

TEST REPORT

CERTIFICATE OF CONFORMITY

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

Report No.: RFBDYS-WTW-P22031091C

FCC ID: 2AKCZ-108

Product: Wireless Access Point

Brand: SONICWALL

Model No.: APL68-108

Received Date: 2024/3/28

Test Date: 2024/3/28 ~ 2024/8/6

Issued Date: 2024/9/3

Applicant: SonicWall Inc.

Address: 1033 McCarthy Blvd., Milpitas, CA 95035, USA

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: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kewi Shan Dist., Taoyuan City 33383, Taiwan

FCC Registration /
Designation Number: 788550 / TW0003

Approved by:

Jeremy Lin

, Date:

2024/9/3

Jeremy Lin / Project Engineer

This test report consists of 79 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The test results in the report only apply to the tested sample. The test results in this report are traceable to the national or international standards.



Prepared by : Pettie Chen / Senior Specialist

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

Table of Contents

Release Control Record	4
1 Certificate.....	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty	6
2.2 Supplementary Information	6
3 General Information	7
3.1 General Description.....	7
3.2 Antenna Description of EUT.....	8
3.3 Channel List.....	9
3.4 Test Mode Applicability and Tested Channel Detail.....	10
3.5 Duty Cycle of Test Signal.....	11
3.6 Test Program Used and Operation Descriptions	13
3.7 Connection Diagram of EUT and Peripheral Devices	13
3.8 Configuration of Peripheral Devices and Cable Connections	14
4 Test Instruments	15
4.1 RF Output Power.....	15
4.2 Power Spectral Density	15
4.3 6 dB Bandwidth	15
4.4 Conducted Out of Band Emissions	15
4.5 AC Power Conducted Emissions	16
4.6 Unwanted Emissions below 1 GHz	17
4.7 Unwanted Emissions above 1 GHz.....	18
5 Limits of Test Items.....	19
5.1 RF Output Power.....	19
5.2 Power Spectral Density	19
5.3 6 dB Bandwidth	19
5.4 Conducted Out of Band Emissions	19
5.5 AC Power Conducted Emissions	19
5.6 Unwanted Emissions below 1 GHz	20
5.7 Unwanted Emissions above 1 GHz.....	20
6 Test Arrangements.....	21
6.1 RF Output Power.....	21
6.1.1 Test Setup	21
6.1.2 Test Procedure.....	21
6.2 Power Spectral Density	21
6.2.1 Test Setup	21
6.2.2 Test Procedure.....	21
6.3 6 dB Bandwidth	22
6.3.1 Test Setup	22
6.3.2 Test Procedure.....	22
6.4 Conducted Out of Band Emissions	22
6.4.1 Test Setup	22
6.4.2 Test Procedure.....	22
6.5 AC Power Conducted Emissions	23
6.5.1 Test Setup	23
6.5.2 Test Procedure.....	23
6.6 Unwanted Emissions below 1 GHz	24
6.6.1 Test Setup	24
6.6.2 Test Procedure.....	25
6.7 Unwanted Emissions above 1 GHz.....	26
6.7.1 Test Setup	26
6.7.2 Test Procedure.....	26
7 Test Results of Test Item	27

7.1	RF Output Power.....	27
7.2	Power Spectral Density	30
7.3	6 dB Bandwidth	32
7.4	Conducted Out of Band Emissions	34
7.5	AC Power Conducted Emissions	42
7.6	Unwanted Emissions below 1 GHz	50
7.7	Unwanted Emissions above 1 GHz.....	58
8	Pictures of Test Arrangements	78
9	Information of the Testing Laboratories	79

Release Control Record

Issue No.	Description	Date Issued
RFBDYS-WTW-P22031091C	Original release.	2024/9/3

1 Certificate

Product: Wireless Access Point

Brand: SONICWALL

Test Model: APL68-108

Sample Status: Engineering sample

Applicant: SonicWall Inc.

Test Date: 2024/3/28 ~ 2024/8/6

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	Meet the requirement of limit.
15.247(d)	Conducted Out of Band Emissions	Pass	Meet the requirement of limit.
15.207	AC Power Conducted Emissions	Pass	Minimum passing margin is -5.85 dB at 0.50531 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -0.5 dB at 31.94 and 32.47 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.4 dB at 2390.00 and 2483.50 MHz
15.203	Antenna Requirement	Pass	Antenna connector is I-PEX not a standard connector.

Note: 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
6 dB Bandwidth	-	206.5 Hz
Conducted Out of Band Emissions	9 kHz ~ 40 GHz	2.79 dB
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.90 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.59 dB
	30 MHz ~ 1 GHz	3.6 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 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

Product	Wireless Access Point
Brand	SONICWALL
Test Model	APL68-108
Status of EUT	Engineering sample
Power Supply Rating	12Vdc from adapter 48-56Vdc 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: up to 300Mbps VHT: up to 400Mbps 802.11ax: up to 574Mbps
Operating Frequency	2.412 GHz ~ 2.462 GHz
Number of Channel	2G traffic radio (Radio 2): 802.11b, 802.11g, 802.11n (HT20), VHT20, 802.11ax (HE20): 11 802.11n (HT40), VHT40, 802.11ax (HE40): 7 Scanning radio (Radio 3): 802.11b, 802.11g, 802.11n (HT20), VHT20: 11 802.11n (HT40), VHT40: 7
Output Power	196.358 mW (22.93 dBm)

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report to BV CPS report no. RFBDS-WTW-P22031091. The differences compared with original report are changing 2.4G traffic radio 2nd source (pin-to-pin) chip and changing 5G scan radio 2nd source (pin-to-pin) FEM. Therefore, the EUT is re-tested in this report.
2. The EUT uses following accessories.

Item	Brand	Model	Specification
BRACKET T-BAR LFP	Senao	6301A4133020	Accessory
AC Adapter (Optional)	Sunny	SYS1546-3612-T3	AC Input : 100-240Vac, 1.5A MAX, 50-60Hz DC Output : 12.0Vdc, 3.0A power cord : Non-shielded AC (1.77m) Non-shielded DC (1.86m with one ferrite core)
POE (Support unit only)	EnGenius	EPA5006GAT	AC Input : 100-240Vac, 0.8A, 50-60Hz DC Output : 48-56Vdc, 0.6A Non-shielded AC (0.5m)

3. The simultaneous operation mode was determined by client.

No	Mode
1	2GHz traffic radio (Radio 2) + 5GHz traffic radio (Radio 1) + 5GHz Scanning radio (Radio 3) + BLE
2	5GHz traffic radio (Radio 1) + 2GHz Scanning radio (Radio 3) + BLE

- * 5GHz traffic radio (Radio 1) and 5GHz Scanning radio (Radio 3) cannot transmit in the same band at same time.
- * 2GHz traffic radio (Radio 2) and 2GHz Scanning radio (Radio 3) cannot transmit at same time.
- * Spurious emission of the simultaneous operation has been evaluated and no non-compliance was found.

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.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

No.	Type	Connector	Gain (dBi)					
			2400MHz	2450MHz	2500MHz	5150MHz	5500MHz	5850MHz
2G1	PIFA	I-PEX	3.05	3.14	3.21	-	-	-
2G2	PIFA	I-PEX	3.52	3.43	3.64	-	-	-
5G1	PIFA	I-PEX	-	-	-	4.52	4.63	5.07
5G2	PIFA	I-PEX	-	-	-	4.13	4.98	4.62
Scan	PIFA	I-PEX	3.83	3.93	3.81	3.81	4.23	4.89
BLE	PIFA	I-PEX	3.09	3.70	3.58	-	-	-

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

2. The EUT incorporates a MIMO function:

Radio	Modulation Mode	Beamforming Mode	TX Function
2G traffic radio (Radio 2)	802.11b	Not Support	2TX
	802.11g	Not Support	2TX
	802.11n (HT20)	Support	2TX
	802.11n (HT40)	Support	2TX
	VHT20	Support	2TX
	VHT40	Support	2TX
	802.11ax (HE20)	Support	2TX
	802.11ax (HE40)	Support	2TX
Scanning radio (Radio 3)	802.11b	Not Support	1TX
	802.11g	Not Support	1TX
	802.11n (HT20)	Not Support	1TX
	802.11n (HT40)	Not Support	1TX
	VHT20	Not Support	1TX
	VHT40	Not Support	1TX

Note:

- For 802.11ax mode, this EUT doesn't support partial RU mode.
- The bandwidth and modulation are similar for HT20/HT40 on 802.11n mode and VHT20/VHT40 on 256QAM and HE20/HE40 on 802.11ax mode. Therefore, the investigated worst case is the representative mode in test report.
- CDD mode is the worst case for final tests after pretesting CDD mode and Beamforming mode except output power test.

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

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	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		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	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
6 dB Bandwidth / Conducted Out of Band Emissions	A	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	802.11ax (HE20)	CDD	6	BPSK	MCS0
	C, D	802.11b	-	6	DBPSK	1Mb/s
Unwanted Emissions below 1 GHz	A, B	802.11ax (HE20)	CDD	6	BPSK	MCS0
	C, D	802.11b	-	6	DBPSK	1Mb/s
Unwanted Emissions above 1 GHz	A	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	Radio 2	Powered by adapter			
	B		Powered by PoE			
	C	Radio 3	Powered by adapter			
	D		Powered by PoE			

3.5 Duty Cycle of Test Signal

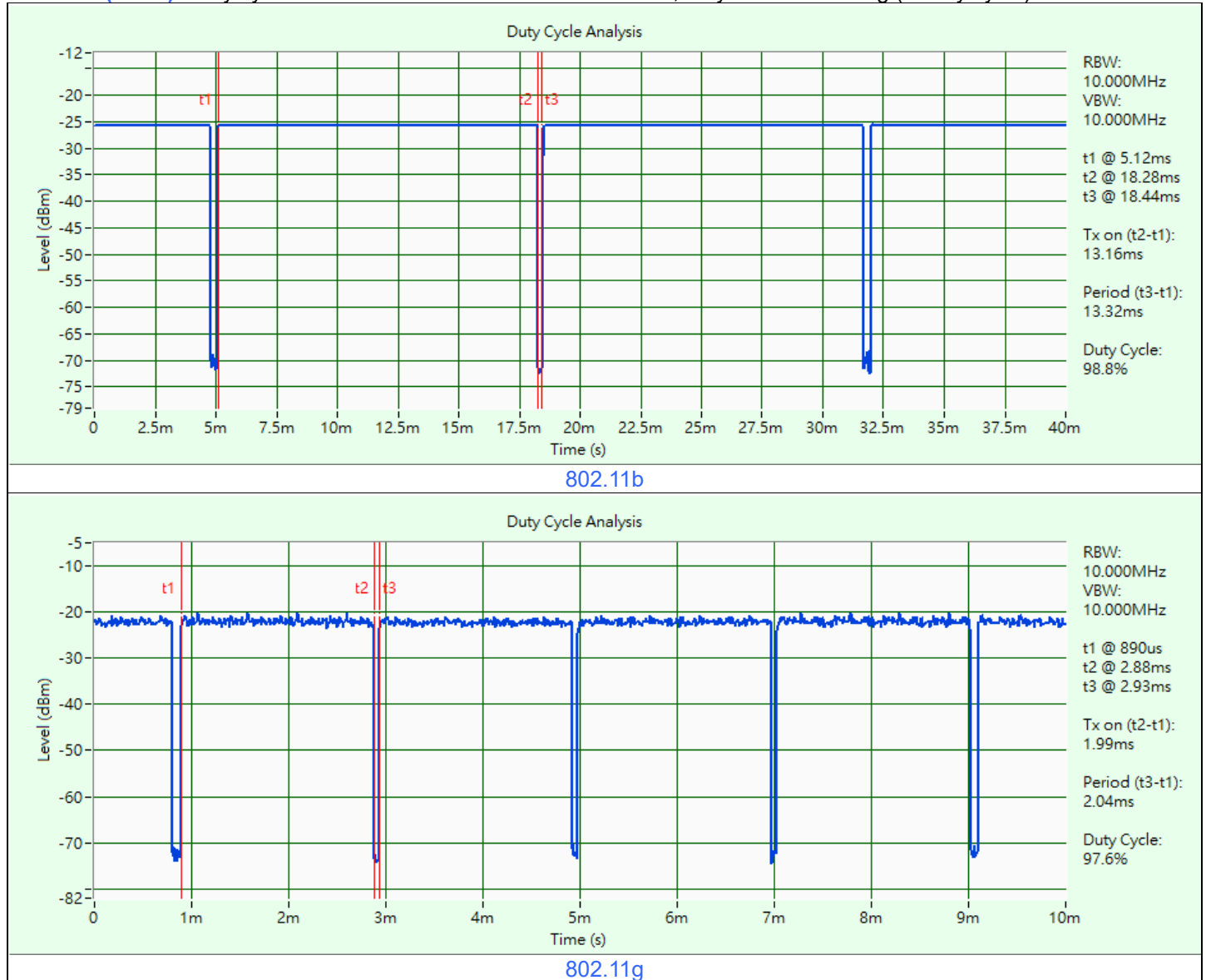
Radio 2

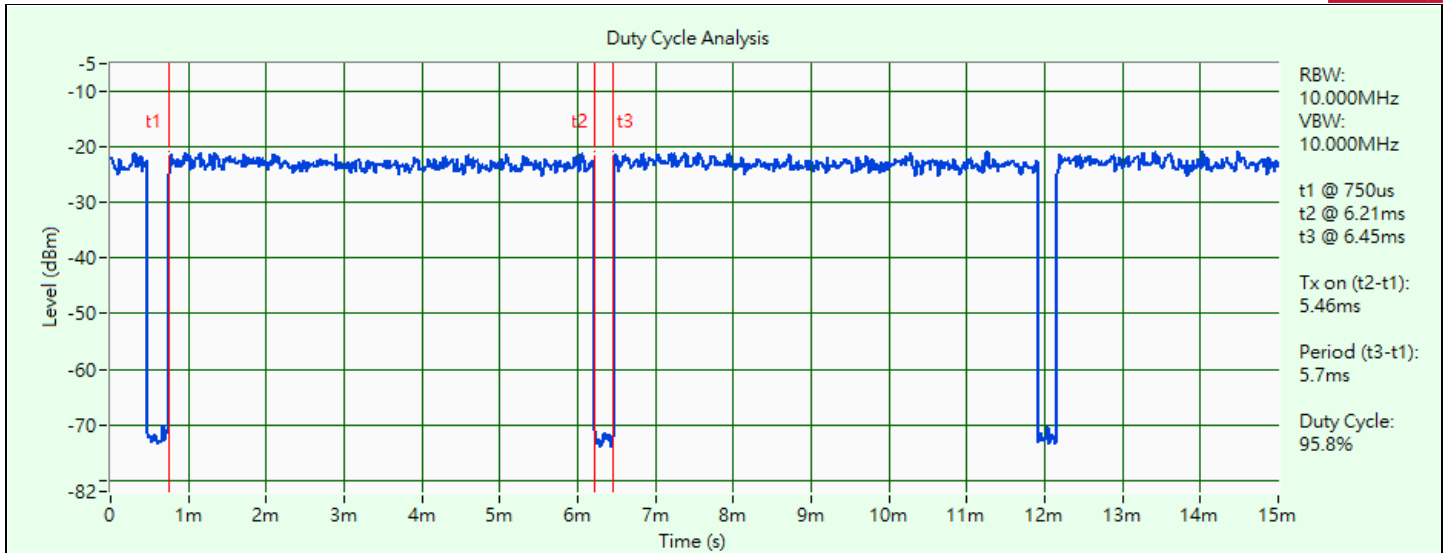
802.11b: Duty cycle = 13.16 ms / 13.32 ms x 100% = 98.8%

802.11g: Duty cycle = 1.99 ms / 2.04 ms x 100% = 97.6%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.11 \text{ dB}$

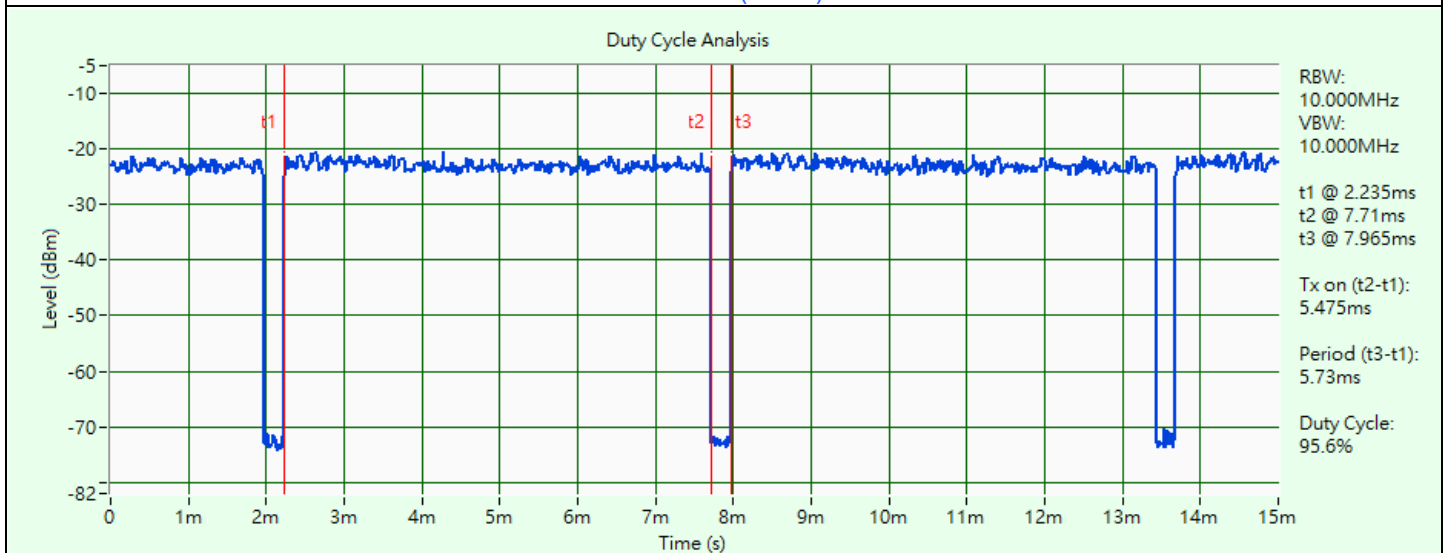
802.11ax (HE20): Duty cycle = 5.46 ms / 5.7 ms x 100% = 95.8%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.19 \text{ dB}$

802.11ax (HE40): Duty cycle = 5.475 ms / 5.73 ms x 100% = 95.6%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.20 \text{ dB}$





802.11ax (HE20)



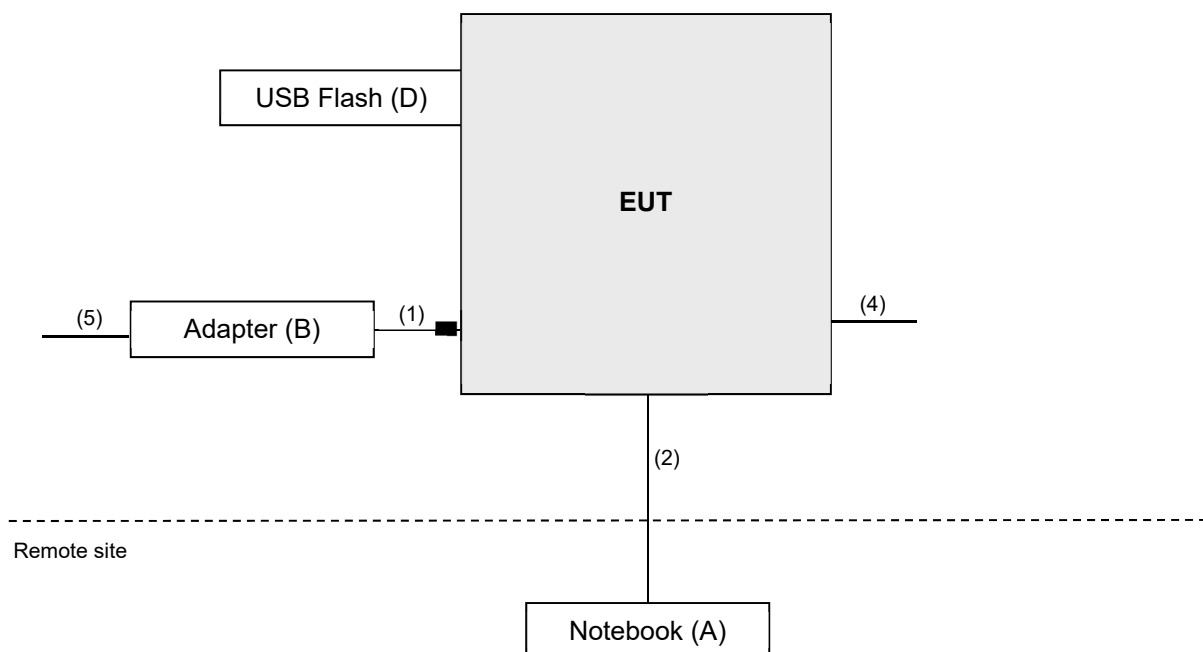
802.11ax (HE40)

