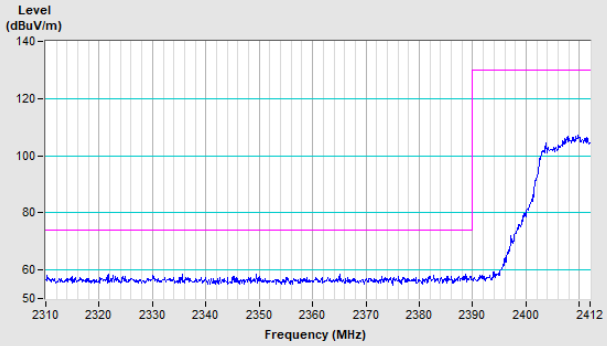
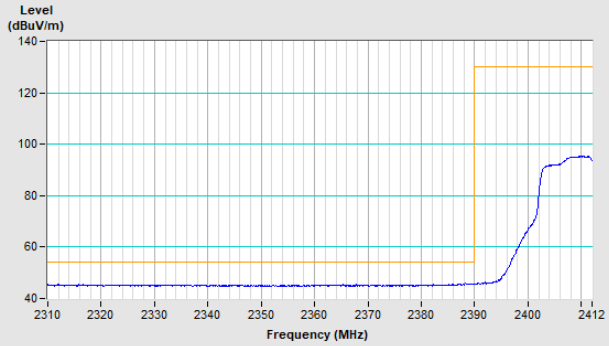
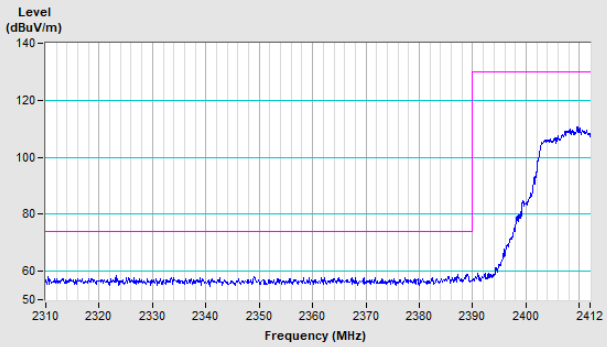
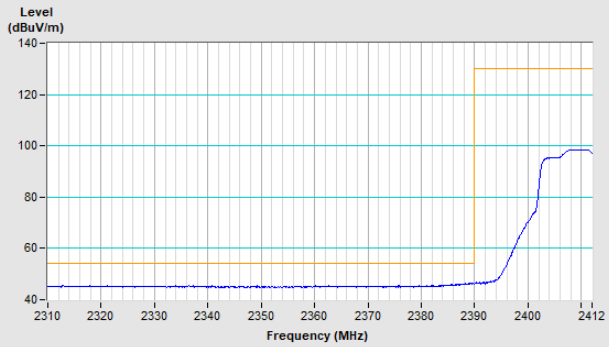
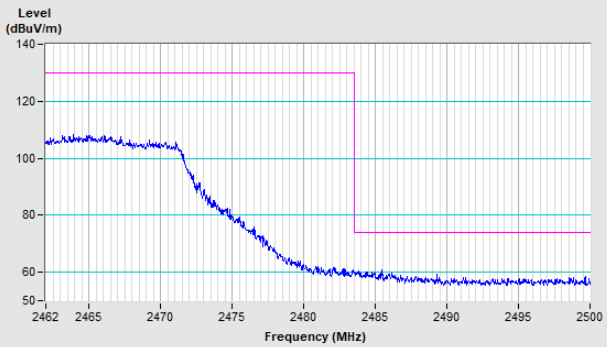
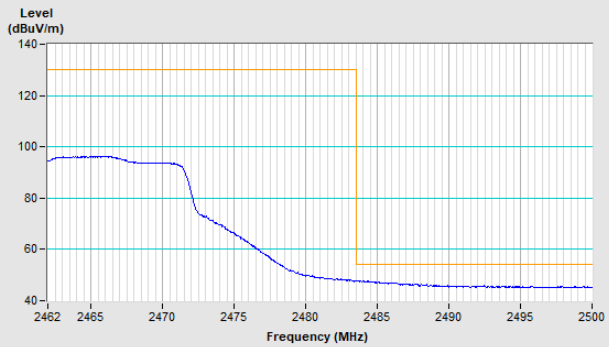
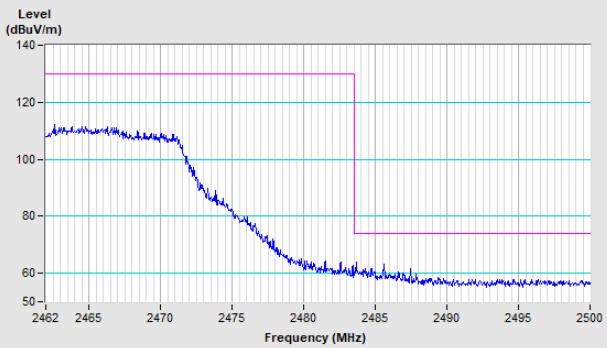
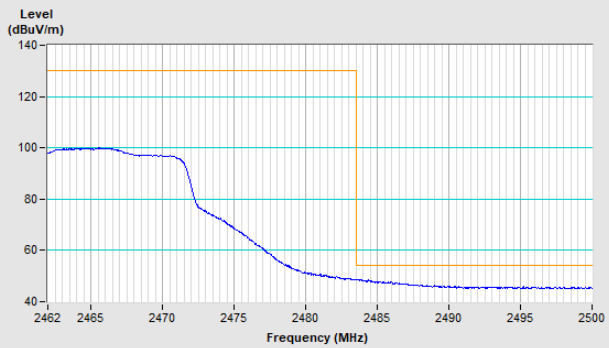
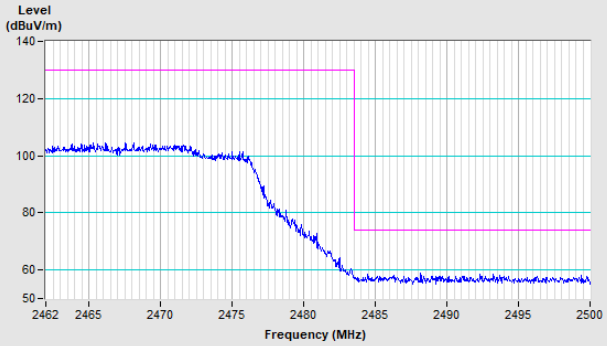
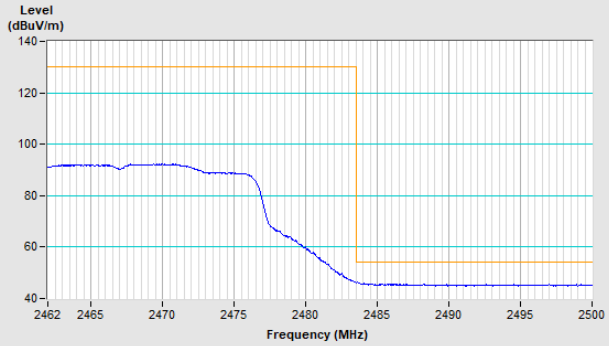
