

TEST REPORT

CERTIFICATE OF CONFORMITY

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

Report No.: RFBERD-WTW-P22090179-2

FCC ID: TVE-391CBE0291

Product: Secured Wireless Access Point

Brand: FORTINET

Test Model: FAP-U231G

Series Model: FortiAP U231Gxxxxxx, FAP-U231Gxxxxxx, FORTIAP-U231Gxxxxxx (Where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only)

Received Date: 2022/9/6

Test Date: 2022/9/22 ~ 2022/11/29

Issued Date: 2023/3/21

Applicant: Fortinet, Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration /
Designation Number(1): 788550 / TW0003

FCC Registration /
Designation Number(2): 427177 / TW0011

Approved by: Jeremy Lin, Date: 2023/3/21
Jeremy Lin / Project Engineer

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Prepared by : Pettie Chen / Senior Specialist



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Release Control Record

Issue No.	Description	Date Issued
RFBERD-WTW-P22090179-2	Original release.	2023/3/21

1 Certificate

Product: Secured Wireless Access Point

Brand: FORTINET

Test Model: FAP-U231G

Series Model: FortiAP U231Gxxxxxx, FAP-U231Gxxxxxx, FORTIAP-U231Gxxxxxx (Where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only)

Sample Status: Engineering sample

Applicant: Fortinet, Inc.

Test Date: 2022/9/22 ~ 2022/11/29

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 -10.10 dB at 0.35782 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -2.8 dB at 533.30 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.1 dB at 2483.50 MHz
15.203	Antenna Requirement	Pass	Antenna connector is IPEX 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) (±)
Conducted Out of Band Emissions	9 kHz ~ 40 GHz	2.79 dB
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.99 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	2.44 dB
	30 MHz ~ 1 GHz	2.02 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	1.01 dB
	18 GHz ~ 40 GHz	1.15 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	Secured Wireless Access Point
Brand	FORTINET
Test Model	FAP-U231G
Series Model	FortiAP U231Gxxxxxx, FAP-U231Gxxxxxx, FORTIAP-U231Gxxxxxx (Where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only)
Status of EUT	Engineering sample
Power Supply Rating	12Vdc from adapter 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 (HT20/40): up to 300Mbps VHT20/40: up to 400Mbps 802.11ax: up to 573.5Mbps
Operating Frequency	2.412 GHz ~ 2.462 GHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20), VHT20, 802.11ax (HE20): 13 802.11n (HT40), VHT40, 802.11ax (HE40): 9
Output Power	392.951 mW (25.94 dBm)

Note:

- The following models are provided to this EUT. The model FAP-U231G was chosen for final test.

Brand	Model	Description
FORTINET	FAP-U231G	Series model for marketing purpose
	FortiAP U231Gxxxxxx, FAP-U231Gxxxxxx, FORTIAP-U231Gxxxxxx (Where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only)	

- The EUT consumes power from the following POE and adapter. (Support unit only)

POE (Support unit only)	
Brand	Engenius
Model	PNA90BGS-54
Input Power	100-240V ~1.5A, 50-60Hz
Output Power	56V, 1.7A

AC Adapter 1 (Support unit only)	
Brand	Asian Power Devices Inc.
Model	WA-30J12R
Input Power	100-240Vac ~50-60Hz, 0.9A Max
Output Power	12Vdc, 2.5A
DC Output Cable	1.48m non-shielded cable without core

AC Adapter 2 (Support unit only)	
Brand	Asian Power Devices Inc.
Model	WA-48A12R
Input Power	100-240Vac ~50-60Hz, 1.5A Max
Output Power	12Vdc, 4.0A
DC Output Cable	1.46m non-shielded cable without core

3. The simultaneous operation mode was determined by client.

No	Mode
1	2.4GHz radio (Radio 1) + 5GHz radio (Radio 2) + 2.4GHz radio (Radio 3) + BLE
2	2.4GHz radio (Radio 1) + 5GHz radio (Radio 2) + 2.4GHz radio (Radio 3) + Zigbee
3	2.4GHz radio (Radio 1) + 5GHz radio (Radio 2) + 5GHz radio (Radio 3) + BLE
4	2.4GHz radio (Radio 1) + 5GHz radio (Radio 2) + 5GHz radio (Radio 3) + Zigbee
5	2.4GHz radio (Radio 1) + 5GHz radio (Radio 2) + 6GHz radio (Radio 3) + BLE
6	2.4GHz radio (Radio 1) + 5GHz radio (Radio 2) + 6GHz radio (Radio 3) + Zigbee
7	5GHz radio (Radio 1) + 5GHz radio (Radio 2) + 2.4GHz radio (Radio 3) + BLE
8	5GHz radio (Radio 1) + 5GHz radio (Radio 2) + 2.4GHz radio (Radio 3) + Zigbee

* 5GHz radio (Radio 2) and 5GHz radio (Radio 3) cannot transmit in the same band at same time.

* Zigbee and BT technologies cannot transmit at same time.

* The emission of the simultaneous operation has been evaluated and no non-compliance was found.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna Type		PIFA			
Connector Type		IPEX			
Antenna NO.	RF Chain NO.	Brand	Model	Antenna Net Gain (dBi)	Frequency range
ANT0(D1)	Radio 1 2G (Chain 0) Radio 1 5G (Chain 0)	INPAQ	46-500534-01	3.89	2.4~2.4835GHz
				4.76	5.15~5.25GHz
				4.96	5.25~5.35GHz
				5.75	5.47~5.725GHz
				5.78	5.725~5.85GHz
ANT1(D2)	Radio 1 2G (Chain 1) Radio 1 5G (Chain 1)	INPAQ	46-500534-01	3.83	2.4~2.4835GHz
				4.50	5.15~5.25GHz
				4.72	5.25~5.35GHz
				5.46	5.47~5.725GHz
				5.54	5.725~5.85GHz
ANT2(D3)	Radio 3 2G (Chain 0) Radio 3 5G (Chain 0)	INPAQ	46-500534-01	3.78	2.4~2.4835GHz
				5.47	5.15~5.25GHz
				5.28	5.25~5.35GHz
				5.78	5.47~5.725GHz
				5.42	5.725~5.85GHz
ANT3(D4)	Radio 3 2G (Chain 1) Radio 3 5G (Chain 1)	INPAQ	46-500534-01	3.75	2.4~2.4835GHz
				4.00	5.15~5.25GHz
				4.55	5.25~5.35GHz
				5.77	5.47~5.725GHz
				5.32	5.725~5.85GHz
ANT5(5G1)	Radio 2 5G (Chain 0)	INPAQ	46-500534-01	4.66	5.15~5.25GHz
				4.75	5.25~5.35GHz
				5.56	5.47~5.725GHz
				5.59	5.725~5.85GHz
ANT6(5G2)	Radio 2 5G (Chain 1)	INPAQ	46-500534-01	5.19	5.15~5.25GHz
				4.93	5.25~5.35GHz
				5.53	5.47~5.725GHz
				5.24	5.725~5.85GHz

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

2. The EUT incorporates a MIMO function:

2.4 GHz Band		
Modulation Mode	TX & RX Configuration	
802.11b	2TX	2RX
802.11g	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
VHT20	2TX	2RX
VHT40	2TX	2RX
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX

Note:

1. All of modulation mode support beamforming function except 802.11b/g modulation mode.
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
3. The EUT device modulation technique OFDMA does not support partial RUs (resource units).

3.3 Channel List

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

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

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

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

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition. 2. The EUT has 2 power modes: AC adapter/PoE. Pre-scan these modes and find the worst case as a representative test condition.
Worst Case:	1. X-axis/ Y-axis/ Z-axis Worst Condition: Y-axis 2. Worst Condition: Adapter 1 & PoE

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, C	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		802.11ax (HE20)	CDD & Beamforming	1, 6, 11	BPSK	MCS0
		802.11ax (HE40)	CDD & Beamforming	3, 6, 9	BPSK	MCS0
Power Spectral Density / 6 dB Bandwidth / Conducted Out of Band Emissions	A, C	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, C, D	802.11b	CDD	6	DBPSK	1Mb/s
Unwanted Emissions below 1 GHz	A, B, C, D	802.11b	CDD	6	DBPSK	1Mb/s
Unwanted Emissions above 1 GHz	A, C	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	Mode	Radio	Power			
	A	1	Powered by adapter 1			
	B	1	Powered by POE			
	C	3	Powered by adapter 1			
	D	3	Powered by POE			

3.5 Duty Cycle of Test Signal

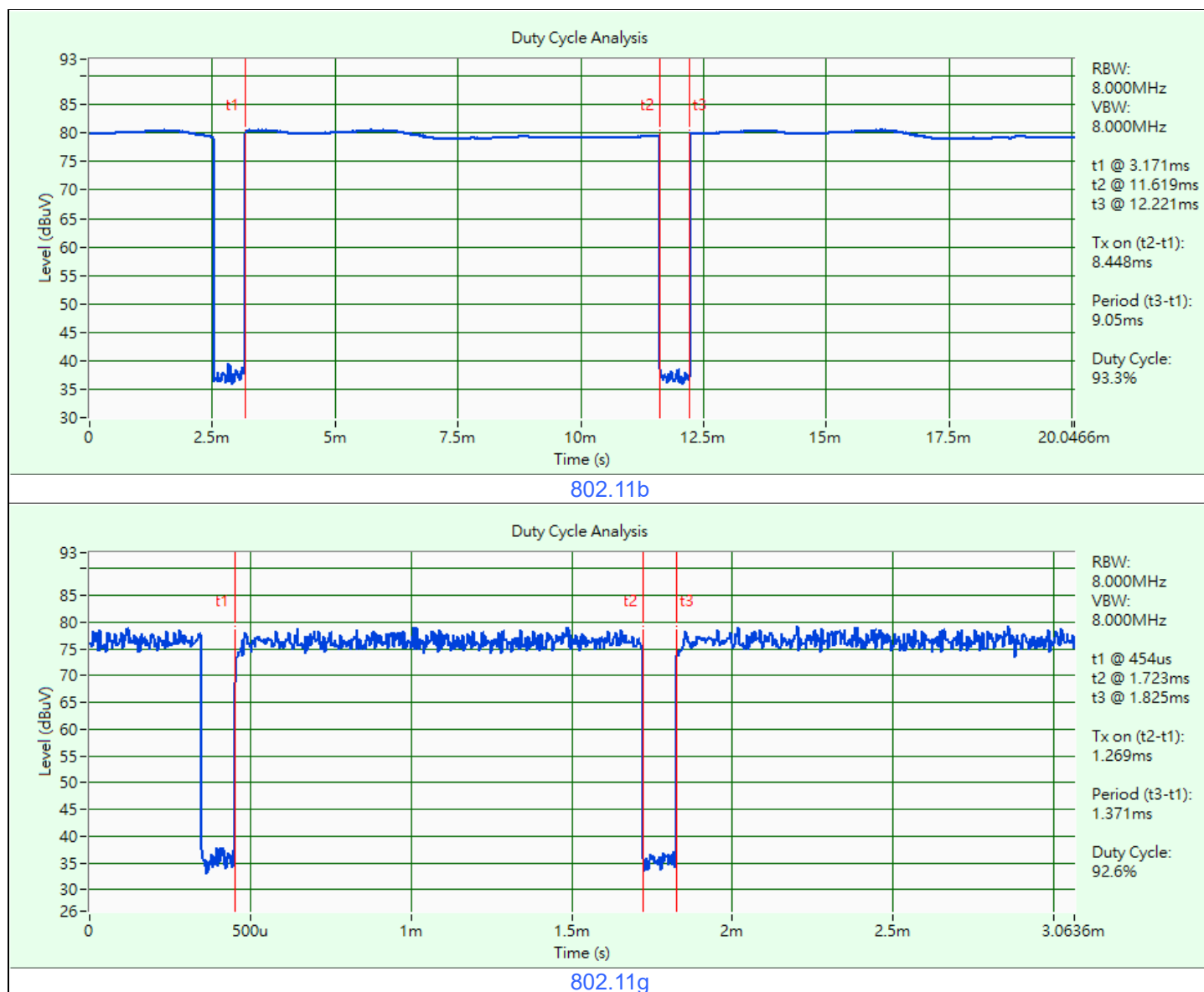
Test Mode A

802.11b: Duty cycle = 8.448 ms / 9.05 ms x 100% = 93.3%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.30$ dB

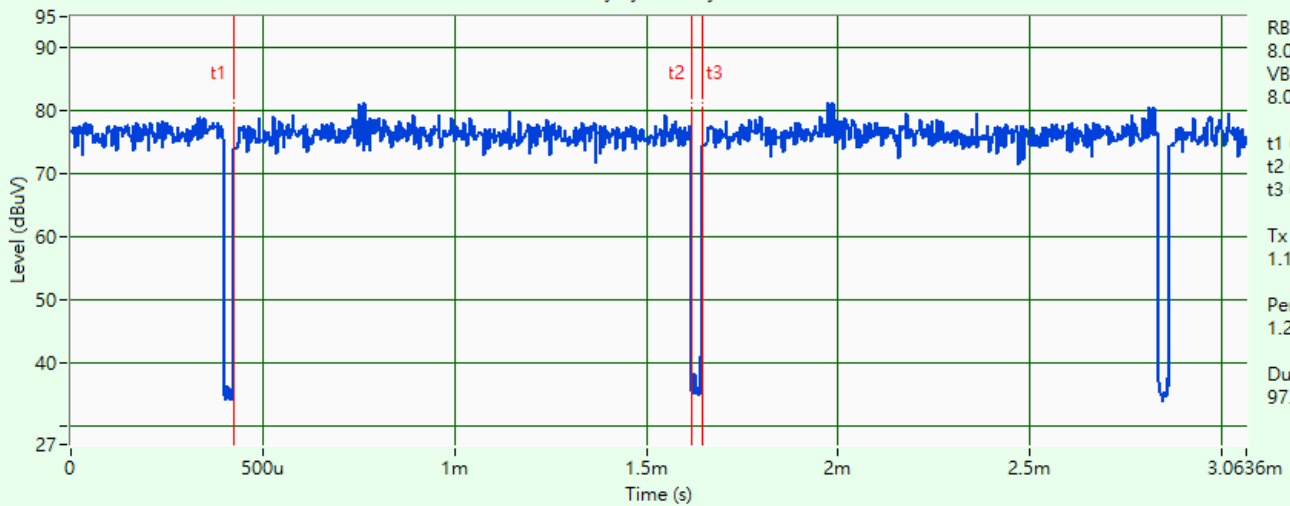
802.11g: Duty cycle = 1.269 ms / 1.371 ms x 100% = 92.6%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.34$ dB

802.11ax (HE20): Duty cycle = 1.19 ms / 1.218 ms x 100% = 97.7%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.10$ dB

802.11ax (HE40): Duty cycle = 1.19 ms / 1.217 ms x 100% = 97.8%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.10$ dB

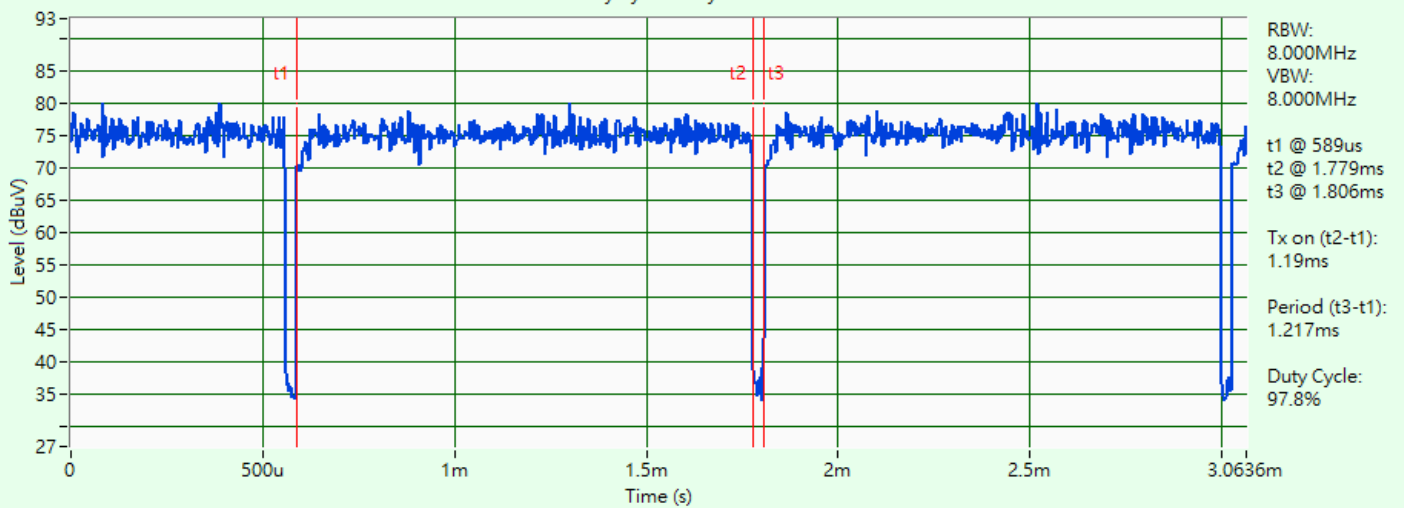


Duty Cycle Analysis



802.11ax (HE20)

Duty Cycle Analysis



802.11ax (HE40)

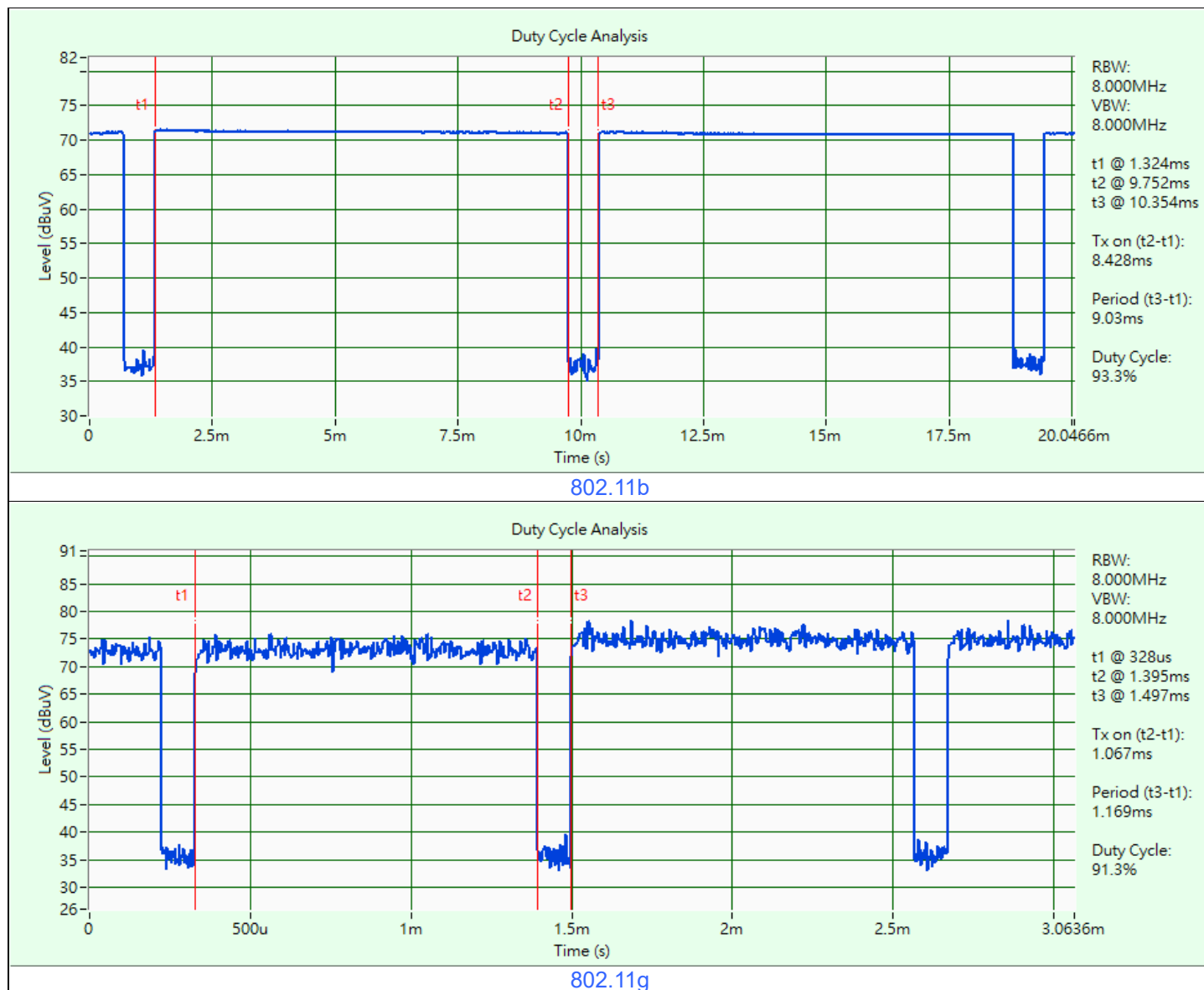
Test Mode C

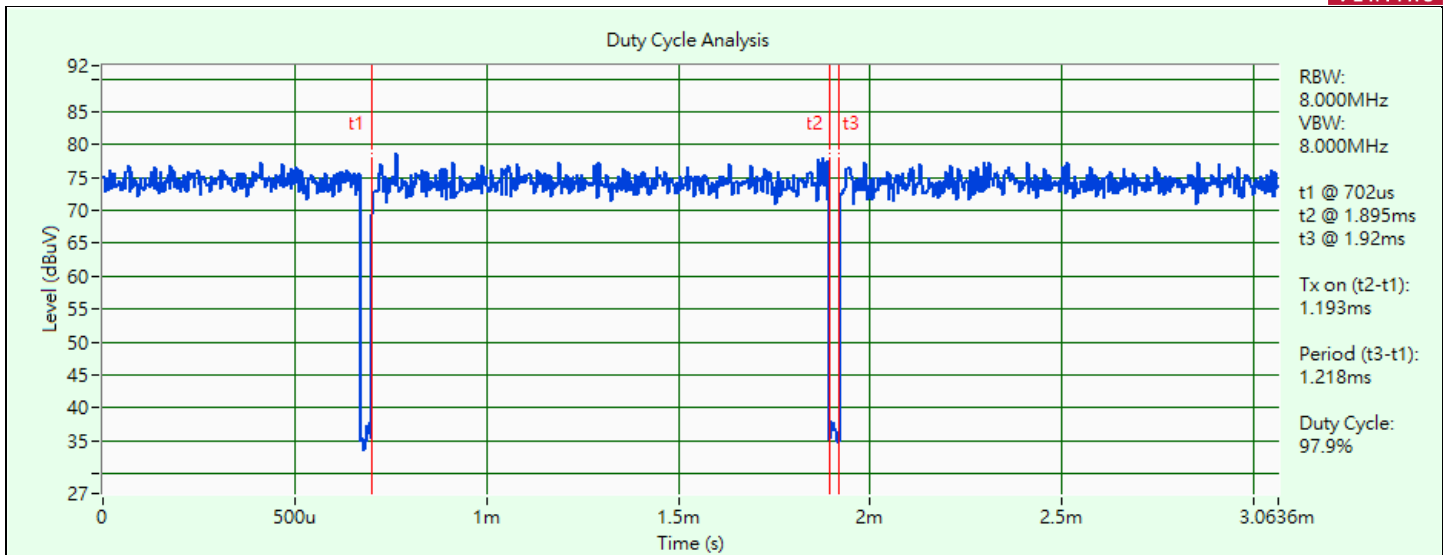
802.11b: Duty cycle = 8.428 ms / 9.03 ms x 100% = 93.3%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.30 \text{ dB}$

802.11g: Duty cycle = 1.067 ms / 1.169 ms x 100% = 91.3%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.40 \text{ dB}$

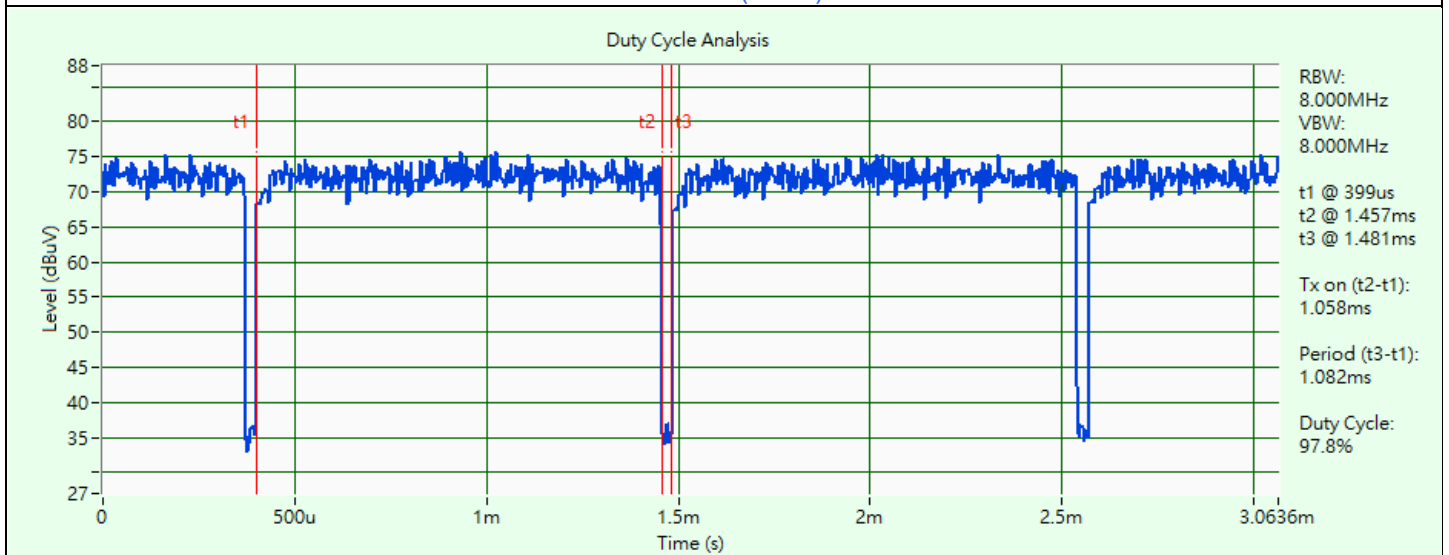
802.11ax (HE20): Duty cycle = 1.193 ms / 1.218 ms x 100% = 97.9%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.09 \text{ dB}$

802.11ax (HE40): Duty cycle = 1.058 ms / 1.082 ms x 100% = 97.8%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.10 \text{ dB}$





802.11ax (HE20)



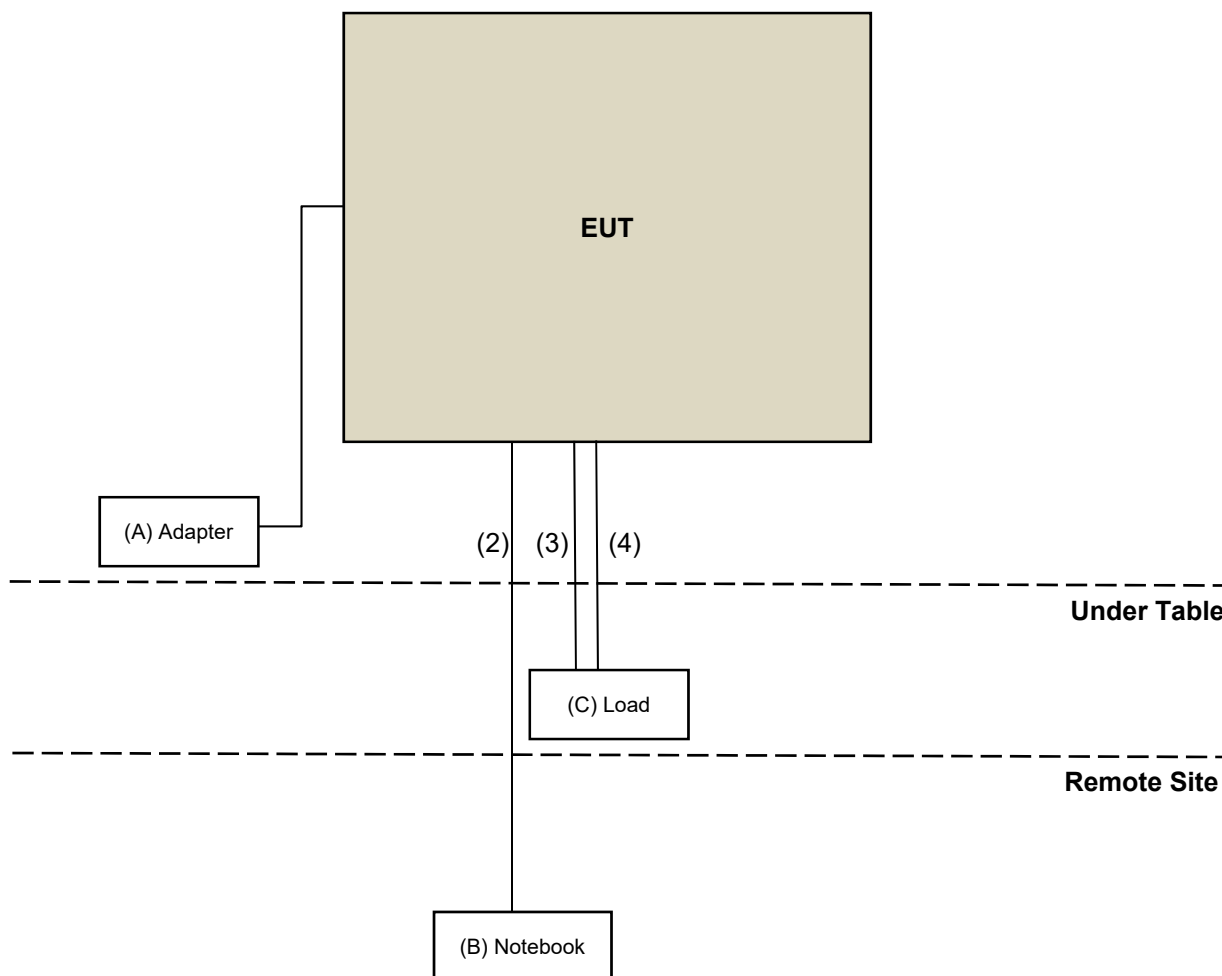
802.11ax (HE40)