3.6 Test Program Used and Operation Descriptions

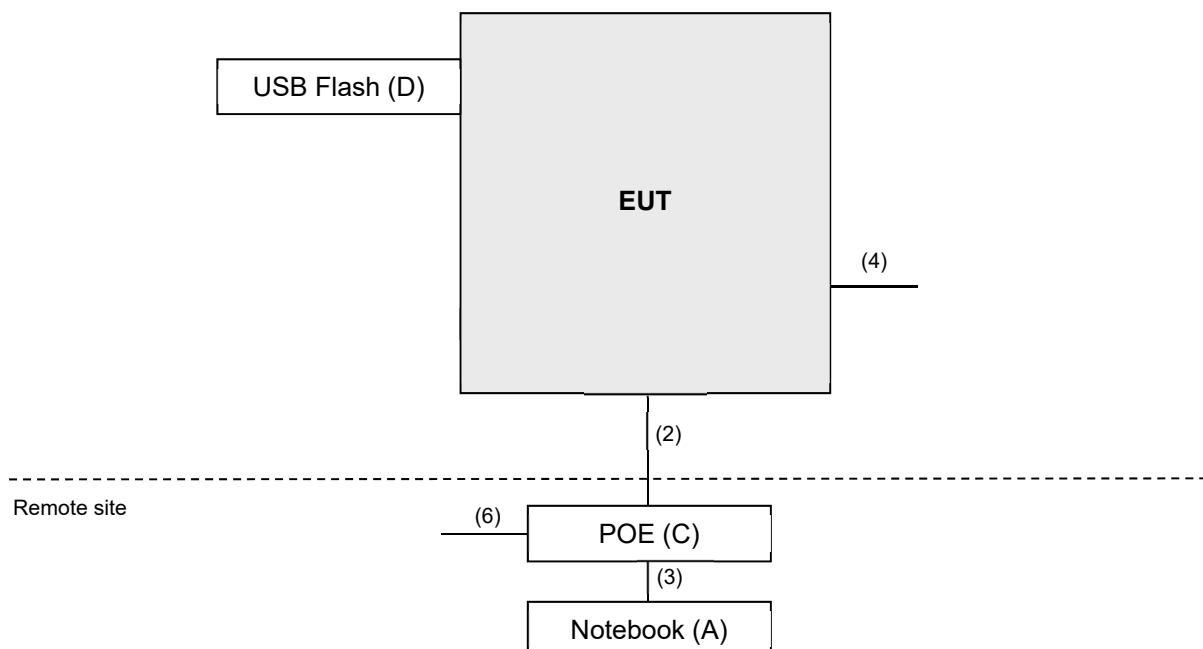
Controlling software QSPR Version 5.0-00199 has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

Test Mode A, C



Test Mode B, D



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	Lenovo	X250ALT5	PC06HPSE	FCC DoC Approved	-
B.	Adapter	Sunny	SYS1546-3612-T3	NA	NA	Provided by client
C.	PoE	EnGenius	EPA5006GAT	NA	NA	Provided by client
D.	USB Flash	SanDisk	SDDDC3-032G	5	NA	-

No.	Cable Descriptions	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Qty.)	Remark
1.	DC Power Cable	1	1.86	N	1	Provided by client
2.	LAN Cable	1	10.0	N	0	RJ45, Cat5e
3.	LAN Cable	1	1.5	N	0	RJ45, Cat5e
4.	Micro USB cable	1	1.5	Y	0	-
5.	AC Power Cable	1	1.77	N	0	Provided by client
6.	AC Power Cable	1	0.5	N	0	Provided by client

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: 2024/7/18

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Signal & Spectrum Analyzer R&S	FSV3044	101105	2024/2/27	2025/2/26
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: 2024/7/18

4.3 6 dB Bandwidth

Refer to section 4.2 to get the tested date and information of the instruments.

4.4 Conducted Out of Band Emissions

Refer to section 4.2 to get the tested date and information of the instruments.

4.5 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	ENV216	101826	2024/3/25	2025/3/24
	ESH3-Z5	100311	2023/9/6	2024/9/5
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: 2024/7/13 ~ 2024/8/6

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-160	2023/10/17	2024/10/16
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
MXE EMI Receiver Keysight	N9038B	MY60180018	2024/3/13	2025/3/12
Preamplifier Agilent	8447D	2944A10638	2024/5/1	2025/4/30
Preamplifier EMCI	EMC001340	980201	2023/9/27	2024/9/26
RF Coaxial Cable Woken	8D-FB	Cable-CH9-01	2024/5/1	2025/4/30
Signal & Spectrum Analyzer R&S	FSW43	101867	2023/12/29	2024/12/28
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2024/7/12 ~ 2024/8/6

4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	5	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-1169	2023/11/12	2024/11/11
	BBHA 9170	9170-480	2023/11/12	2024/11/11
		BBHA9170243	2023/11/12	2024/11/11
MXE EMI Receiver Keysight	N9038B	MY60180018	2024/3/13	2025/3/12
Preamplifier Agilent	8449B	3008A02367	2024/1/6	2025/1/5
Preamplifier EMCI	EMC 184045	980116	2023/9/27	2024/9/26
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2023/7/8	2024/7/7
	EMC102-KM-KM-3000	150929	2023/7/8	2024/7/7
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	2024/1/6	2025/1/5
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104& EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	2024/1/6	2025/1/5
Signal & Spectrum Analyzer R&S	FSW43	101867	2023/12/29	2024/12/28
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

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

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 6 dB Bandwidth

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

5.4 Conducted Out of Band Emissions

Below 30 dB of the highest emission level of operating band (in 100 kHz Resolution Bandwidth).

5.5 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.

5.6 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(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Notes:

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

5.7 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

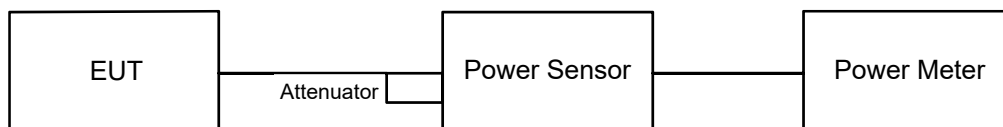
Notes:

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



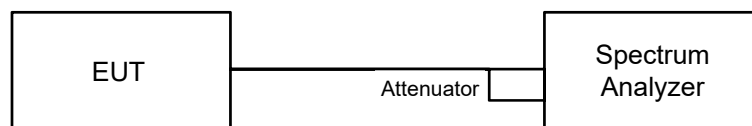
6.1.2 Test Procedure

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



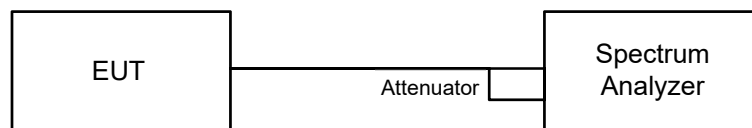
6.2.2 Test Procedure

- 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 6 dB Bandwidth

6.3.1 Test Setup

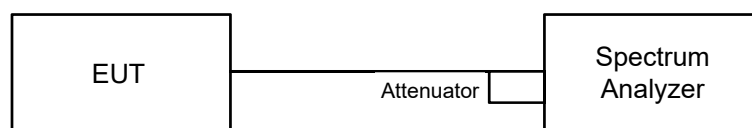


6.3.2 Test Procedure

- Set resolution bandwidth (RBW) = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.4 Conducted Out of Band Emissions

6.4.1 Test Setup



6.4.2 Test Procedure

MEASUREMENT PROCEDURE REF

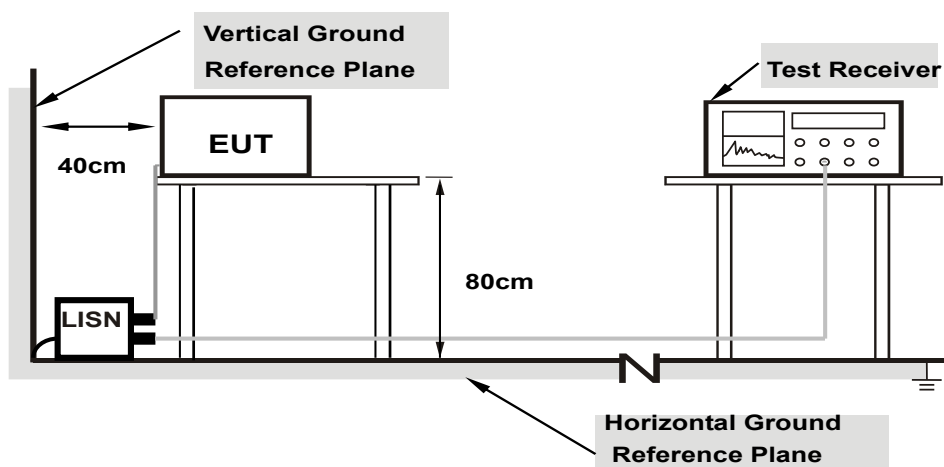
- Set the RBW = 100 kHz.
- Set the VBW ≥ 300 kHz.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOB

- Set RBW = 100 kHz.
- Set VBW ≥ 300 kHz.
- Detector = peak.
- Sweep = auto couple.
- Trace Mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level.

6.5 AC Power Conducted Emissions

6.5.1 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).

6.5.2 Test Procedure

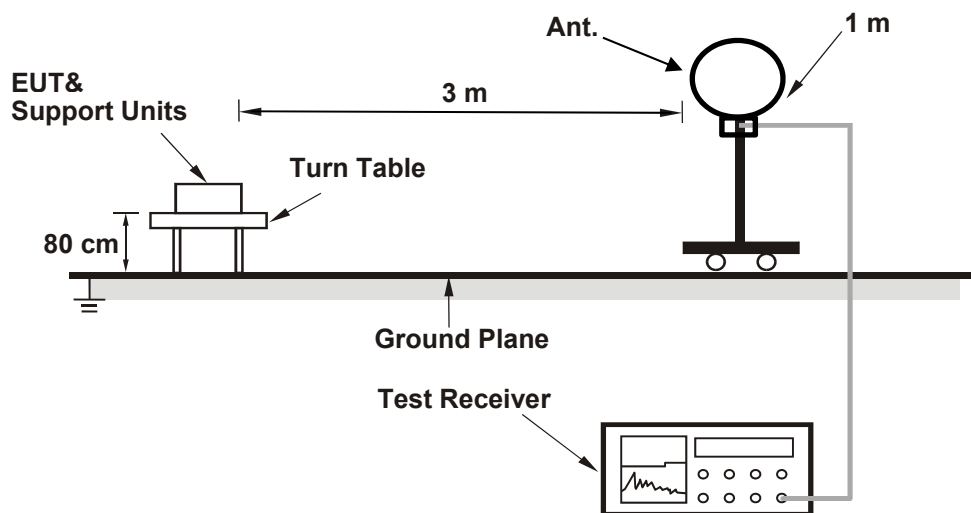
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The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

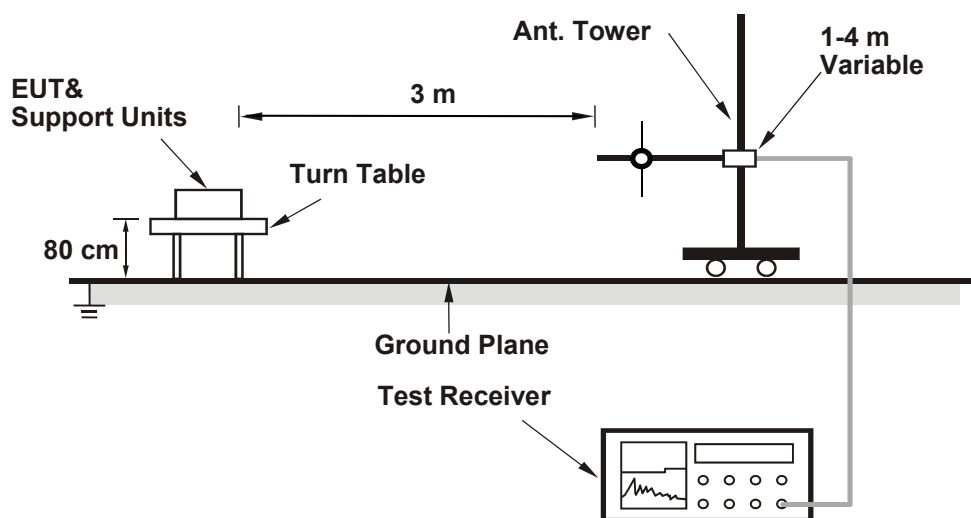
6.6 Unwanted Emissions below 1 GHz

6.6.1 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).

6.6.2 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

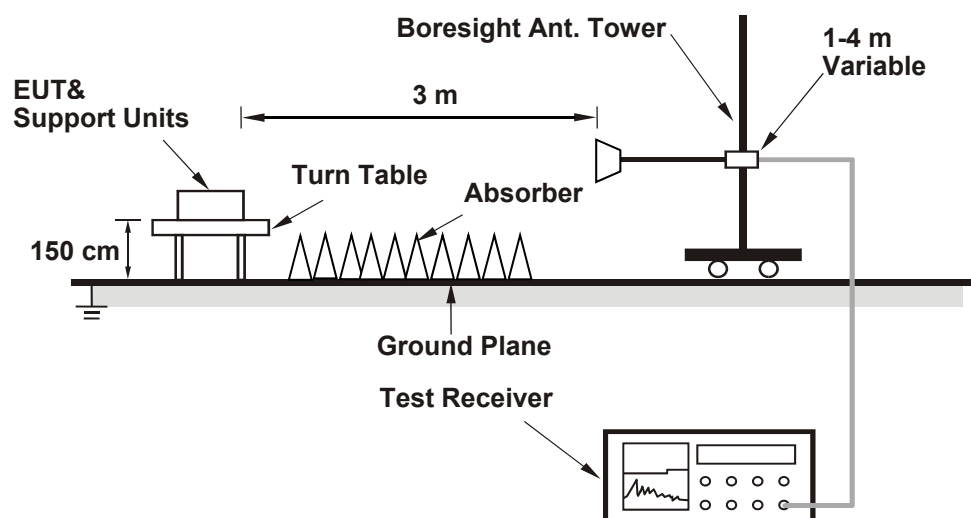
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the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

6.7 Unwanted Emissions above 1 GHz

6.7.1 Test Setup



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

6.7.2 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:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Gary Lin
--------------	----------------	---------------------------	--------------	------------	----------

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	19.80	19.86	192.327	22.84	30	Pass
6	2437	18.17	18.59	137.892	21.40	30	Pass
11	2462	18.10	18.52	135.687	21.33	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.64 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				
1	2412	17.17	17.25	105.208	20.22	30	Pass
6	2437	19.64	19.83	188.206	22.75	30	Pass
11	2462	15.22	15.25	66.762	18.25	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.64 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				
1	2412	16.08	16.10	81.289	19.10	30	Pass
6	2437	19.85	19.93	195.006	22.90	30	Pass
11	2462	13.16	13.33	42.229	16.26	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.64 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				
3	2422	14.77	14.94	61.181	17.87	30	Pass
6	2437	15.23	15.39	67.937	18.32	30	Pass
9	2452	11.88	11.93	31.013	14.92	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.64 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				
1	2412	16.11	16.13	81.852	19.13	30	Pass
6	2437	19.88	19.96	196.358	22.93	30	Pass
11	2462	13.18	13.40	42.675	16.30	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.64 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				
3	2422	14.81	14.97	61.674	17.90	30	Pass
6	2437	15.24	15.42	68.253	18.34	30	Pass
9	2452	11.90	11.96	31.192	14.94	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.64 dBi < 6 dBi, so the output power limit shall not be reduced.

VHT20 Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	16.08	16.10	81.289	19.10	29.56	Pass
6	2437	19.85	19.93	195.006	22.90	29.56	Pass
11	2462	13.16	13.33	42.229	16.26	29.56	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
2. The directional gain is 6.44 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (6.44 - 6) = 29.56$ 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				
3	2422	14.77	14.94	61.181	17.87	29.56	Pass
6	2437	15.23	15.39	67.937	18.32	29.56	Pass
9	2452	11.88	11.93	31.013	14.92	29.56	Pass

Notes:

- Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}})^2 / 2]$
- The directional gain is 6.44 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (6.44 - 6) = 29.56$ 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				
1	2412	16.11	16.13	81.852	19.13	29.56	Pass
6	2437	19.88	19.96	196.358	22.93	29.56	Pass
11	2462	13.18	13.40	42.675	16.30	29.56	Pass

Notes:

- Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}})^2 / 2]$
- The directional gain is 6.44 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (6.44 - 6) = 29.56$ 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				
3	2422	14.81	14.97	61.674	17.90	29.56	Pass
6	2437	15.24	15.42	68.253	18.34	29.56	Pass
9	2452	11.90	11.96	31.192	14.94	29.56	Pass

Notes:

- Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}})^2 / 2]$
- The directional gain is 6.44 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (6.44 - 6) = 29.56$ dBm.

7.2 Power Spectral Density

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Gary Lin
--------------	----------------	---------------------------	--------------	------------	----------

802.11b

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
1	2412	-14.52	-14.46	-11.48	7.56	Pass
6	2437	-16.17	-15.70	-12.92	7.56	Pass
11	2462	-16.24	-15.77	-12.99	7.56	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 = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
3. The directional gain is 6.44 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.44 - 6) = 7.56$ 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				
1	2412	-14.75	-14.64	0.11	-11.58	7.56	Pass
6	2437	-12.29	-12.08	0.11	-9.07	7.56	Pass
11	2462	-16.67	-16.62	0.11	-13.53	7.56	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 = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
3. The directional gain is 6.44 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.44 - 6) = 7.56$ 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				
1	2412	-19.04	-18.98	0.19	-15.81	7.56	Pass
6	2437	-15.31	-15.21	0.19	-12.06	7.56	Pass
11	2462	-21.99	-21.75	0.19	-18.67	7.56	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 = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
3. The directional gain is 6.44 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.44 - 6) = 7.56$ dBm/3kHz.

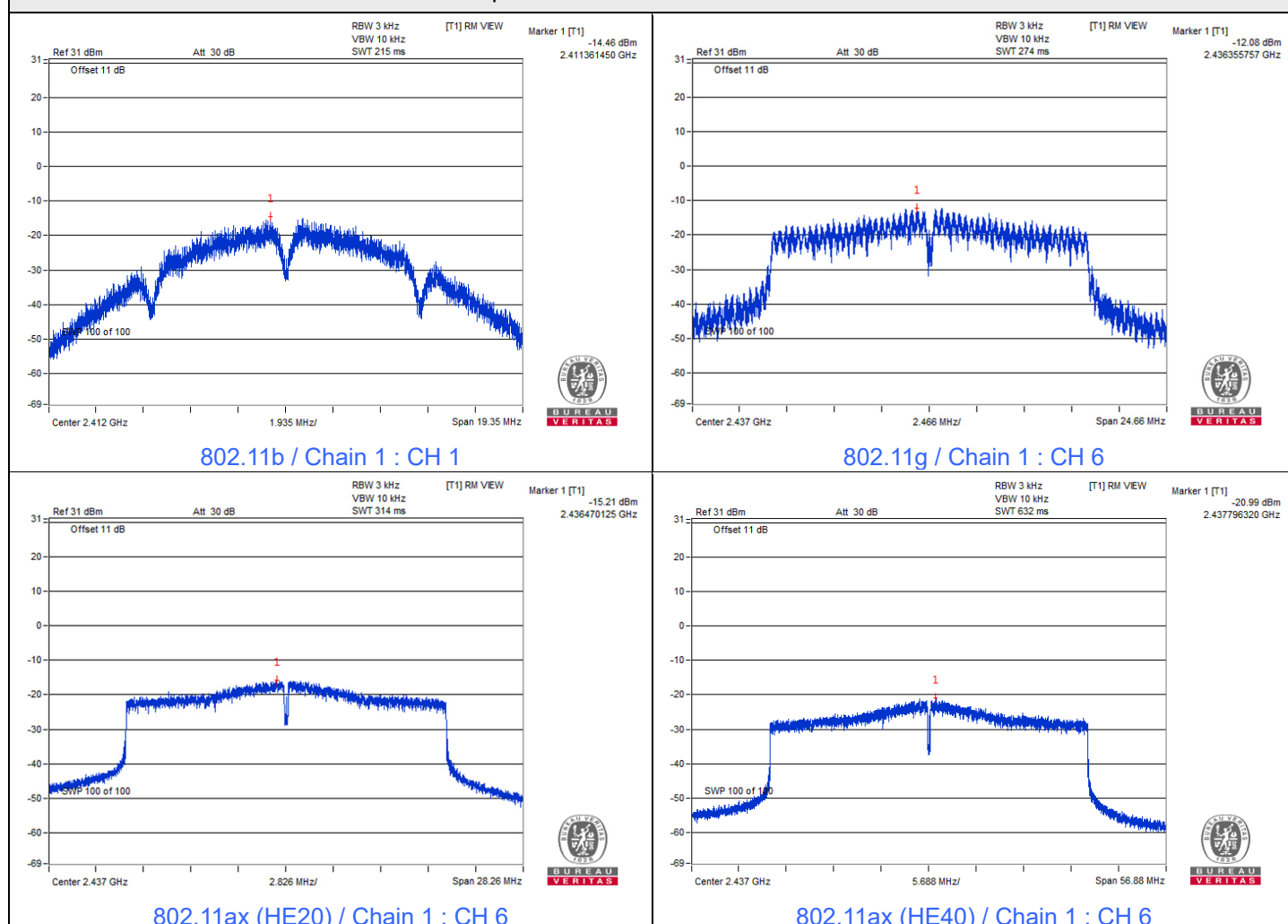
802.11ax (HE40)

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				
3	2422	-21.63	-21.42	0.20	-18.32	7.56	Pass
6	2437	-21.23	-20.99	0.20	-17.90	7.56	Pass
9	2452	-24.58	-24.41	0.20	-21.29	7.56	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 = $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- The directional gain is 6.44 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.44 - 6) = 7.56$ dBm/3kHz.