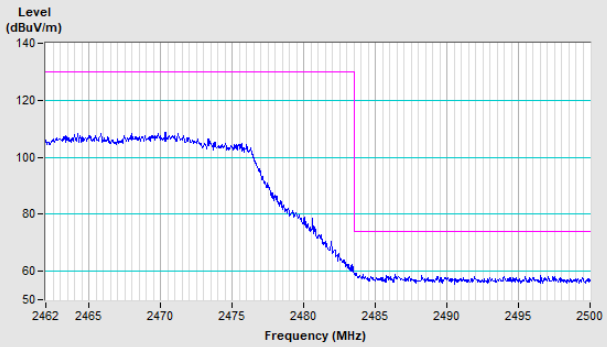
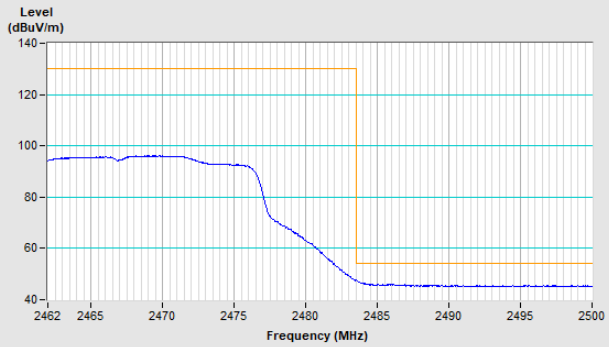
	
Vertical (Peak)	Vertical (Average)
	
802.11g Channel 13	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

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)
	

802.11ax (HE20) Channel 12	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
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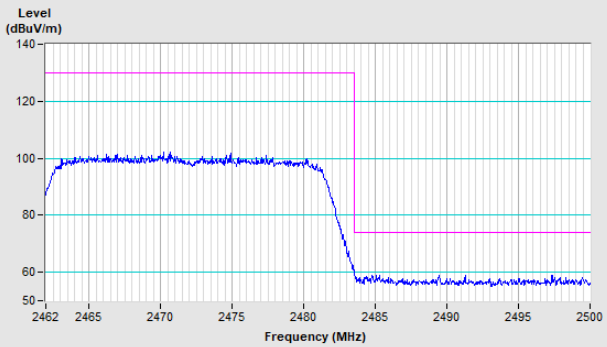