3.6 Test Program Used and Operation Descriptions

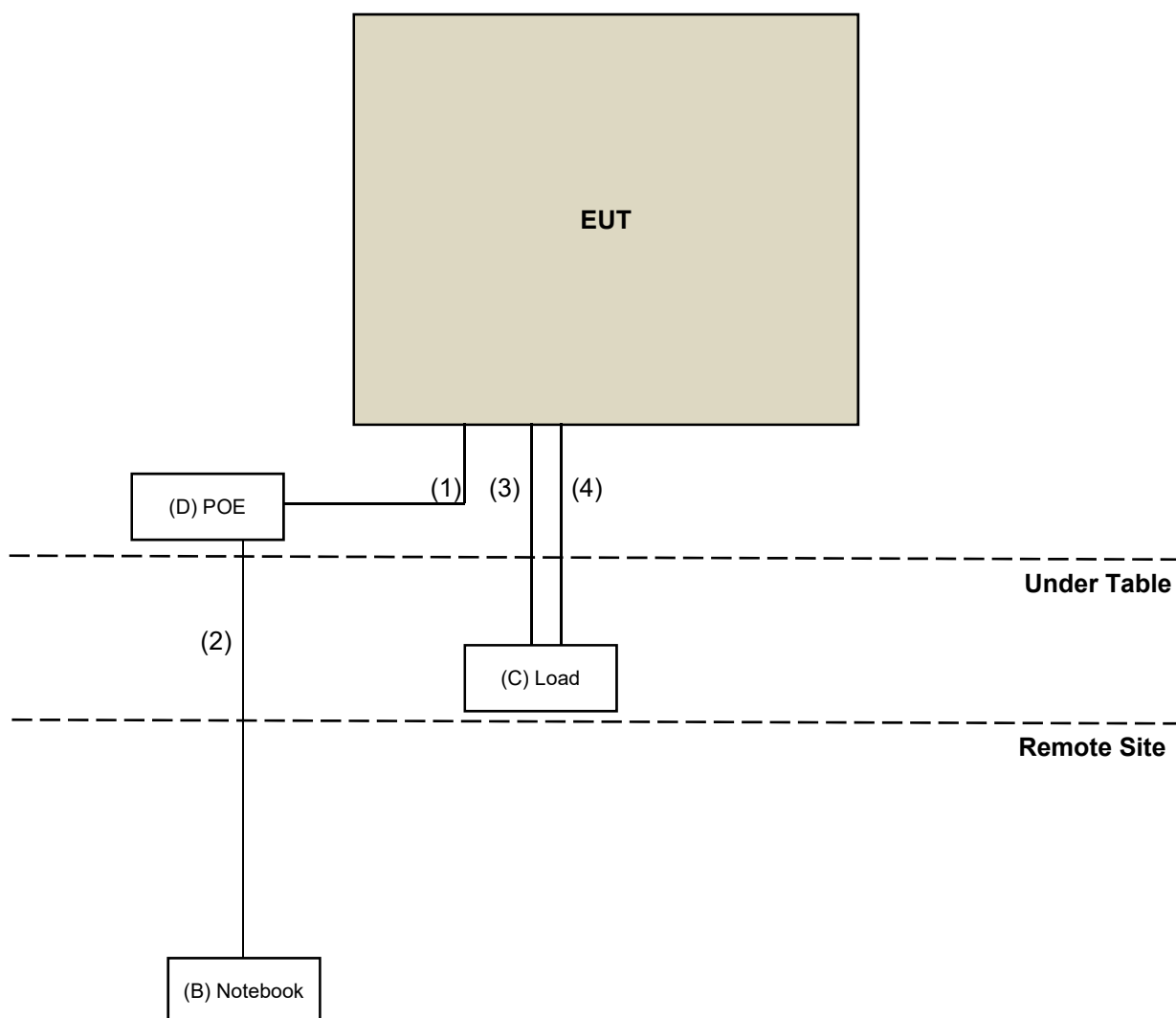
Controlling software (Access Manual Tool 3.2.1.5) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

Mode A, C



Mode B, D



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Adapter	Asian Power Devices Inc.	WA-30J12R	NA	NA	Provided by client
B.	Notebook	Dell	E5430	BPJVKV1	FCC DoC Approved	-
C.	Load	NA	NA	NA	NA	-
D.	PoE	Engenius	PNA90BGS-54	NA	NA	Provided by client

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN cable	1	1.5	N	0	RJ45, Cat5e
2.	LAN cable	1	10	N	0	RJ45, Cat5e
3.	LAN cable	1	1.5	N	0	RJ45, Cat5e
4.	LAN cable	1	1.5	N	0	RJ45, Cat5e

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
Wideband Power Sensor KEYSIGHT	N1923A	MY58020002	2022/1/17	2023/1/16
Peak Power Analyzer KEYSIGHT	8990B	MY51000485	2022/1/18	2023/1/17

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2022/11/1 ~ 2022/11/8

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	100979	2022/3/25	2023/3/24

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2022/11/1 ~ 2022/11/8

4.3 6 dB Bandwidth

Refer to section 4.2 to get information of the instruments.

4.4 Conducted Out of Band Emissions

Refer to section 4.2 to get information of the instruments.

4.5 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
LISN R&S	ESH3-Z5	100311	2022/9/12	2023/9/11
LISN ROHDE & SCHWARZ	ENV216	101826	2022/3/14	2023/3/13
RF Coaxial Cable WOKEN	5D-FB	Cable-cond1-01	2022/1/15	2023/1/14
Software BVADT	BVADT_Cond_ V7.3.7.4	N/A	N/A	N/A
Test Receiver Rohde&Schwarz	ESCI	100613	2021/12/3	2022/12/2
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2022/8/31	2023/8/30

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2022/11/29

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	UNAT_5+	PAD-CH6-01	N/A	N/A
Antenna Tower Controller Max-Full	MF-7802	N/A	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB9168	9168-616	2021/10/27	2022/10/26
Loop Antenna EMCI	EM-6879	269	2022/09/19	2023/09/18
Loop Antenna TESEQ	HLA 6121	45745	2022/07/27	2023/07/26
Pre-amplifier EMCI	EMC001340	980201	2022/09/23	2023/09/22
Preamplifier Agilent	310N	187226	2022/06/14	2023/06/13
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	2022/01/15	2023/01/14
RF Coaxial Cable ETS-Lindgren	EMC104-SM-SM-10000	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-4	2022/06/14	2023/06/13
	RFC-SMS-100-SMS-24-IN	Cable-CH1-02(RFC-SMS-100-SMS-24)	2022/06/14	2023/06/13
Software BV ADT	ADT_Radiated_V7.6.15.9.5	N/A	N/A	N/A
Test Receiver Agilent	N9038A	MY52260177	2022/09/19	2023/09/18
Turn Table Max-Full	TT-1510	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802	N/A	N/A	N/A

Notes:

1. The test was performed in XD - 966 chamber 6.
2. Tested Date: 2022/10/20 ~ 2022/10/21

4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	UNAT_5+	PAD-CH6-01	N/A	N/A
Antenna Tower Controller Max-Full	MF-7802	N/A	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	8	N/A	N/A
Horn Antenna ETS-Lindgren	3117	00143293	2021/11/14	2022/11/13
Horn Antenna Schwarzbeck	BBHA 9170	BBHA9170241	2021/10/26	2022/10/25
			2022/10/20	2023/10/19
Pre-Amplifier EMCI	EMC 184045	980116	2021/10/5	2022/10/4
			2022/10/1	2023/9/30
Preamplifier Agilent	83017A	MY39501373	2022/6/14	2023/6/13
RF Coaxial Cable ETS-Lindgren	EMC104-SM-SM-10000	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-4	2022/6/14	2023/6/13
	RFC-SMS-100-SMS-24-IN	Cable-CH1-02(RFC-SMS-100-SMS-24)	2022/6/14	2023/6/13
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	2022/1/15	2023/1/14
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104& EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	2022/1/15	2023/1/14
Software BV ADT	ADT_Radiated_V7.6.15.9.5	N/A	N/A	N/A
Test Receiver Agilent	N9038A	MY52260177	2022/9/19	2023/9/18
Turn Table Max-Full	TT-1510	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802	N/A	N/A	N/A

Notes:

1. The test was performed in XD - 966 chamber 6.
2. Tested Date: 2022/9/22 ~ 2022/11/11

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

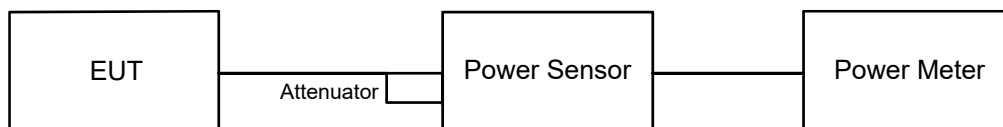
Notes:

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



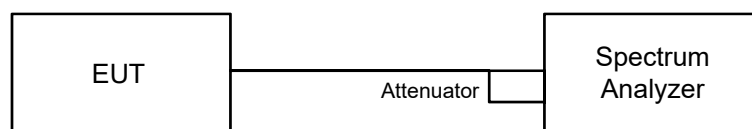
6.1.2 Test Procedure

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

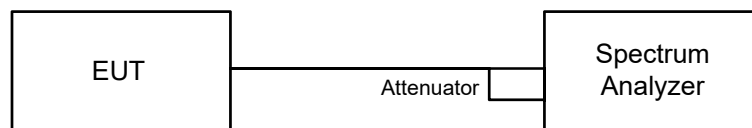


6.2.2 Test Procedure

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

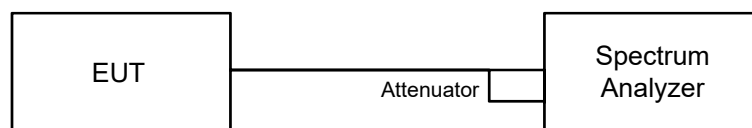


6.3.2 Test Procedure

- 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

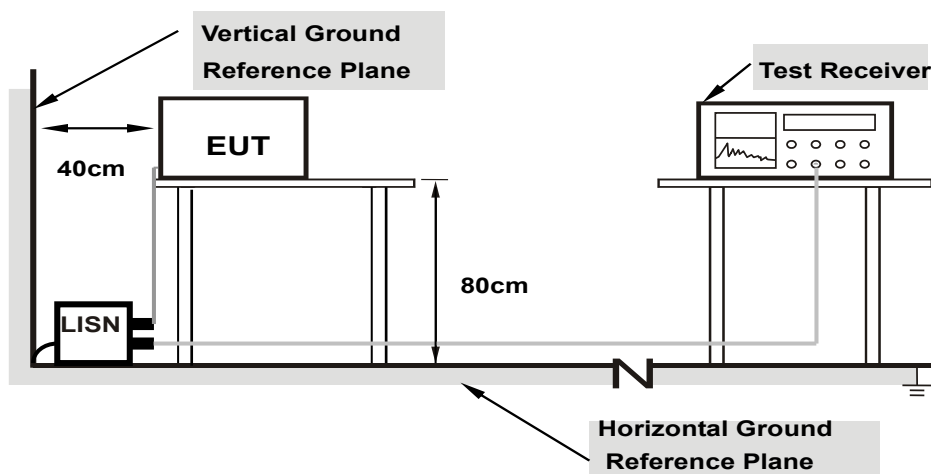
- Set the RBW = 100 kHz.
- Set the VBW ≥ 300 kHz.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

- 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

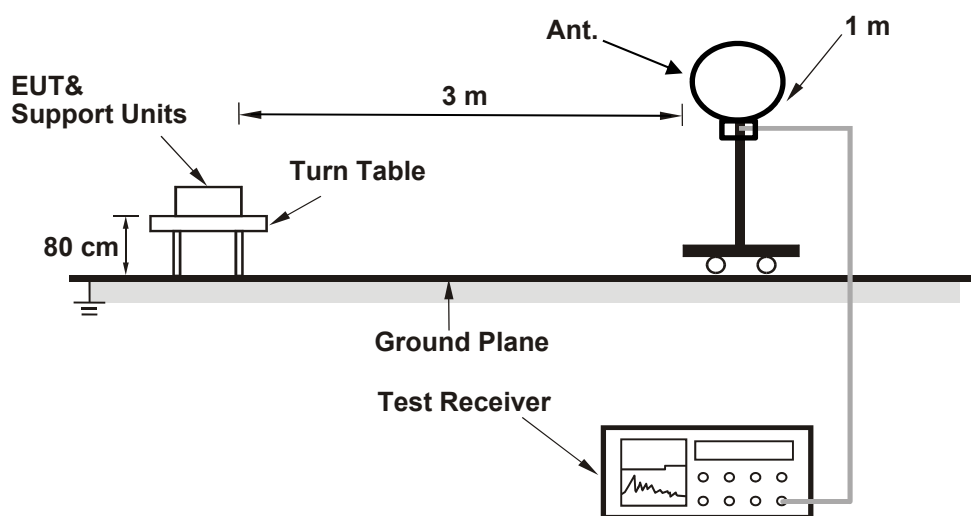
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The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

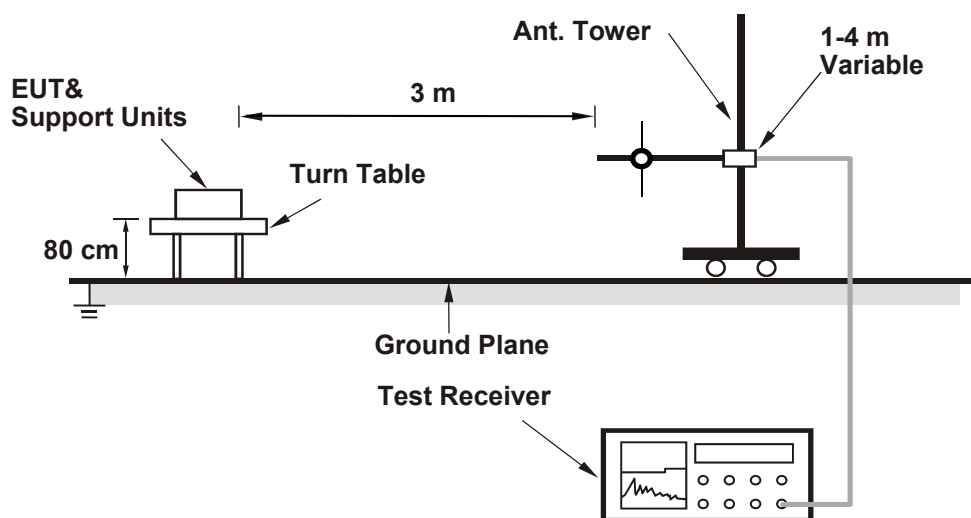
6.6 Unwanted Emissions below 1 GHz

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

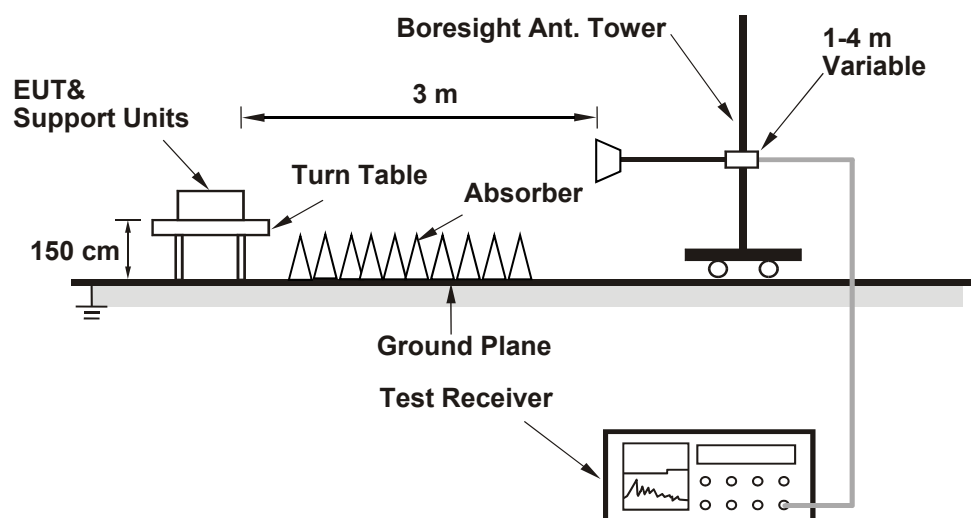
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the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

Radio 1

802.11b CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	18.87	18.60	149.534	21.75	30	Pass
6	2437	23.19	22.66	392.951	25.94	30	Pass
11	2462	18.81	19.67	168.716	22.27	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.89 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11g CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	14.92	14.45	58.907	17.70	30	Pass
6	2437	19.85	19.82	192.545	22.85	30	Pass
11	2462	13.50	14.43	50.12	17.00	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.89 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	16.03	15.75	77.67	18.90	30	Pass
6	2437	18.25	17.75	126.401	21.02	30	Pass
11	2462	11.45	11.91	29.488	14.70	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.89 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	11.50	11.14	27.127	14.33	30	Pass
6	2437	15.01	14.88	62.457	17.96	30	Pass
9	2452	12.65	13.19	39.253	15.94	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.89 dBi < 6 dBi, so the output power limit shall not be reduced.

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	16.03	15.75	77.67	18.90	29.13	Pass
6	2437	18.25	17.75	126.401	21.02	29.13	Pass
11	2462	11.45	11.91	29.488	14.70	29.13	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}})^2 / 2]$
2. The directional gain is 6.87 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (6.87 - 6) = 29.13$ 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	11.50	11.14	27.127	14.33	29.13	Pass
6	2437	15.01	14.88	62.457	17.96	29.13	Pass
9	2452	12.65	13.19	39.253	15.94	29.13	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}})^2 / 2]$
2. The directional gain is 6.87 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (6.87 - 6) = 29.13$ dBm.

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Alan Wu
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Test Mode C

Radio 3

802.11b CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	19.71	20.43	203.948	23.10	30	Pass
6	2437	22.27	22.54	348.129	25.42	30	Pass
11	2462	16.16	16.48	85.768	19.33	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.78 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11g CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	13.77	14.46	51.749	17.14	30	Pass
6	2437	21.25	21.56	276.571	24.42	30	Pass
11	2462	15.70	15.95	76.509	18.84	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.78 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	11.60	12.56	32.485	15.12	30	Pass
6	2437	19.01	19.58	170.398	22.31	30	Pass
11	2462	13.13	13.30	41.939	16.23	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.78 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	10.41	10.87	23.208	13.66	30	Pass
6	2437	15.80	16.02	78.013	18.92	30	Pass
9	2452	13.95	14.52	53.145	17.25	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 3.78 dBi < 6 dBi, so the output power limit shall not be reduced.

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	11.60	12.56	32.485	15.12	29.22	Pass
6	2437	19.01	19.58	170.398	22.31	29.22	Pass
11	2462	13.13	13.30	41.939	16.23	29.22	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}})^2 / 2]$
2. The directional gain is 6.78 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (6.78 - 6) = 29.22$ 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	10.41	10.87	23.208	13.66	29.22	Pass
6	2437	15.80	16.02	78.013	18.92	29.22	Pass
9	2452	13.95	14.52	53.145	17.25	29.22	Pass

Notes:

1. Directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}})^2 / 2]$
2. The directional gain is 6.78 dBi > 6 dBi, so the output power limit shall be reduced to $30 - (6.78 - 6) = 29.22$ dBm.

7.2 Power Spectral Density

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin
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Test Mode A

Radio 1

802.11b

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	-13.49	-13.71	0.30	-10.29	7.13	Pass
6	2437	-9.15	-9.64	0.30	-6.08	7.13	Pass
11	2462	-13.54	-12.67	0.30	-9.77	7.13	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 6.87 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.87 - 6) = 7.13$ 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	-19.35	-19.77	0.34	-16.21	7.13	Pass
6	2437	-14.42	-14.46	0.34	-11.09	7.13	Pass
11	2462	-20.82	-19.78	0.34	-16.92	7.13	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 6.87 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.87 - 6) = 7.13$ 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	-19.35	-19.58	0.10	-16.35	7.13	Pass
6	2437	-17.09	-17.56	0.10	-14.21	7.13	Pass
11	2462	-23.92	-23.48	0.10	-20.58	7.13	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 6.87 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.87 - 6) = 7.13$ dBm/3kHz.

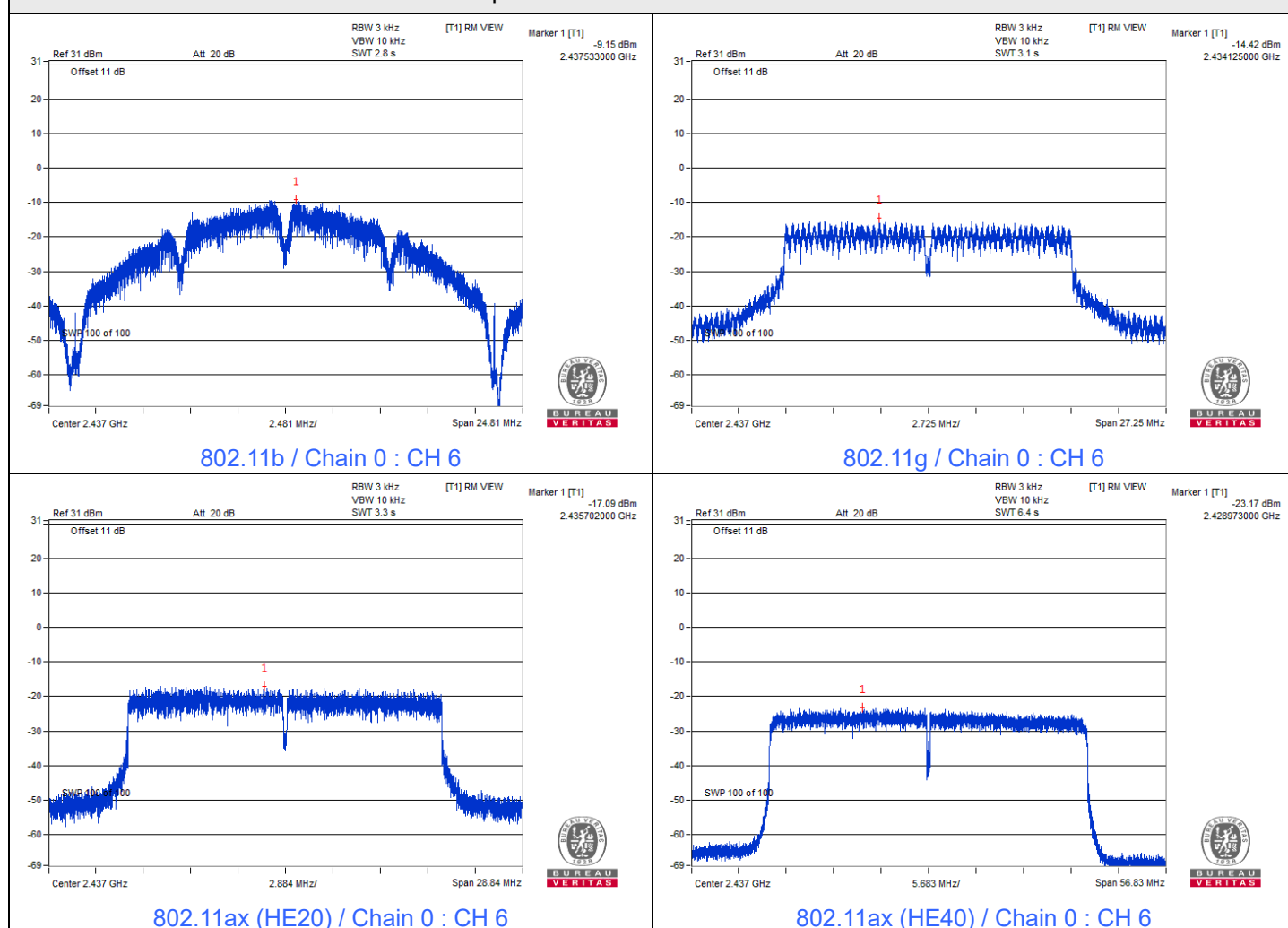
802.11ax (HE40)

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	-26.63	-26.91	0.10	-23.66	7.13	Pass
6	2437	-23.17	-23.37	0.10	-20.16	7.13	Pass
9	2452	-25.46	-24.94	0.10	-22.08	7.13	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 6.87 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.87 - 6) = 7.13$ dBm/3kHz.

Spectrum Plot of Maximum Value



Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Alan Wu
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Test Mode C

Radio 3

802.11b

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	-10.01	-9.93	0.30	-6.66	7.22	Pass
6	2437	-7.30	-6.25	0.30	-3.43	7.22	Pass
11	2462	-13.37	-12.57	0.30	-9.64	7.22	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 6.78 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.78 - 6) = 7.22$ 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	-18.86	-18.20	0.40	-15.11	7.22	Pass
6	2437	-11.17	-11.06	0.40	-7.71	7.22	Pass
11	2462	-16.87	-16.40	0.40	-13.22	7.22	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 6.78 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.78 - 6) = 7.22$ 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	-21.87	-21.38	0.09	-18.52	7.22	Pass
6	2437	-13.26	-12.62	0.09	-9.83	7.22	Pass
11	2462	-20.64	-20.06	0.09	-17.24	7.22	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 6.78 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.78 - 6) = 7.22$ dBm/3kHz.