Spectrum Plot of Maximum Value



7.3 6 dB Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Gary Lin
--------------	----------------	---------------------------	--------------	------------	----------

802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	7.11	7.12	0.5	Pass
6	2437	8.08	8.04	0.5	Pass
11	2462	8.10	8.08	0.5	Pass

802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	15.14	15.13	0.5	Pass
6	2437	15.13	15.14	0.5	Pass
11	2462	15.15	15.15	0.5	Pass

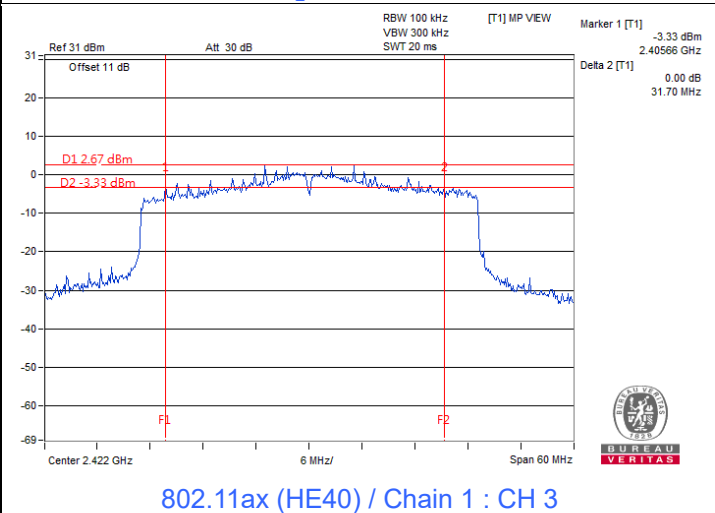
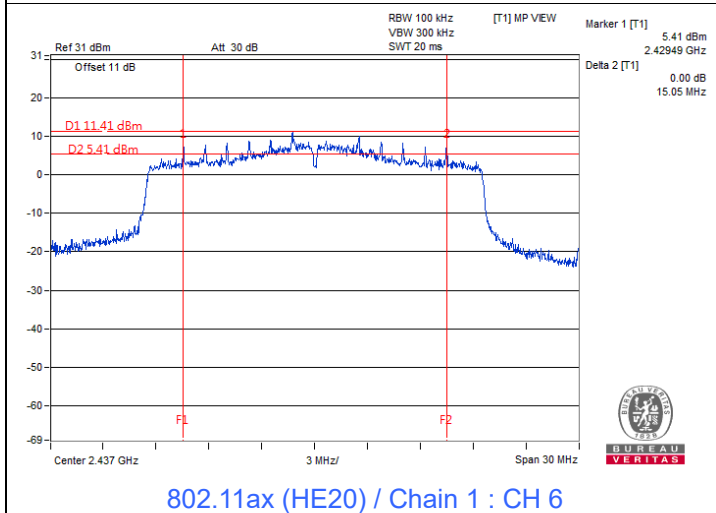
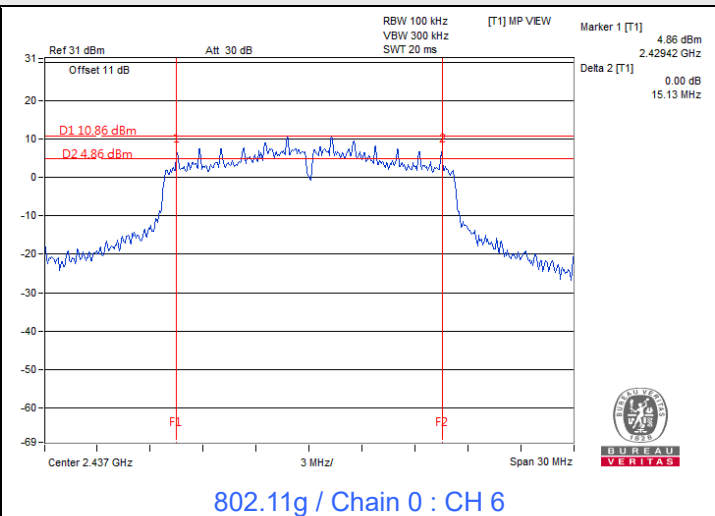
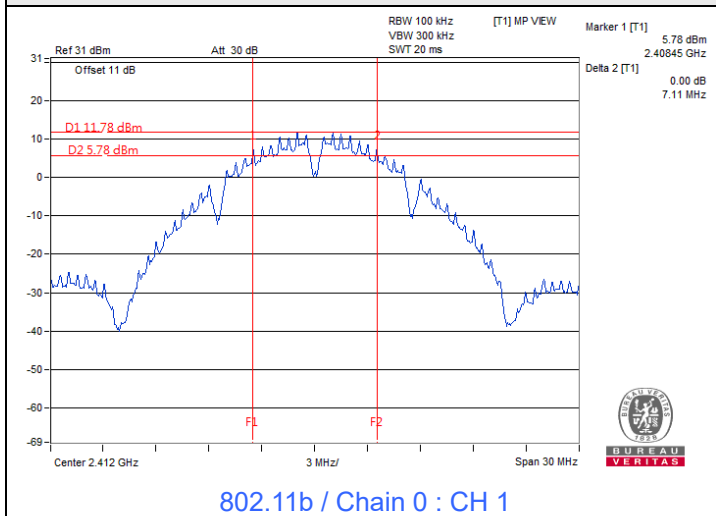
802.11ax (HE20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	15.16	15.12	0.5	Pass
6	2437	15.16	15.05	0.5	Pass
11	2462	15.19	15.12	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
3	2422	35.22	31.70	0.5	Pass
6	2437	35.18	35.08	0.5	Pass
9	2452	35.16	35.19	0.5	Pass

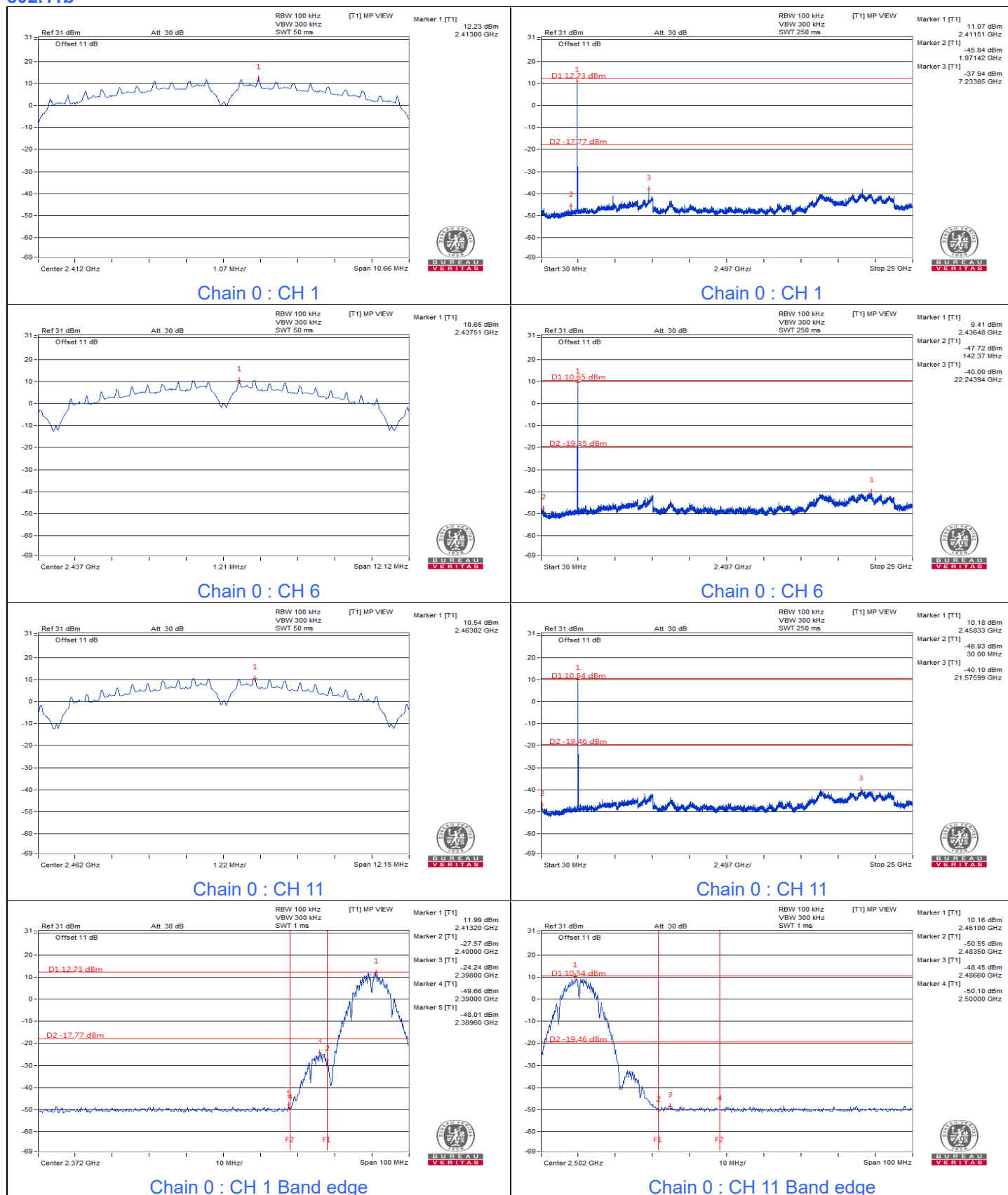
Spectrum Plot of Minimum Value

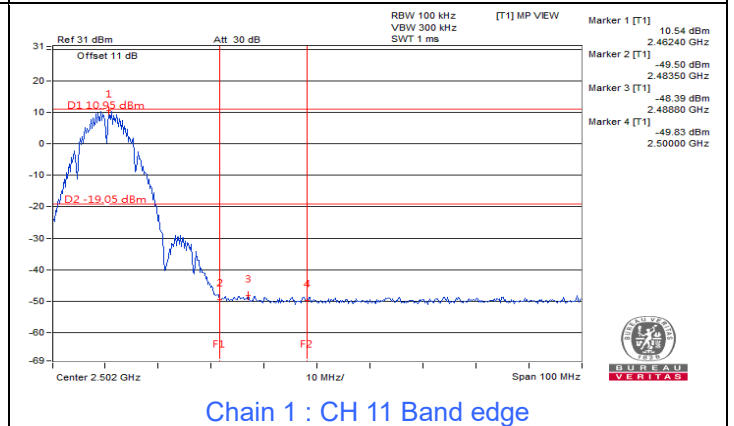
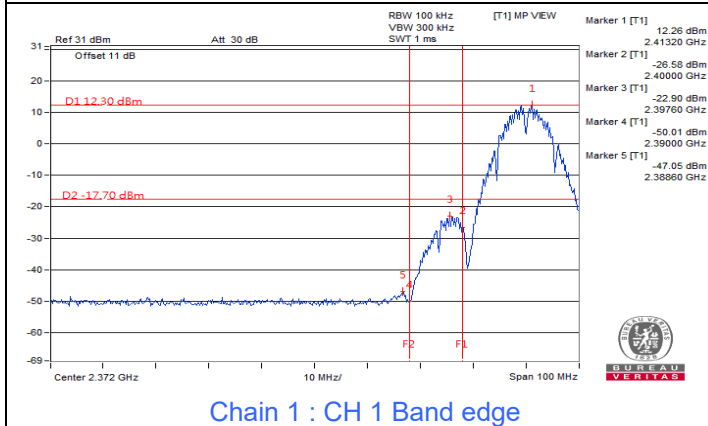
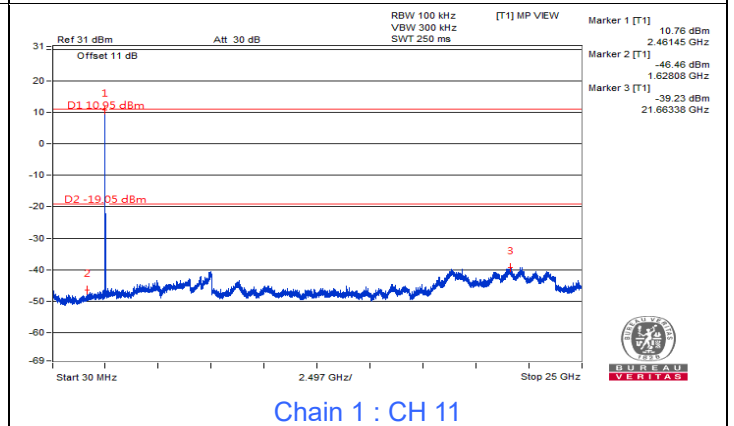
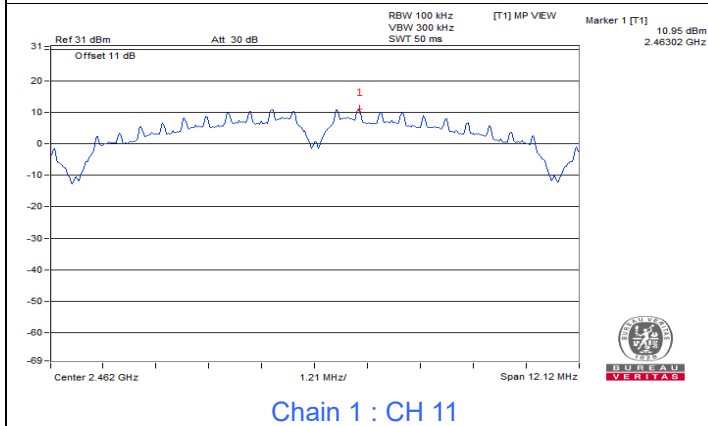
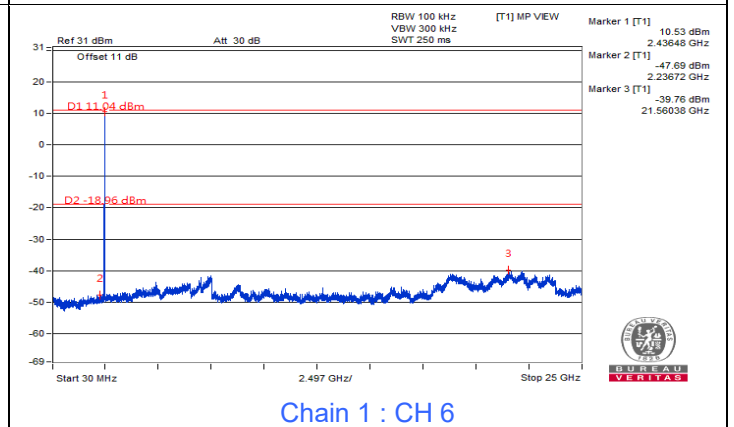
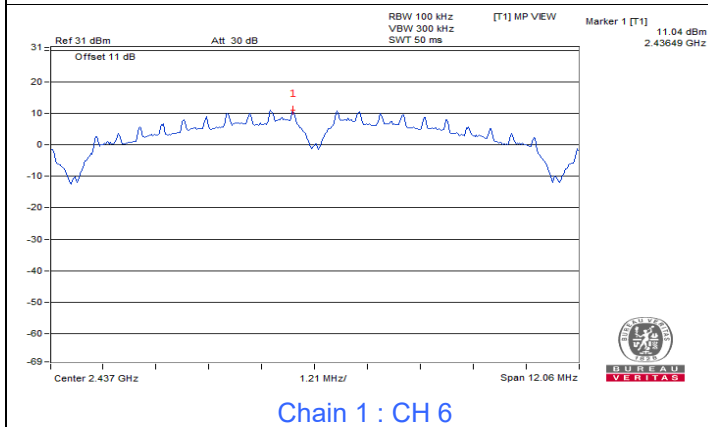
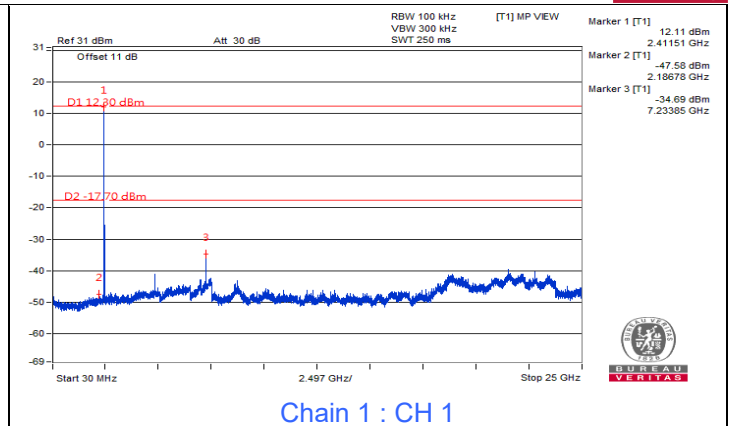
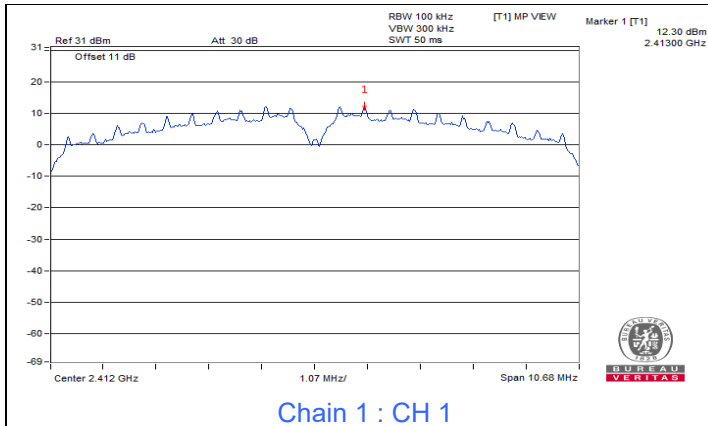


7.4 Conducted Out of Band Emissions

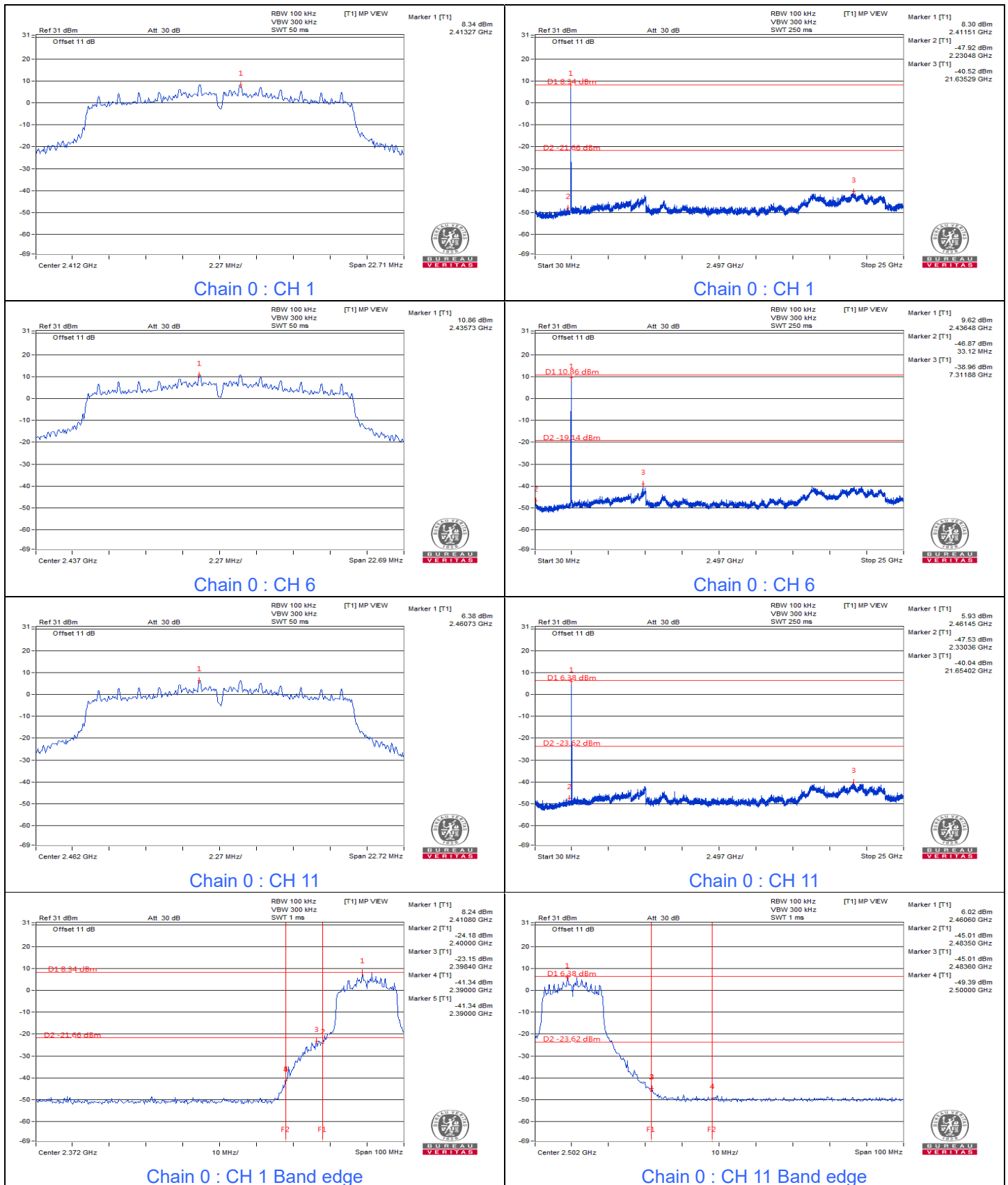
Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Gary Lin
--------------	----------------	---------------------------	--------------	------------	----------