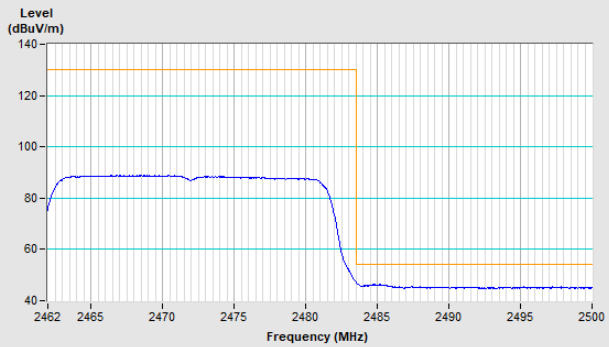
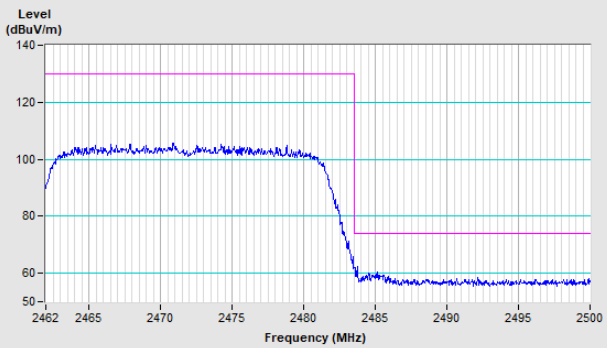
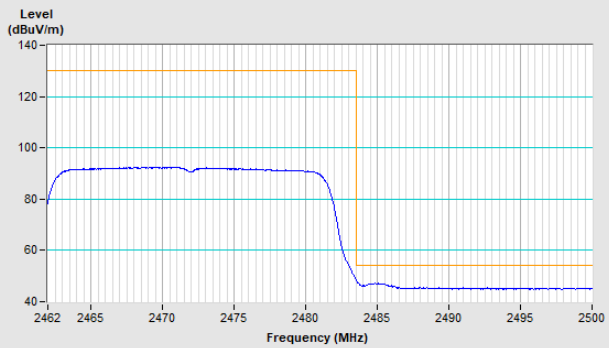
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

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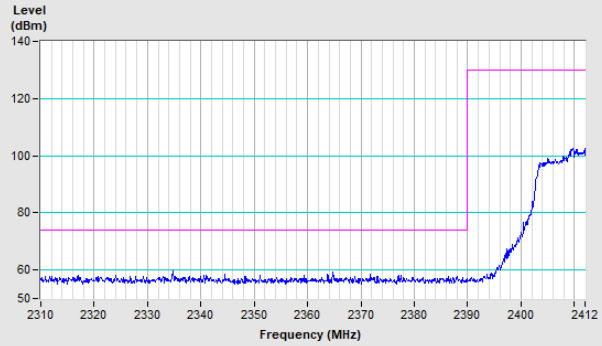
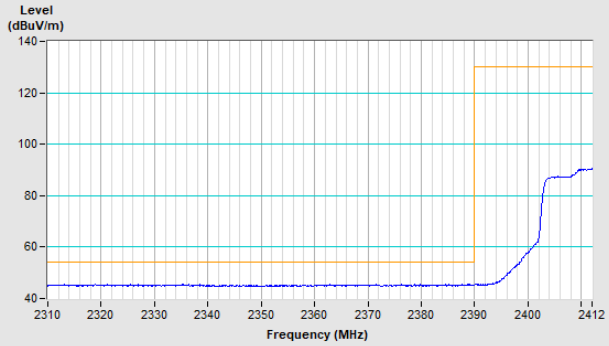
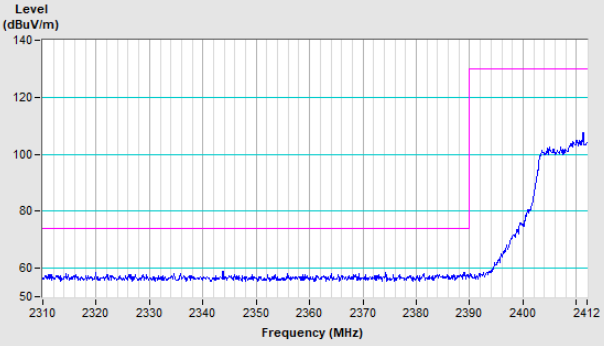