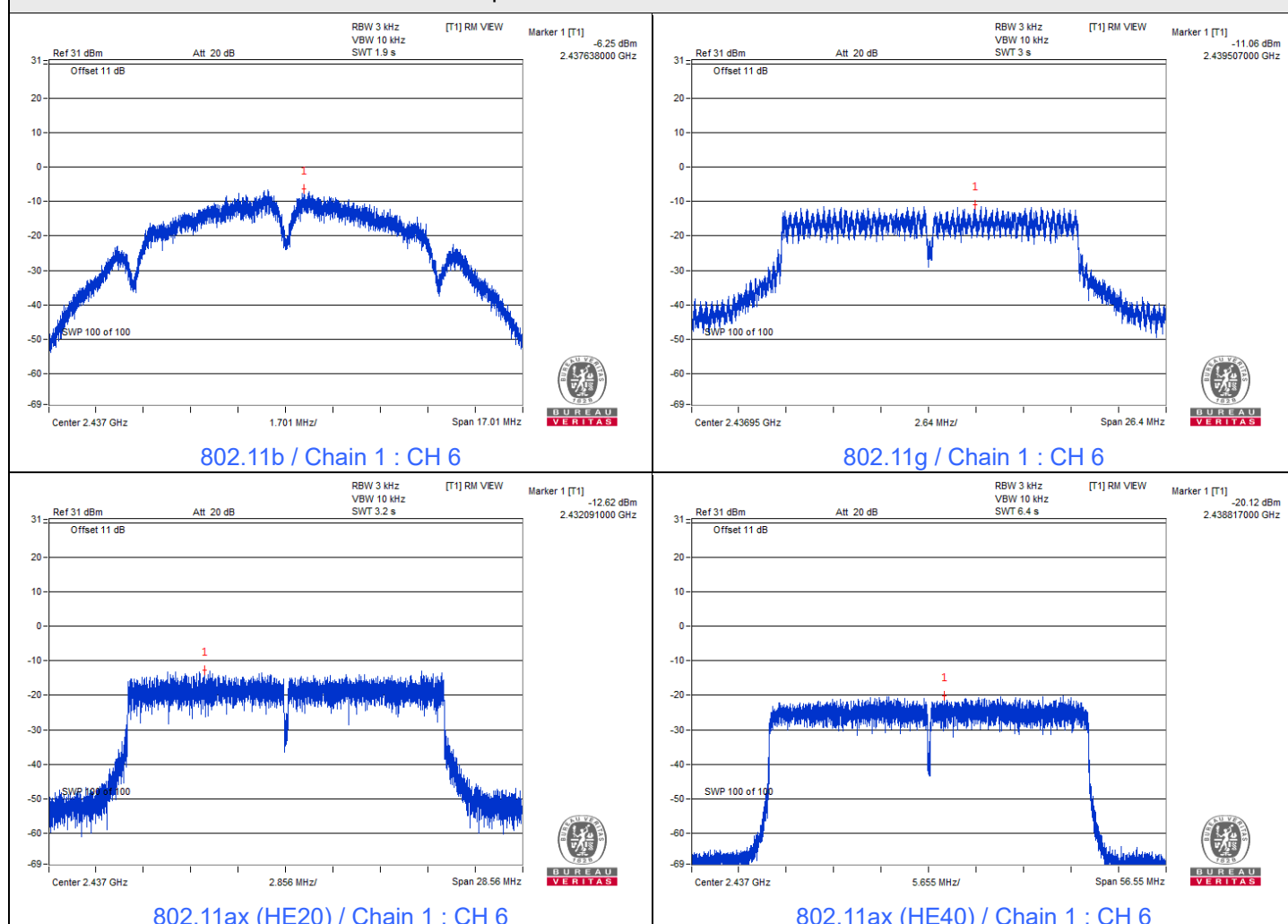
802.11ax (HE40)

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	-25.72	-25.39	0.10	-22.44	7.22	Pass
6	2437	-20.76	-20.12	0.10	-17.32	7.22	Pass
9	2452	-21.89	-21.11	0.10	-18.37	7.22	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 6.78 dBi > 6 dBi, so the power density limit shall be reduced to $8 - (6.78 - 6) = 7.22$ 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:	Wayne Lin
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Test Mode A

Radio 1

802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	7.09	7.61	0.5	Pass
6	2437	10.09	9.10	0.5	Pass
11	2462	7.06	7.05	0.5	Pass

802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	16.45	16.42	0.5	Pass
6	2437	16.42	16.44	0.5	Pass
11	2462	16.45	16.45	0.5	Pass

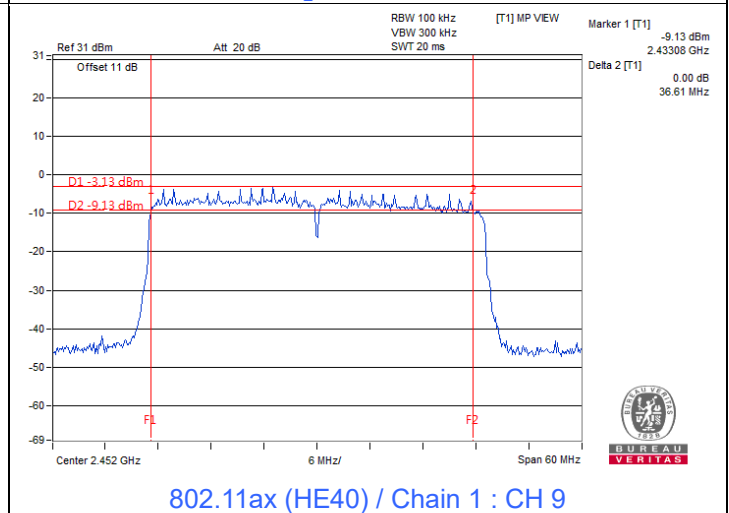
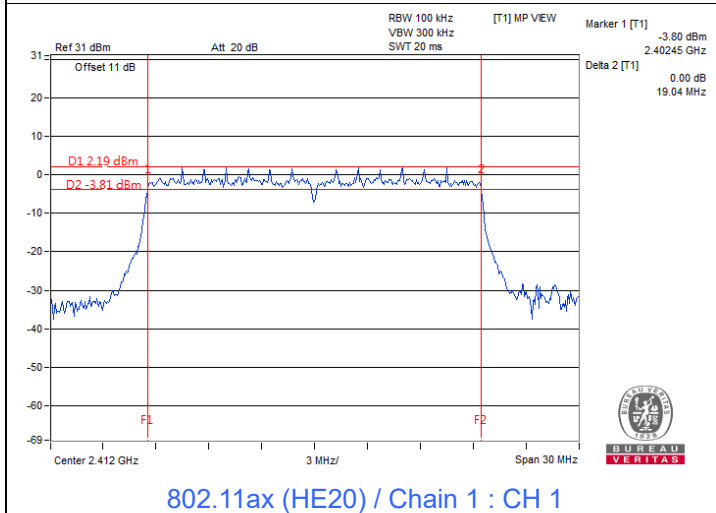
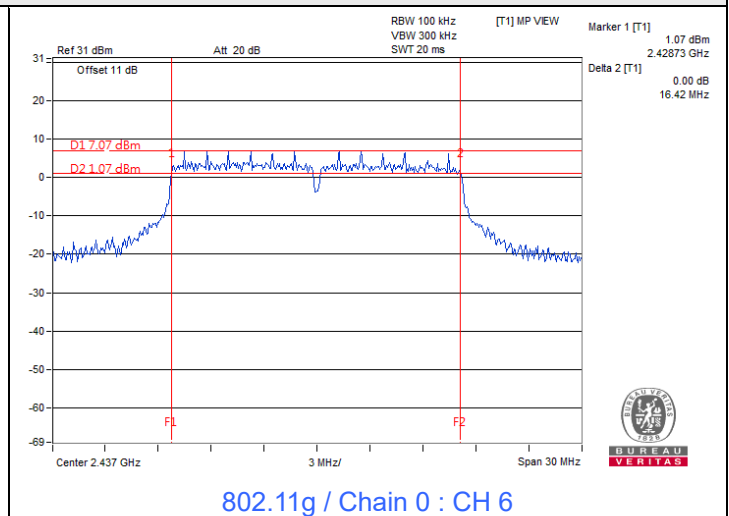
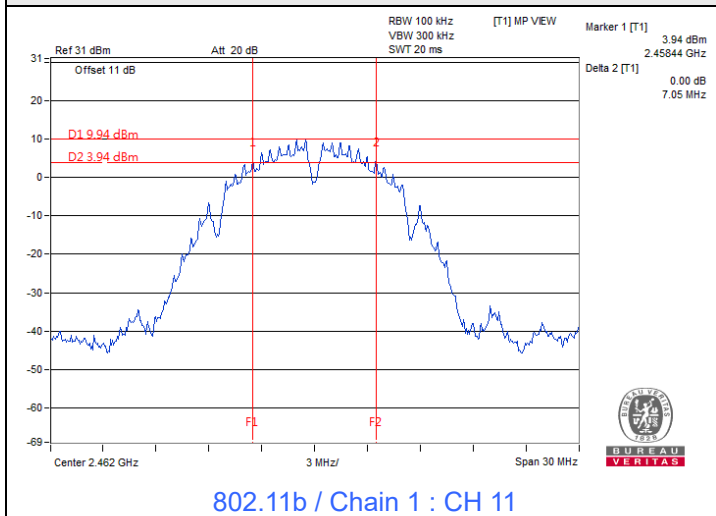
802.11ax (HE20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	19.08	19.04	0.5	Pass
6	2437	19.06	19.05	0.5	Pass
11	2462	19.08	19.05	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
3	2422	37.66	37.61	0.5	Pass
6	2437	37.44	37.61	0.5	Pass
9	2452	37.79	36.61	0.5	Pass

Spectrum Plot of Minimum Value



Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Alan Wu
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Test Mode C

Radio 3

802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	7.09	7.08	0.5	Pass
6	2437	7.14	7.08	0.5	Pass
11	2462	7.11	7.10	0.5	Pass

802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	16.44	16.45	0.5	Pass
6	2437	16.42	16.41	0.5	Pass
11	2462	16.44	16.45	0.5	Pass

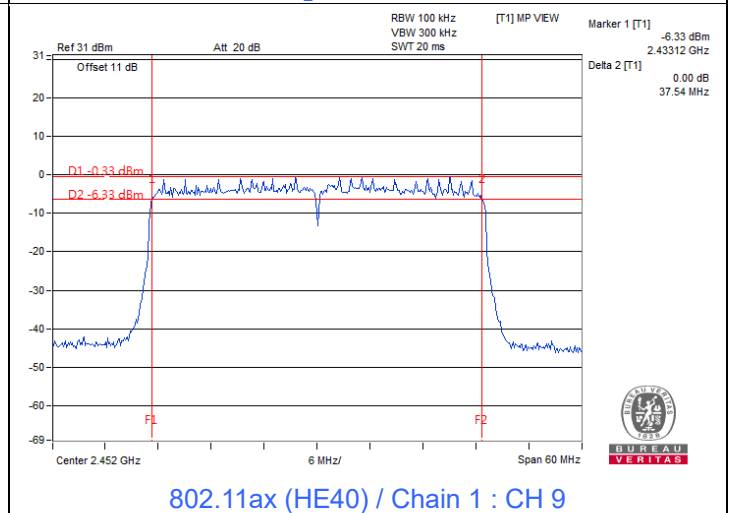
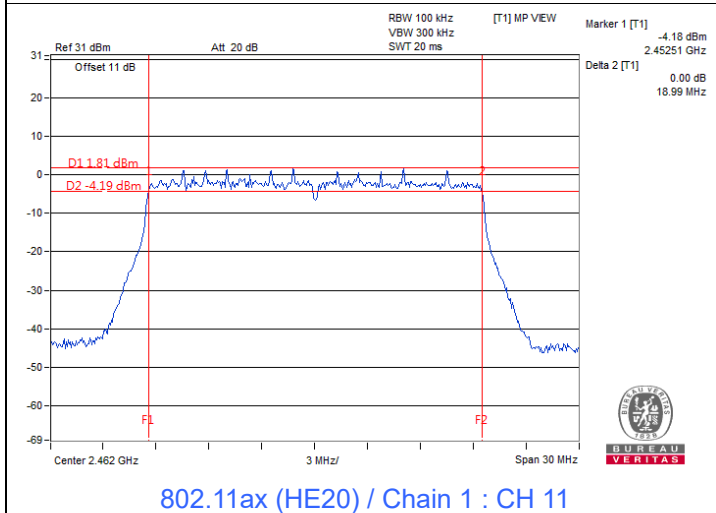
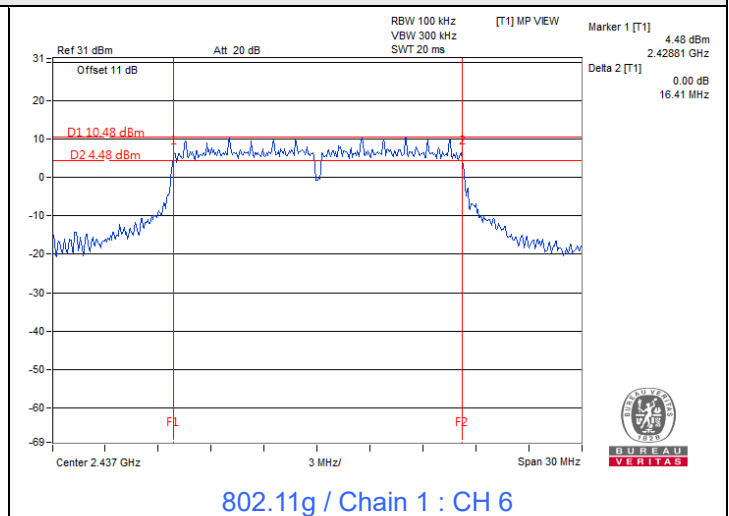
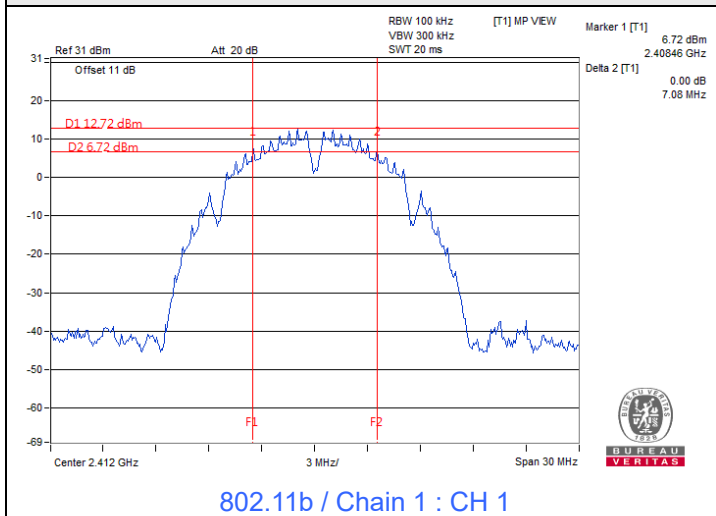
802.11ax (HE20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	19.09	19.01	0.5	Pass
6	2437	19.09	19.02	0.5	Pass
11	2462	19.09	18.99	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
3	2422	37.59	37.79	0.5	Pass
6	2437	37.84	37.76	0.5	Pass
9	2452	37.71	37.54	0.5	Pass

Spectrum Plot of Minimum Value



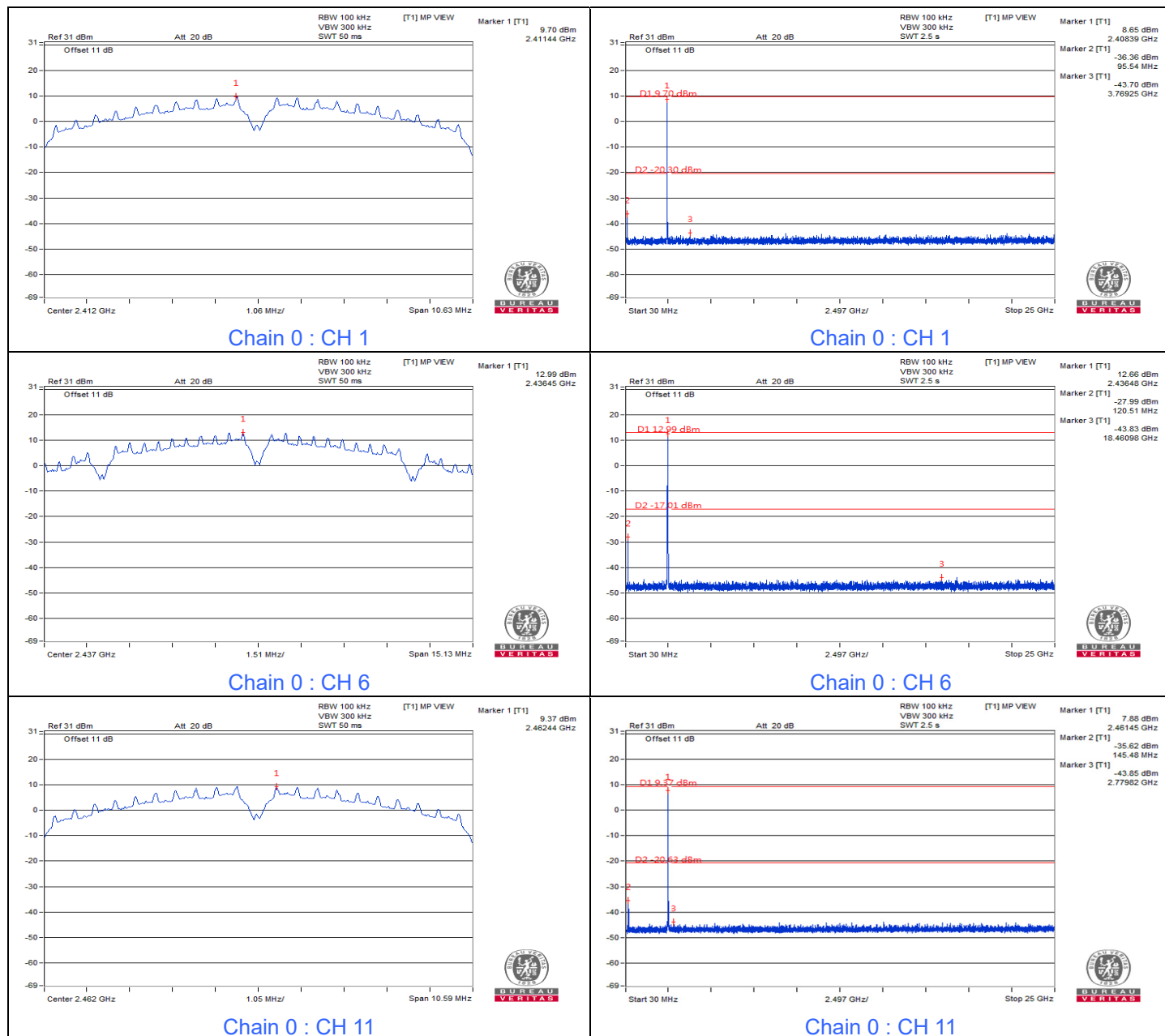
7.4 Conducted Out of Band Emissions

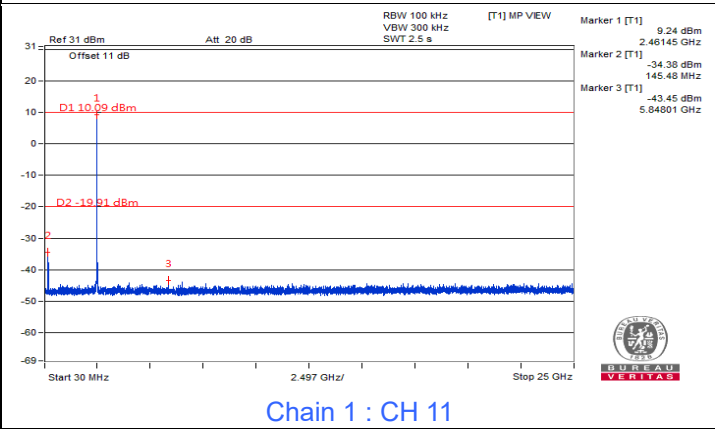
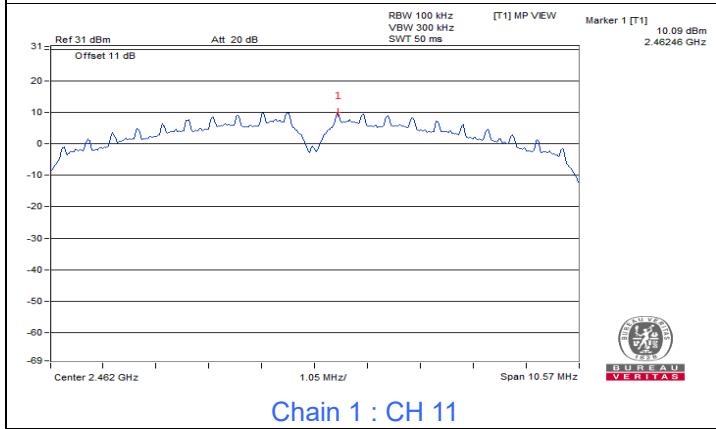
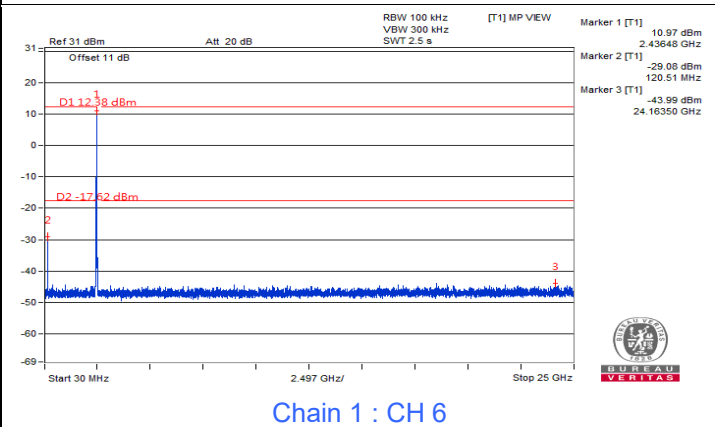
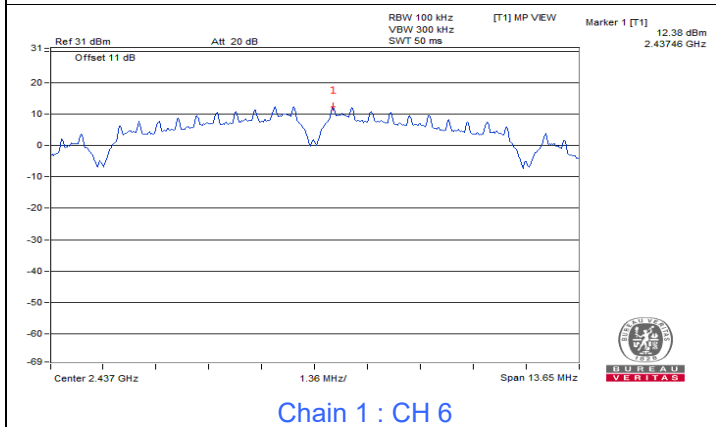
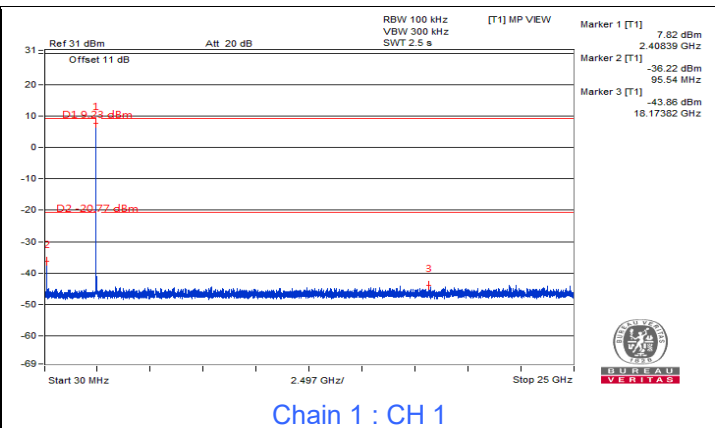
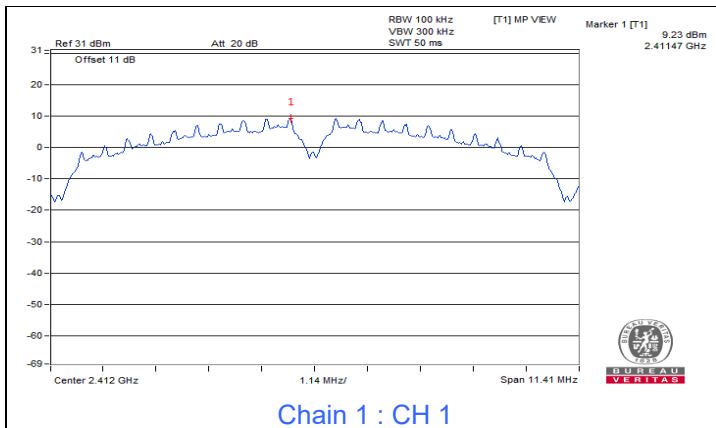
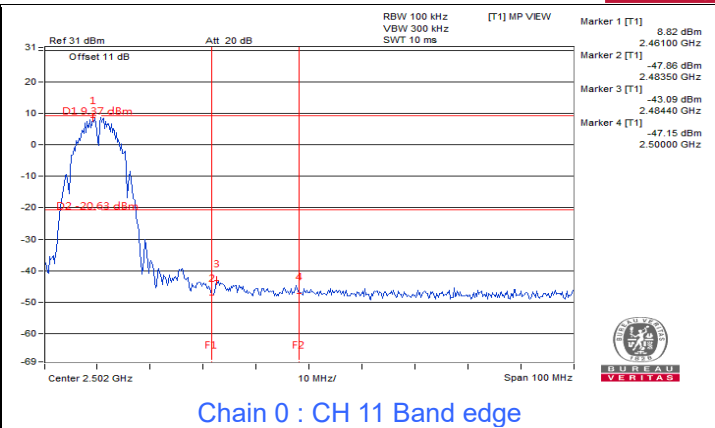
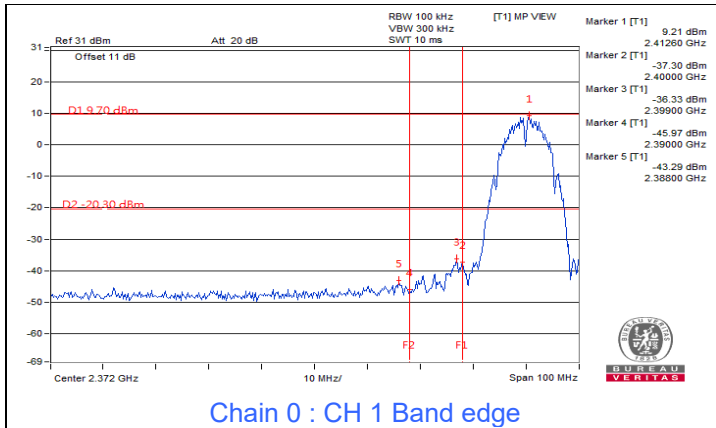
Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Wayne Lin
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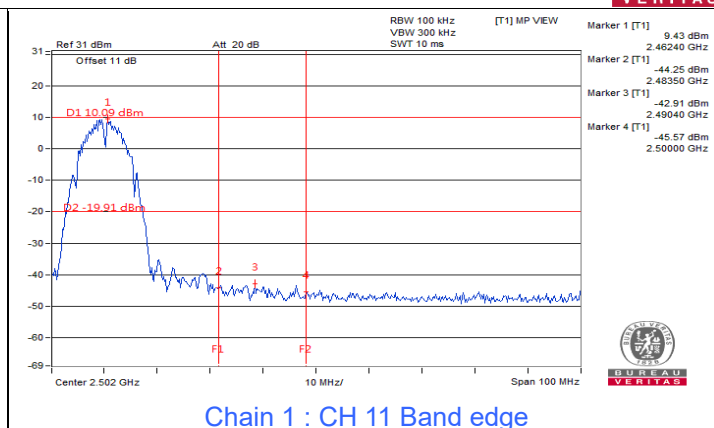
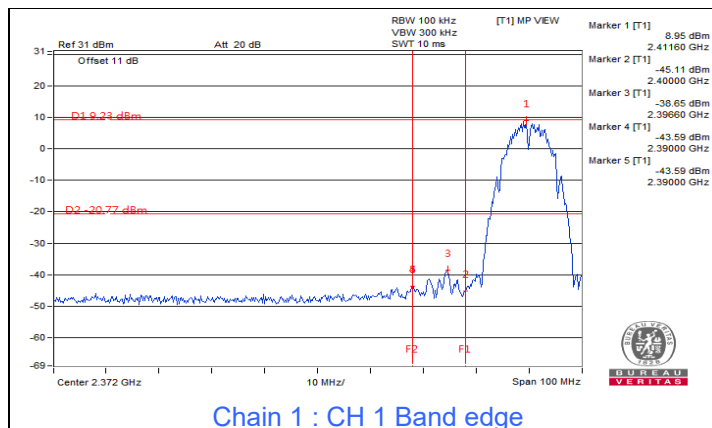
Test Mode A