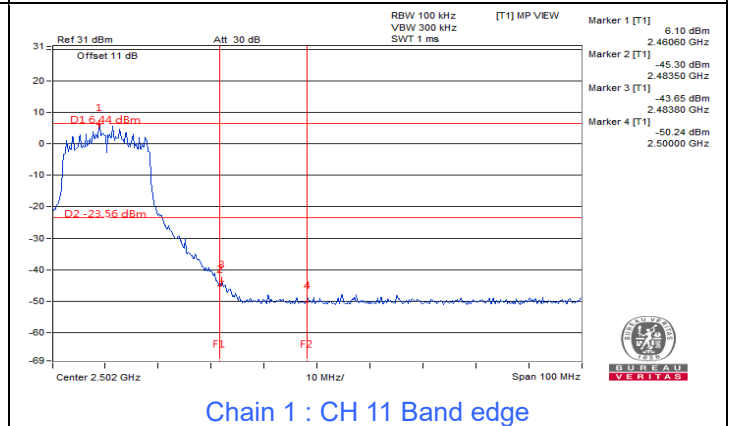
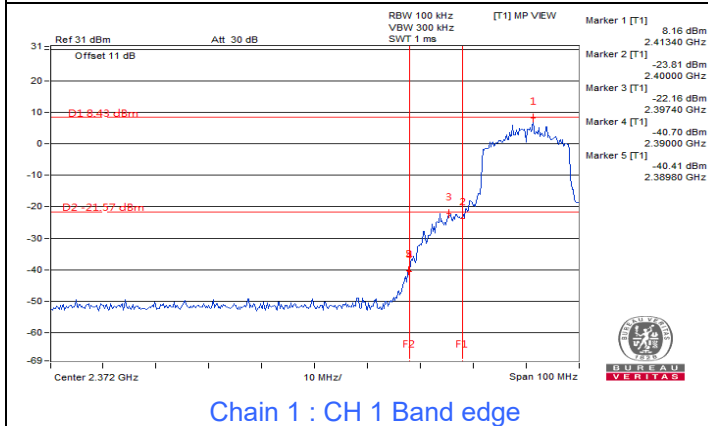
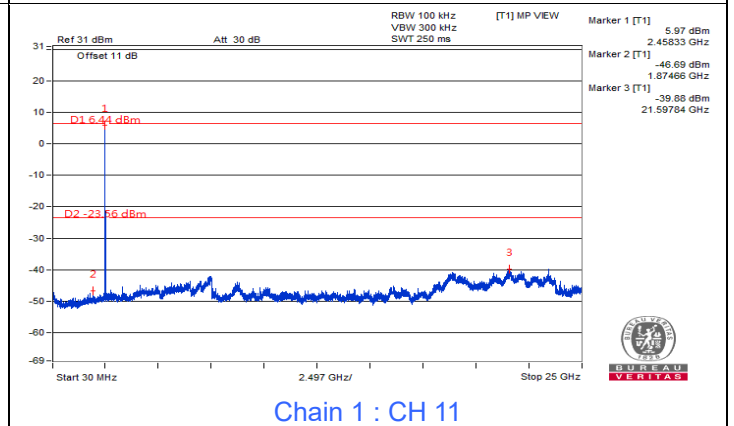
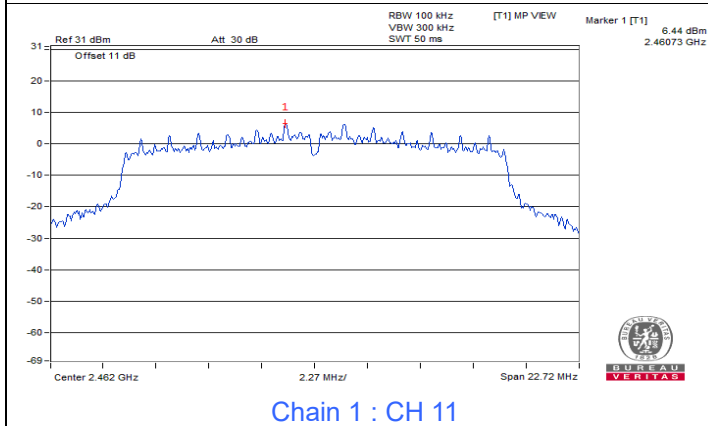
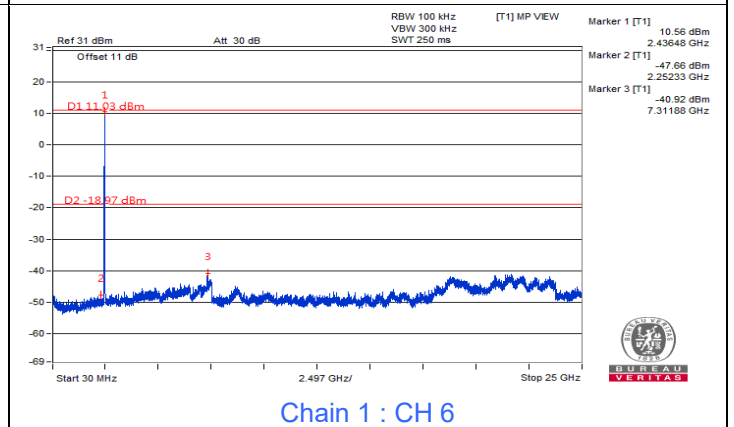
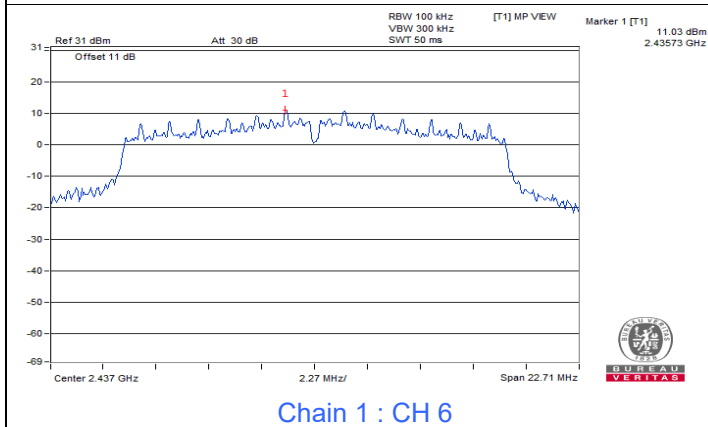
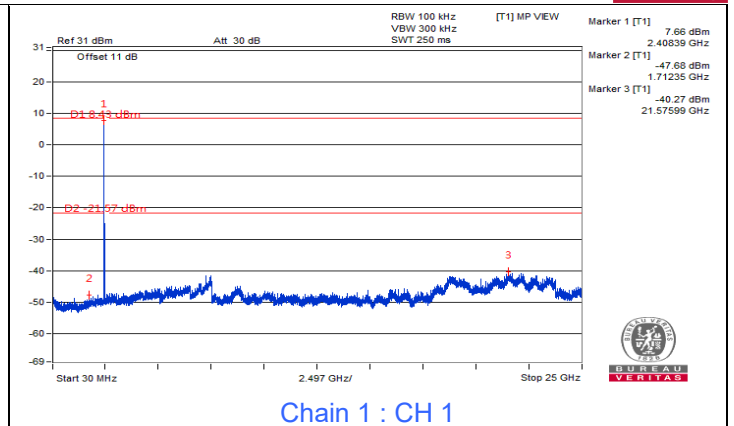
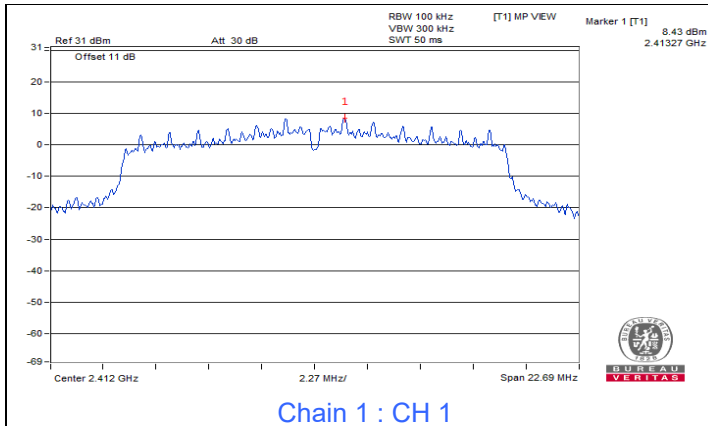
802.11b



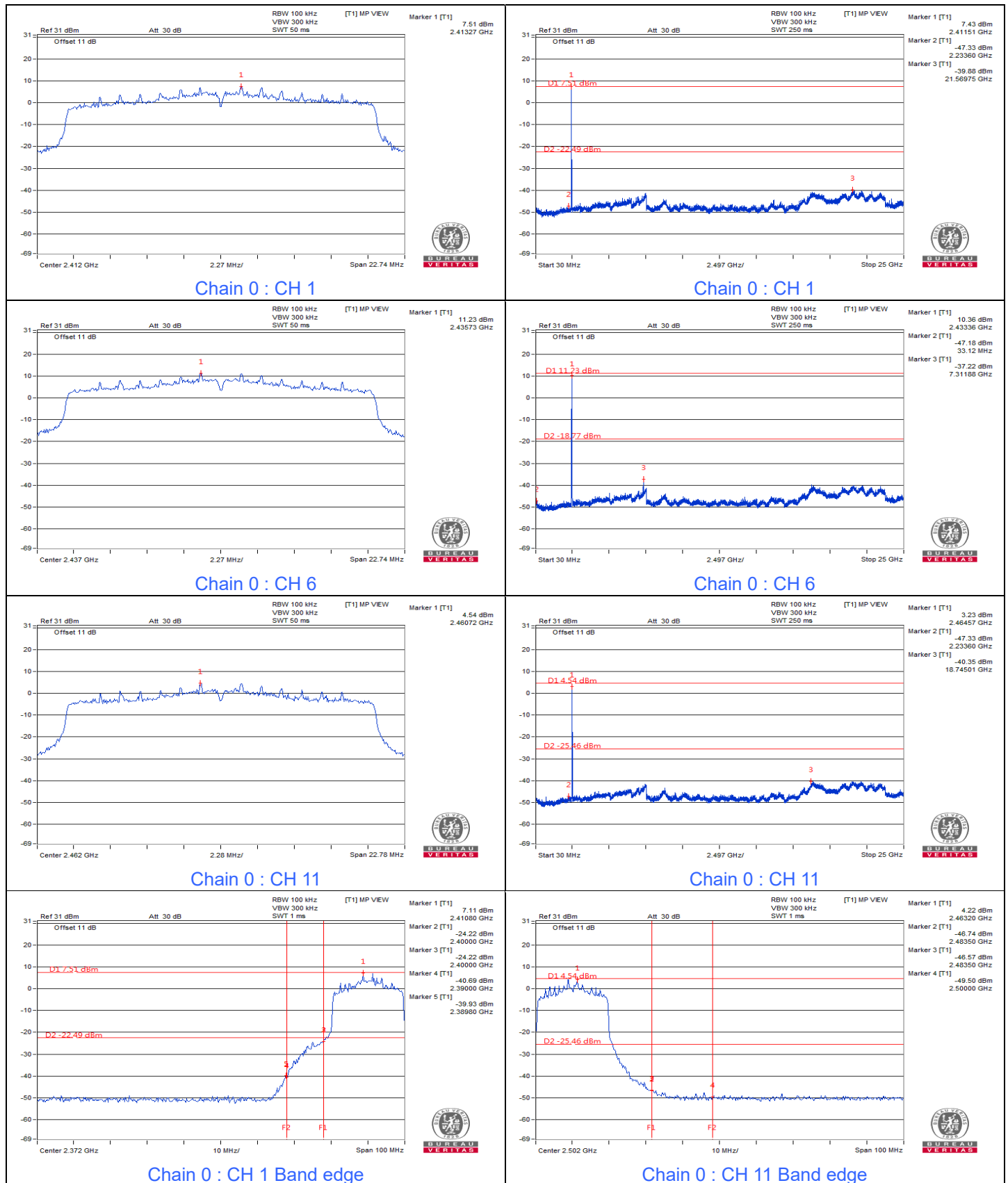


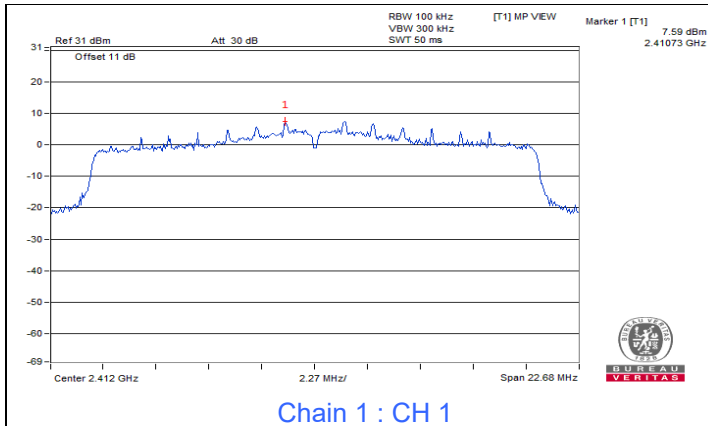
802.11g



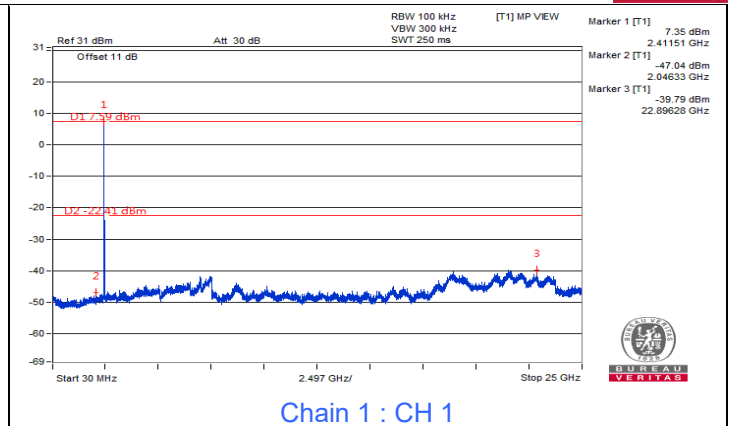


802.11ax (HE20)