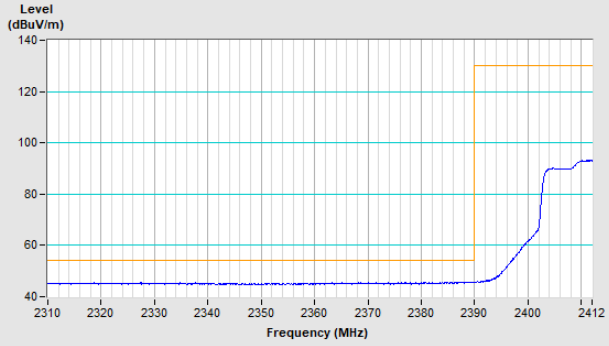
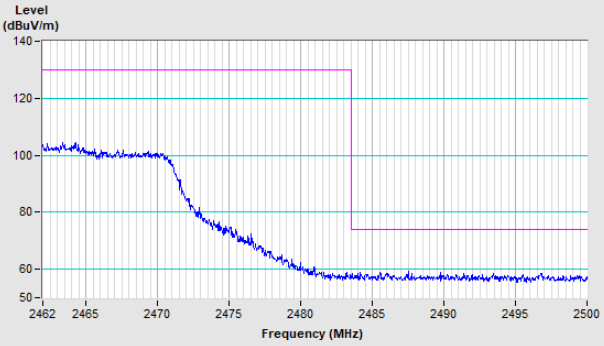
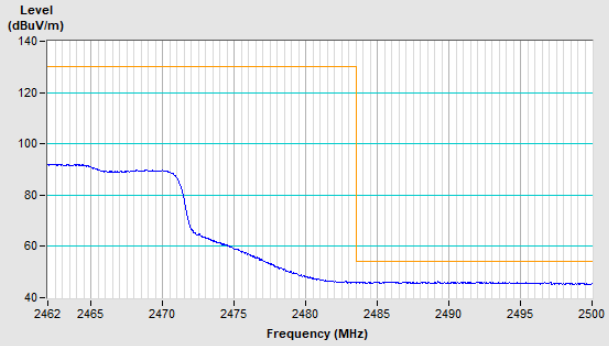
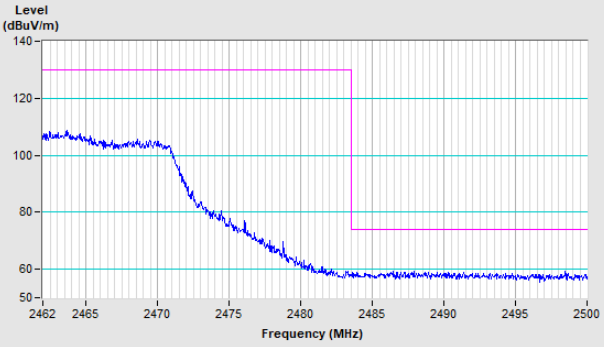
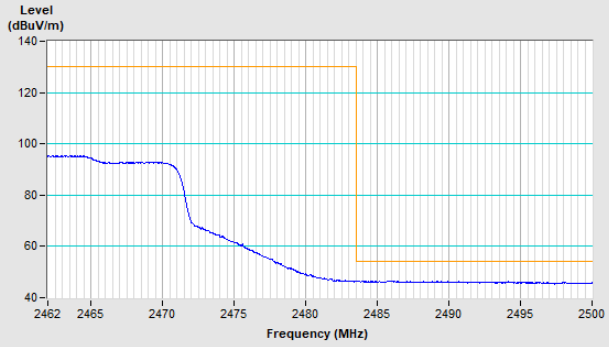
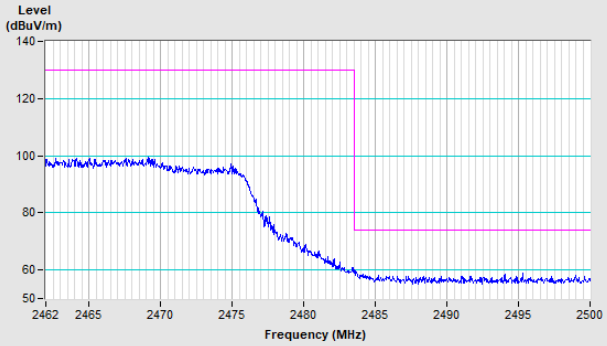
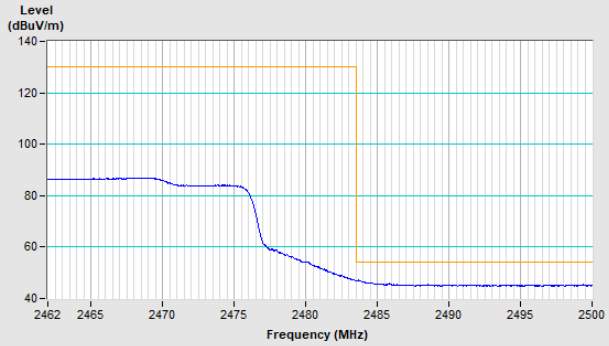
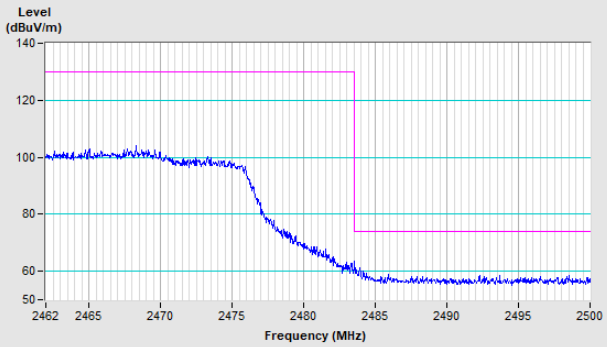
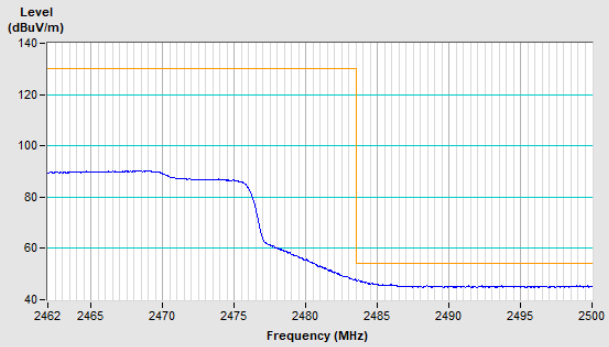
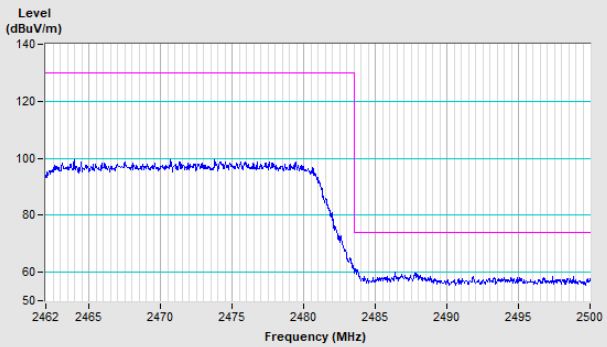