Radio 1

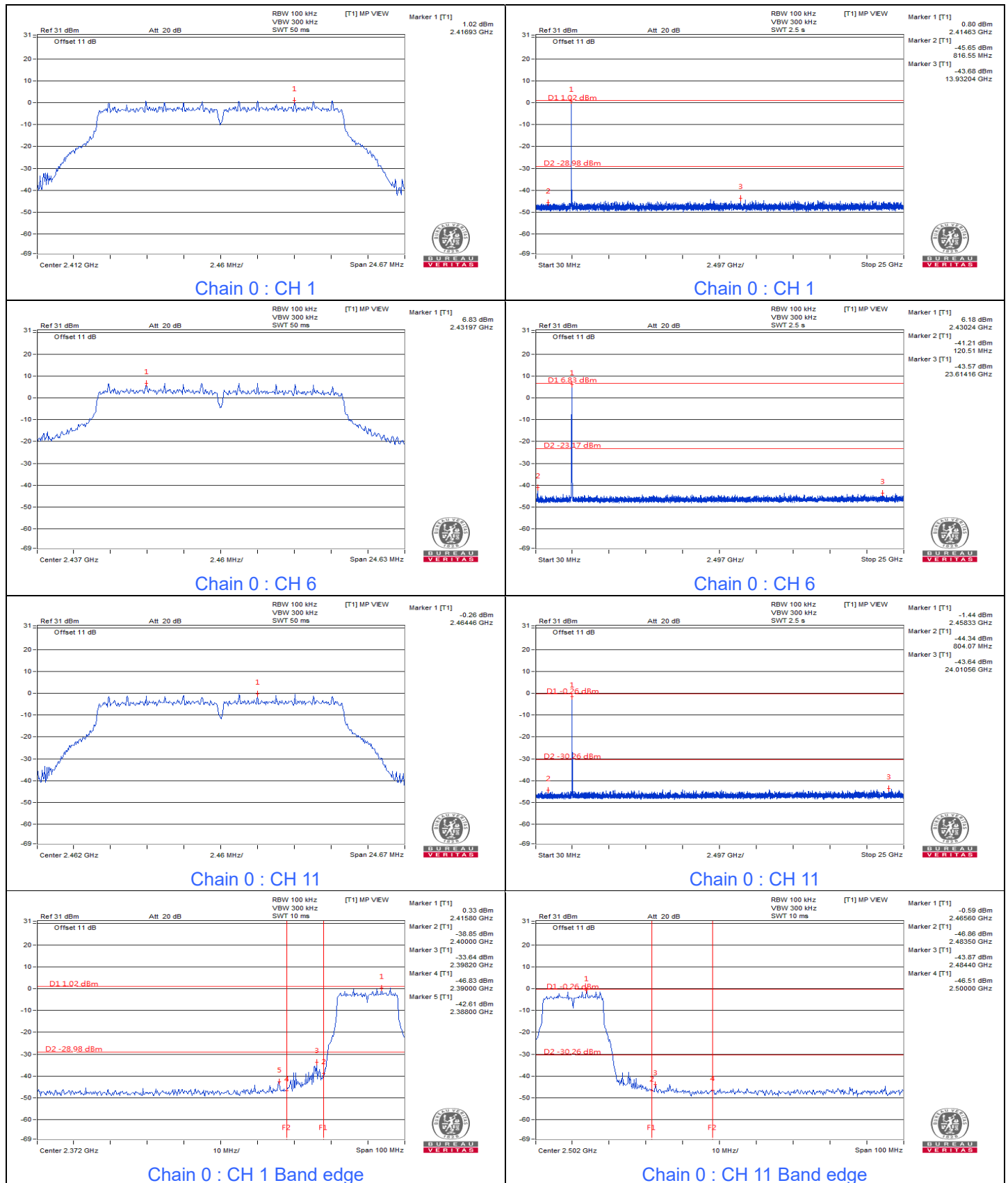
802.11b





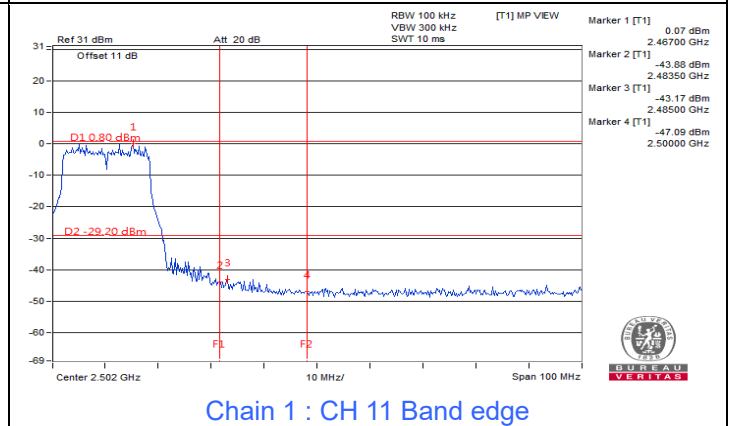
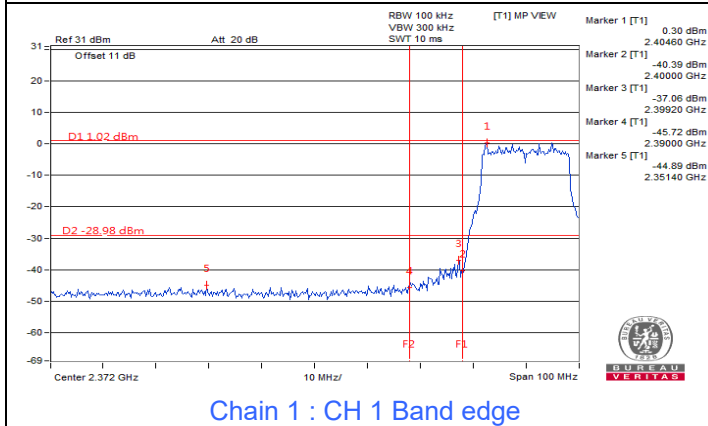
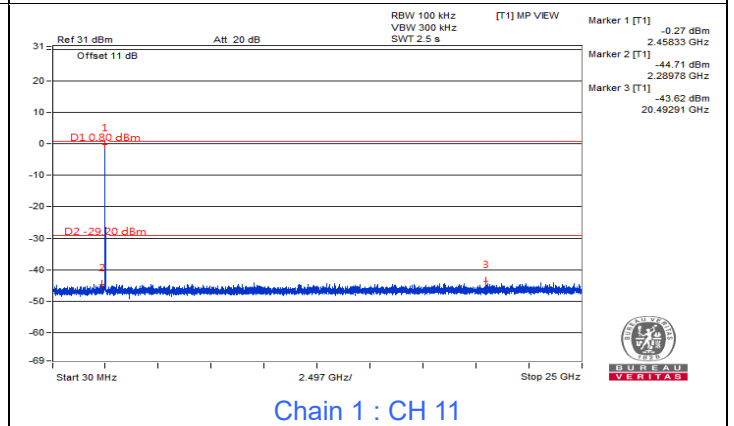
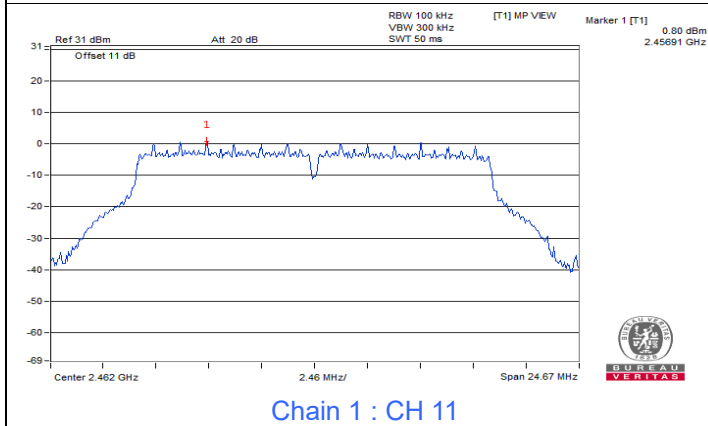
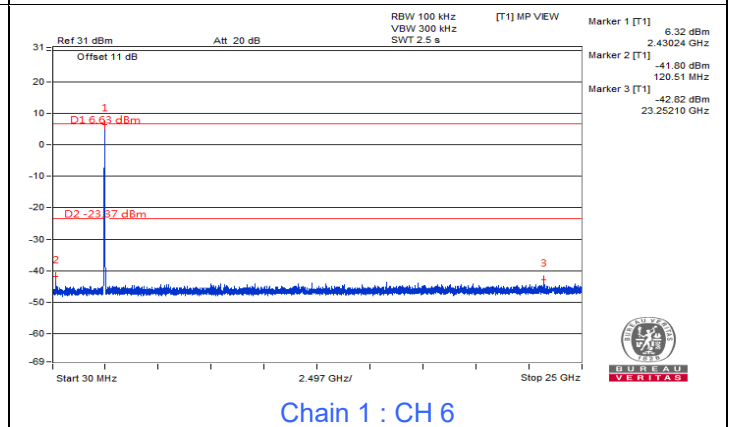
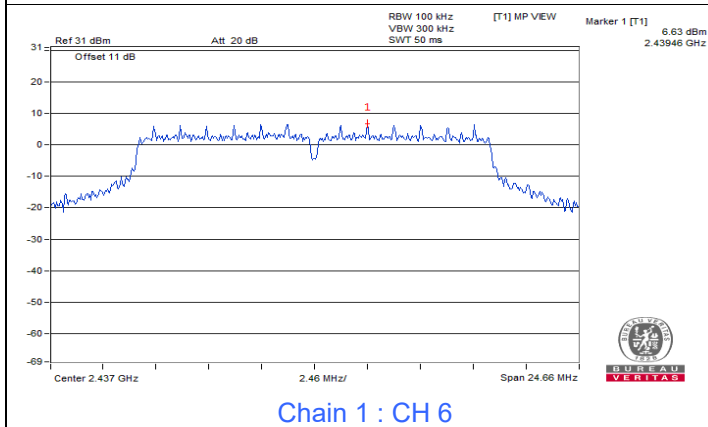
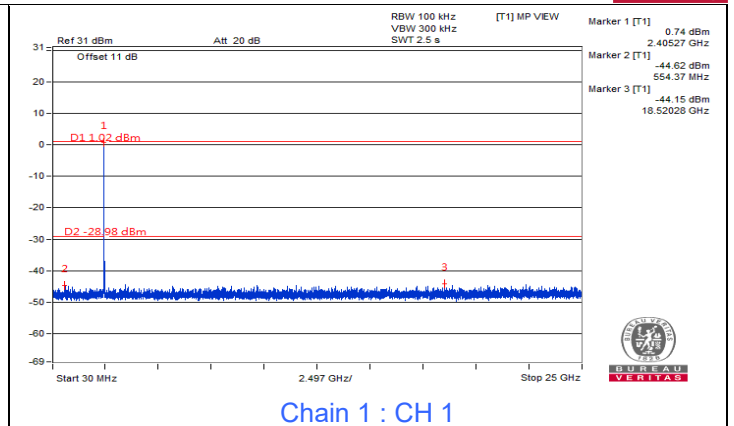
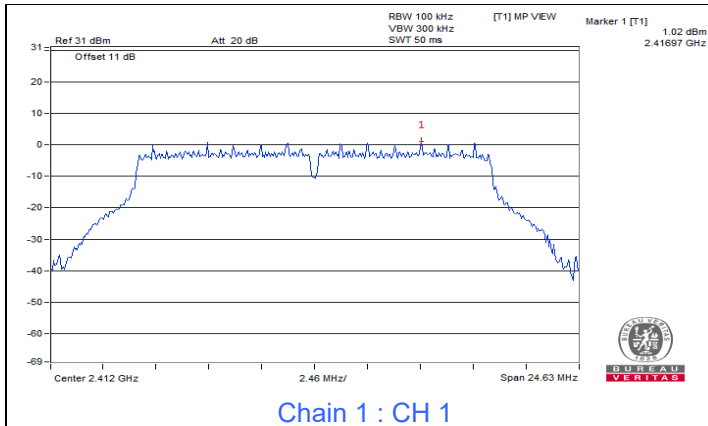


802.11g



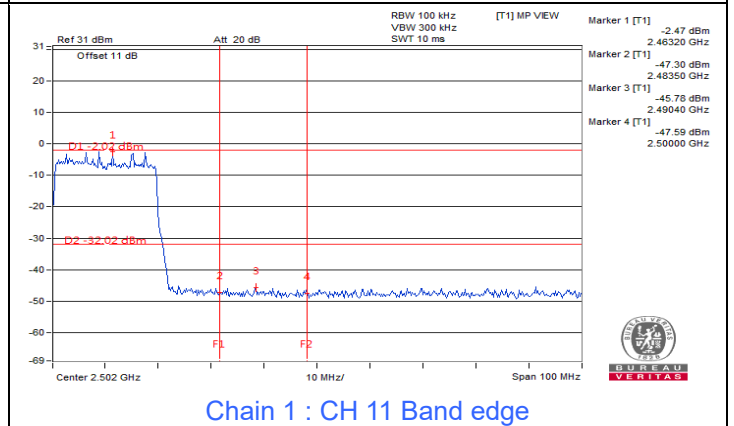
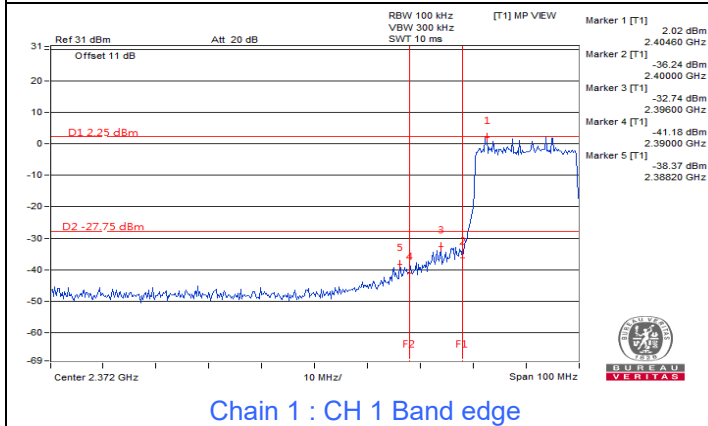
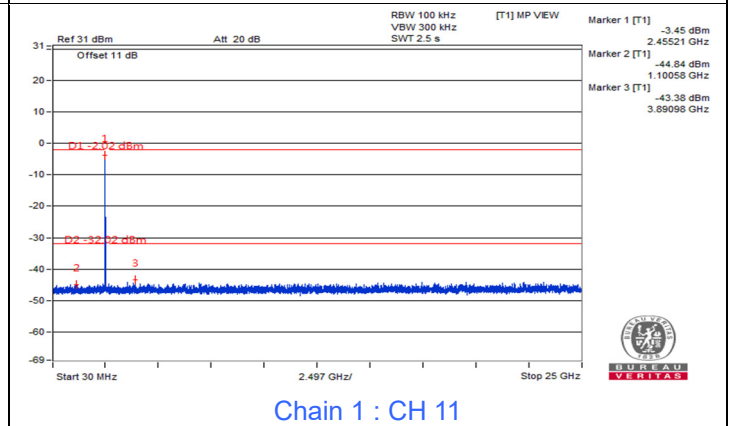
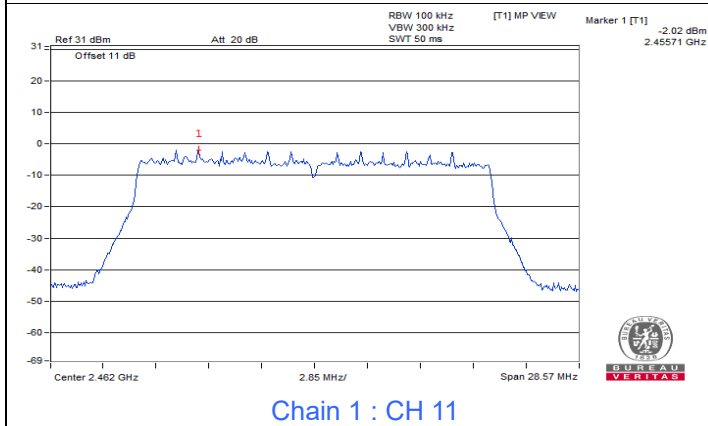
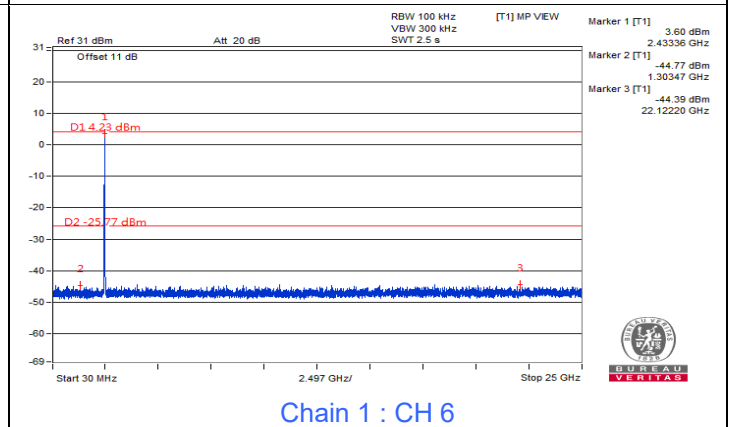
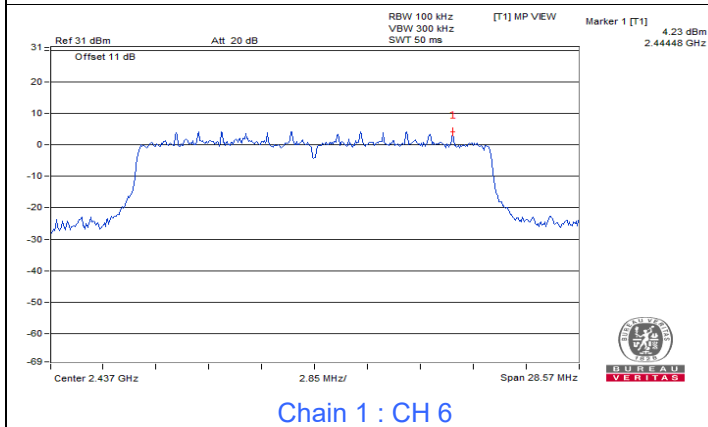
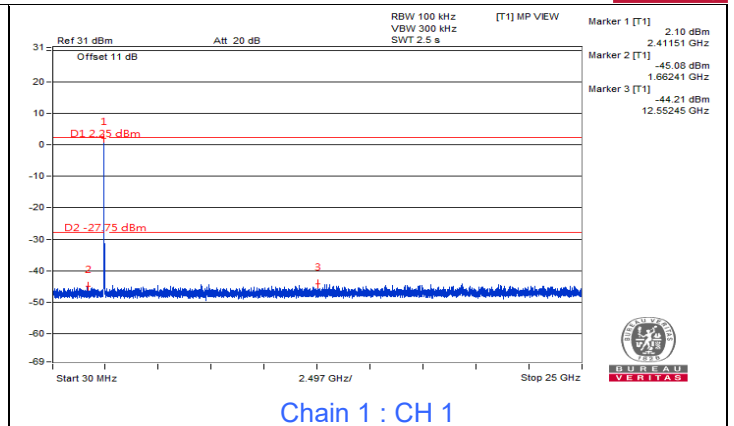
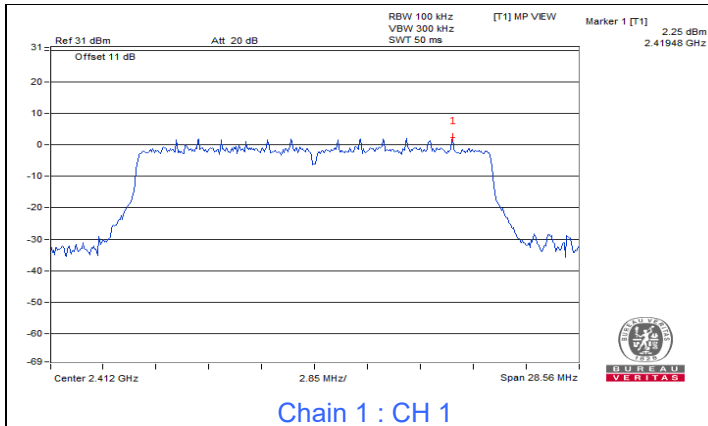


BUREAU
VERITAS



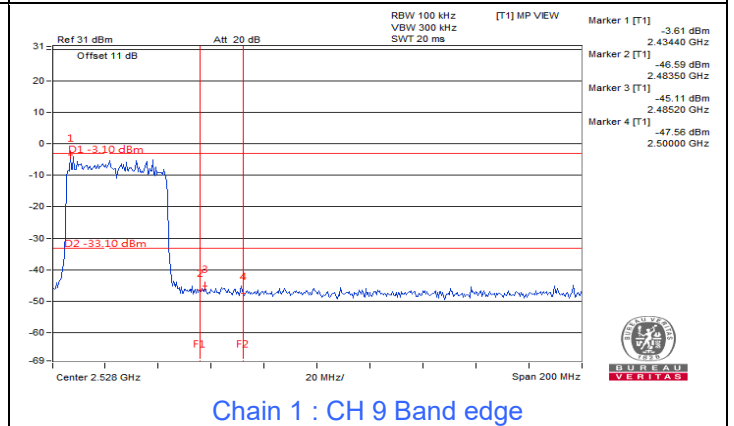
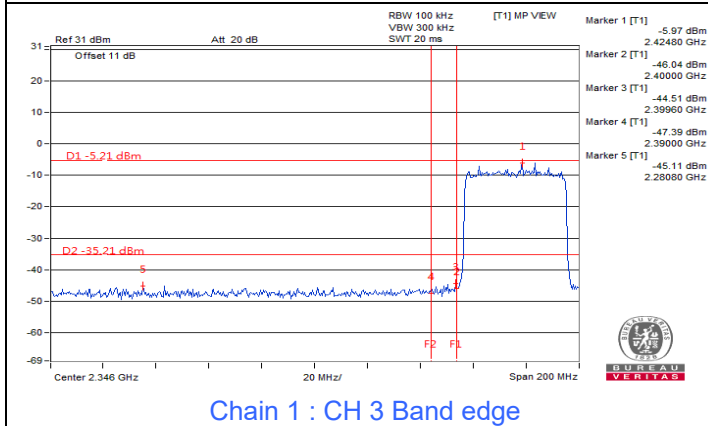
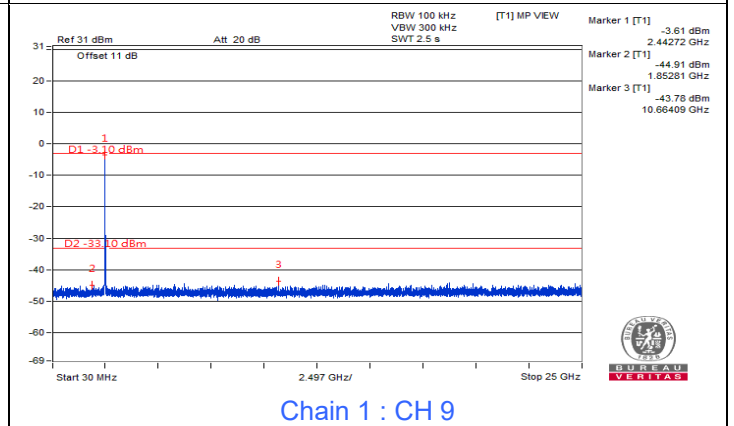
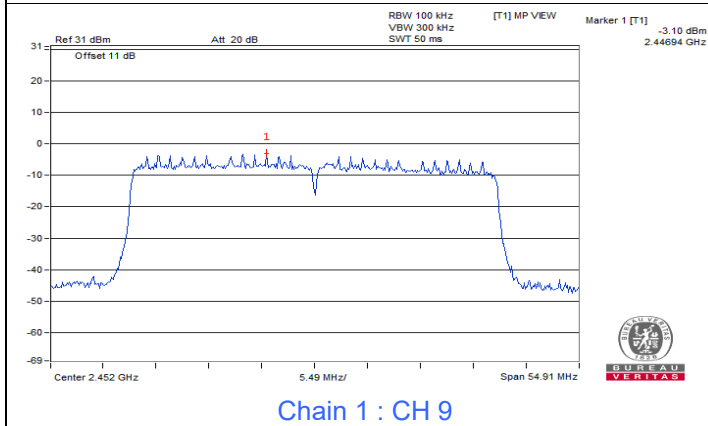
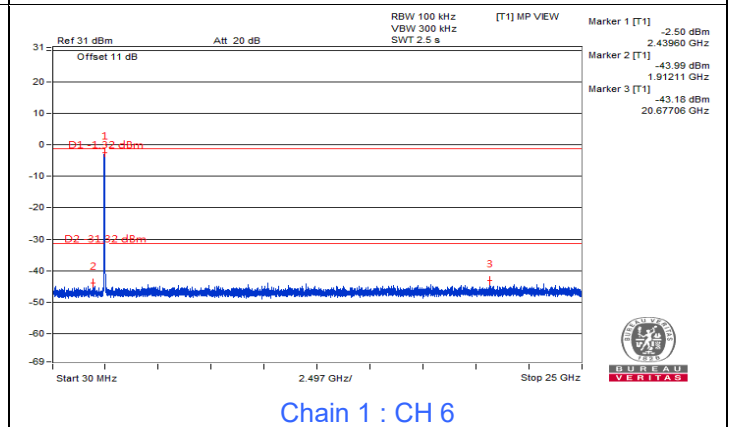
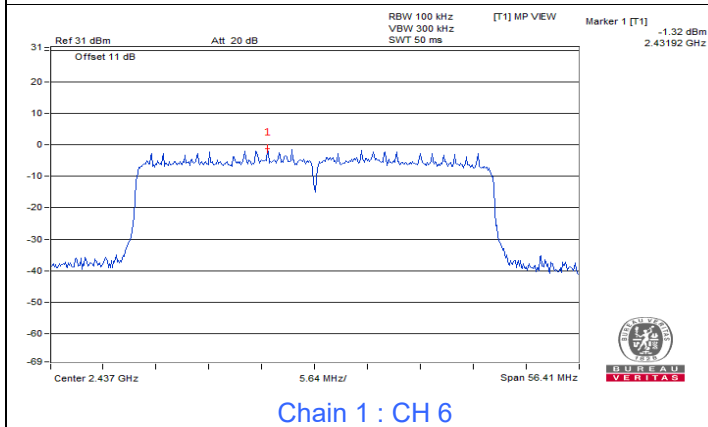
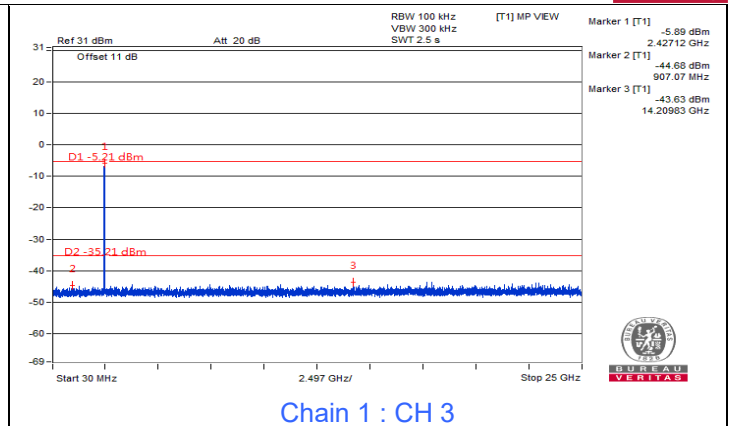
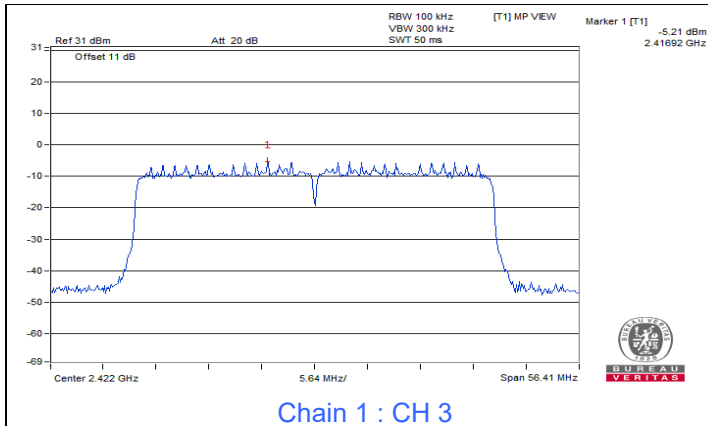
802.11ax (HE20)





802.11ax (HE40)