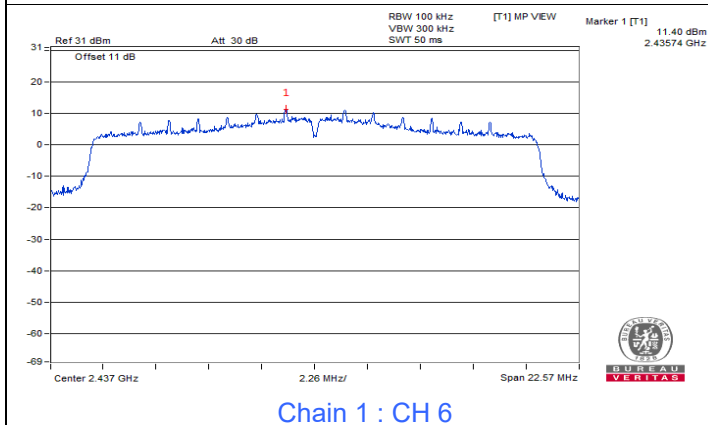




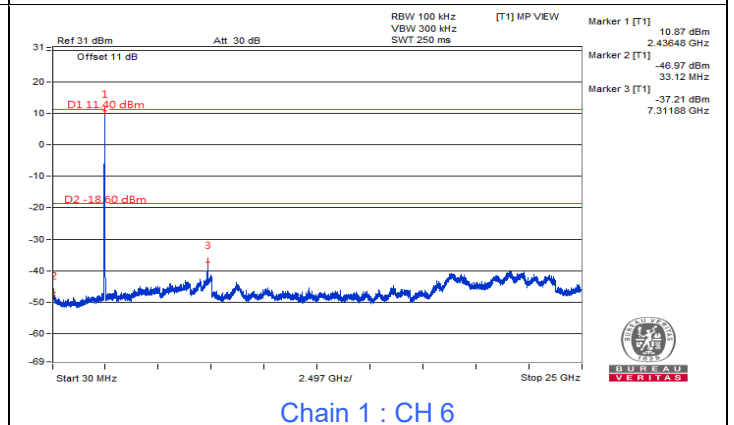
Chain 1 : CH 1



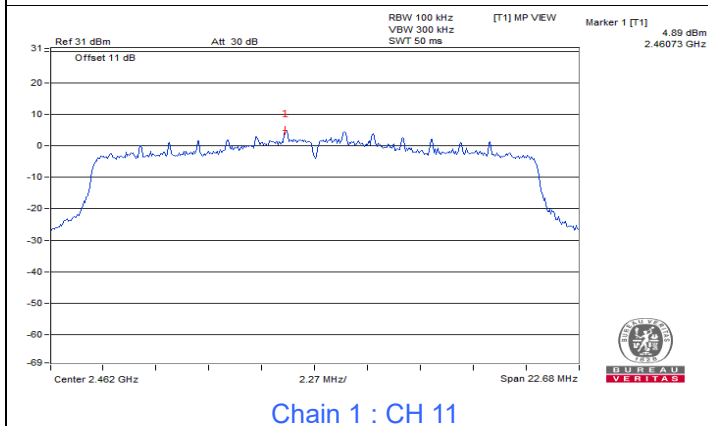
Chain 1 : CH 1



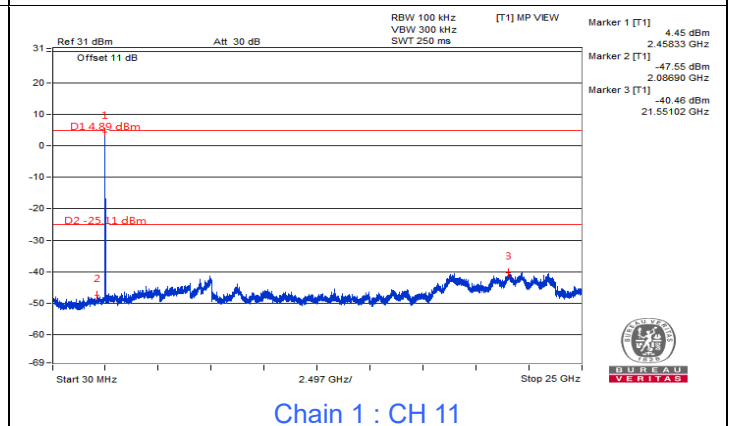
Chain 1 : CH 6



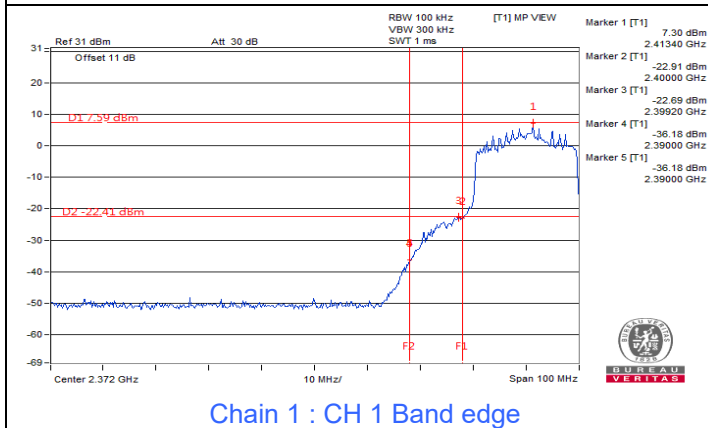
Chain 1 : CH 6



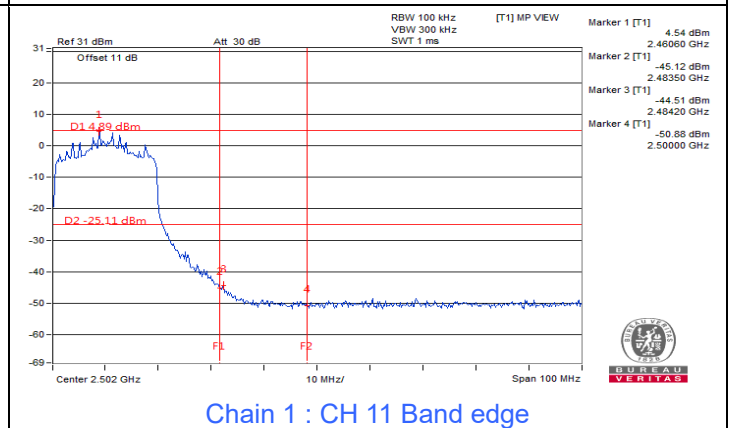
Chain 1 : CH 11



Chain 1 : CH 11

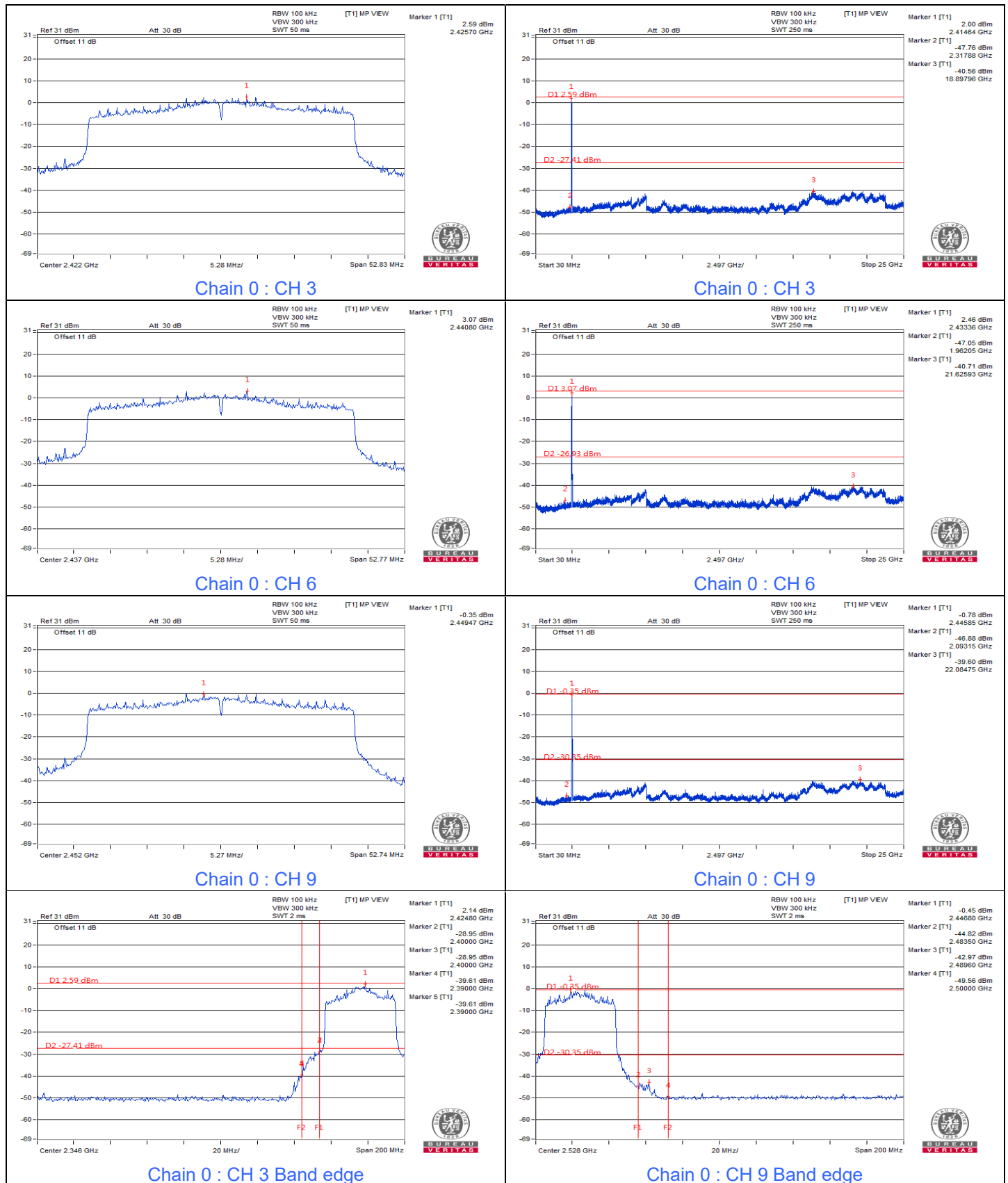


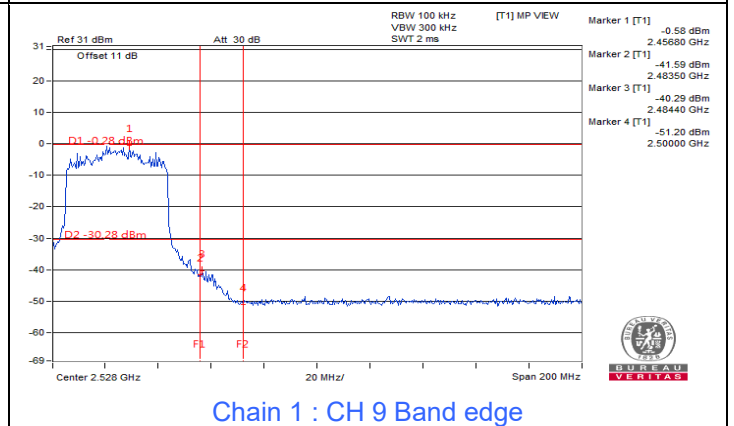
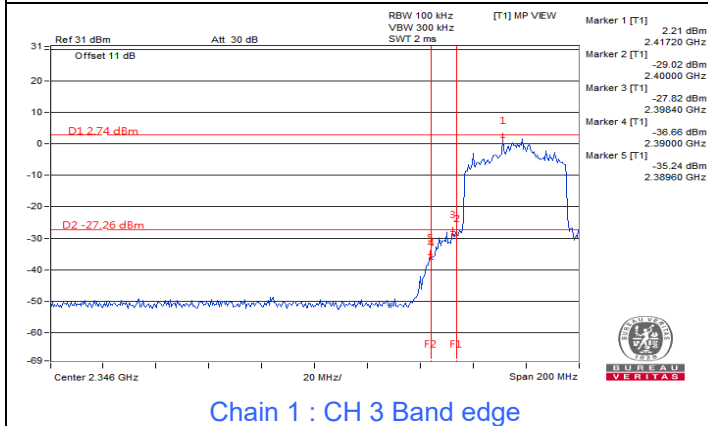
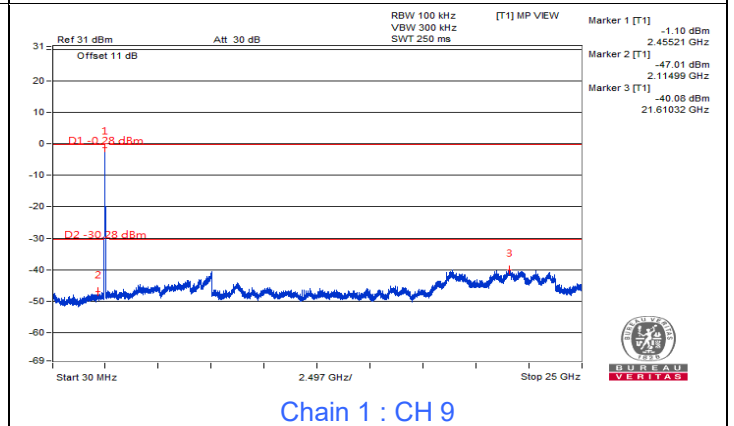
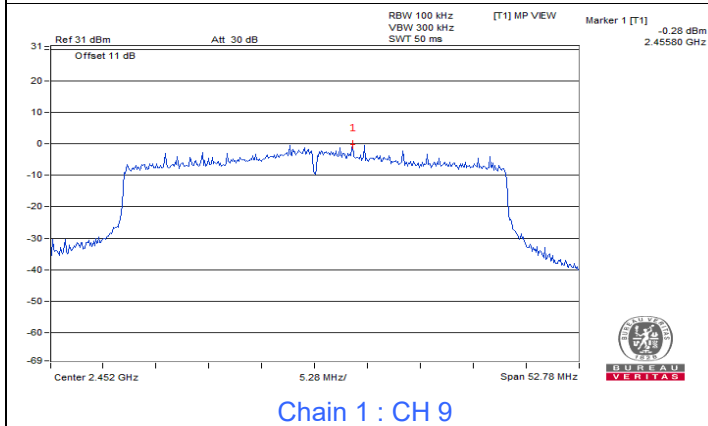
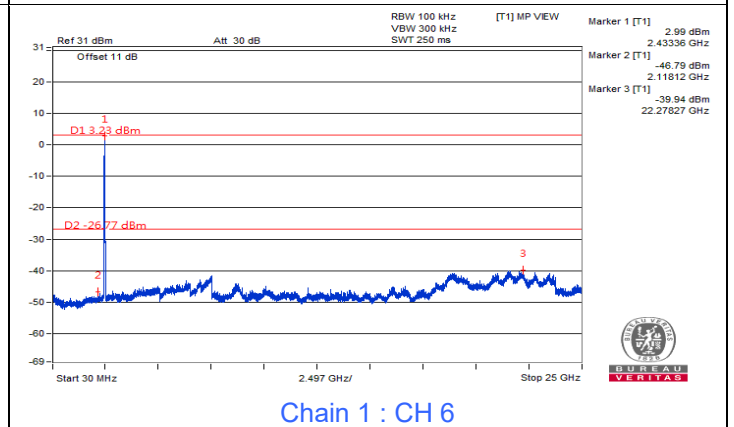
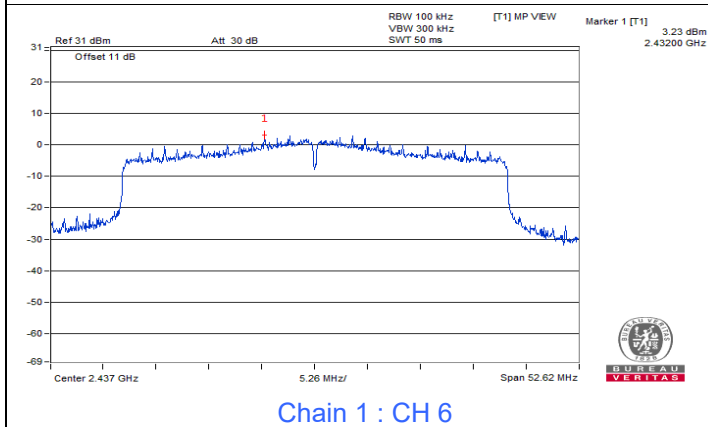
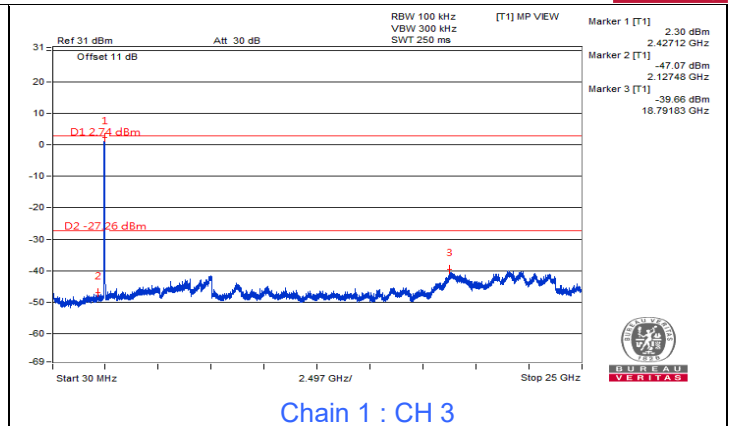
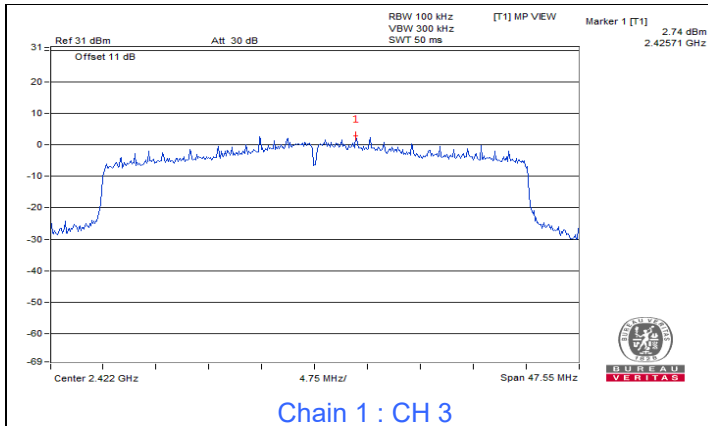
Chain 1 : CH 1 Band edge



Chain 1 : CH 11 Band edge

802.11ax (HE40)





7.5 AC Power Conducted Emissions

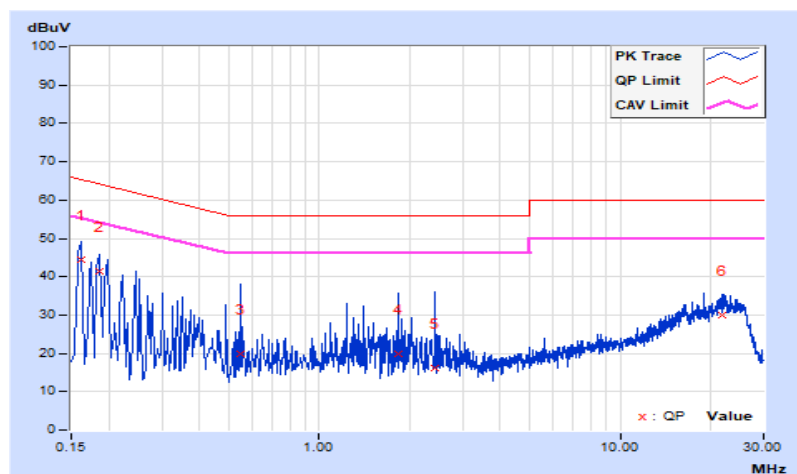
Mode A

RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 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	Rex Wang		

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	0.16190	9.67	34.70	16.25	44.37	25.92	65.37	55.37	-21.00	-29.45
2	0.18600	9.66	31.73	12.45	41.39	22.11	64.21	54.21	-22.82	-32.10
3	0.55000	9.70	10.23	1.91	19.93	11.61	56.00	46.00	-36.07	-34.39
4	1.82600	9.76	10.00	0.24	19.76	10.00	56.00	46.00	-36.24	-36.00
5	2.42600	9.77	6.30	2.24	16.07	12.01	56.00	46.00	-39.93	-33.99
6	21.73400	10.06	19.74	14.13	29.80	24.19	60.00	50.00	-30.20	-25.81

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

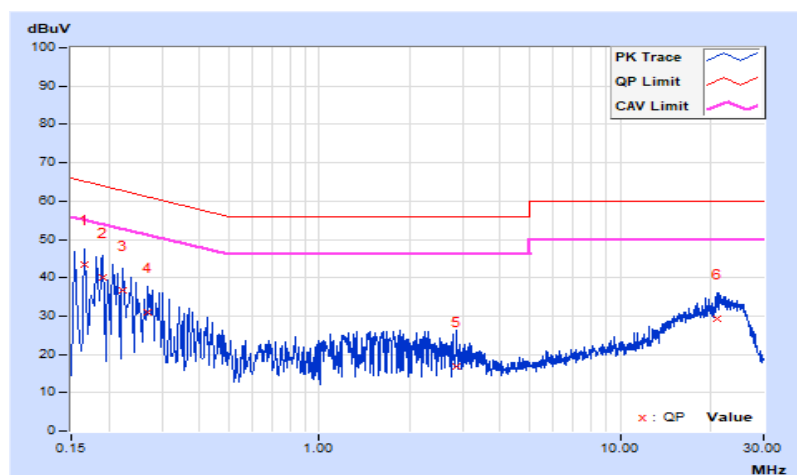


RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Rex Wang		

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	0.16600	9.64	33.82	15.84	43.46	25.48	65.16	55.16	-21.70	-29.68
2	0.19000	9.65	30.26	11.86	39.91	21.51	64.04	54.04	-24.13	-32.53
3	0.22200	9.66	26.91	7.13	36.57	16.79	62.74	52.74	-26.17	-35.95
4	0.27000	9.67	21.36	4.64	31.03	14.31	61.12	51.12	-30.09	-36.81
5	2.85000	9.77	6.97	1.45	16.74	11.22	56.00	46.00	-39.26	-34.78
6	21.13400	10.22	19.08	13.57	29.30	23.79	60.00	50.00	-30.70	-26.21

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



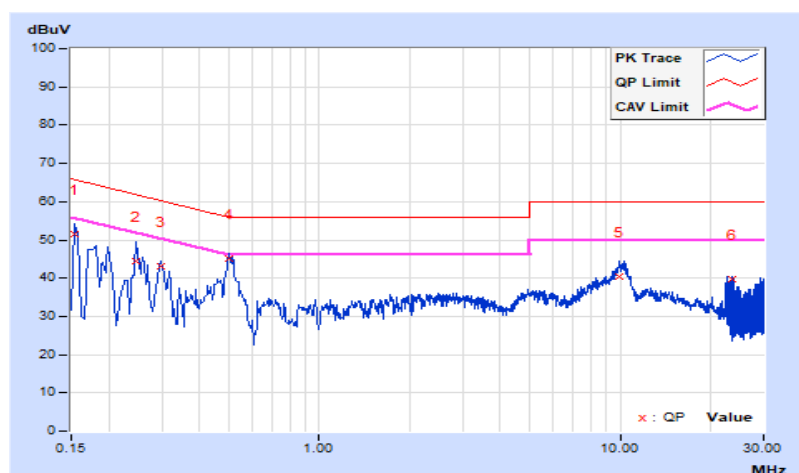
Mode B

RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 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	Rex Wang		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	9.63	41.93	25.86	51.56	35.49	65.78	55.78	-14.22	-20.29
2	0.24600	9.65	34.74	24.57	44.39	34.22	61.89	51.89	-17.50	-17.67
3	0.29756	9.66	33.31	22.70	42.97	32.36	60.31	50.31	-17.34	-17.95
4	0.50133	9.68	35.41	30.08	45.09	39.76	56.00	46.00	-10.91	-6.24
5	9.89800	9.80	30.50	25.50	40.30	35.30	60.00	50.00	-19.70	-14.70
6	23.55000	9.81	29.85	29.13	39.66	38.94	60.00	50.00	-20.34	-11.06

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

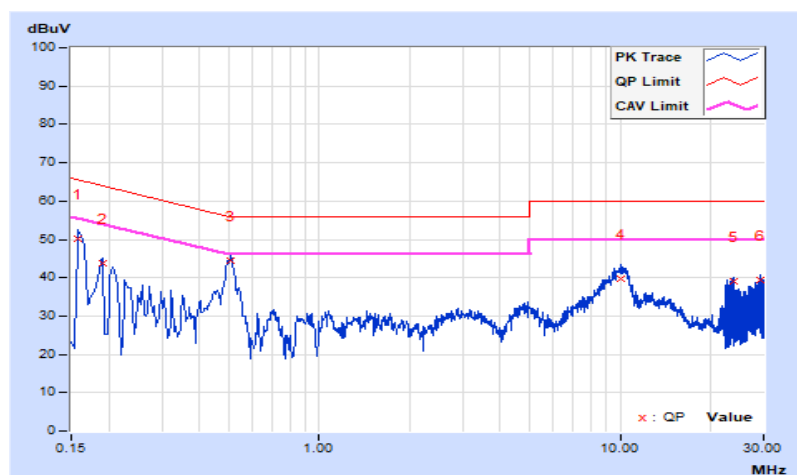


RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Rex Wang		

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	9.63	40.55	23.11	50.18	32.74	65.57	55.57	-15.39	-22.83
2	0.19000	9.64	34.25	25.69	43.89	35.33	64.04	54.04	-20.15	-18.71
3	0.50665	9.69	34.77	29.47	44.46	39.16	56.00	46.00	-11.54	-6.84
4	10.01800	9.82	29.86	24.94	39.68	34.76	60.00	50.00	-20.32	-15.24
5	23.80600	9.93	29.26	27.85	39.19	37.78	60.00	50.00	-20.81	-12.22
6	29.37800	9.93	29.49	28.24	39.42	38.17	60.00	50.00	-20.58	-11.83

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



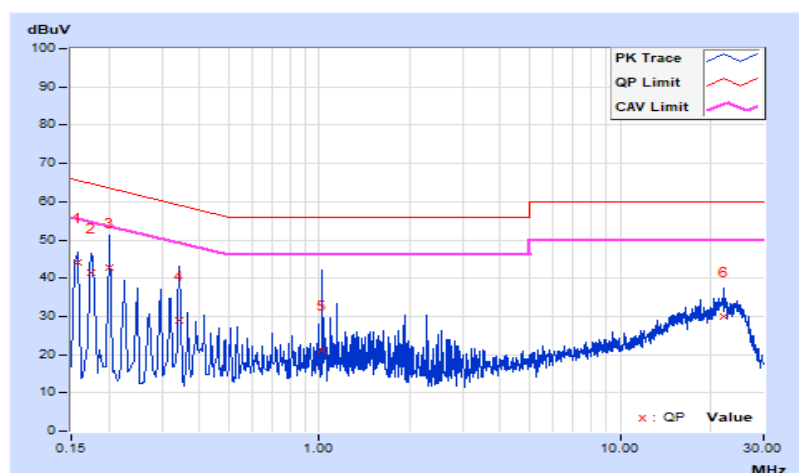
Mode C

RF Mode	802.11b	Channel	CH 6 : 2437 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	Rex Wang		

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	0.15800	9.67	34.59	15.70	44.26	25.37	65.57	55.57	-21.31	-30.20
2	0.17400	9.67	31.85	12.32	41.52	21.99	64.77	54.77	-23.25	-32.78
3	0.20200	9.66	33.09	10.47	42.75	20.13	63.53	53.53	-20.78	-33.40
4	0.34200	9.68	19.15	2.04	28.83	11.72	59.15	49.15	-30.32	-37.43
5	1.02600	9.73	11.53	1.63	21.26	11.36	56.00	46.00	-34.74	-34.64
6	22.04200	10.07	19.94	14.02	30.01	24.09	60.00	50.00	-29.99	-25.91