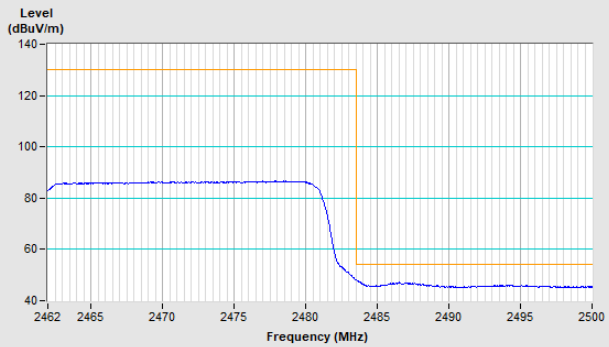
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11ax (HE40) Channel 9	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11ax (HE40) Channel 10	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
802.11ax (HE40) Channel 11	
Horizontal (Peak)	Horizontal (Average)
	
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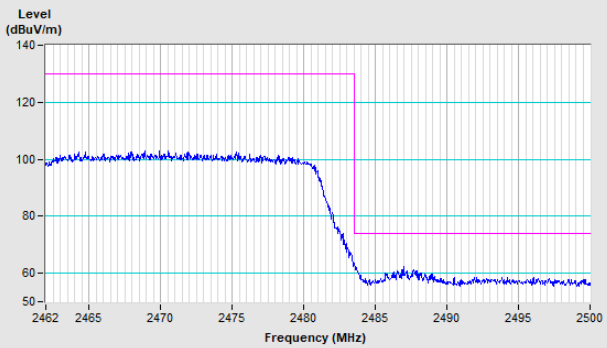	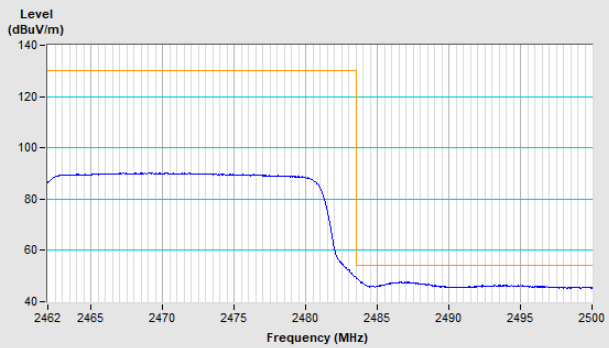

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – 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 and approved according to ISO/IEC 17025.

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Web Site: www.bureauveritas-adt.com

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

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