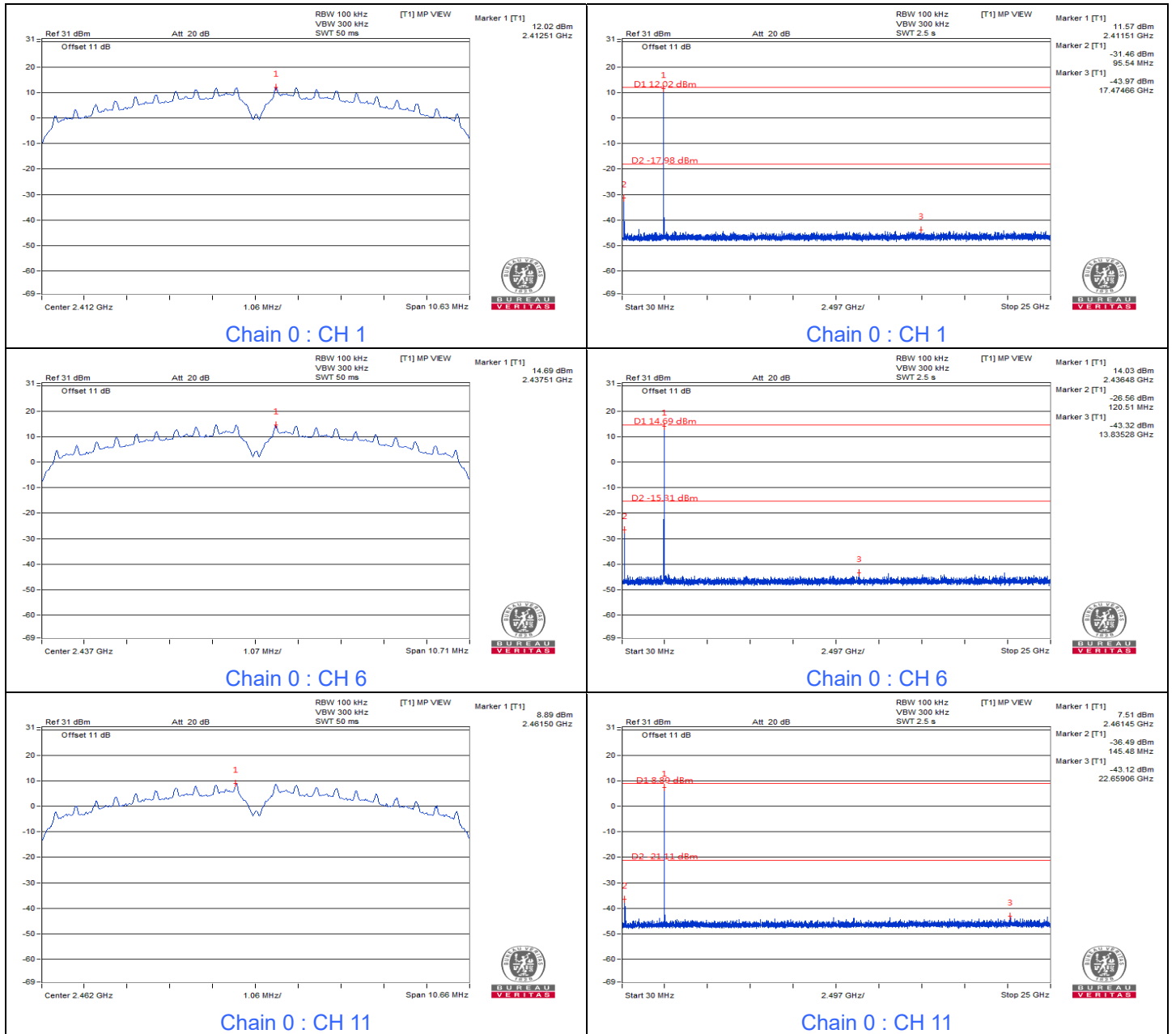
BUREAU
VERITAS

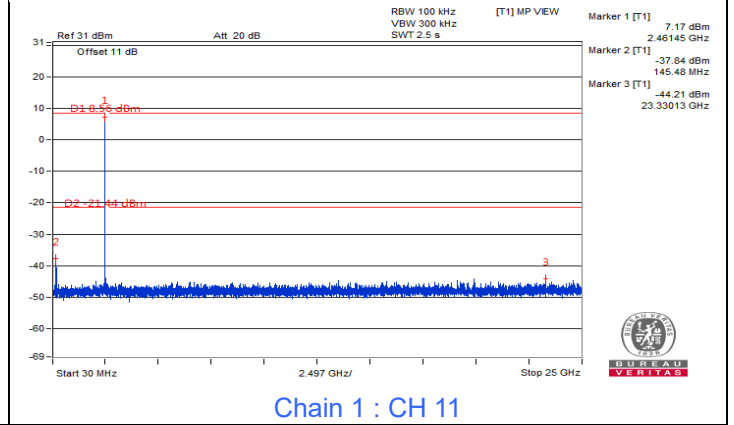
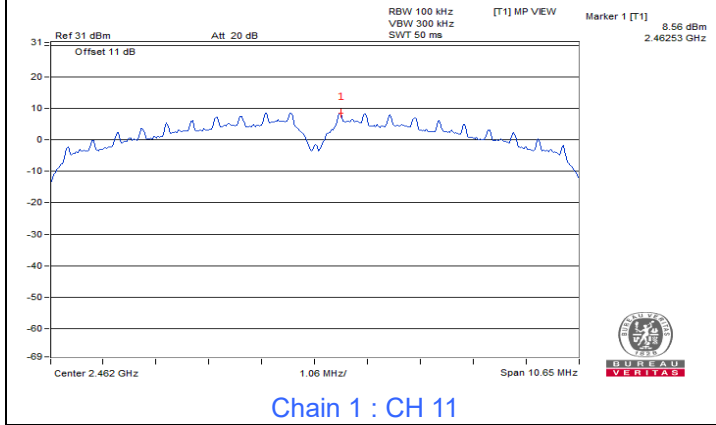
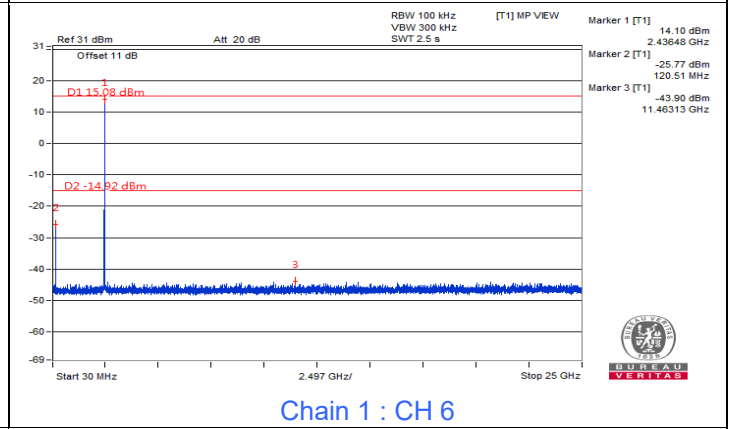
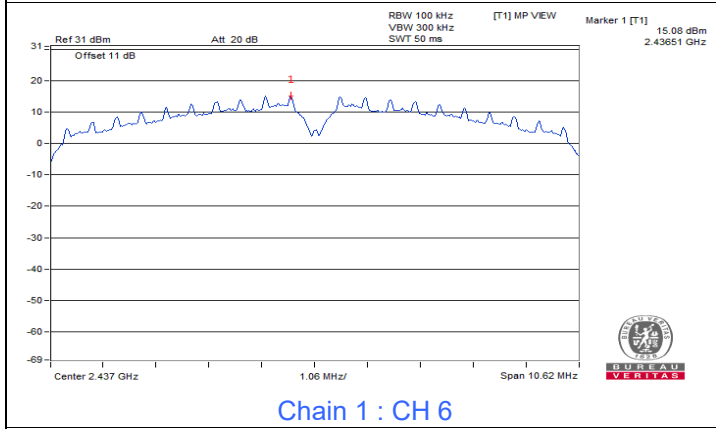
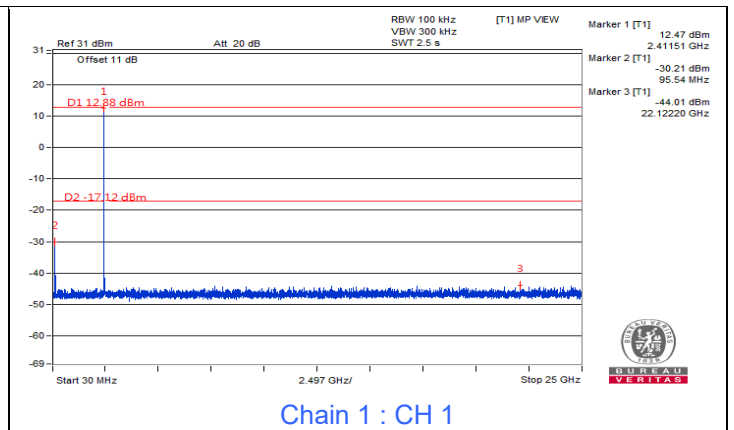
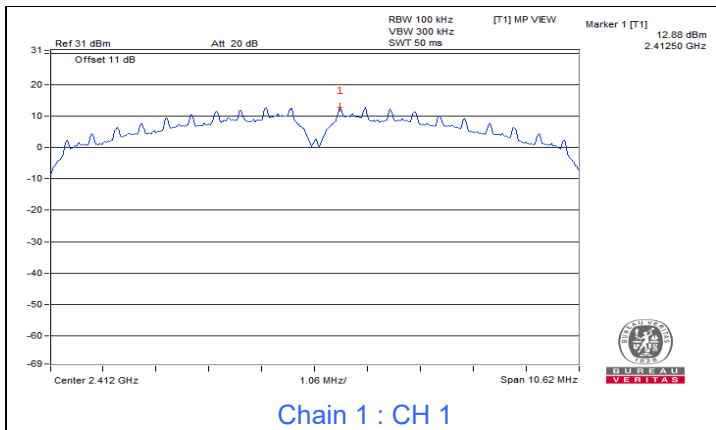
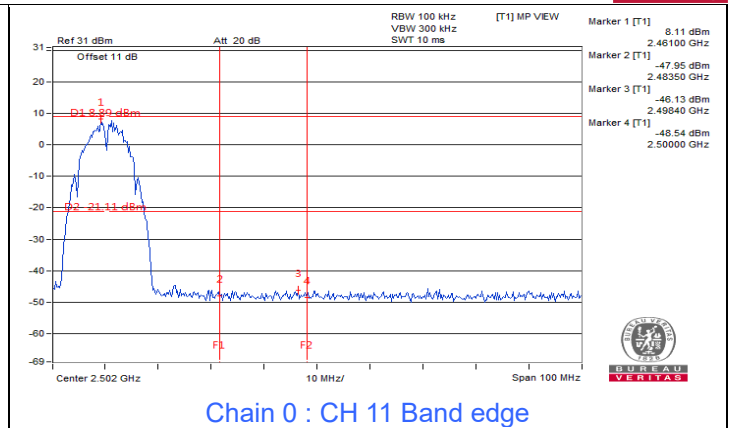
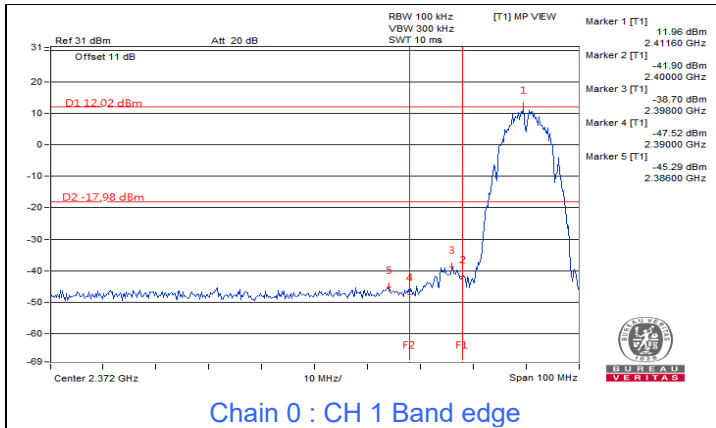
Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Alan Wu
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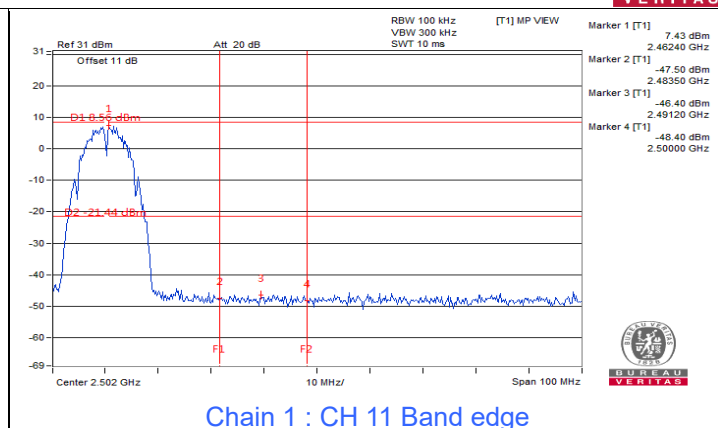
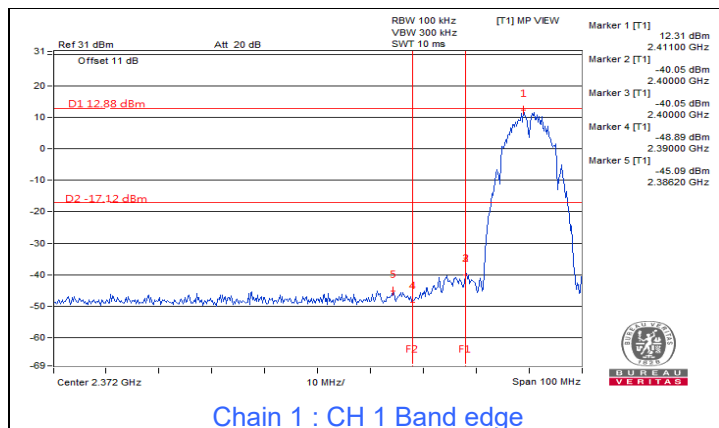
Test Mode C

Radio 3

802.11b

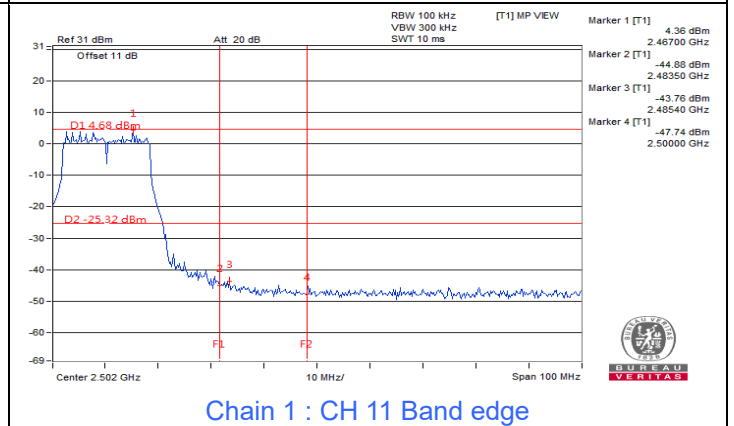
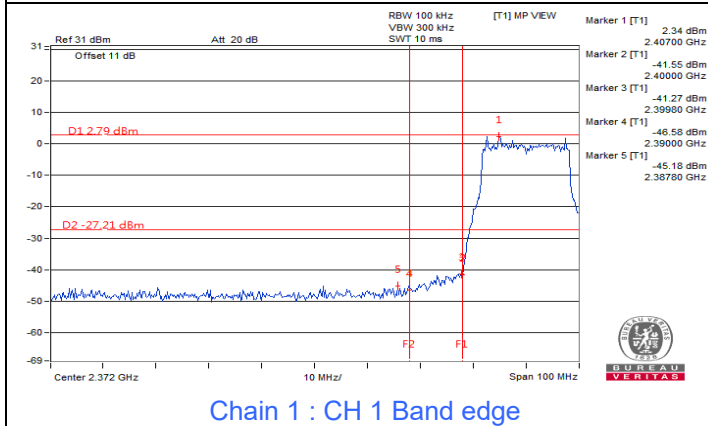
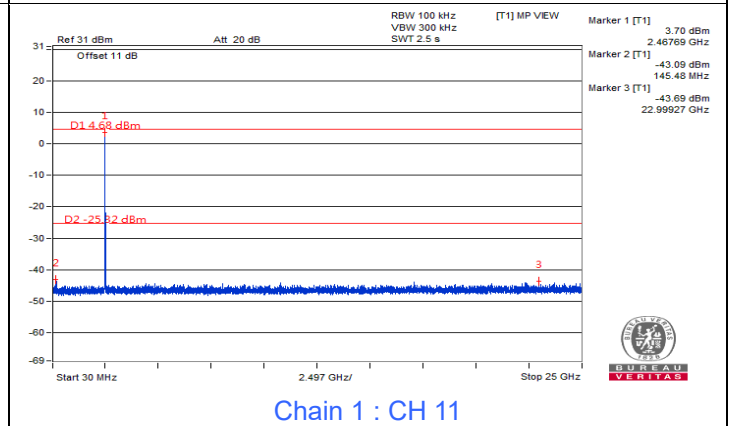
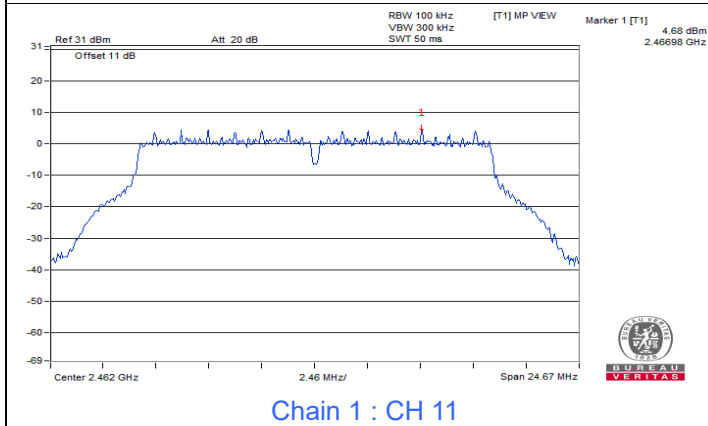
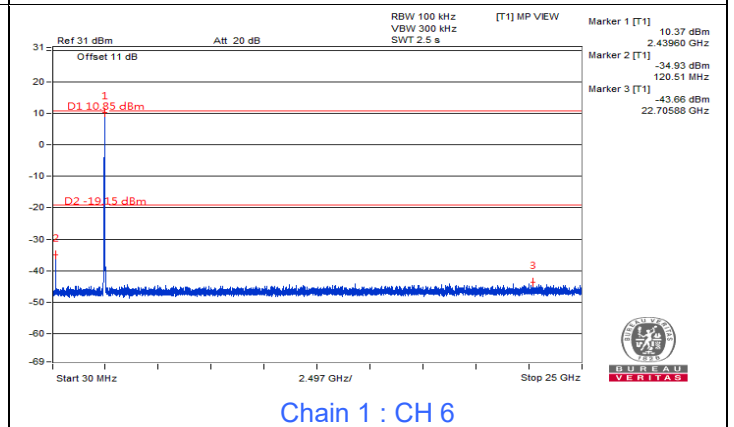
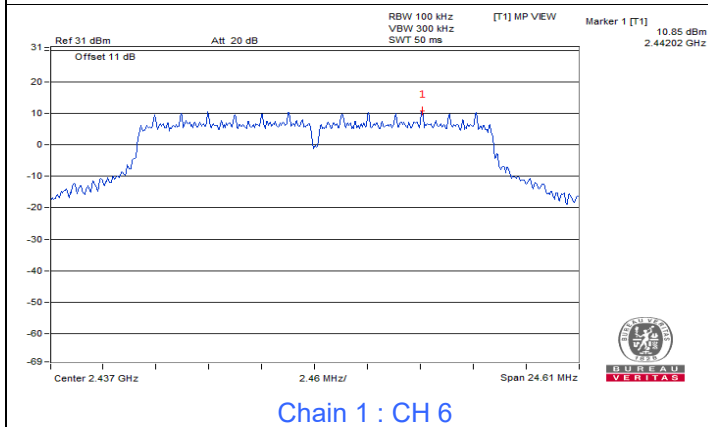
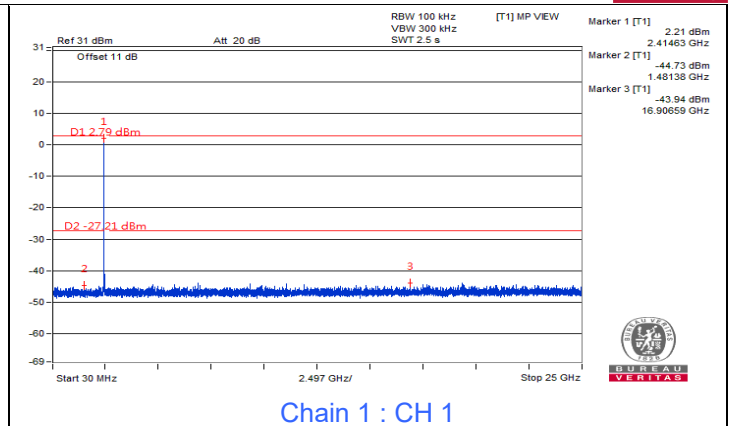
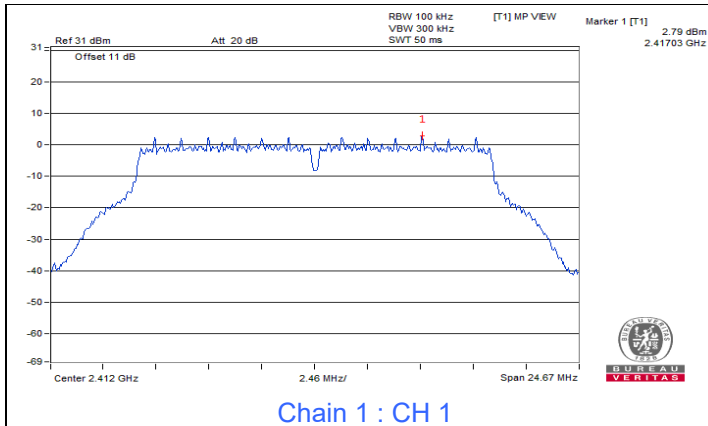






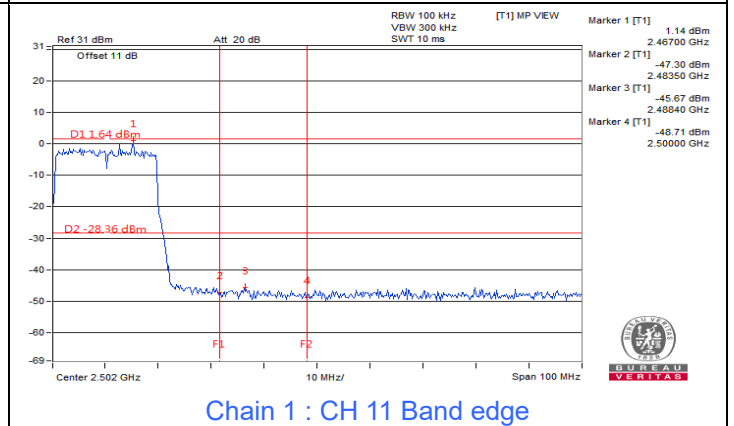
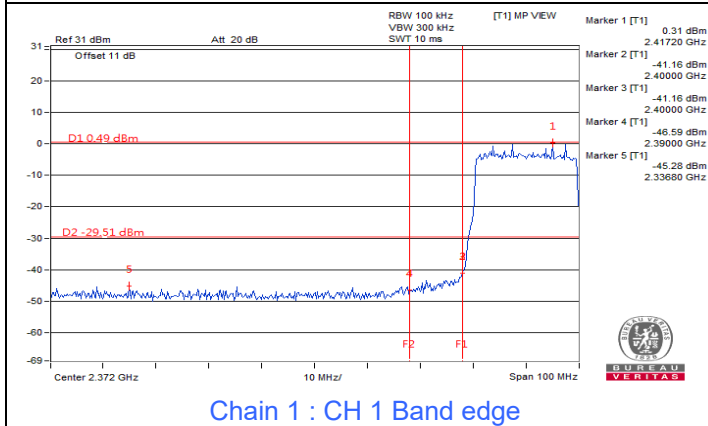
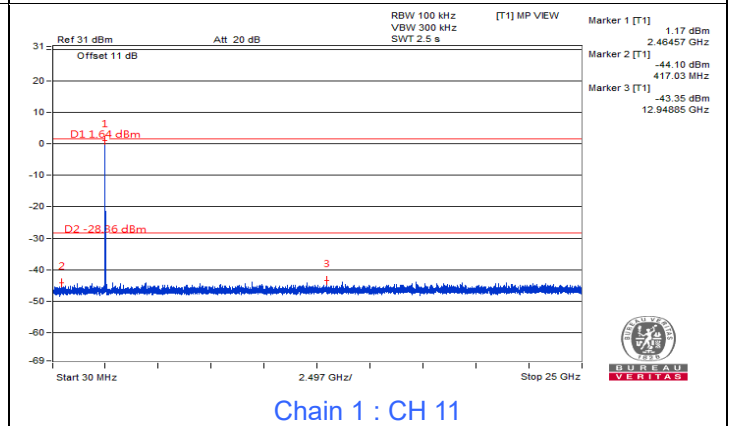
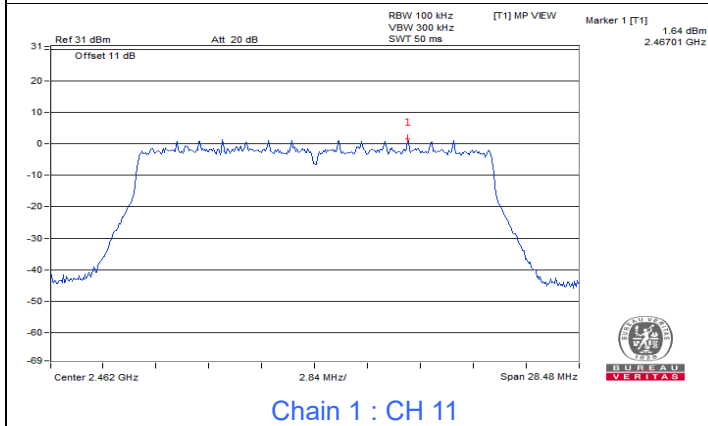
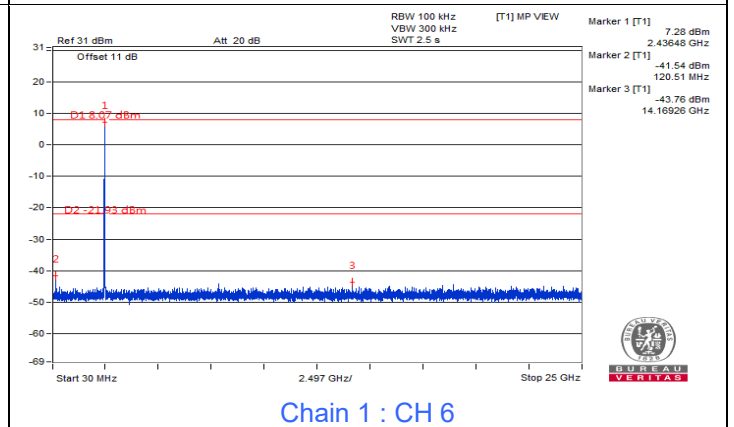
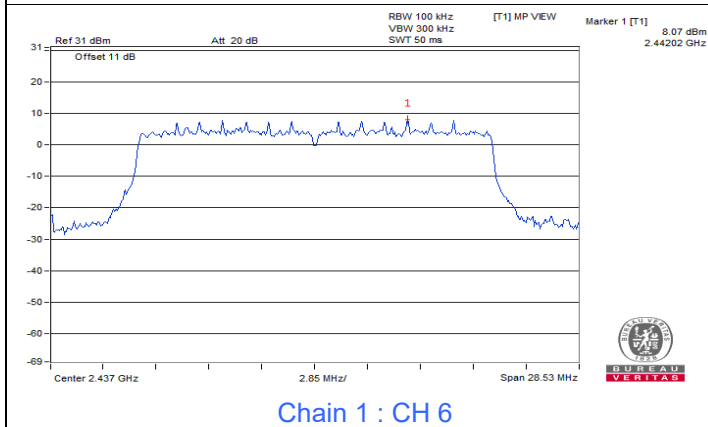
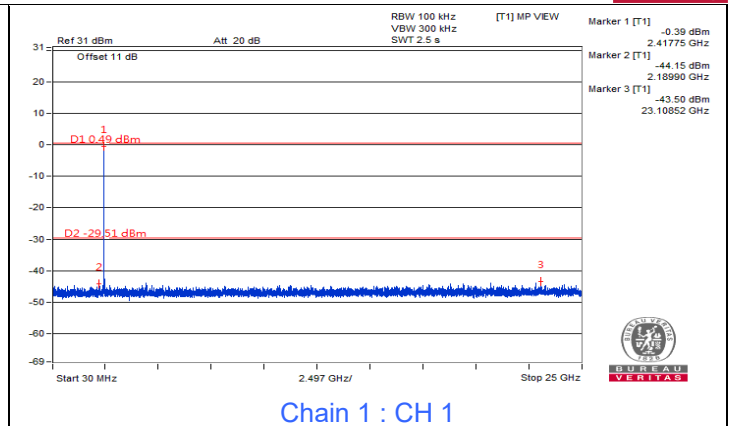
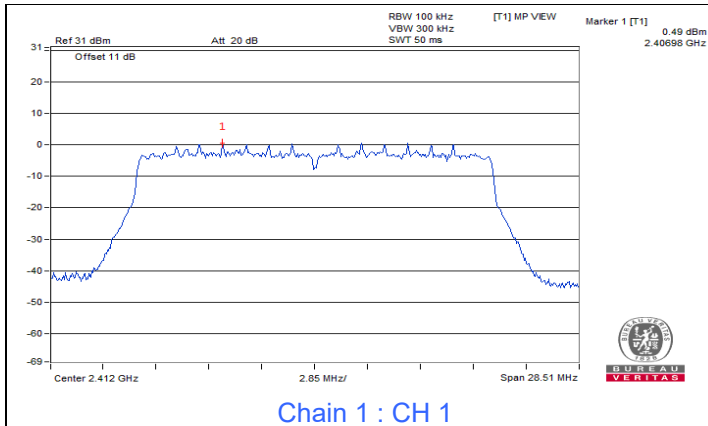
802.11g