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

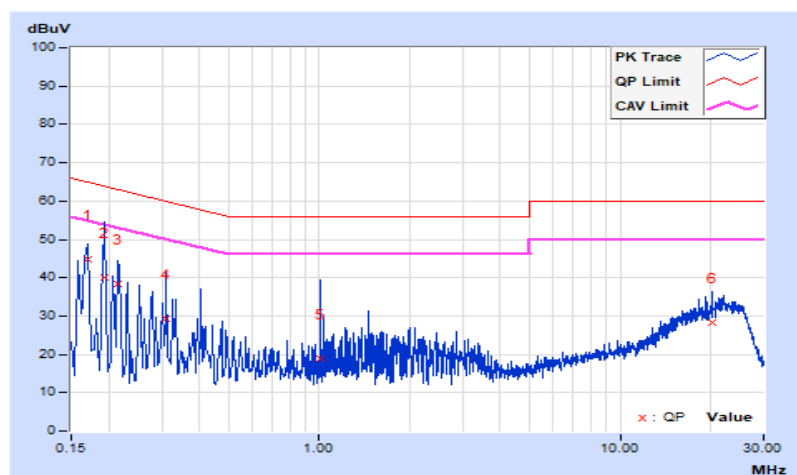


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Rex Wang		

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	0.16977	9.64	35.22	15.11	44.86	24.75	64.97	54.97	-20.11	-30.22
2	0.19400	9.65	30.33	11.39	39.98	21.04	63.86	53.86	-23.88	-32.82
3	0.21400	9.65	28.76	7.96	38.41	17.61	63.05	53.05	-24.64	-35.44
4	0.31000	9.68	19.50	4.69	29.18	14.37	59.97	49.97	-30.79	-35.60
5	1.00600	9.74	9.20	1.92	18.94	11.66	56.00	46.00	-37.06	-34.34
6	20.35800	10.19	18.02	12.57	28.21	22.76	60.00	50.00	-31.79	-27.24

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



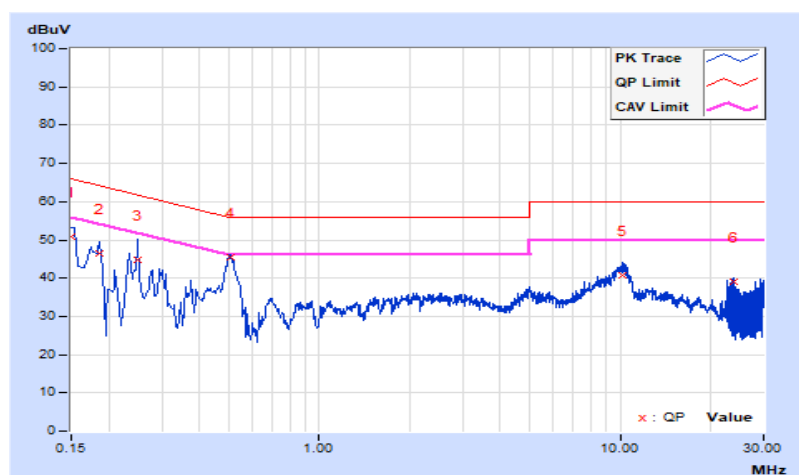
Mode D

RF Mode	802.11b	Channel	CH 6 : 2437 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	Rex Wang		

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	0.15000	9.63	41.35	25.40	50.98	35.03	66.00	56.00	-15.02	-20.97
2	0.18600	9.64	36.90	27.17	46.54	36.81	64.21	54.21	-17.67	-17.40
3	0.25000	9.65	35.09	24.62	44.74	34.27	61.76	51.76	-17.02	-17.49
4	0.50531	9.68	35.89	30.47	45.57	40.15	56.00	46.00	-10.43	-5.85
5	10.13400	9.80	30.80	26.00	40.60	35.80	60.00	50.00	-19.40	-14.20
6	23.81000	9.81	29.26	27.61	39.07	37.42	60.00	50.00	-20.93	-12.58

Remarks:

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

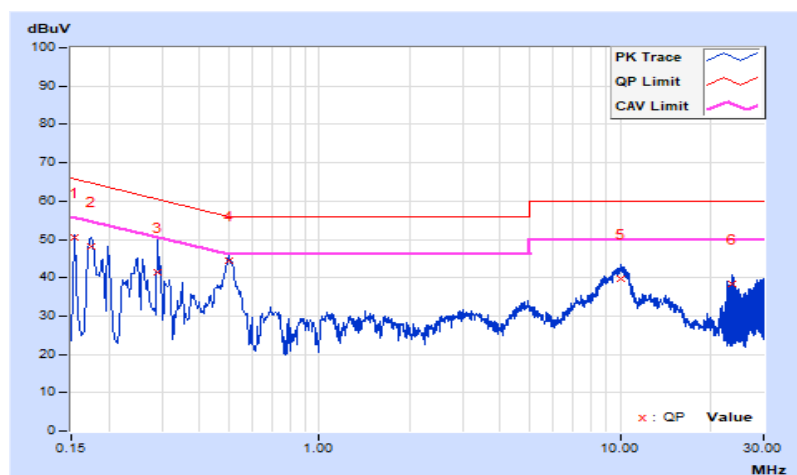


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75 % RH
Tested By	Rex Wang		

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	0.15400	9.63	40.97	24.39	50.60	34.02	65.78	55.78	-15.18	-21.76
2	0.17384	9.63	38.50	27.79	48.13	37.42	64.77	54.77	-16.64	-17.35
3	0.29000	9.66	31.73	20.71	41.39	30.37	60.52	50.52	-19.13	-20.15
4	0.50200	9.69	34.83	29.57	44.52	39.26	56.00	46.00	-11.48	-6.74
5	10.07400	9.82	29.78	24.99	39.60	34.81	60.00	50.00	-20.40	-15.19
6	23.55000	9.93	28.47	25.54	38.40	35.47	60.00	50.00	-21.60	-14.53

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



7.6 Unwanted Emissions below 1 GHz

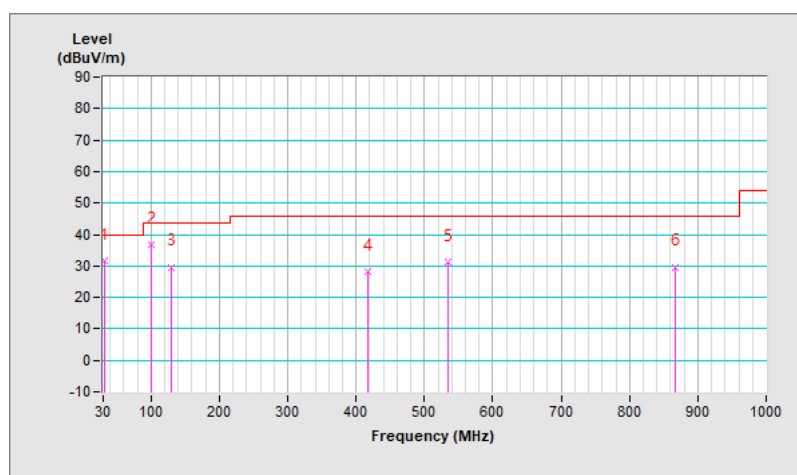
Mode A

RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	21.6 °C, 73.3 % RH
Tested By	Rex Wang		

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	32.91	31.6 QP	40.0	-8.4	1.99 H	37	42.1	-10.5
2	100.81	36.8 QP	43.5	-6.7	1.99 H	28	49.7	-12.9
3	128.94	29.7 QP	43.5	-13.8	1.99 H	115	39.6	-9.9
4	417.03	28.0 QP	46.0	-18.0	1.99 H	177	32.5	-4.5
5	535.37	31.3 QP	46.0	-14.7	1.49 H	344	33.6	-2.3
6	867.11	29.7 QP	46.0	-16.3	1.99 H	166	25.7	4.0

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 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.

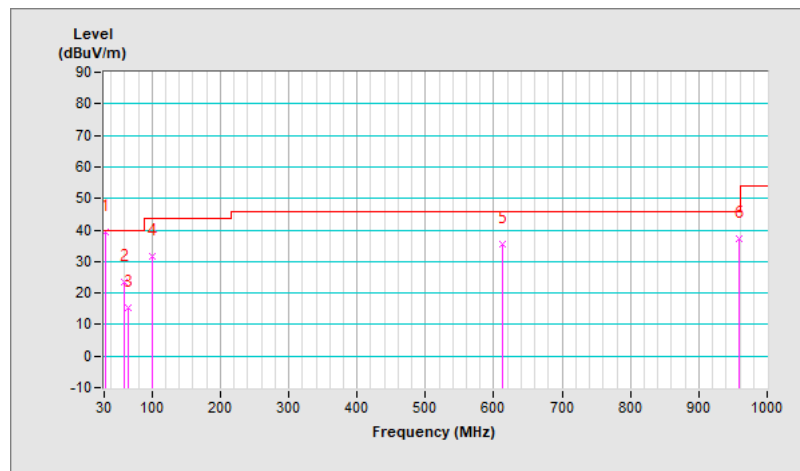


RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	21.6 °C, 73.3 % RH
Tested By	Rex Wang		

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	31.94	39.5 QP	40.0	-0.5	1.00 V	4	50.1	-10.6
2	60.07	23.5 QP	40.0	-16.5	1.00 V	243	32.7	-9.2
3	64.92	15.5 QP	40.0	-24.5	1.00 V	225	25.6	-10.1
4	100.81	31.8 QP	43.5	-11.7	1.00 V	75	44.7	-12.9
5	612.97	35.5 QP	46.0	-10.5	1.49 V	195	36.0	-0.5
6	958.29	37.1 QP	46.0	-8.9	1.00 V	148	31.3	5.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit 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.



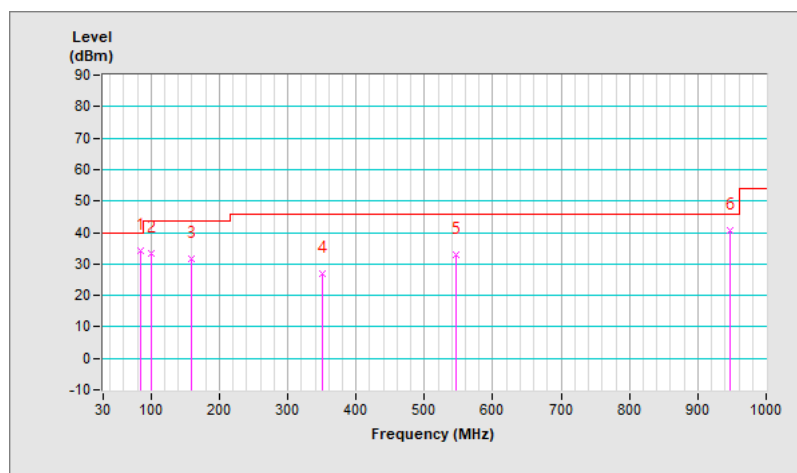
Mode B

RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 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	Rex Wang		

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	85.29	34.0 QP	40.0	-6.0	2.00 H	202	48.1	-14.1
2	100.81	33.5 QP	43.5	-10.0	2.00 H	106	46.4	-12.9
3	159.98	31.5 QP	43.5	-12.0	1.00 H	266	39.5	-8.0
4	350.10	26.9 QP	46.0	-19.1	1.00 H	178	32.7	-5.8
5	547.01	32.9 QP	46.0	-13.1	1.51 H	157	35.0	-2.1
6	947.62	40.7 QP	46.0	-5.3	1.00 H	231	35.2	5.5

Remarks:

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

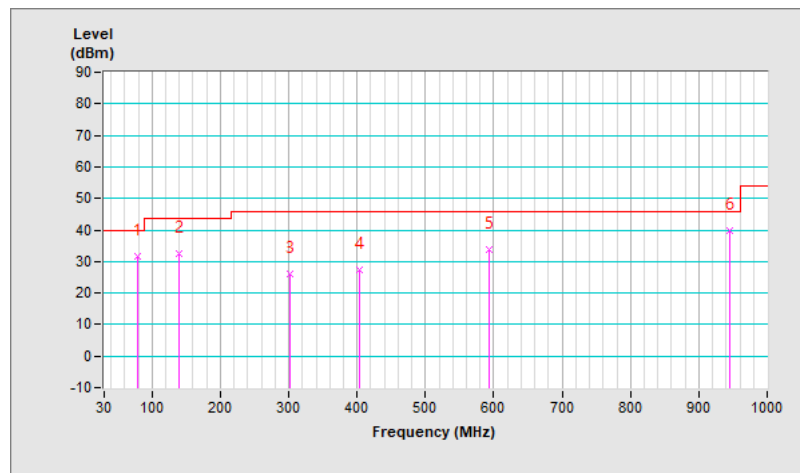


RF Mode	802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67 % RH
Tested By	Rex Wang		

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	79.47	31.6 QP	40.0	-8.4	1.00 V	15	44.7	-13.1
2	138.64	32.3 QP	43.5	-11.2	1.00 V	89	41.2	-8.9
3	301.60	26.1 QP	46.0	-19.9	1.49 V	127	32.6	-6.5
4	403.45	27.2 QP	46.0	-18.8	1.49 V	42	31.9	-4.7
5	593.57	33.9 QP	46.0	-12.1	1.49 V	192	34.8	-0.9
6	944.71	40.0 QP	46.0	-6.0	1.49 V	62	34.4	5.6

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.



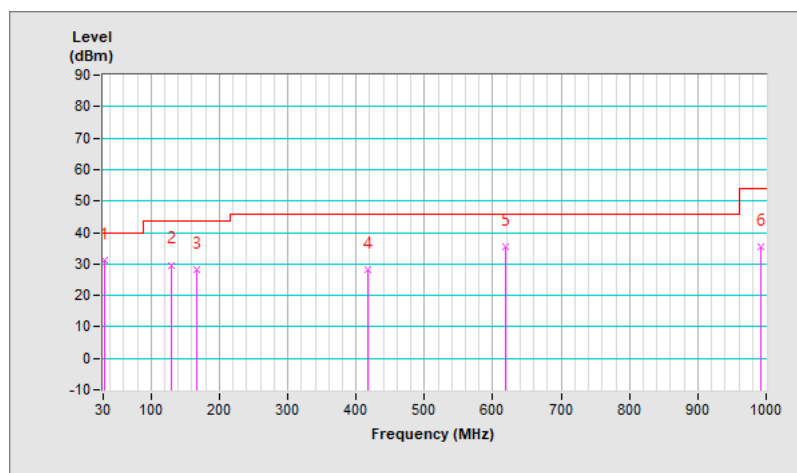
Mode C

RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	21.6 °C, 73.3 % RH
Tested By	Rex Wang		

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	32.91	31.4 QP	40.0	-8.6	1.99 H	37	41.9	-10.5
2	128.94	29.7 QP	43.5	-13.8	1.99 H	115	39.6	-9.9
3	167.74	28.2 QP	43.5	-15.3	1.99 H	290	36.6	-8.4
4	417.03	28.0 QP	46.0	-18.0	1.99 H	177	32.5	-4.5
5	618.79	35.6 QP	46.0	-10.4	1.00 H	224	35.9	-0.3
6	991.27	35.5 QP	54.0	-18.5	1.49 H	150	29.9	5.6

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.

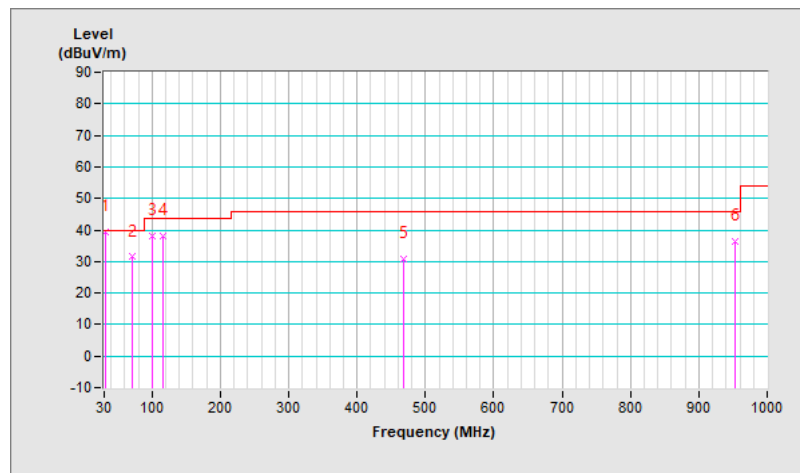


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	21.6 °C, 73.3 % RH
Tested By	Rex Wang		

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	32.47	39.5 QP	40.0	-0.5	1.00 V	5	50.0	-10.5
2	70.74	31.4 QP	40.0	-8.6	1.00 V	30	42.2	-10.8
3	100.81	38.0 QP	43.5	-5.5	1.00 V	75	50.9	-12.9
4	115.36	38.2 QP	43.5	-5.3	1.00 V	227	49.3	-11.1
5	467.47	30.9 QP	46.0	-15.1	1.99 V	323	34.2	-3.3
6	953.44	36.4 QP	46.0	-9.6	1.00 V	156	30.9	5.5

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.



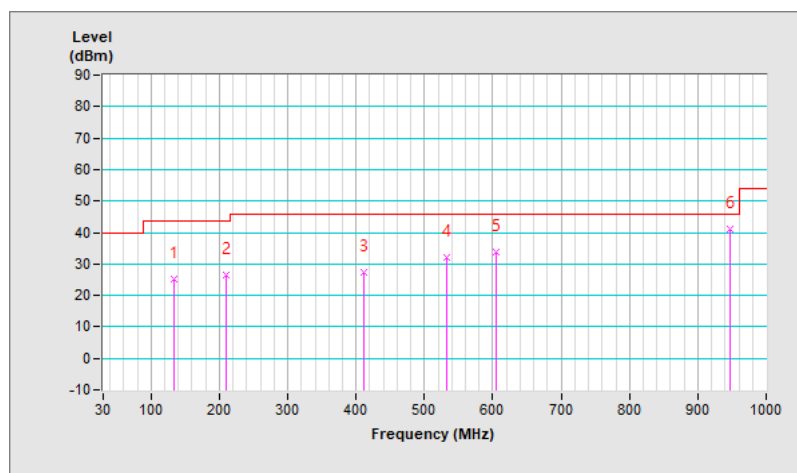
Mode D

RF Mode	802.11b	Channel	CH 6 : 2437 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	Rex Wang		

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	133.79	25.2 QP	43.5	-18.3	2.00 H	100	34.5	-9.3
2	210.42	26.3 QP	43.5	-17.2	1.00 H	280	37.1	-10.8
3	412.18	27.3 QP	46.0	-18.7	2.00 H	134	31.9	-4.6
4	533.43	31.9 QP	46.0	-14.1	1.51 H	146	34.3	-2.4
5	604.24	33.9 QP	46.0	-12.1	1.00 H	147	34.6	-0.7
6	946.65	41.1 QP	46.0	-4.9	1.00 H	228	35.6	5.5

Remarks:

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

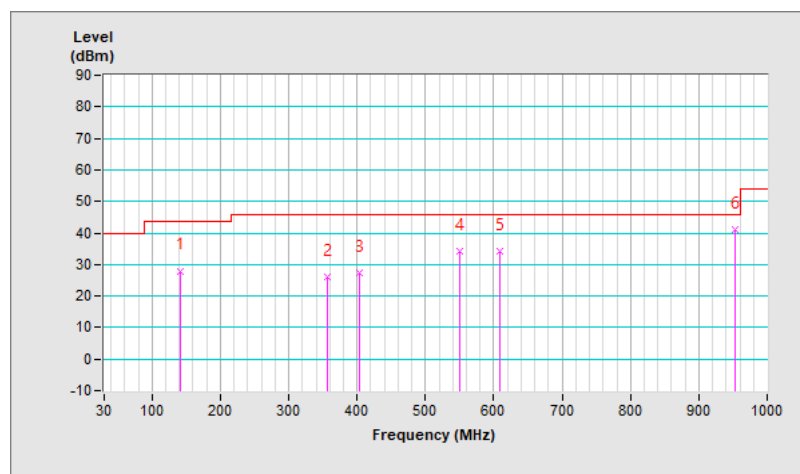


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67 % RH
Tested By	Rex Wang		

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	141.55	28.0 QP	43.5	-15.5	1.00 V	89	36.7	-8.7
2	355.92	25.9 QP	46.0	-20.1	1.00 V	262	31.6	-5.7
3	403.45	27.2 QP	46.0	-18.8	1.49 V	42	31.9	-4.7
4	549.92	34.1 QP	46.0	-11.9	1.00 V	257	36.2	-2.1
5	609.09	34.3 QP	46.0	-11.7	1.49 V	190	34.8	-0.5
6	953.44	41.0 QP	46.0	-5.0	1.49 V	299	35.5	5.5

Remarks:

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



7.7 Unwanted Emissions above 1 GHz

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	22.7 °C, 75.3 % RH
Tested By	Wade Huang		

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	2388.70	61.2 PK	74.0	-12.8	1.00 H	45	27.8	33.4
2	2388.70	53.4 AV	54.0	-0.6	1.00 H	45	20.0	33.4
3	*2412.00	113.5 PK			1.00 H	45	80.0	33.5
4	*2412.00	112.4 AV			1.00 H	45	78.9	33.5
5	4824.00	56.6 PK	74.0	-17.4	1.86 H	12	46.8	9.8
6	4824.00	52.8 AV	54.0	-1.2	1.86 H	12	43.0	9.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2388.70	60.0 PK	74.0	-14.0	2.46 V	328	26.6	33.4
2	2388.70	49.2 AV	54.0	-4.8	2.46 V	328	15.8	33.4
3	*2412.00	113.1 PK			2.46 V	328	79.6	33.5
4	*2412.00	111.9 AV			2.46 V	328	78.4	33.5
5	4824.00	56.4 PK	74.0	-17.6	1.58 V	31	46.6	9.8
6	4824.00	52.6 AV	54.0	-1.4	1.58 V	31	42.8	9.8

Remarks:

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

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	22.7 °C, 75.3 % RH
Tested By	Wade Huang		

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	111.7 PK			1.00 H	46	78.1	33.6
2	*2437.00	110.4 AV			1.00 H	46	76.8	33.6
3	4874.00	53.0 PK	74.0	-21.0	1.09 H	30	43.3	9.7
4	4874.00	48.2 AV	54.0	-5.8	1.09 H	30	38.5	9.7
5	7311.00	61.2 PK	74.0	-12.8	1.49 H	38	44.0	17.2
6	7311.00	53.2 AV	54.0	-0.8	1.49 H	38	36.0	17.2
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	111.1 PK			2.20 V	328	77.5	33.6
2	*2437.00	109.9 AV			2.20 V	328	76.3	33.6
3	4874.00	52.4 PK	74.0	-21.6	1.46 V	35	42.7	9.7
4	4874.00	47.0 AV	54.0	-7.0	1.46 V	35	37.3	9.7
5	7311.00	59.7 PK	74.0	-14.3	1.22 V	314	42.5	17.2
6	7311.00	51.4 AV	54.0	-2.6	1.22 V	314	34.2	17.2

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	22.7 °C, 75.3 % RH
Tested By	Wade Huang		

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	112.7 PK			1.00 H	45	79.1	33.6
2	*2462.00	110.9 AV			1.00 H	45	77.3	33.6
3	2483.50	60.9 PK	74.0	-13.1	1.00 H	45	27.3	33.6
4	2483.50	50.4 AV	54.0	-3.6	1.00 H	45	16.8	33.6
5	4924.00	52.2 PK	74.0	-21.8	1.00 H	31	42.4	9.8
6	4924.00	45.2 AV	54.0	-8.8	1.00 H	31	35.4	9.8
7	7386.00	60.0 PK	74.0	-14.0	1.63 H	36	42.3	17.7
8	7386.00	51.1 AV	54.0	-2.9	1.63 H	36	33.4	17.7
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	111.9 PK			2.12 V	333	78.3	33.6
2	*2462.00	110.6 AV			2.12 V	333	77.0	33.6
3	2483.50	60.2 PK	74.0	-13.8	2.12 V	333	26.6	33.6
4	2483.50	48.8 AV	54.0	-5.2	2.12 V	333	15.2	33.6
5	4924.00	50.7 PK	74.0	-23.3	1.52 V	33	40.9	9.8
6	4924.00	43.8 AV	54.0	-10.2	1.52 V	33	34.0	9.8
7	7386.00	58.5 PK	74.0	-15.5	1.24 V	311	40.8	17.7
8	7386.00	49.3 AV	54.0	-4.7	1.24 V	311	31.6	17.7

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	22.7 °C, 75.3 % RH
Tested By	Wade Huang		

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	67.5 PK	74.0	-6.5	1.05 H	50	34.1	33.4
2	2390.00	53.1 AV	54.0	-0.9	1.05 H	50	19.7	33.4
3	*2412.00	115.4 PK			1.05 H	50	81.9	33.5
4	*2412.00	105.2 AV			1.05 H	50	71.7	33.5
5	4824.00	51.2 PK	74.0	-22.8	1.04 H	357	41.4	9.8
6	4824.00	37.3 AV	54.0	-16.7	1.04 H	357	27.5	9.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.1 PK	74.0	-6.9	2.55 V	351	33.7	33.4
2	2390.00	53.0 AV	54.0	-1.0	2.55 V	351	19.6	33.4
3	*2412.00	113.1 PK			2.55 V	351	79.6	33.5
4	*2412.00	103.5 AV			2.55 V	351	70.0	33.5
5	4824.00	50.9 PK	74.0	-23.1	1.58 V	22	41.1	9.8
6	4824.00	37.1 AV	54.0	-16.9	1.58 V	22	27.3	9.8

Remarks:

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

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	22.7 °C, 75.3 % RH
Tested By	Wade Huang		

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	118.1 PK			1.00 H	48	84.5	33.6
2	*2437.00	108.6 AV			1.00 H	48	75.0	33.6
3	4874.00	50.9 PK	74.0	-23.1	1.04 H	33	41.2	9.7
4	4874.00	37.3 AV	54.0	-16.7	1.04 H	33	27.6	9.7
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	116.8 PK			2.23 V	340	83.2	33.6
2	*2437.00	107.5 AV			2.23 V	340	73.9	33.6
3	4874.00	50.5 PK	74.0	-23.5	1.62 V	26	40.8	9.7
4	4874.00	37.2 AV	54.0	-16.8	1.62 V	26	27.5	9.7

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	22.7 °C, 75.3 % RH
Tested By	Wade Huang		

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	114.1 PK			1.00 H	51	80.5	33.6
2	*2462.00	104.6 AV			1.00 H	51	71.0	33.6
3	2483.50	65.1 PK	74.0	-8.9	1.00 H	51	31.5	33.6
4	2483.50	52.2 AV	54.0	-1.8	1.00 H	51	18.6	33.6
5	4924.00	50.6 PK	74.0	-23.4	1.03 H	43	40.8	9.8
6	4924.00	37.5 AV	54.0	-16.5	1.03 H	43	27.7	9.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	113.2 PK			2.11 V	342	79.6	33.6
2	*2462.00	103.4 AV			2.11 V	342	69.8	33.6
3	2483.50	63.2 PK	74.0	-10.8	2.11 V	342	29.6	33.6
4	2483.50	50.8 AV	54.0	-3.2	2.11 V	342	17.2	33.6
5	4924.00	50.3 PK	74.0	-23.7	1.62 V	32	40.5	9.8
6	4924.00	37.3 AV	54.0	-16.7	1.62 V	32	27.5	9.8

Remarks:

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

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	22.7 °C, 75.3 % RH
Tested By	Wade Huang		

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	68.9 PK	74.0	-5.1	1.00 H	50	35.5	33.4
2	2390.00	53.3 AV	54.0	-0.7	1.00 H	50	19.9	33.4
3	*2412.00	117.3 PK			1.00 H	50	83.8	33.5
4	*2412.00	103.7 AV			1.00 H	50	70.2	33.5
5	4824.00	50.4 PK	74.0	-23.6	1.10 H	352	40.6	9.8
6	4824.00	37.6 AV	54.0	-16.4	1.10 H	352	27.8	9.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	62.9 PK	74.0	-11.1	2.52 V	333	29.5	33.4
2	2390.00	51.3 AV	54.0	-2.7	2.52 V	333	17.9	33.4
3	*2412.00	114.8 PK			2.52 V	333	81.3	33.5
4	*2412.00	102.1 AV			2.52 V	333	68.6	33.5
5	4824.00	50.1 PK	74.0	-23.9	1.55 V	28	40.3	9.8
6	4824.00	37.3 AV	54.0	-16.7	1.55 V	28	27.5	9.8

Remarks:

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

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	22.7 °C, 75.3 % RH
Tested By	Wade Huang		

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	120.5 PK			1.00 H	47	86.9	33.6
2	*2437.00	107.5 AV			1.00 H	47	73.9	33.6
3	4874.00	51.0 PK	74.0	-23.0	1.10 H	34	41.3	9.7
4	4874.00	37.5 AV	54.0	-16.5	1.10 H	34	27.8	9.7
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	119.2 PK			2.08 V	342	85.6	33.6
2	*2437.00	106.1 AV			2.08 V	342	72.5	33.6
3	4874.00	50.6 PK	74.0	-23.4	1.59 V	25	40.9	9.7
4	4874.00	37.1 AV	54.0	-16.9	1.59 V	25	27.4	9.7

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	22.7 °C, 75.3 % RH
Tested By	Wade Huang		

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	115.4 PK			1.00 H	47	81.8	33.6
2	*2462.00	102.3 AV			1.00 H	47	68.7	33.6
3	2483.50	66.7 PK	74.0	-7.3	1.00 H	47	33.1	33.6
4	2483.50	52.7 AV	54.0	-1.3	1.00 H	47	19.1	33.6
5	4924.00	50.6 PK	74.0	-23.4	1.08 H	30	40.8	9.8
6	4924.00	37.4 AV	54.0	-16.6	1.08 H	30	27.6	9.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	114.6 PK			2.11 V	340	81.0	33.6
2	*2462.00	101.0 AV			2.11 V	340	67.4	33.6
3	2483.50	64.4 PK	74.0	-9.6	2.11 V	340	30.8	33.6
4	2483.50	51.0 AV	54.0	-3.0	2.11 V	340	17.4	33.6
5	4924.00	50.4 PK	74.0	-23.6	1.59 V	23	40.6	9.8
6	4924.00	37.1 AV	54.0	-16.9	1.59 V	23	27.3	9.8

Remarks:

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

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	22.7 °C, 75.3 % RH
Tested By	Wade Huang		

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	69.4 PK	74.0	-4.6	1.00 H	48	36.0	33.4
2	2390.00	53.6 AV	54.0	-0.4	1.00 H	48	20.2	33.4
3	*2422.00	111.4 PK			1.00 H	48	77.9	33.5
4	*2422.00	100.0 AV			1.00 H	48	66.5	33.5
5	4844.00	50.3 PK	74.0	-23.7	1.03 H	355	40.5	9.8
6	4844.00	37.3 AV	54.0	-16.7	1.03 H	355	27.5	9.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	69.3 PK	74.0	-4.7	2.50 V	353	35.9	33.4
2	2390.00	53.4 AV	54.0	-0.6	2.50 V	353	20.0	33.4
3	*2422.00	111.3 PK			2.50 V	353	77.8	33.5
4	*2422.00	98.9 AV			2.50 V	353	65.4	33.5
5	4844.00	50.1 PK	74.0	-23.9	1.58 V	26	40.3	9.8
6	4844.00	37.1 AV	54.0	-16.9	1.58 V	26	27.3	9.8

Remarks:

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

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	22.7 °C, 75.3 % RH
Tested By	Wade Huang		

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	64.5 PK	74.0	-9.5	1.00 H	49	31.1	33.4
2	2390.00	53.0 AV	54.0	-1.0	1.00 H	49	19.6	33.4
3	*2437.00	113.8 PK			1.00 H	49	80.2	33.6
4	*2437.00	100.9 AV			1.00 H	49	67.3	33.6
5	4874.00	50.3 PK	74.0	-23.7	1.05 H	357	40.6	9.7
6	4874.00	37.2 AV	54.0	-16.8	1.05 H	357	27.5	9.7
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	2.17 V	44	29.4	33.4
2	2390.00	49.6 AV	54.0	-4.4	2.17 V	44	16.2	33.4
3	*2437.00	111.2 PK			2.17 V	44	77.6	33.6
4	*2437.00	100.2 AV			2.17 V	44	66.6	33.6
5	4874.00	50.0 PK	74.0	-24.0	1.55 V	24	40.3	9.7
6	4874.00	36.9 AV	54.0	-17.1	1.55 V	24	27.2	9.7

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	22.7 °C, 75.3 % RH
Tested By	Wade Huang		

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	111.2 PK			1.00 H	50	77.6	33.6
2	*2452.00	98.1 AV			1.00 H	50	64.5	33.6
3	2483.50	66.3 PK	74.0	-7.7	1.00 H	50	32.7	33.6
4	2483.50	53.6 AV	54.0	-0.4	1.00 H	50	20.0	33.6
5	4904.00	50.5 PK	74.0	-23.5	1.08 H	359	40.8	9.7
6	4904.00	37.3 AV	54.0	-16.7	1.08 H	359	27.6	9.7
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	108.7 PK			2.07 V	338	75.1	33.6
2	*2452.00	96.3 AV			2.07 V	338	62.7	33.6
3	2483.50	64.5 PK	74.0	-9.5	2.07 V	338	30.9	33.6
4	2483.50	51.7 AV	54.0	-2.3	2.07 V	338	18.1	33.6
5	4904.00	50.2 PK	74.0	-23.8	1.56 V	30	40.5	9.7
6	4904.00	37.0 AV	54.0	-17.0	1.56 V	30	27.3	9.7

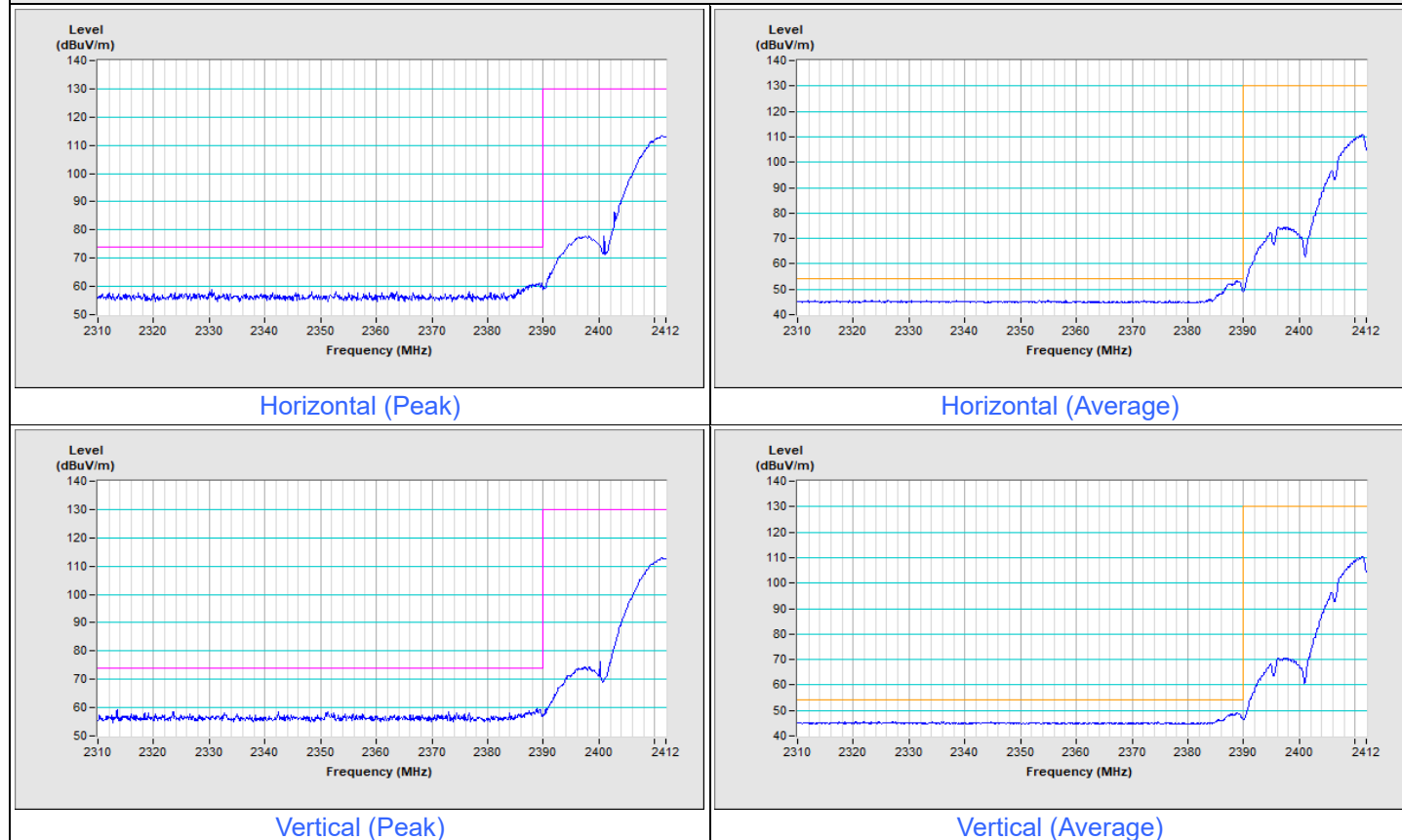
Remarks:

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

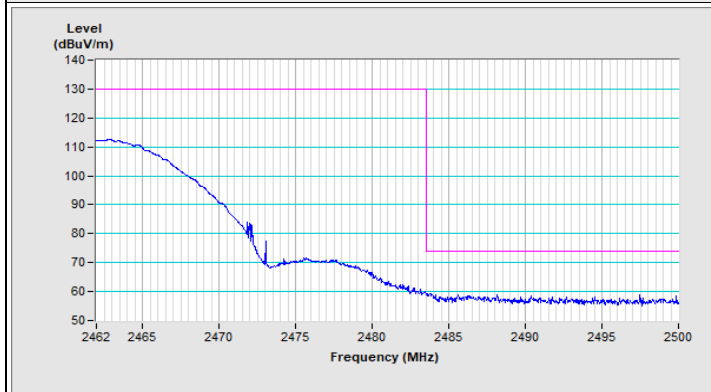
Frequency Range	2.31 GHz ~ 2.412 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
-----------------	----------------------	-------------------------------	--

802.11b Channel 1

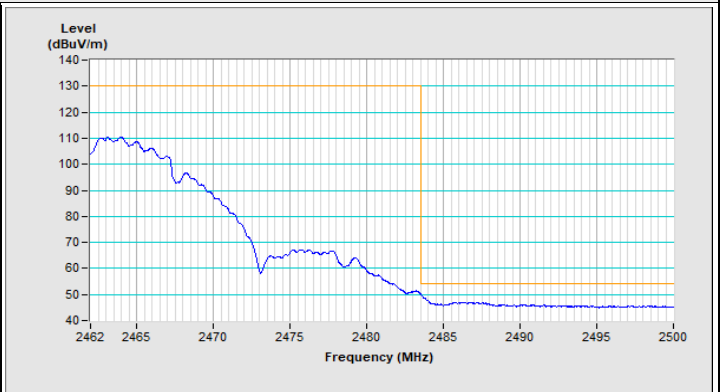


Frequency Range	2.462 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
-----------------	---------------------	-------------------------------	--

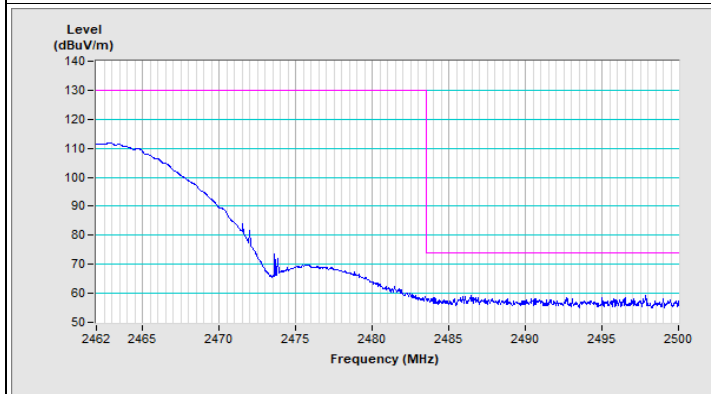
802.11b Channel 11



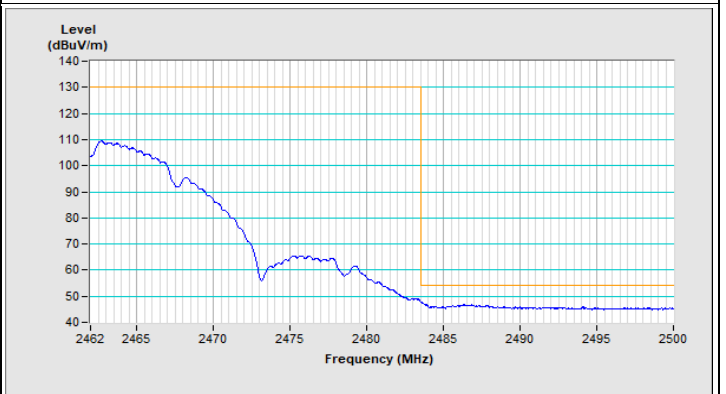
Horizontal (Peak)



Horizontal (Average)



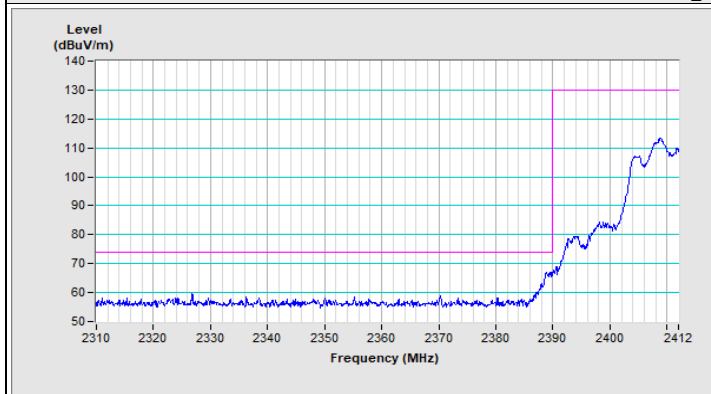
Vertical (Peak)



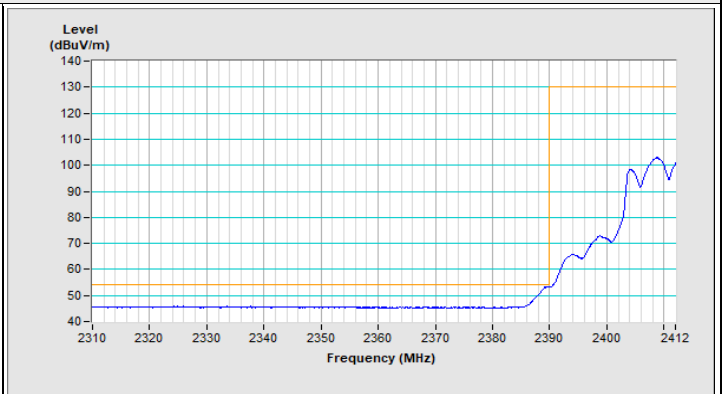
Vertical (Average)

Frequency Range	2.31 GHz ~ 2.412 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
-----------------	----------------------	-------------------------------	--