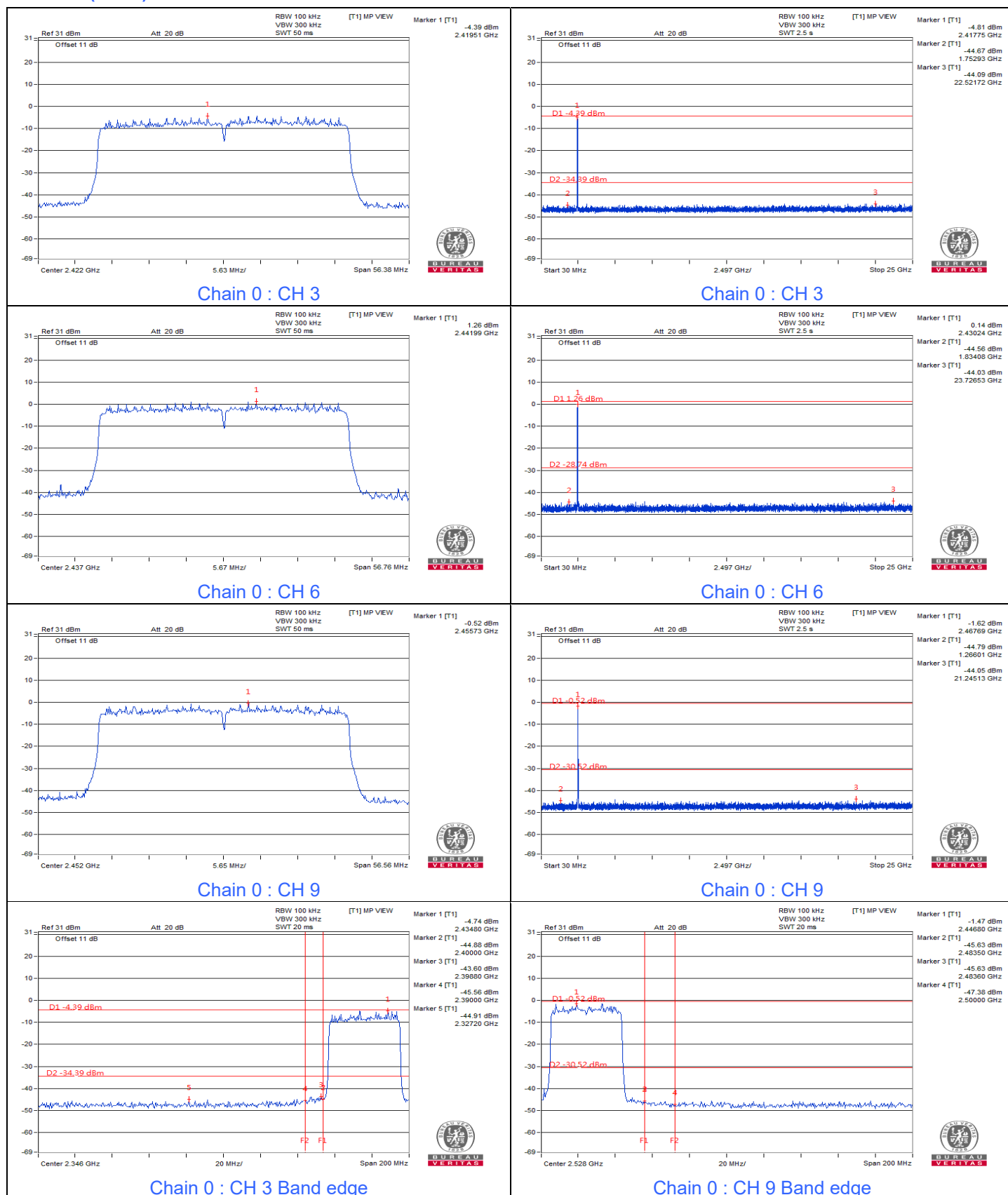


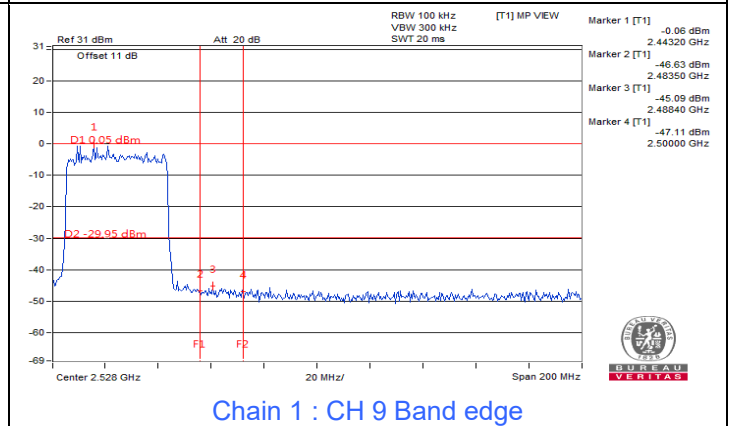
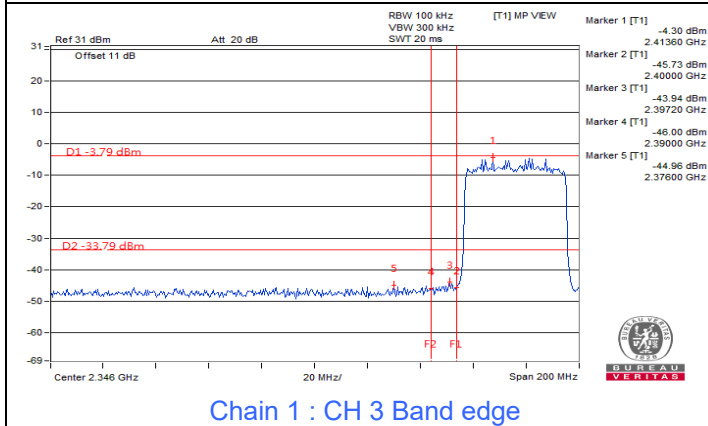
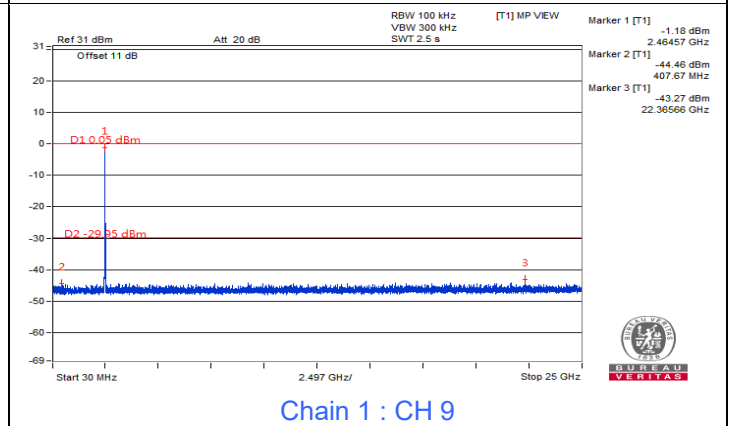
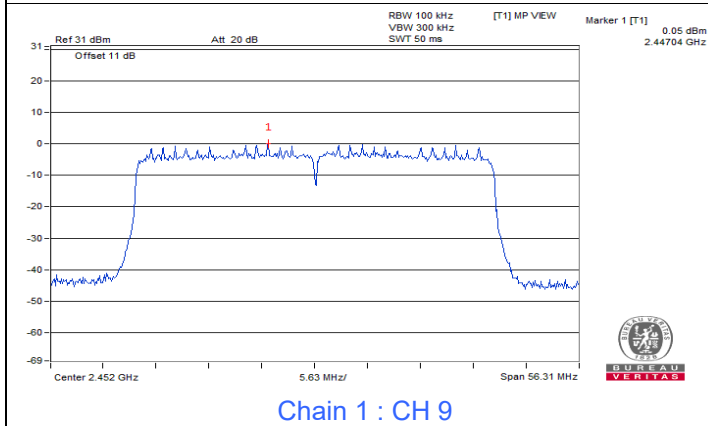
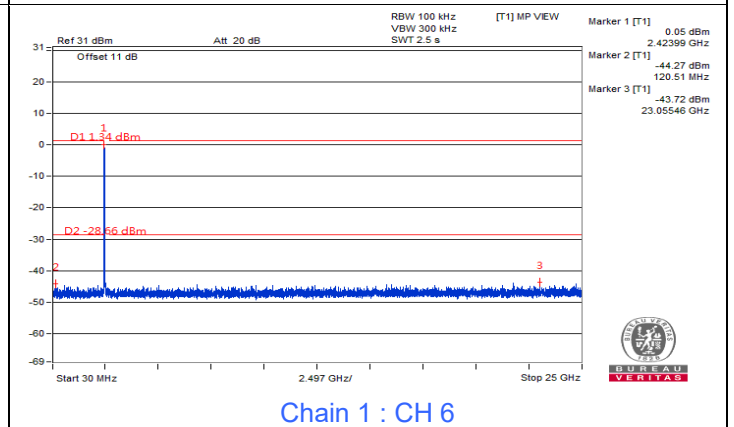
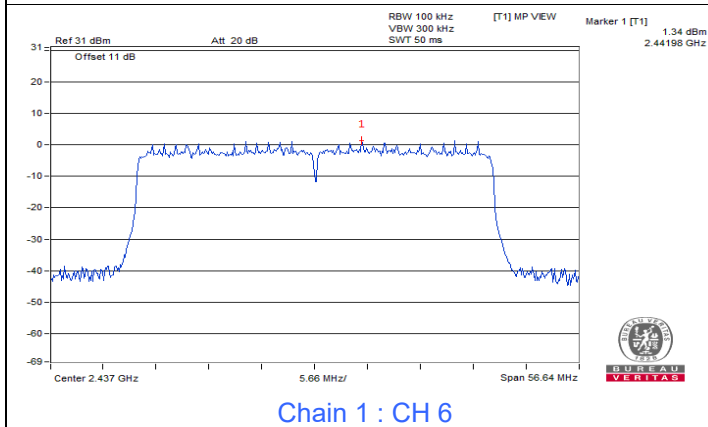
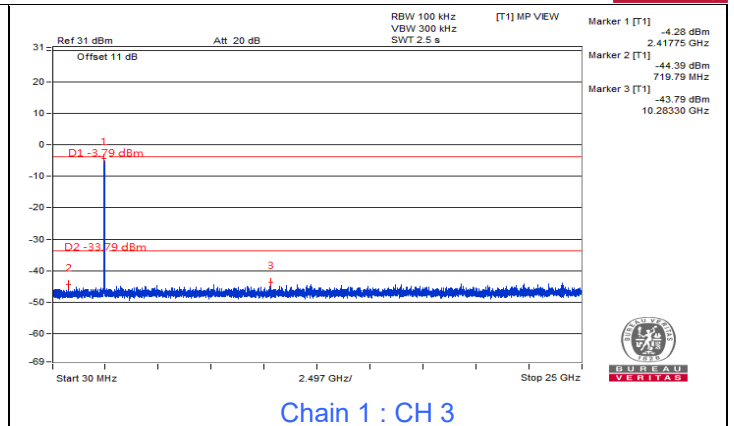
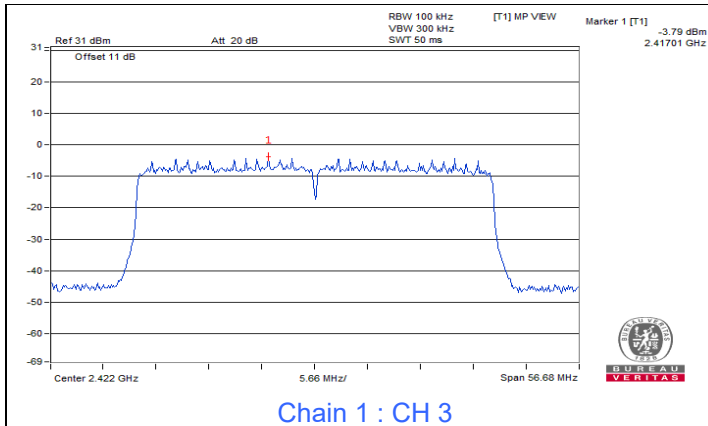
802.11ax (HE20)





802.11ax (HE40)





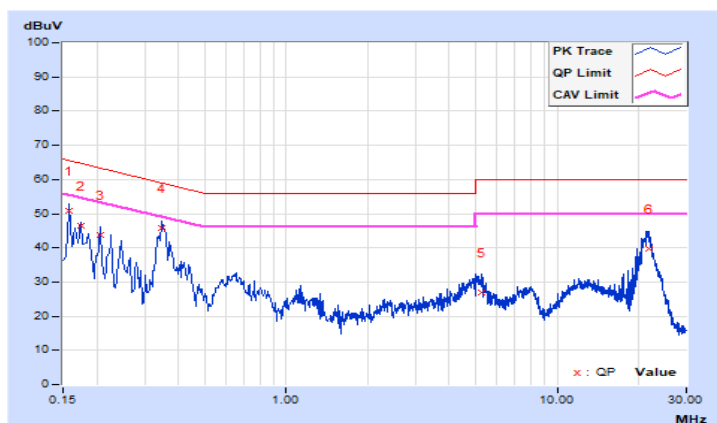
7.5 AC Power Conducted Emissions

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	23°C, 66% RH
Tested By	Titan Hsu	Test Mode	A

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	10.19	40.56	26.50	50.75	36.69	65.57	55.57	-14.82	-18.88
2	0.17400	10.20	36.11	23.46	46.31	33.66	64.77	54.77	-18.46	-21.11
3	0.20600	10.22	33.51	21.61	43.73	31.83	63.37	53.37	-19.64	-21.54
4	0.34600	10.24	35.68	25.63	45.92	35.87	59.06	49.06	-13.14	-13.19
5	5.25400	10.43	16.37	6.63	26.80	17.06	60.00	50.00	-33.20	-32.94
6	21.75400	10.60	29.05	20.91	39.65	31.51	60.00	50.00	-20.35	-18.49

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

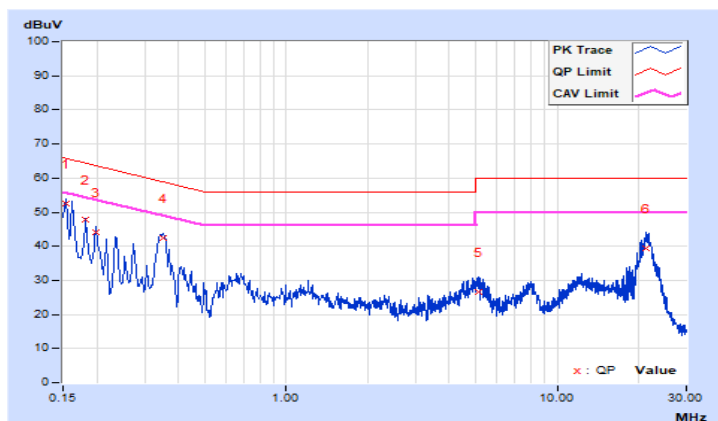


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu	Test Mode	A

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	10.18	42.39	28.47	52.57	38.65	65.78	55.78	-13.21	-17.13
2	0.18200	10.20	37.58	24.19	47.78	34.39	64.39	54.39	-16.61	-20.00
3	0.19800	10.21	33.76	19.55	43.97	29.76	63.69	53.69	-19.72	-23.93
4	0.34944	10.24	32.30	23.41	42.54	33.65	58.98	48.98	-16.44	-15.33
5	5.10200	10.46	16.21	7.02	26.67	17.48	60.00	50.00	-33.33	-32.52
6	21.37000	10.75	28.49	19.45	39.24	30.20	60.00	50.00	-20.76	-19.80

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

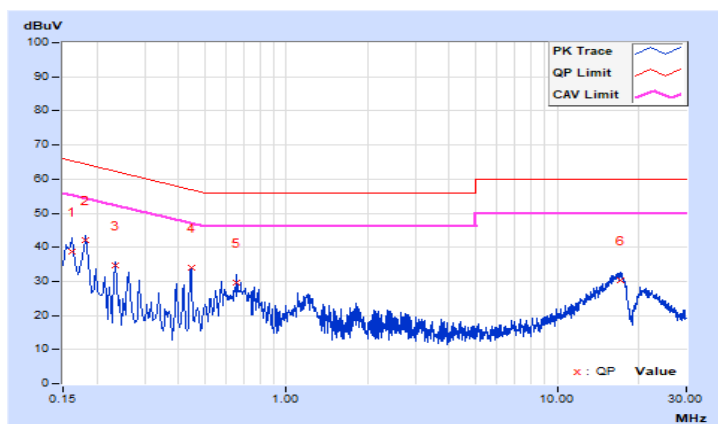


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu	Test Mode	B

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	10.12	28.58	20.62	38.70	30.74	65.37	55.37	-26.67	-24.63
2	0.18200	10.13	32.07	22.13	42.20	32.26	64.39	54.39	-22.19	-22.13
3	0.23400	10.14	24.42	12.32	34.56	22.46	62.31	52.31	-27.75	-29.85
4	0.44529	10.16	23.95	22.43	34.11	32.59	56.96	46.96	-22.85	-14.37
5	0.65800	10.17	19.46	13.06	29.63	23.23	56.00	46.00	-26.37	-22.77
6	17.06200	10.38	19.83	15.39	30.21	25.77	60.00	50.00	-29.79	-24.23

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

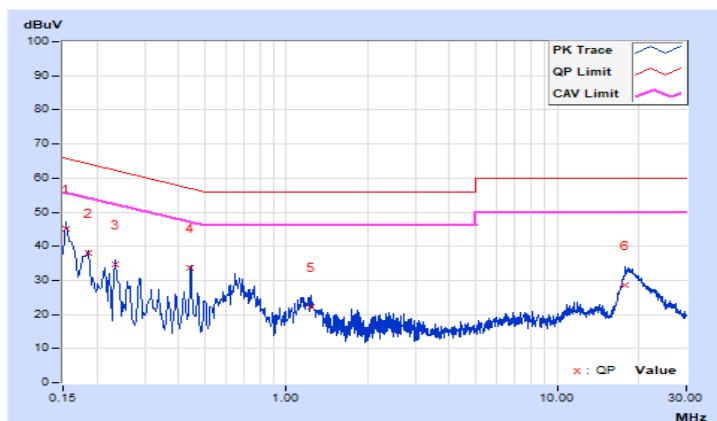


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu	Test Mode	B

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	10.13	34.89	26.77	45.02	36.90	65.78	55.78	-20.76	-18.88
2	0.18600	10.14	27.88	22.42	38.02	32.56	64.21	54.21	-26.19	-21.65
3	0.23400	10.15	24.63	13.24	34.78	23.39	62.31	52.31	-27.53	-28.92
4	0.44411	10.17	23.49	21.39	33.66	31.56	56.98	46.98	-23.32	-15.42
5	1.23000	10.20	12.17	6.85	22.37	17.05	56.00	46.00	-33.63	-28.95
6	17.81400	10.52	18.07	12.75	28.59	23.27	60.00	50.00	-31.41	-26.73

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

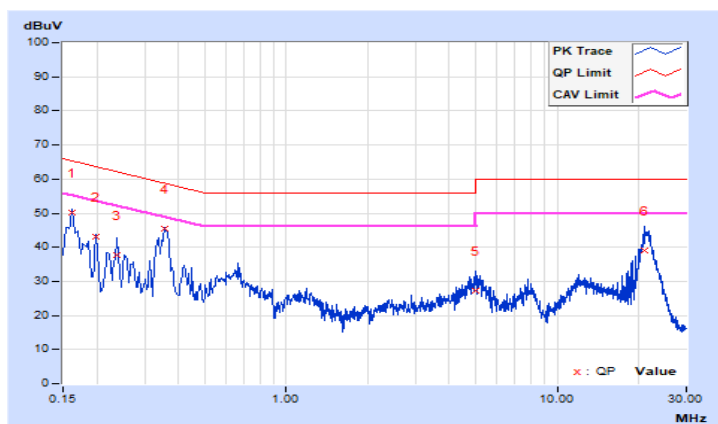


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu	Test Mode	C

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	0.16200	10.20	39.86	25.23	50.06	35.43	65.36	55.36	-15.30	-19.93
2	0.19800	10.22	33.00	19.88	43.22	30.10	63.69	53.69	-20.47	-23.59
3	0.23800	10.23	27.53	14.04	37.76	24.27	62.17	52.17	-24.41	-27.90
4	0.35782	10.24	35.24	28.44	45.48	38.68	58.78	48.78	-13.30	-10.10
5	5.01400	10.43	16.93	7.88	27.36	18.31	60.00	50.00	-32.64	-31.69
6	21.05000	10.61	28.29	18.96	38.90	29.57	60.00	50.00	-21.10	-20.43

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

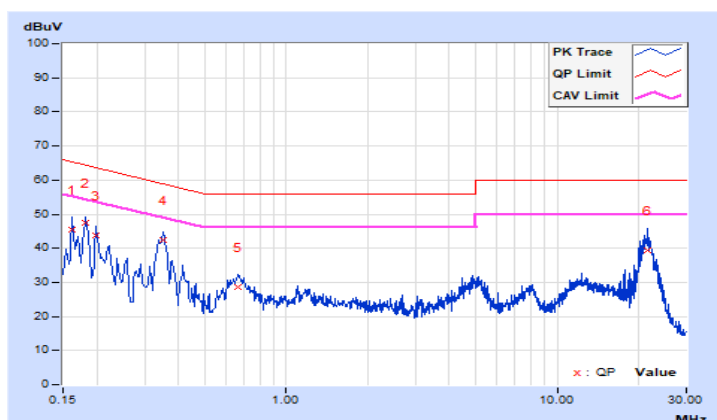


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu	Test Mode	C

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	0.16200	10.19	35.22	26.23	45.41	36.42	65.36	55.36	-19.95	-18.94
2	0.18200	10.20	37.37	24.40	47.57	34.60	64.39	54.39	-16.82	-19.79
3	0.19800	10.21	33.51	19.44	43.72	29.65	63.69	53.69	-19.97	-24.04
4	0.35000	10.24	32.34	23.61	42.58	33.85	58.96	48.96	-16.38	-15.11
5	0.66460	10.27	18.27	13.32	28.54	23.59	56.00	46.00	-27.46	-22.41
6	21.57800	10.75	28.65	19.95	39.40	30.70	60.00	50.00	-20.60	-19.30

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

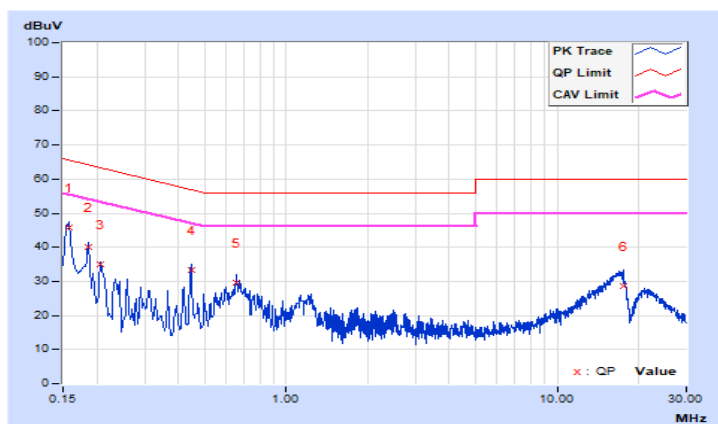


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu	Test Mode	D

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	10.12	35.74	26.77	45.86	36.89	65.57	55.57	-19.71	-18.68
2	0.18600	10.13	29.84	20.26	39.97	30.39	64.21	54.21	-24.24	-23.82
3	0.20600	10.14	24.95	14.95	35.09	25.09	63.37	53.37	-28.28	-28.28
4	0.44600	10.16	23.33	21.79	33.49	31.95	56.95	46.95	-23.46	-15.00
5	0.65800	10.17	19.39	12.92	29.56	23.09	56.00	46.00	-26.44	-22.91
6	17.49800	10.38	18.11	12.74	28.49	23.12	60.00	50.00	-31.51	-26.88

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

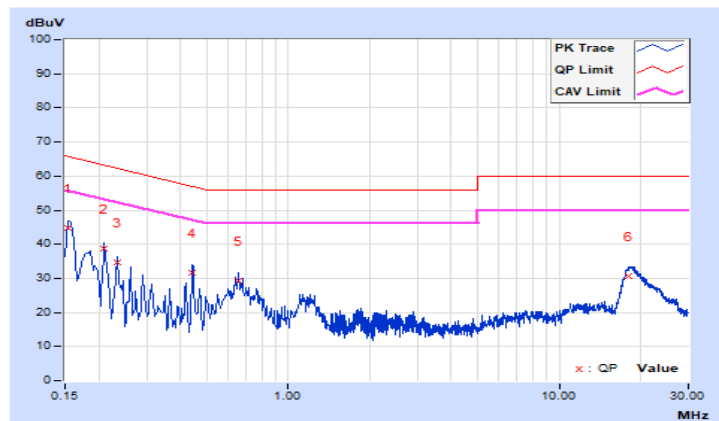


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 66% RH
Tested By	Titan Hsu	Test Mode	D

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	10.13	34.59	26.76	44.72	36.89	65.78	55.78	-21.06	-18.89
2	0.21000	10.15	28.63	18.90	38.78	29.05	63.21	53.21	-24.43	-24.16
3	0.23400	10.15	24.48	13.18	34.63	23.33	62.31	52.31	-27.68	-28.98
4	0.44200	10.17	21.46	19.43	31.63	29.60	57.02	47.02	-25.39	-17.42
5	0.65400	10.18	19.23	10.62	29.41	20.80	56.00	46.00	-26.59	-25.20
6	18.14200	10.52	20.16	15.99	30.68	26.51	60.00	50.00	-29.32	-23.49

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

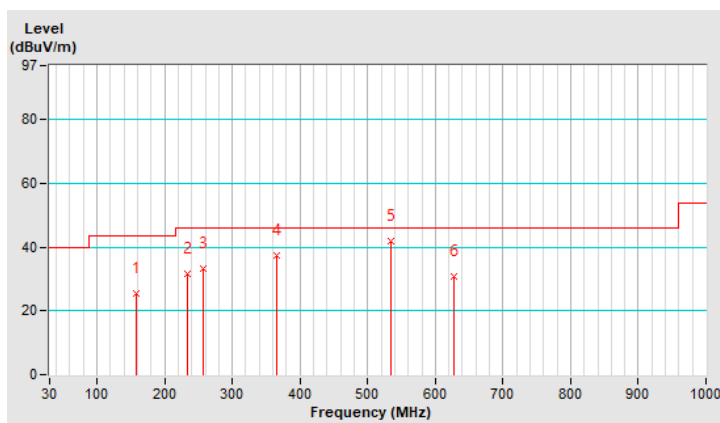
Radio 1

RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee	Test Mode	A

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	158.60	25.3 QP	43.5	-18.2	1.48 H	49	37.8	-12.5
2	233.60	31.8 QP	46.0	-14.2	1.74 H	152	46.6	-14.8
3	257.50	33.4 QP	46.0	-12.6	1.65 H	280	47.1	-13.7
4	365.70	37.6 QP	46.0	-8.4	1.31 H	152	48.1	-10.5
5	534.80	41.8 QP	46.0	-4.2	1.06 H	154	48.7	-6.9
6	626.80	30.8 QP	46.0	-15.2	1.52 H	37	35.8	-5.0

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 emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

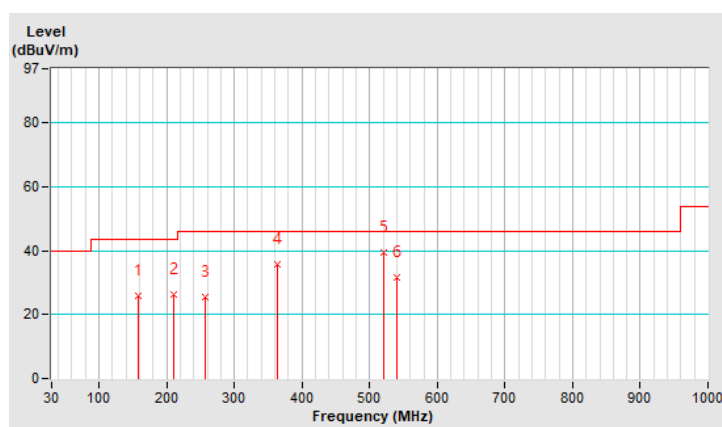


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee	Test Mode	A

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	158.47	25.9 QP	43.5	-17.6	1.29 V	256	38.4	-12.5
2	209.60	26.2 QP	43.5	-17.3	1.58 V	161	42.0	-15.8
3	257.40	25.3 QP	46.0	-20.7	1.09 V	58	39.0	-13.7
4	364.30	35.7 QP	46.0	-10.3	1.49 V	75	46.3	-10.6
5	521.38	39.6 QP	46.0	-6.4	2.63 V	187	46.7	-7.1
6	540.80	31.8 QP	46.0	-14.2	1.23 V	194	38.6	-6.8

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 emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

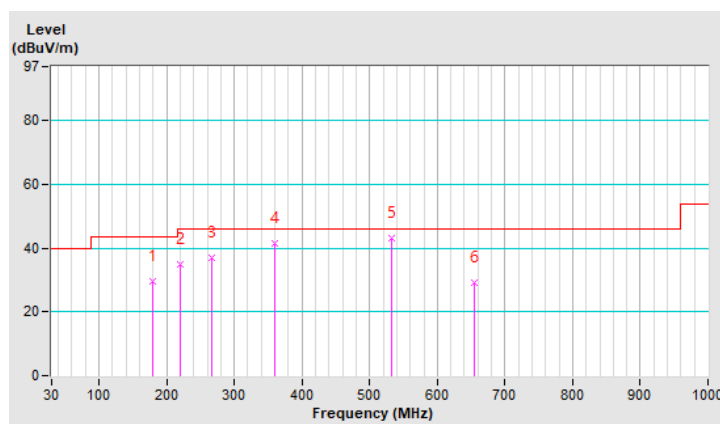


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 60% RH
Tested By	Karl Lee	Test Mode	B

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	180.28	29.7 QP	43.5	-13.8	1.64 H	335	43.9	-14.2
2	220.90	35.0 QP	46.0	-11.0	1.45 H	154	50.7	-15.7
3	265.73	36.8 QP	46.0	-9.2	1.80 H	272	50.1	-13.3
4	359.90	41.4 QP	46.0	-4.6	1.17 H	207	52.2	-10.8
5	533.30	43.2 QP	46.0	-2.8	1.83 H	321	50.1	-6.9
6	655.50	29.2 QP	46.0	-16.8	1.48 H	189	34.0	-4.8

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 emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

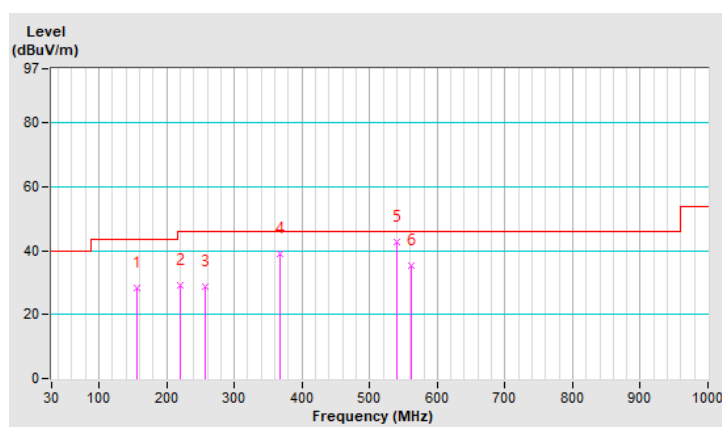


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 60% RH
Tested By	Karl Lee	Test Mode	B

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	156.60	28.4 QP	43.5	-15.1	1.14 V	129	40.9	-12.5
2	220.14	29.3 QP	46.0	-16.7	1.35 V	157	45.0	-15.7
3	257.40	28.9 QP	46.0	-17.1	1.63 V	190	42.6	-13.7
4	367.40	39.2 QP	46.0	-6.8	1.35 V	223	49.7	-10.5
5	540.25	42.7 QP	46.0	-3.3	1.49 V	9	49.5	-6.8
6	560.82	35.2 QP	46.0	-10.8	1.74 V	3	41.8	-6.6

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 emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



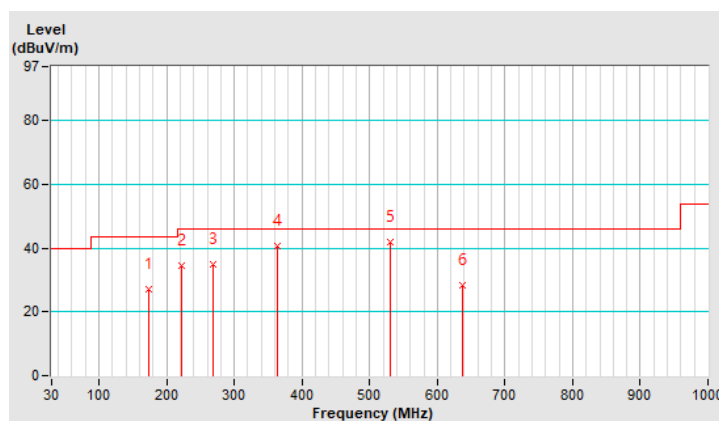
Radio 3

RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao	Test Mode	C

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	172.70	27.0 QP	43.5	-16.5	1.24 H	83	8.7	18.3
2	221.80	34.7 QP	46.0	-11.3	1.51 H	203	50.5	-15.8
3	267.96	34.9 QP	46.0	-11.1	1.54 H	172	48.1	-13.2
4	363.50	40.5 QP	46.0	-5.5	1.32 H	238	51.1	-10.6
5	529.74	41.9 QP	46.0	-4.1	2.04 H	119	49.0	-7.1
6	636.27	28.4 QP	46.0	-17.6	1.63 H	217	33.3	-4.9

Remarks:

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

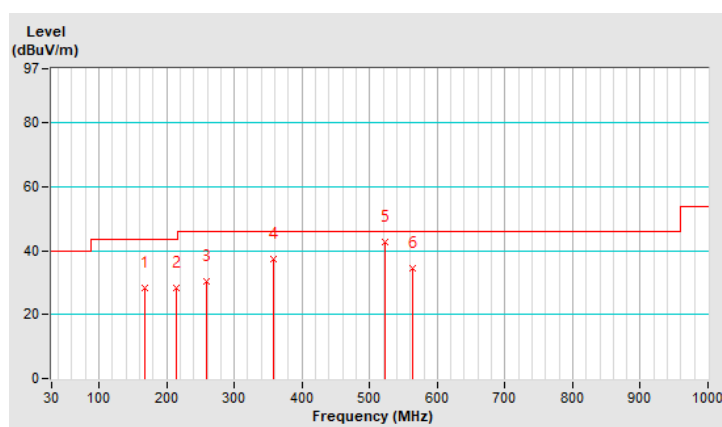


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao	Test Mode	C

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	167.90	28.5 QP	43.5	-15.0	1.98 V	20	41.3	-12.8
2	213.75	28.3 QP	43.5	-15.2	2.06 V	174	44.1	-15.8
3	259.30	30.4 QP	46.0	-15.6	1.96 V	155	44.0	-13.6
4	357.21	37.3 QP	46.0	-8.7	2.39 V	163	48.1	-10.8
5	522.70	42.6 QP	46.0	-3.4	2.69 V	201	49.7	-7.1
6	563.80	34.7 QP	46.0	-11.3	1.42 V	49	41.2	-6.5