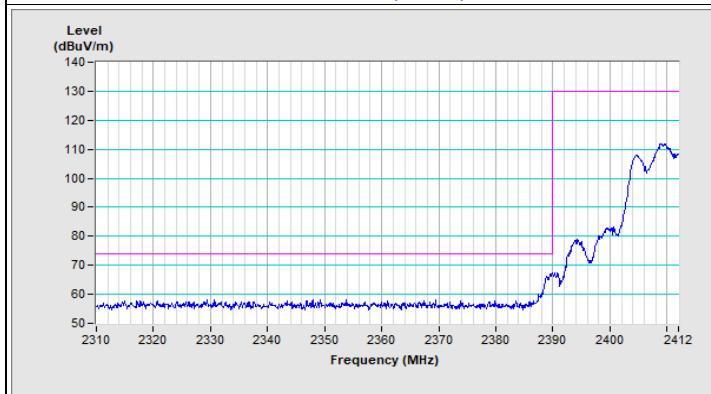
802.11g Channel 1



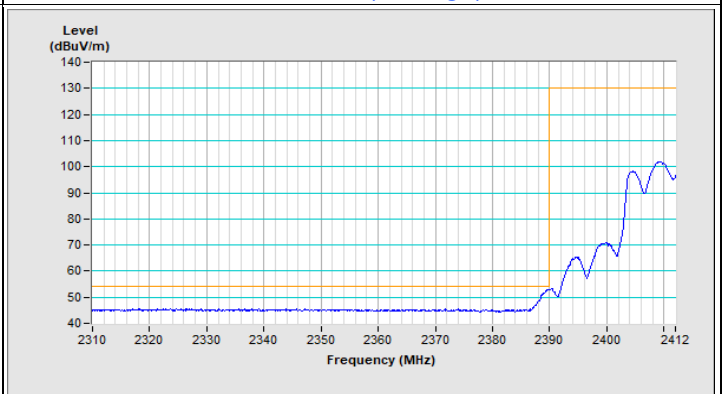
Horizontal (Peak)



Horizontal (Average)



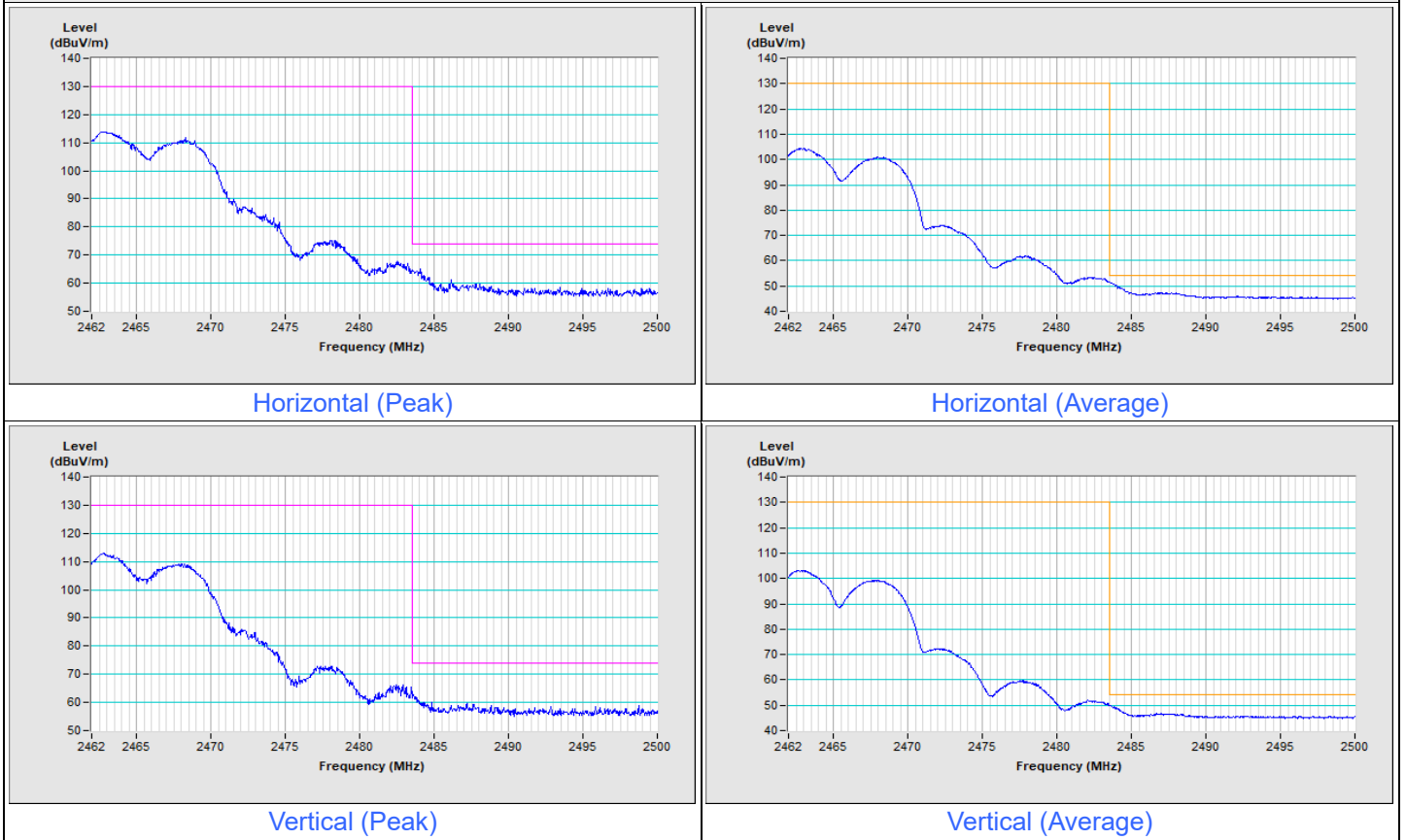
Vertical (Peak)



Vertical (Average)

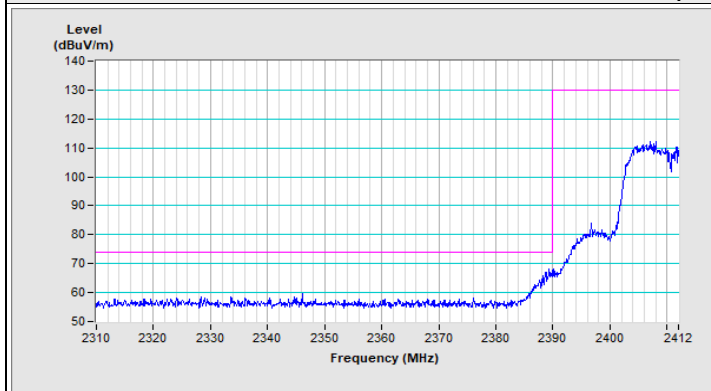
Frequency Range	2.462 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
-----------------	---------------------	-------------------------------	--

802.11g Channel 11

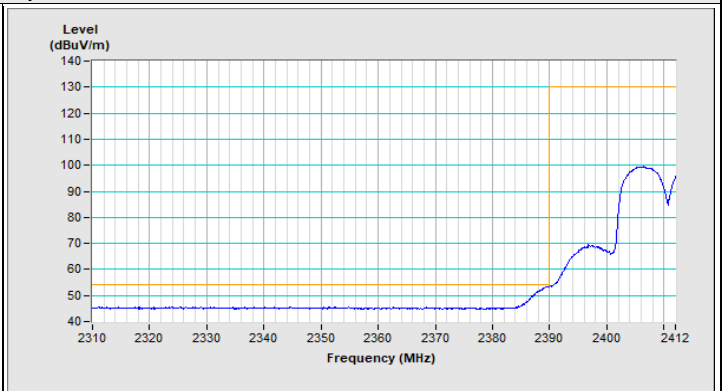


Frequency Range	2.31 GHz ~ 2.412 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
-----------------	----------------------	-------------------------------	--

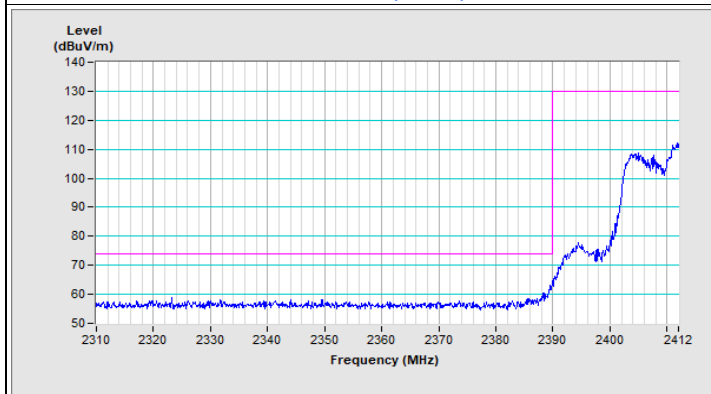
802.11ax (HE20) Channel 1



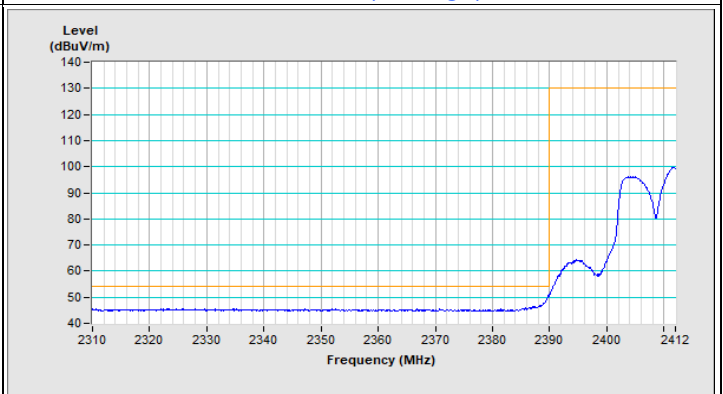
Horizontal (Peak)



Horizontal (Average)



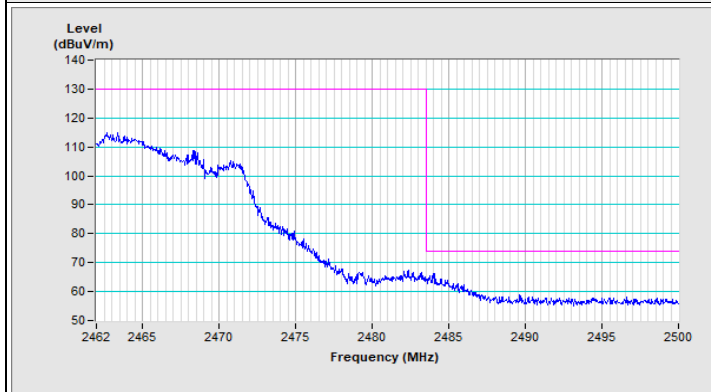
Vertical (Peak)



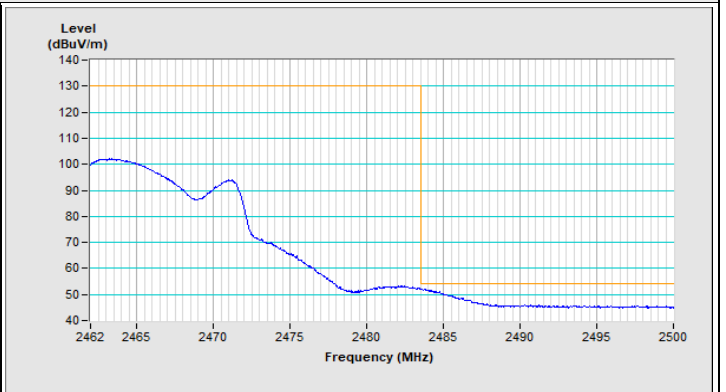
Vertical (Average)

Frequency Range	2.462 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
-----------------	---------------------	-------------------------------	--

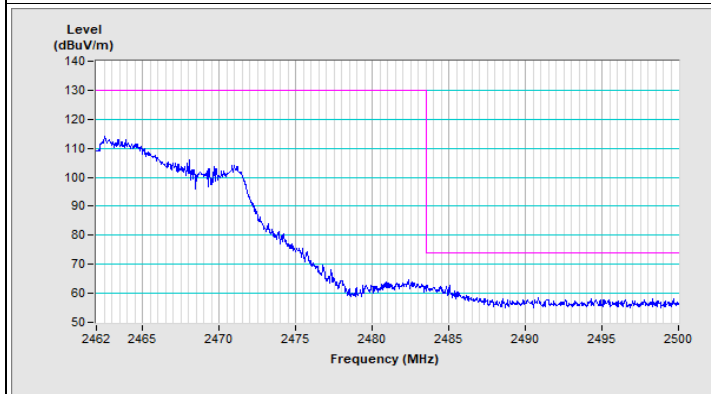
802.11ax (HE20) Channel 11



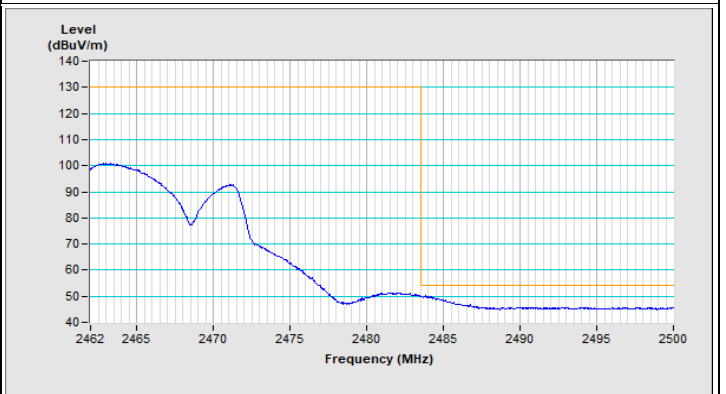
Horizontal (Peak)



Horizontal (Average)



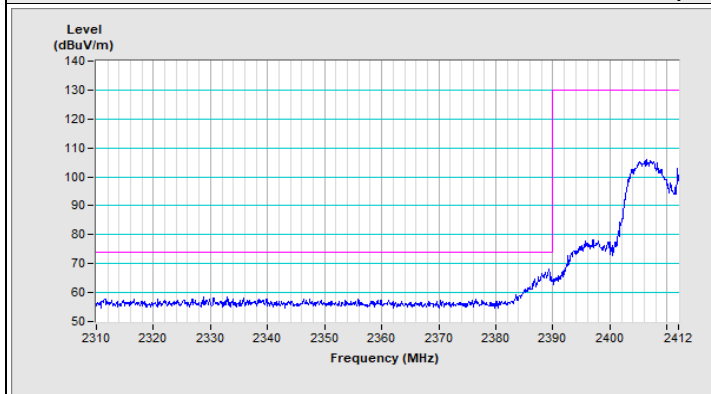
Vertical (Peak)



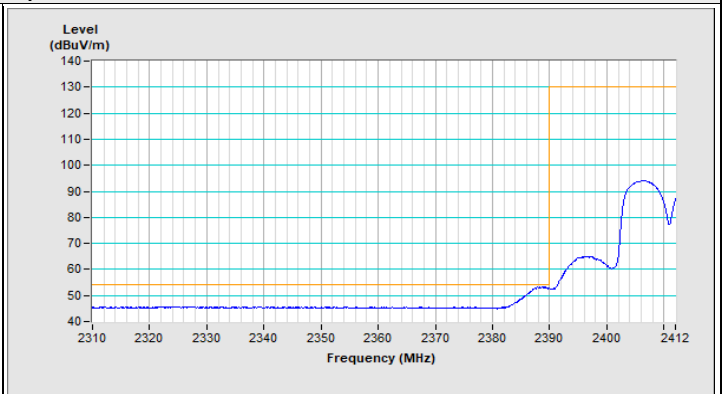
Vertical (Average)

Frequency Range	2.31 GHz ~ 2.412 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
-----------------	----------------------	-------------------------------	--

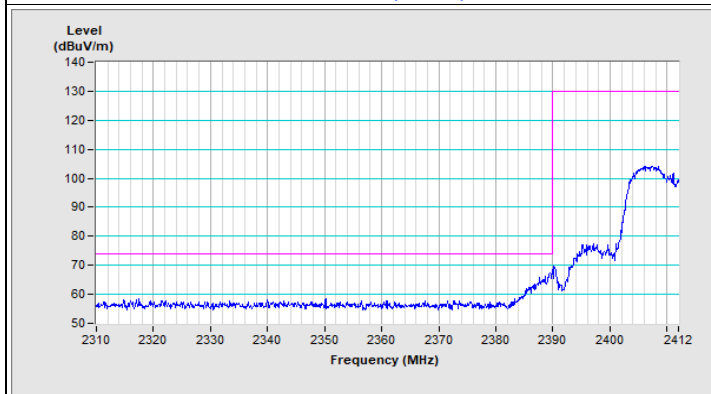
802.11ax (HE40) Channel 3



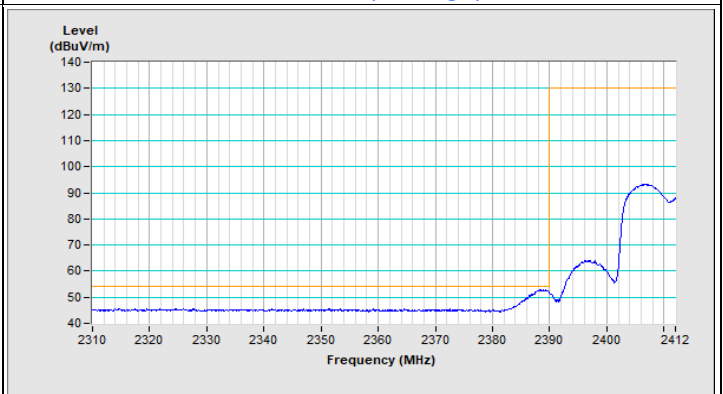
Horizontal (Peak)



Horizontal (Average)



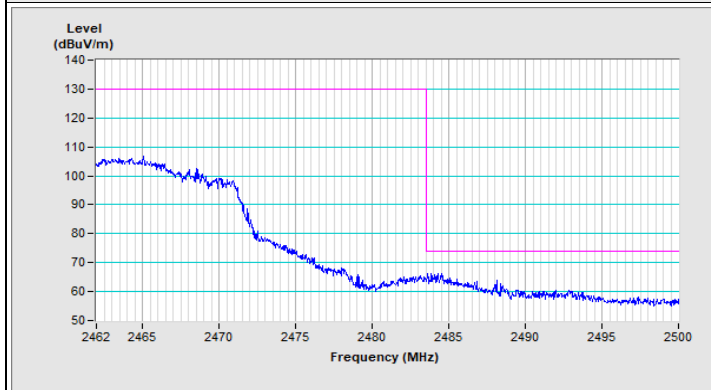
Vertical (Peak)



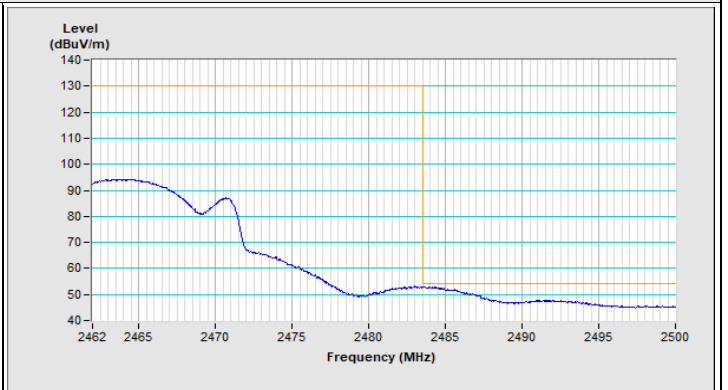
Vertical (Average)

Frequency Range	2.462 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
-----------------	---------------------	-------------------------------	--

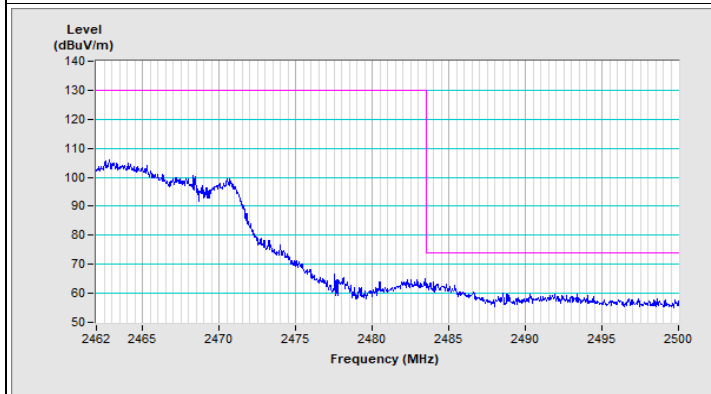
802.11ax (HE40) Channel 9



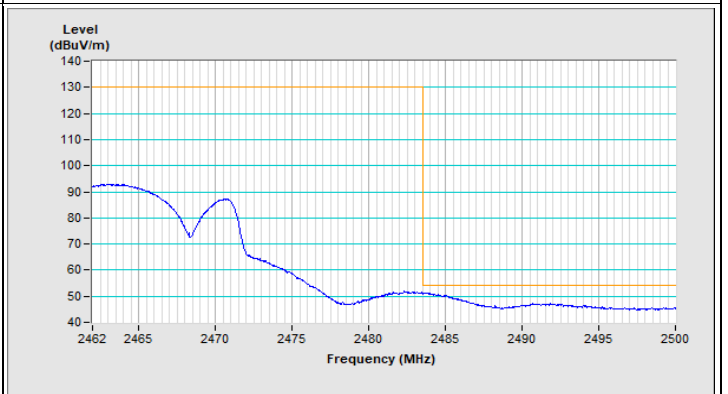
Horizontal (Peak)



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.

--- END ---