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 emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

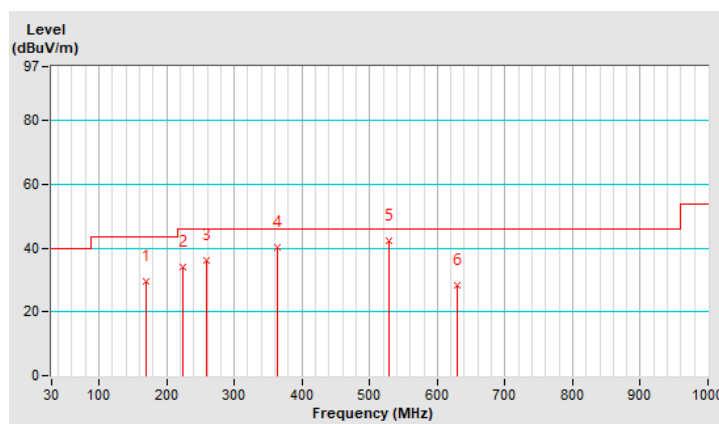


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao	Test Mode	D

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	169.40	29.7 QP	43.5	-13.8	1.12 H	194	42.7	-13.0
2	224.61	34.2 QP	46.0	-11.8	1.98 H	237	50.0	-15.8
3	259.80	36.3 QP	46.0	-9.7	1.05 H	127	49.9	-13.6
4	363.80	40.2 QP	46.0	-5.8	1.39 H	275	50.8	-10.6
5	529.40	42.3 QP	46.0	-3.7	2.05 H	161	49.4	-7.1
6	629.74	28.5 QP	46.0	-17.5	2.61 H	154	33.4	-4.9

Remarks:

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

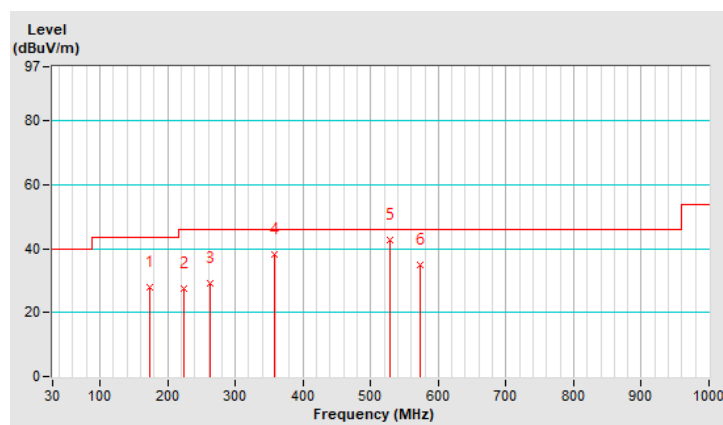


RF Mode	802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao	Test Mode	D

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	172.93	27.8 QP	43.5	-15.7	1.34 V	185	41.1	-13.3
2	224.37	27.6 QP	46.0	-18.4	3.09 V	154	43.4	-15.8
3	263.27	29.1 QP	46.0	-16.9	1.35 V	267	42.6	-13.5
4	358.70	38.4 QP	46.0	-7.6	1.82 V	203	49.2	-10.8
5	527.64	42.6 QP	46.0	-3.4	1.38 V	207	49.7	-7.1
6	572.40	34.8 QP	46.0	-11.2	1.06 V	197	41.0	-6.2

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 of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



7.7 Unwanted Emissions above 1 GHz

Test Mode A

Radio 1

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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	61.0 PK	74.0	-13.0	1.94 H	261	54.4	6.6
2	2390.00	49.9 AV	54.0	-4.1	1.94 H	261	43.3	6.6
3	*2412.00	111.5 PK			1.90 H	234	73.4	38.1
4	*2412.00	108.5 AV			1.90 H	234	70.4	38.1
5	4824.00	50.1 PK	74.0	-23.9	2.51 H	134	38.5	11.6
6	4824.00	42.8 AV	54.0	-11.2	2.51 H	134	31.2	11.6
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	63.0 PK	74.0	-11.0	2.36 V	222	56.4	6.6
2	2390.00	52.6 AV	54.0	-1.4	2.36 V	222	46.0	6.6
3	*2412.00	114.9 PK			2.54 V	221	76.8	38.1
4	*2412.00	111.8 AV			2.54 V	221	73.7	38.1
5	4824.00	50.7 PK	74.0	-23.3	2.36 V	104	39.1	11.6
6	4824.00	43.3 AV	54.0	-10.7	2.36 V	104	31.7	11.6

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.3 PK	74.0	-13.7	1.69 H	231	53.7	6.6
2	2390.00	50.3 AV	54.0	-3.7	1.69 H	231	43.7	6.6
3	*2437.00	107.9 PK			1.90 H	231	69.9	38.0
4	*2437.00	105.0 AV			1.90 H	231	67.0	38.0
5	2483.50	59.4 PK	74.0	-14.6	2.06 H	226	52.8	6.6
6	2483.50	48.6 AV	54.0	-5.4	2.06 H	226	42.0	6.6
7	4874.00	50.7 PK	74.0	-23.3	1.05 H	274	39.2	11.5
8	4874.00	43.3 AV	54.0	-10.7	1.05 H	274	31.8	11.5
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	61.1 PK	74.0	-12.9	2.75 V	224	54.5	6.6
2	2390.00	52.3 AV	54.0	-1.7	2.75 V	224	45.7	6.6
3	*2437.00	111.0 PK			2.78 V	240	73.0	38.0
4	*2437.00	108.1 AV			2.78 V	240	70.1	38.0
5	2483.50	61.3 PK	74.0	-12.7	2.68 V	216	54.7	6.6
6	2483.50	52.7 AV	54.0	-1.3	2.68 V	216	46.1	6.6
7	4874.00	49.9 PK	74.0	-24.1	1.09 V	227	38.4	11.5
8	4874.00	42.6 AV	54.0	-11.4	1.09 V	227	31.1	11.5

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	115.1 PK			2.54 H	8	77.2	37.9
2	*2462.00	113.5 AV			2.54 H	8	75.6	37.9
3	2483.50	61.6 PK	74.0	-12.4	2.00 H	21	55.0	6.6
4	2483.50	53.9 AV	54.0	-0.1	2.00 H	21	47.3	6.6
5	4924.00	50.0 PK	74.0	-24.0	1.31 H	49	38.3	11.7
6	4924.00	42.5 AV	54.0	-11.5	1.31 H	49	30.8	11.7
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	112.9 PK			2.17 V	6	75.0	37.9
2	*2462.00	111.4 AV			2.17 V	6	73.5	37.9
3	2483.50	59.8 PK	74.0	-14.2	1.92 V	17	53.2	6.6
4	2483.50	51.5 AV	54.0	-2.5	1.92 V	17	44.9	6.6
5	4924.00	49.1 PK	74.0	-24.9	1.28 V	187	37.4	11.7
6	4924.00	41.5 AV	54.0	-12.5	1.28 V	187	29.8	11.7

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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.9 PK	74.0	-14.1	1.75 H	211	53.3	6.6
2	2390.00	49.3 AV	54.0	-4.7	1.75 H	211	42.7	6.6
3	*2412.00	107.4 PK			1.90 H	234	69.3	38.1
4	*2412.00	99.3 AV			1.90 H	234	61.2	38.1
5	4824.00	49.5 PK	74.0	-24.5	2.65 H	121	37.9	11.6
6	4824.00	41.7 AV	54.0	-12.3	2.65 H	121	30.1	11.6
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	64.8 PK	74.0	-9.2	2.39 V	223	58.2	6.6
2	2390.00	52.3 AV	54.0	-1.7	2.39 V	223	45.7	6.6
3	*2412.00	110.9 PK			2.54 V	221	72.8	38.1
4	*2412.00	102.3 AV			2.54 V	221	64.2	38.1
5	4824.00	49.7 PK	74.0	-24.3	1.53 V	79	38.1	11.6
6	4824.00	41.9 AV	54.0	-12.1	1.53 V	79	30.3	11.6

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	63.9 PK	74.0	-10.1	1.82 H	204	57.3	6.6
2	2390.00	50.0 AV	54.0	-4.0	1.82 H	204	43.4	6.6
3	*2437.00	109.0 PK			1.90 H	231	71.0	38.0
4	*2437.00	101.2 AV			1.90 H	231	63.2	38.0
5	2483.50	63.3 PK	74.0	-10.7	1.76 H	232	56.7	6.6
6	2483.50	49.7 AV	54.0	-4.3	1.76 H	232	43.1	6.6
7	4874.00	49.6 PK	74.0	-24.4	2.36 H	171	38.1	11.5
8	4874.00	41.9 AV	54.0	-12.1	2.36 H	171	30.4	11.5
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	68.7 PK	74.0	-5.3	2.65 V	224	62.1	6.6
2	2390.00	53.0 AV	54.0	-1.0	2.65 V	224	46.4	6.6
3	*2437.00	114.6 PK			2.78 V	240	76.6	38.0
4	*2437.00	106.4 AV			2.78 V	240	68.4	38.0
5	2483.50	68.2 PK	74.0	-5.8	2.58 V	224	61.6	6.6
6	2483.50	52.6 AV	54.0	-1.4	2.58 V	224	46.0	6.6
7	4874.00	49.0 PK	74.0	-25.0	1.23 V	265	37.5	11.5
8	4874.00	41.6 AV	54.0	-12.4	1.23 V	265	30.1	11.5

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	108.4 PK			2.06 H	233	70.5	37.9
2	*2462.00	99.8 AV			2.06 H	233	61.9	37.9
3	2483.50	63.8 PK	74.0	-10.2	1.98 H	226	57.2	6.6
4	2483.50	49.2 AV	54.0	-4.8	1.98 H	226	42.6	6.6
5	4924.00	49.4 PK	74.0	-24.6	2.59 H	107	37.7	11.7
6	4924.00	41.6 AV	54.0	-12.4	2.59 H	107	29.9	11.7
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	112.2 PK			2.54 V	268	74.3	37.9
2	*2462.00	103.6 AV			2.54 V	268	65.7	37.9
3	2483.50	68.1 PK	74.0	-5.9	2.47 V	253	61.5	6.6
4	2483.50	52.8 AV	54.0	-1.2	2.47 V	253	46.2	6.6
5	4924.00	49.2 PK	74.0	-24.8	1.82 V	63	37.5	11.7
6	4924.00	39.5 AV	54.0	-14.5	1.82 V	63	27.8	11.7

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 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.9 PK	74.0	-14.1	1.02 H	237	53.3	6.6
2	2390.00	49.1 AV	54.0	-4.9	1.02 H	237	42.5	6.6
3	*2412.00	102.5 PK			1.02 H	237	64.4	38.1
4	*2412.00	93.7 AV			1.02 H	237	55.6	38.1
5	4824.00	48.8 PK	74.0	-25.2	1.68 H	88	37.2	11.6
6	4824.00	40.3 AV	54.0	-13.7	1.68 H	88	28.7	11.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	66.3 PK	74.0	-7.7	2.55 V	268	59.7	6.6
2	2390.00	52.6 AV	54.0	-1.4	2.55 V	268	46.0	6.6
3	*2412.00	106.1 PK			2.54 V	265	68.0	38.1
4	*2412.00	97.8 AV			2.54 V	265	59.7	38.1
5	4824.00	49.2 PK	74.0	-24.8	1.08 V	117	37.6	11.6
6	4824.00	40.2 AV	54.0	-13.8	1.08 V	117	28.6	11.6

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	62.6 PK	74.0	-11.4	1.94 H	231	56.0	6.6
2	2390.00	50.7 AV	54.0	-3.3	1.94 H	231	44.1	6.6
3	*2437.00	112.5 PK			1.94 H	231	74.5	38.0
4	*2437.00	101.8 AV			1.94 H	231	63.8	38.0
5	2483.50	61.4 PK	74.0	-12.6	1.94 H	231	54.8	6.6
6	2483.50	49.4 AV	54.0	-4.6	1.94 H	231	42.8	6.6
7	4874.00	50.1 PK	74.0	-23.9	2.29 H	305	38.6	11.5
8	4874.00	42.5 AV	54.0	-11.5	2.29 H	305	31.0	11.5
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	64.9 PK	74.0	-9.1	2.78 V	247	58.3	6.6
2	2390.00	52.6 AV	54.0	-1.4	2.78 V	247	46.0	6.6
3	*2437.00	116.0 PK			2.78 V	247	78.0	38.0
4	*2437.00	105.8 AV			2.78 V	247	67.8	38.0
5	2483.50	65.1 PK	74.0	-8.9	2.68 V	245	58.5	6.6
6	2483.50	51.7 AV	54.0	-2.3	2.68 V	245	45.1	6.6
7	4874.00	50.0 PK	74.0	-24.0	1.12 V	284	38.5	11.5
8	4874.00	42.6 AV	54.0	-11.4	1.12 V	284	31.1	11.5

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	103.6 PK			2.10 H	233	65.7	37.9
2	*2462.00	94.7 AV			2.10 H	233	56.8	37.9
3	2483.50	60.3 PK	74.0	-13.7	2.10 H	233	53.7	6.6
4	2483.50	49.4 AV	54.0	-4.6	2.10 H	233	42.8	6.6
5	4924.00	48.7 PK	74.0	-25.3	1.63 H	117	37.0	11.7
6	4924.00	40.1 AV	54.0	-13.9	1.63 H	117	28.4	11.7
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	107.0 PK			2.30 V	241	69.1	37.9
2	*2462.00	98.5 AV			2.30 V	241	60.6	37.9
3	2483.50	68.6 PK	74.0	-5.4	2.35 V	201	62.0	6.6
4	2483.50	52.8 AV	54.0	-1.2	2.35 V	201	46.2	6.6
5	4924.00	49.3 PK	74.0	-24.7	1.74 V	159	37.6	11.7
6	4924.00	40.4 AV	54.0	-13.6	1.74 V	159	28.7	11.7

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 3 : 2422 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	63.0 PK	74.0	-11.0	1.50 H	237	56.4	6.6
2	2390.00	51.0 AV	54.0	-3.0	1.50 H	237	44.4	6.6
3	*2422.00	103.0 PK			1.50 H	237	65.0	38.0
4	*2422.00	93.3 AV			1.50 H	237	55.3	38.0
5	2483.50	60.2 PK	74.0	-13.8	1.42 H	221	53.6	6.6
6	2483.50	49.2 AV	54.0	-4.8	1.42 H	221	42.6	6.6
7	4844.00	48.8 PK	74.0	-25.2	1.95 H	64	37.3	11.5
8	4844.00	41.3 AV	54.0	-12.7	1.95 H	64	29.8	11.5
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	65.2 PK	74.0	-8.8	2.74 V	236	58.6	6.6
2	2390.00	52.9 AV	54.0	-1.1	2.74 V	236	46.3	6.6
3	*2422.00	108.3 PK			2.89 V	267	70.3	38.0
4	*2422.00	97.9 AV			2.89 V	267	59.9	38.0
5	2483.50	60.2 PK	74.0	-13.8	2.94 V	255	53.6	6.6
6	2483.50	49.4 AV	54.0	-4.6	2.94 V	255	42.8	6.6
7	4844.00	49.7 PK	74.0	-24.3	1.59 V	133	38.2	11.5
8	4844.00	42.3 AV	54.0	-11.7	1.59 V	133	30.8	11.5

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	63.2 PK	74.0	-10.8	1.42 H	242	56.6	6.6
2	2390.00	51.2 AV	54.0	-2.8	1.42 H	242	44.6	6.6
3	*2437.00	107.1 PK			1.50 H	237	69.1	38.0
4	*2437.00	96.7 AV			1.50 H	237	58.7	38.0
5	2483.50	59.9 PK	74.0	-14.1	1.62 H	211	53.3	6.6
6	2483.50	49.5 AV	54.0	-4.5	1.62 H	211	42.9	6.6
7	4874.00	49.6 PK	74.0	-24.4	2.12 H	174	38.1	11.5
8	4874.00	42.2 AV	54.0	-11.8	2.12 H	174	30.7	11.5
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	67.3 PK	74.0	-6.7	2.94 V	283	60.7	6.6
2	2390.00	52.7 AV	54.0	-1.3	2.94 V	283	46.1	6.6
3	*2437.00	111.3 PK			3.08 V	267	73.3	38.0
4	*2437.00	101.5 AV			3.08 V	267	63.5	38.0
5	2483.50	63.8 PK	74.0	-10.2	2.85 V	272	57.2	6.6
6	2483.50	50.6 AV	54.0	-3.4	2.85 V	272	44.0	6.6
7	4874.00	49.3 PK	74.0	-24.7	1.89 V	274	37.8	11.5
8	4874.00	41.8 AV	54.0	-12.2	1.89 V	274	30.3	11.5

Remarks:

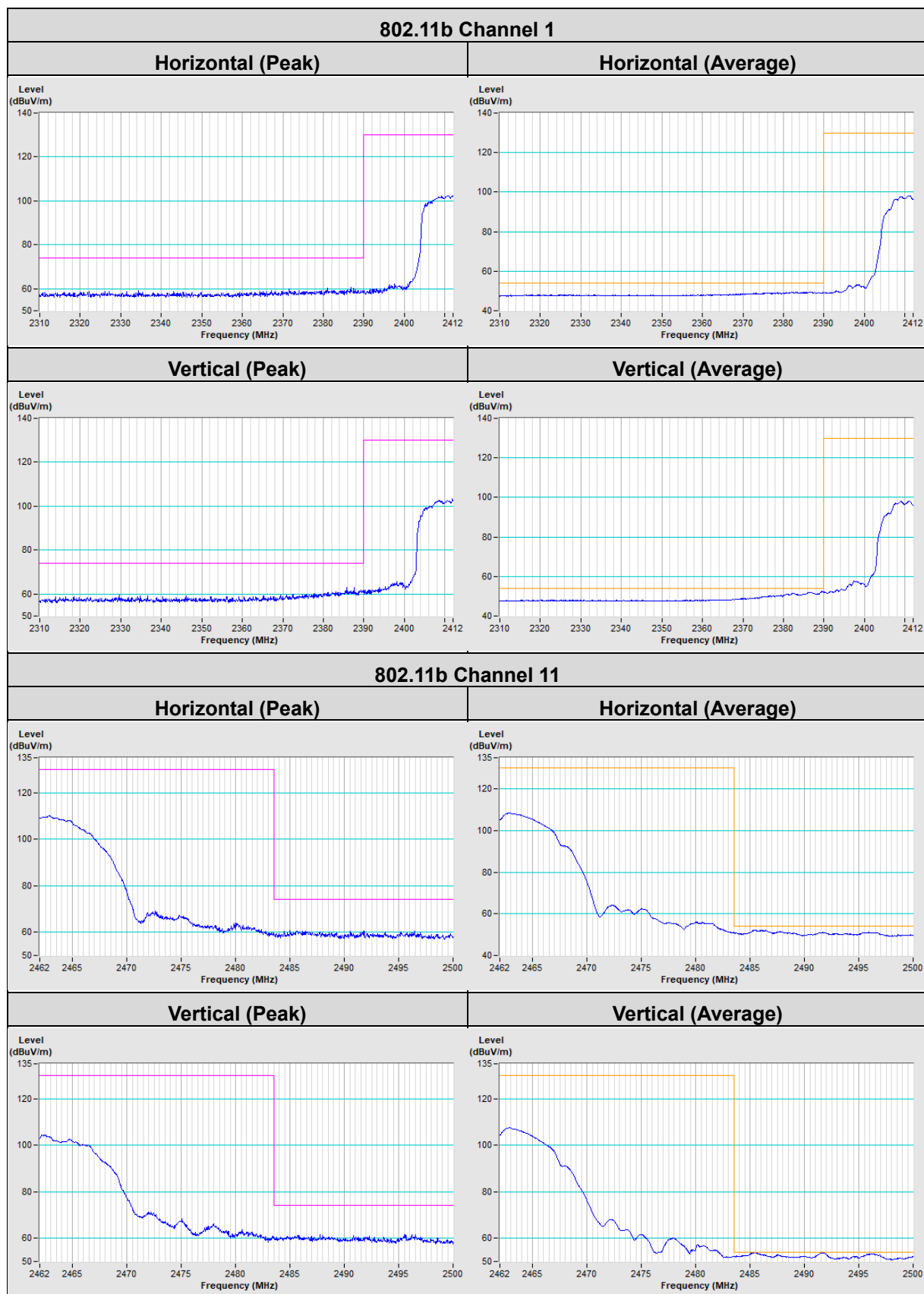
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency,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

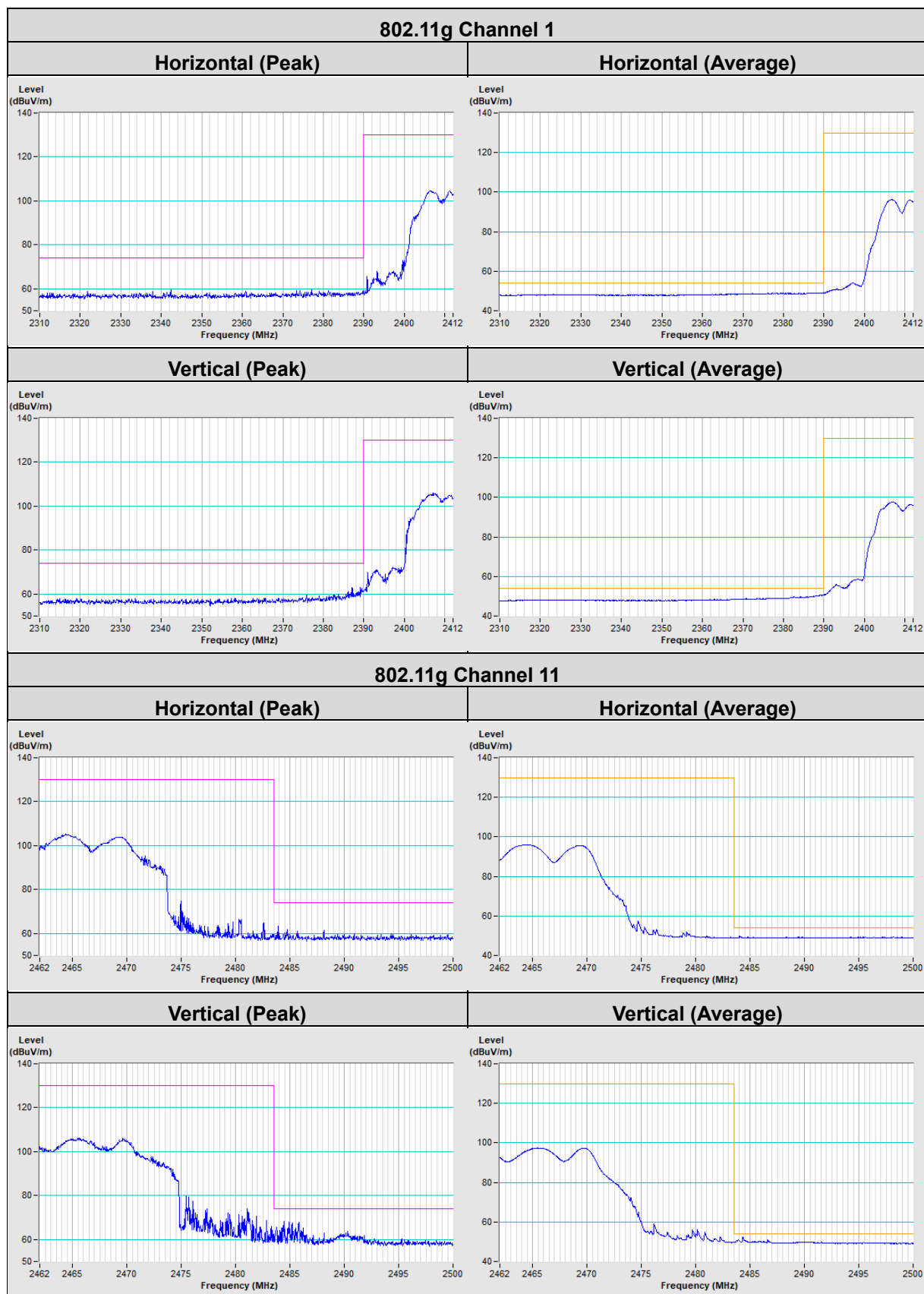
RF Mode	802.11ax (HE40)	Channel	CH 9 : 2452 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Karl Lee		

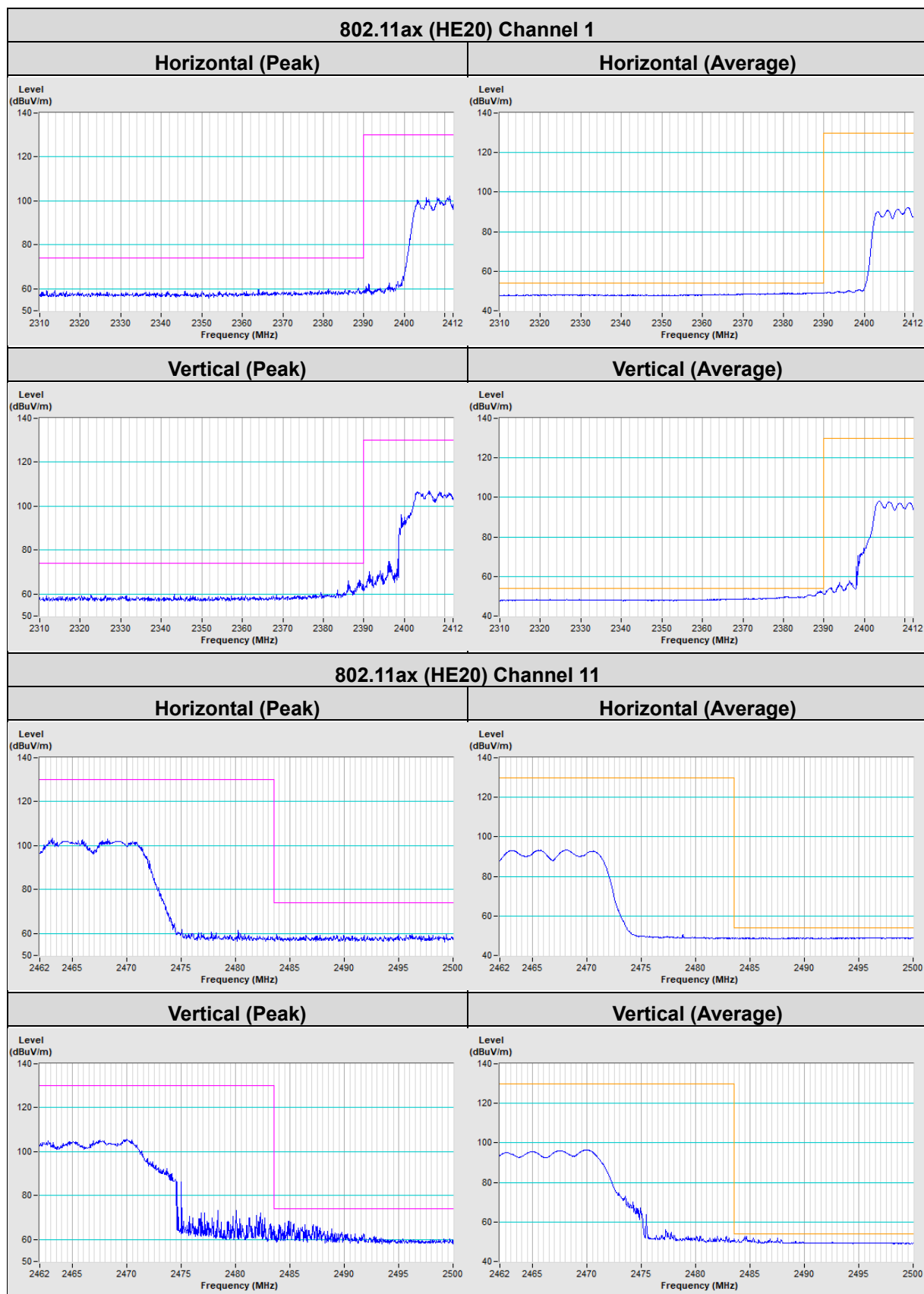
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.1 PK	74.0	-14.9	1.43 H	205	52.5	6.6
2	2390.00	49.3 AV	54.0	-4.7	1.43 H	205	42.7	6.6
3	*2452.00	105.0 PK			1.49 H	231	67.1	37.9
4	*2452.00	95.1 AV			1.49 H	231	57.2	37.9
5	2483.50	60.8 PK	74.0	-13.2	1.26 H	254	54.2	6.6
6	2483.50	50.1 AV	54.0	-3.9	1.26 H	254	43.5	6.6
7	4904.00	48.9 PK	74.0	-25.1	1.15 H	52	37.3	11.6
8	4904.00	41.5 AV	54.0	-12.5	1.15 H	52	29.9	11.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.4 PK	74.0	-13.6	2.74 V	235	53.8	6.6
2	2390.00	49.7 AV	54.0	-4.3	2.74 V	235	43.1	6.6
3	*2452.00	110.3 PK			2.73 V	267	72.4	37.9
4	*2452.00	99.6 AV			2.73 V	267	61.7	37.9
5	2483.50	64.0 PK	74.0	-10.0	2.86 V	267	57.4	6.6
6	2483.50	52.7 AV	54.0	-1.3	2.86 V	267	46.1	6.6
7	4904.00	50.2 PK	74.0	-23.8	1.92 V	159	38.6	11.6
8	4904.00	42.7 AV	54.0	-11.3	1.92 V	159	31.1	11.6

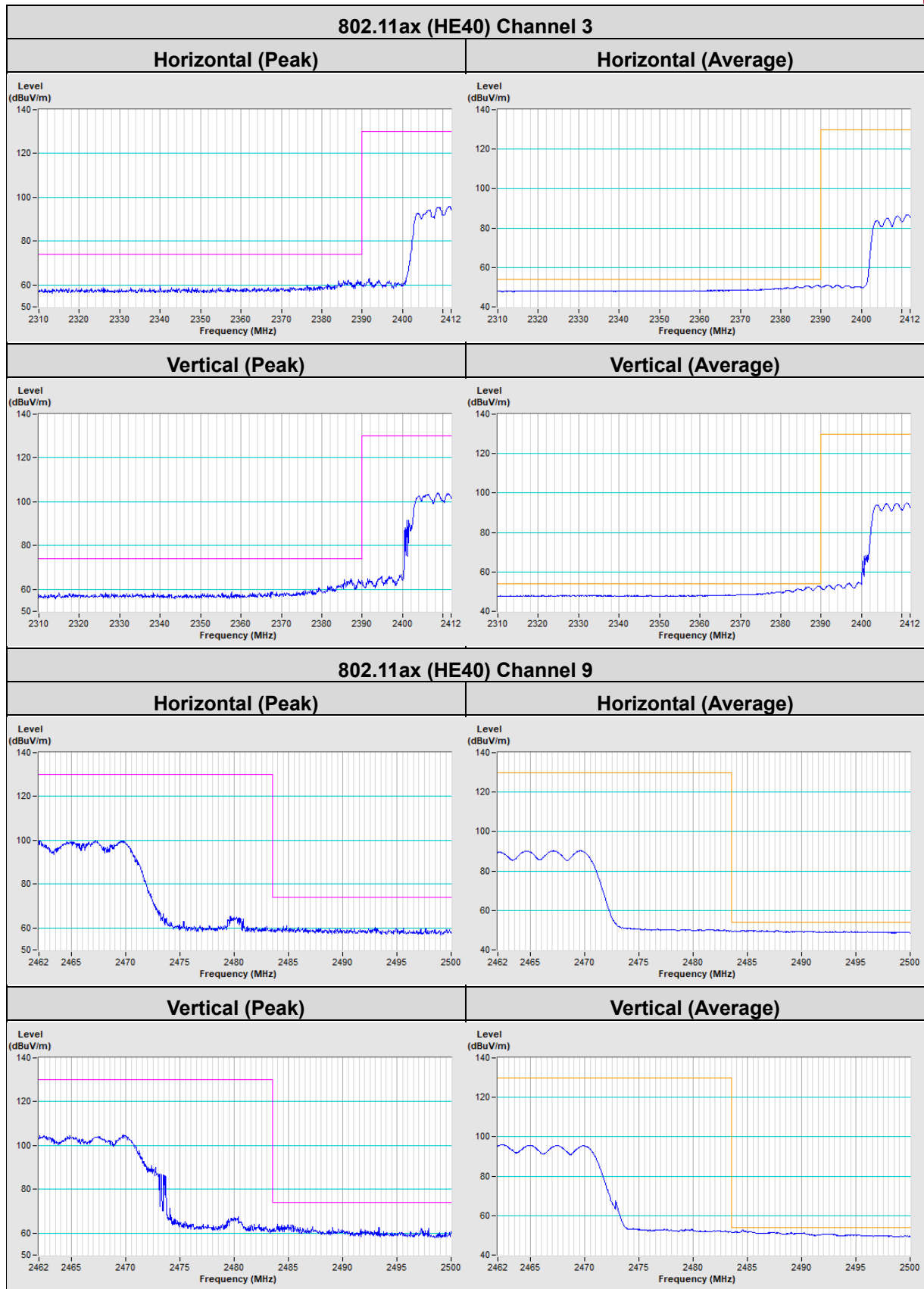
Remarks:

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









Test Mode C

Radio 3

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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	62.3 PK	74.0	-11.7	2.52 H	333	55.7	6.6
2	2390.00	52.6 AV	54.0	-1.4	2.52 H	333	46.0	6.6
3	*2412.00	111.3 PK			2.51 H	330	73.2	38.1
4	*2412.00	109.7 AV			2.51 H	330	71.6	38.1
5	4824.00	50.5 PK	74.0	-23.5	1.12 H	26	38.9	11.6
6	4824.00	43.3 AV	54.0	-10.7	1.12 H	26	31.7	11.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.0 PK	74.0	-14.0	2.04 V	244	53.4	6.6
2	2390.00	49.0 AV	54.0	-5.0	2.04 V	244	42.4	6.6
3	*2412.00	104.1 PK			2.04 V	244	66.0	38.1
4	*2412.00	102.1 AV			2.04 V	244	64.0	38.1
5	4824.00	50.4 PK	74.0	-23.6	1.16 V	329	38.8	11.6
6	4824.00	43.3 AV	54.0	-10.7	1.16 V	329	31.7	11.6

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	62.0 PK	74.0	-12.0	2.44 H	324	55.4	6.6
2	2390.00	51.6 AV	54.0	-2.4	2.44 H	324	45.0	6.6
3	*2437.00	119.6 PK			2.41 H	326	81.6	38.0
4	*2437.00	117.3 AV			2.41 H	326	79.3	38.0
5	2483.50	62.0 PK	74.0	-12.0	2.34 H	307	55.4	6.6
6	2483.50	52.1 AV	54.0	-1.9	2.34 H	307	45.5	6.6
7	4874.00	50.4 PK	74.0	-23.6	1.64 H	259	38.9	11.5
8	4874.00	43.1 AV	54.0	-10.9	1.64 H	259	31.6	11.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.8 PK	74.0	-14.2	2.34 V	244	53.2	6.6
2	2390.00	49.7 AV	54.0	-4.3	2.34 V	244	43.1	6.6
3	*2437.00	115.4 PK			2.38 V	244	77.4	38.0
4	*2437.00	113.1 AV			2.38 V	244	75.1	38.0
5	2483.50	60.7 PK	74.0	-13.3	2.39 V	233	54.1	6.6
6	2483.50	50.1 AV	54.0	-3.9	2.39 V	233	43.5	6.6
7	4874.00	50.6 PK	74.0	-23.4	1.95 V	146	39.1	11.5
8	4874.00	43.1 AV	54.0	-10.9	1.95 V	146	31.6	11.5

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	120.0 PK			2.24 H	326	82.1	37.9
2	*2462.00	117.5 AV			2.24 H	326	79.6	37.9
3	2483.50	63.5 PK	74.0	-10.5	2.55 H	311	56.9	6.6
4	2483.50	53.0 AV	54.0	-1.0	2.55 H	311	46.4	6.6
5	4924.00	50.5 PK	74.0	-23.5	2.41 H	181	38.8	11.7
6	4924.00	43.1 AV	54.0	-10.9	2.41 H	181	31.4	11.7
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	115.6 PK			1.16 V	338	77.7	37.9
2	*2462.00	113.1 AV			1.16 V	338	75.2	37.9
3	2483.50	62.2 PK	74.0	-11.8	1.18 V	335	55.6	6.6
4	2483.50	51.7 AV	54.0	-2.3	1.18 V	335	45.1	6.6
5	4924.00	50.4 PK	74.0	-23.6	1.51 V	49	38.7	11.7
6	4924.00	42.8 AV	54.0	-11.2	1.51 V	49	31.1	11.7

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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	65.3 PK	74.0	-8.7	2.51 H	330	58.7	6.6
2	2390.00	52.9 AV	54.0	-1.1	2.51 H	330	46.3	6.6
3	*2412.00	112.8 PK			2.51 H	330	74.7	38.1
4	*2412.00	104.1 AV			2.51 H	330	66.0	38.1
5	4824.00	50.3 PK	74.0	-23.7	1.05 H	227	38.7	11.6
6	4824.00	42.7 AV	54.0	-11.3	1.05 H	227	31.1	11.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.5 PK	74.0	-13.5	2.04 V	244	53.9	6.6
2	2390.00	49.6 AV	54.0	-4.4	2.04 V	244	43.0	6.6
3	*2412.00	107.1 PK			2.04 V	244	69.0	38.1
4	*2412.00	98.5 AV			2.04 V	244	60.4	38.1
5	4824.00	50.6 PK	74.0	-23.4	2.13 V	109	39.0	11.6
6	4824.00	43.2 AV	54.0	-10.8	2.13 V	109	31.6	11.6

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	66.3 PK	74.0	-7.7	2.29 H	296	59.7	6.6
2	2390.00	51.7 AV	54.0	-2.3	2.29 H	296	45.1	6.6
3	*2437.00	121.3 PK			2.41 H	326	83.3	38.0
4	*2437.00	112.5 AV			2.41 H	326	74.5	38.0
5	2483.50	67.9 PK	74.0	-6.1	2.51 H	332	61.3	6.6
6	2483.50	52.9 AV	54.0	-1.1	2.51 H	332	46.3	6.6
7	4874.00	51.0 PK	74.0	-23.0	1.49 H	237	39.5	11.5
8	4874.00	43.4 AV	54.0	-10.6	1.49 H	237	31.9	11.5
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	61.4 PK	74.0	-12.6	2.36 V	259	54.8	6.6
2	2390.00	49.7 AV	54.0	-4.3	2.36 V	259	43.1	6.6
3	*2437.00	116.0 PK			2.36 V	277	78.0	38.0
4	*2437.00	107.2 AV			2.36 V	277	69.2	38.0
5	2483.50	62.6 PK	74.0	-11.4	2.29 V	268	56.0	6.6
6	2483.50	49.7 AV	54.0	-4.3	2.29 V	268	43.1	6.6
7	4874.00	50.5 PK	74.0	-23.5	1.95 V	26	39.0	11.5
8	4874.00	43.2 AV	54.0	-10.8	1.95 V	26	31.7	11.5

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	115.2 PK			2.35 H	326	77.3	37.9
2	*2462.00	106.5 AV			2.35 H	326	68.6	37.9
3	2483.50	68.9 PK	74.0	-5.1	2.24 H	326	62.3	6.6
4	2483.50	52.7 AV	54.0	-1.3	2.24 H	326	46.1	6.6
5	4924.00	49.8 PK	74.0	-24.2	1.79 H	201	38.1	11.7
6	4924.00	42.4 AV	54.0	-11.6	1.79 H	201	30.7	11.7
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	110.9 PK			1.16 V	338	73.0	37.9
2	*2462.00	102.3 AV			1.16 V	338	64.4	37.9
3	2483.50	66.1 PK	74.0	-7.9	1.09 V	335	59.5	6.6
4	2483.50	52.0 AV	54.0	-2.0	1.09 V	335	45.4	6.6
5	4924.00	49.6 PK	74.0	-24.4	1.92 V	174	37.9	11.7
6	4924.00	42.1 AV	54.0	-11.9	1.92 V	174	30.4	11.7

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 1 : 2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	63.8 PK	74.0	-10.2	2.49 H	296	57.2	6.6
2	2390.00	52.8 AV	54.0	-1.2	2.49 H	296	46.2	6.6
3	*2412.00	112.1 PK			2.51 H	330	74.0	38.1
4	*2412.00	102.1 AV			2.51 H	330	64.0	38.1
5	4824.00	50.5 PK	74.0	-23.5	2.34 H	188	38.9	11.6
6	4824.00	42.7 AV	54.0	-11.3	2.34 H	188	31.1	11.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.1 PK	74.0	-13.9	2.04 V	244	53.5	6.6
2	2390.00	50.6 AV	54.0	-3.4	2.04 V	244	44.0	6.6
3	*2412.00	107.1 PK			2.04 V	244	69.0	38.1
4	*2412.00	97.3 AV			2.04 V	244	59.2	38.1
5	4824.00	49.2 PK	74.0	-24.8	1.06 V	311	37.6	11.6
6	4824.00	38.4 AV	54.0	-15.6	1.06 V	311	26.8	11.6

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	61.9 PK	74.0	-12.1	2.29 H	326	55.3	6.6
2	2390.00	52.8 AV	54.0	-1.2	2.29 H	326	46.2	6.6
3	*2437.00	121.2 PK			2.41 H	326	83.2	38.0
4	*2437.00	110.5 AV			2.41 H	326	72.5	38.0
5	2483.50	62.8 PK	74.0	-11.2	2.34 H	318	56.2	6.6
6	2483.50	52.9 AV	54.0	-1.1	2.34 H	318	46.3	6.6
7	4874.00	49.3 PK	74.0	-24.7	1.53 H	123	37.8	11.5
8	4874.00	41.8 AV	54.0	-12.2	1.53 H	123	30.3	11.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.5 PK	74.0	-14.5	2.35 V	265	52.9	6.6
2	2390.00	50.3 AV	54.0	-3.7	2.35 V	265	43.7	6.6
3	*2437.00	115.4 PK			2.36 V	277	77.4	38.0
4	*2437.00	105.3 AV			2.36 V	277	67.3	38.0
5	2483.50	60.2 PK	74.0	-13.8	2.28 V	256	53.6	6.6
6	2483.50	50.2 AV	54.0	-3.8	2.28 V	256	43.6	6.6
7	4874.00	49.1 PK	74.0	-24.9	1.63 V	292	37.6	11.5
8	4874.00	41.6 AV	54.0	-12.4	1.63 V	292	30.1	11.5

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	115.2 PK			2.24 H	326	77.3	37.9
2	*2462.00	104.1 AV			2.24 H	326	66.2	37.9
3	2483.50	61.3 PK	74.0	-12.7	2.24 H	334	54.7	6.6
4	2483.50	52.9 AV	54.0	-1.1	2.24 H	334	46.3	6.6
5	4924.00	49.6 PK	74.0	-24.4	1.82 H	63	37.9	11.7
6	4924.00	42.1 AV	54.0	-11.9	1.82 H	63	30.4	11.7
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	111.5 PK			1.16 V	338	73.6	37.9
2	*2462.00	101.7 AV			1.16 V	338	63.8	37.9
3	2483.50	61.4 PK	74.0	-12.6	1.07 V	325	54.8	6.6
4	2483.50	51.1 AV	54.0	-2.9	1.07 V	325	44.5	6.6
5	4924.00	49.7 PK	74.0	-24.3	2.16 V	142	38.0	11.7
6	4924.00	42.3 AV	54.0	-11.7	2.16 V	142	30.6	11.7

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 3 : 2422 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	64.2 PK	74.0	-9.8	2.50 H	328	57.6	6.6
2	2390.00	52.7 AV	54.0	-1.3	2.50 H	328	46.1	6.6
3	*2422.00	106.2 PK			2.51 H	330	68.2	38.0
4	*2422.00	97.7 AV			2.51 H	330	59.7	38.0
5	2483.50	60.1 PK	74.0	-13.9	2.51 H	330	53.5	6.6
6	2483.50	50.2 AV	54.0	-3.8	2.51 H	330	43.6	6.6
7	4844.00	49.7 PK	74.0	-24.3	1.34 H	115	38.2	11.5
8	4844.00	41.9 AV	54.0	-12.1	1.34 H	115	30.4	11.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.1 PK	74.0	-13.9	2.04 V	244	53.5	6.6
2	2390.00	50.1 AV	54.0	-3.9	2.04 V	244	43.5	6.6
3	*2422.00	99.6 PK			2.04 V	244	61.6	38.0
4	*2422.00	90.9 AV			2.04 V	244	52.9	38.0
5	2483.50	59.9 PK	74.0	-14.1	2.04 V	244	53.3	6.6
6	2483.50	49.8 AV	54.0	-4.2	2.04 V	244	43.2	6.6
7	4844.00	49.6 PK	74.0	-24.4	1.36 V	6	38.1	11.5
8	4844.00	41.7 AV	54.0	-12.3	1.36 V	6	30.2	11.5

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.
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 (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	65.5 PK	74.0	-8.5	2.50 H	328	58.9	6.6
2	2390.00	53.0 AV	54.0	-1.0	2.50 H	328	46.4	6.6
3	*2437.00	110.0 PK			2.51 H	330	72.0	38.0
4	*2437.00	101.6 AV			2.51 H	330	63.6	38.0
5	2483.50	66.2 PK	74.0	-7.8	2.61 H	63	59.6	6.6
6	2483.50	51.0 AV	54.0	-3.0	2.61 H	63	44.4	6.6
7	4874.00	49.7 PK	74.0	-24.3	1.16 H	35	38.2	11.5
8	4874.00	41.3 AV	54.0	-12.7	1.16 H	35	29.8	11.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.1 PK	74.0	-13.9	2.04 V	244	53.5	6.6
2	2390.00	50.0 AV	54.0	-4.0	2.04 V	244	43.4	6.6
3	*2437.00	103.2 PK			2.04 V	244	65.2	38.0
4	*2437.00	94.5 AV			2.04 V	244	56.5	38.0
5	2483.50	60.2 PK	74.0	-13.8	2.04 V	244	53.6	6.6
6	2483.50	50.2 AV	54.0	-3.8	2.04 V	244	43.6	6.6
7	4844.00	49.6 PK	74.0	-24.4	1.78 V	8	38.1	11.5
8	4844.00	41.5 AV	54.0	-12.5	1.78 V	8	30.0	11.5

Remarks:

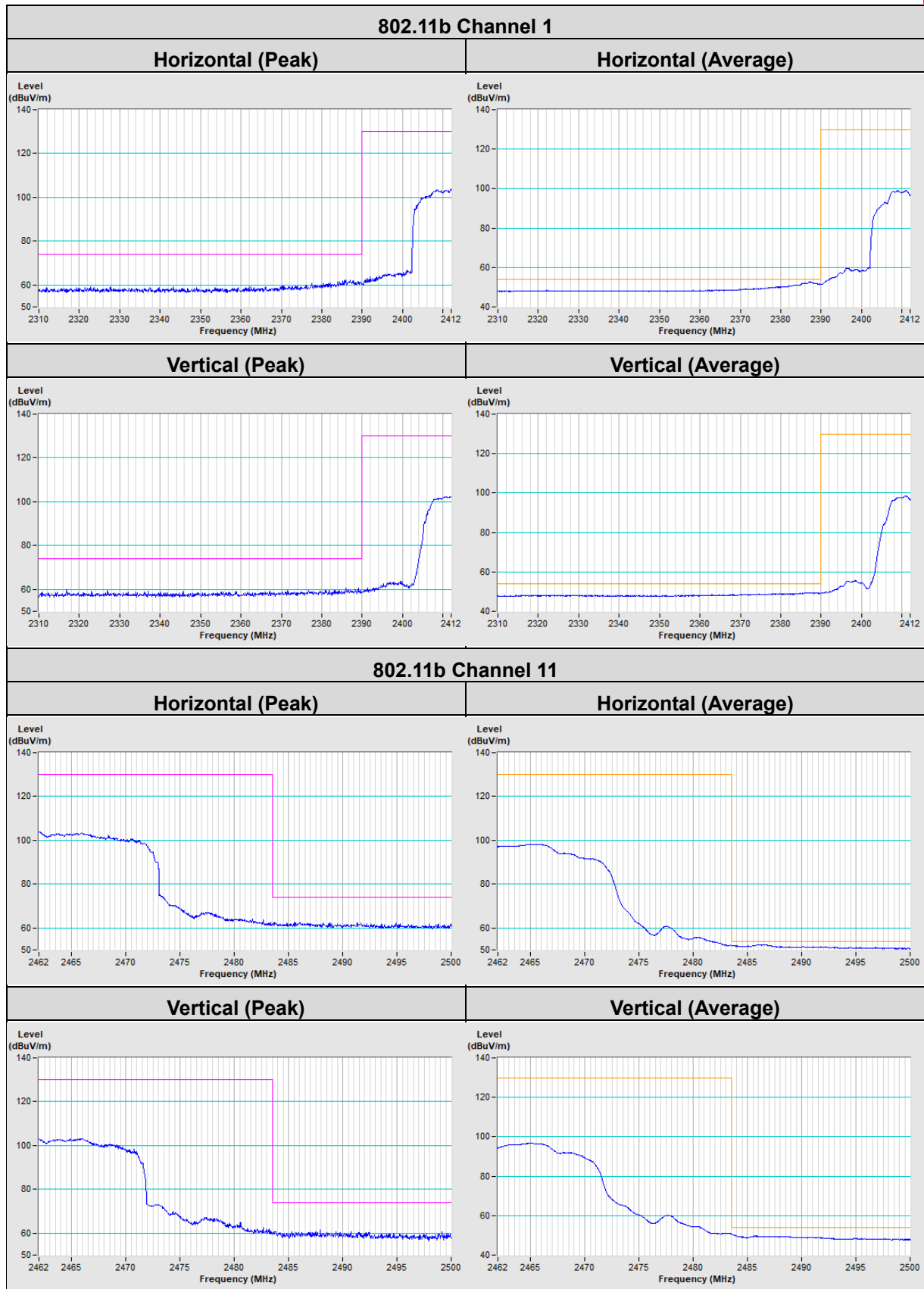
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency,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

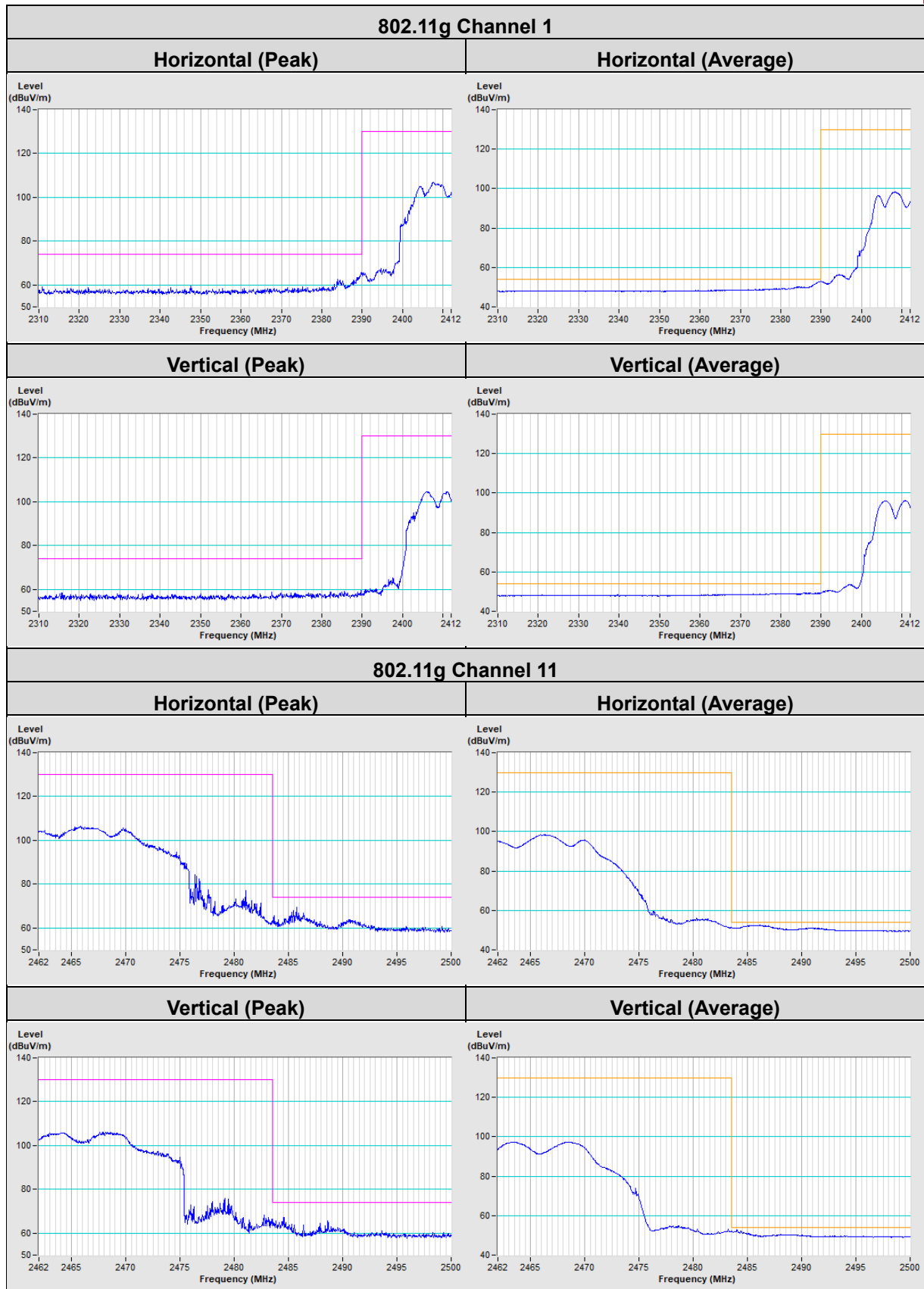
RF Mode	802.11ax (HE40)	Channel	CH 9 : 2452 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

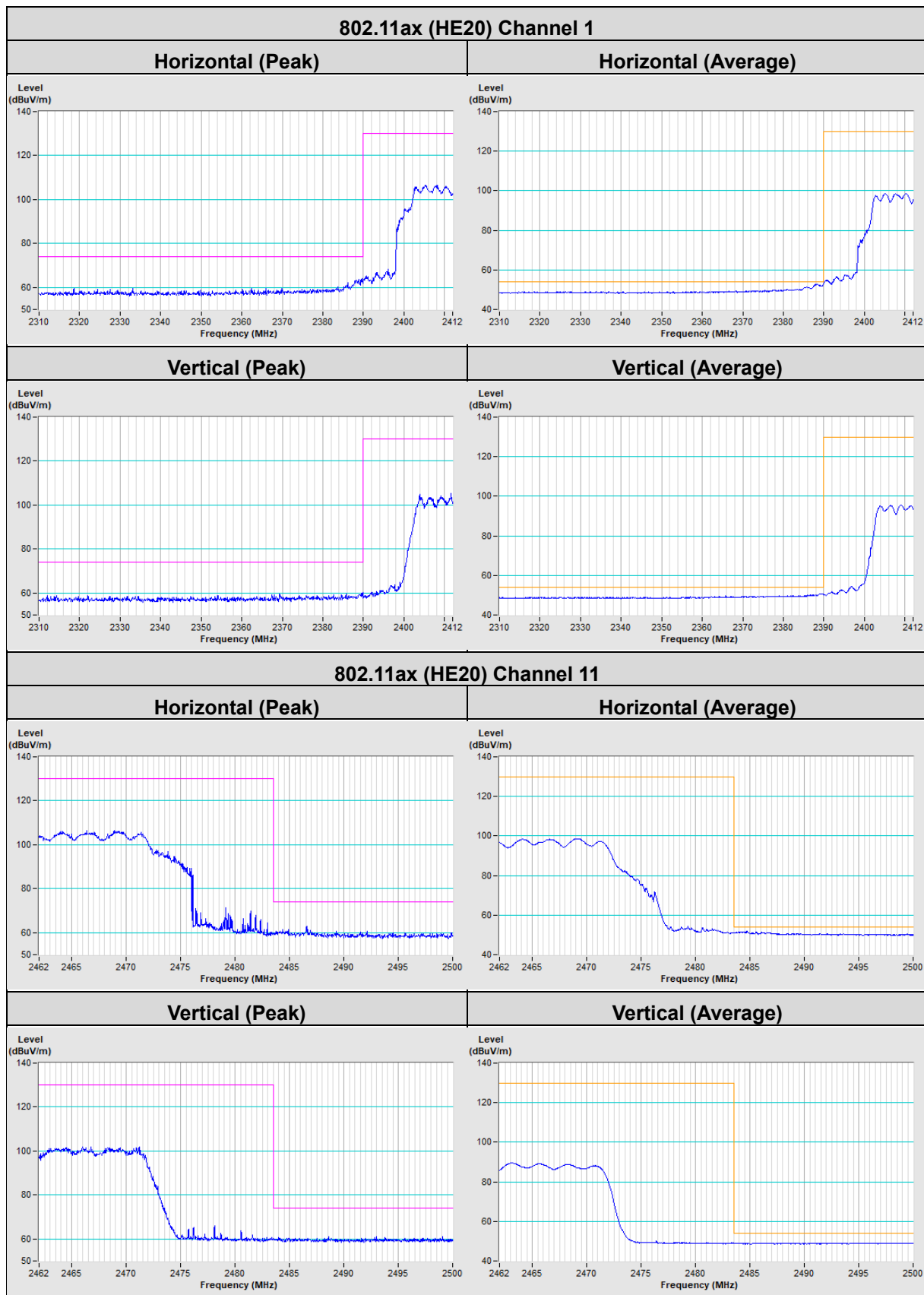
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.0 PK	74.0	-14.0	2.51 H	330	53.4	6.6
2	2390.00	49.9 AV	54.0	-4.1	2.51 H	330	43.3	6.6
3	*2452.00	108.8 PK			2.51 H	330	70.9	37.9
4	*2452.00	99.5 AV			2.51 H	330	61.6	37.9
5	2483.50	68.2 PK	74.0	-5.8	2.28 H	57	61.6	6.6
6	2483.50	52.6 AV	54.0	-1.4	2.28 H	57	46.0	6.6
7	4904.00	49.8 PK	74.0	-24.2	1.11 H	141	38.2	11.6
8	4904.00	42.1 AV	54.0	-11.9	1.11 H	141	30.5	11.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.2 PK	74.0	-13.8	2.04 V	244	53.6	6.6
2	2390.00	50.0 AV	54.0	-4.0	2.04 V	244	43.4	6.6
3	*2452.00	101.7 PK			2.04 V	244	63.8	37.9
4	*2452.00	92.3 AV			2.04 V	244	54.4	37.9
5	2483.50	60.0 PK	74.0	-14.0	2.04 V	244	53.4	6.6
6	2483.50	49.8 AV	54.0	-4.2	2.04 V	244	43.2	6.6
7	4904.00	49.7 PK	74.0	-24.3	1.63 V	328	38.1	11.6
8	4904.00	41.8 AV	54.0	-12.2	1.63 V	328	30.2	11.6

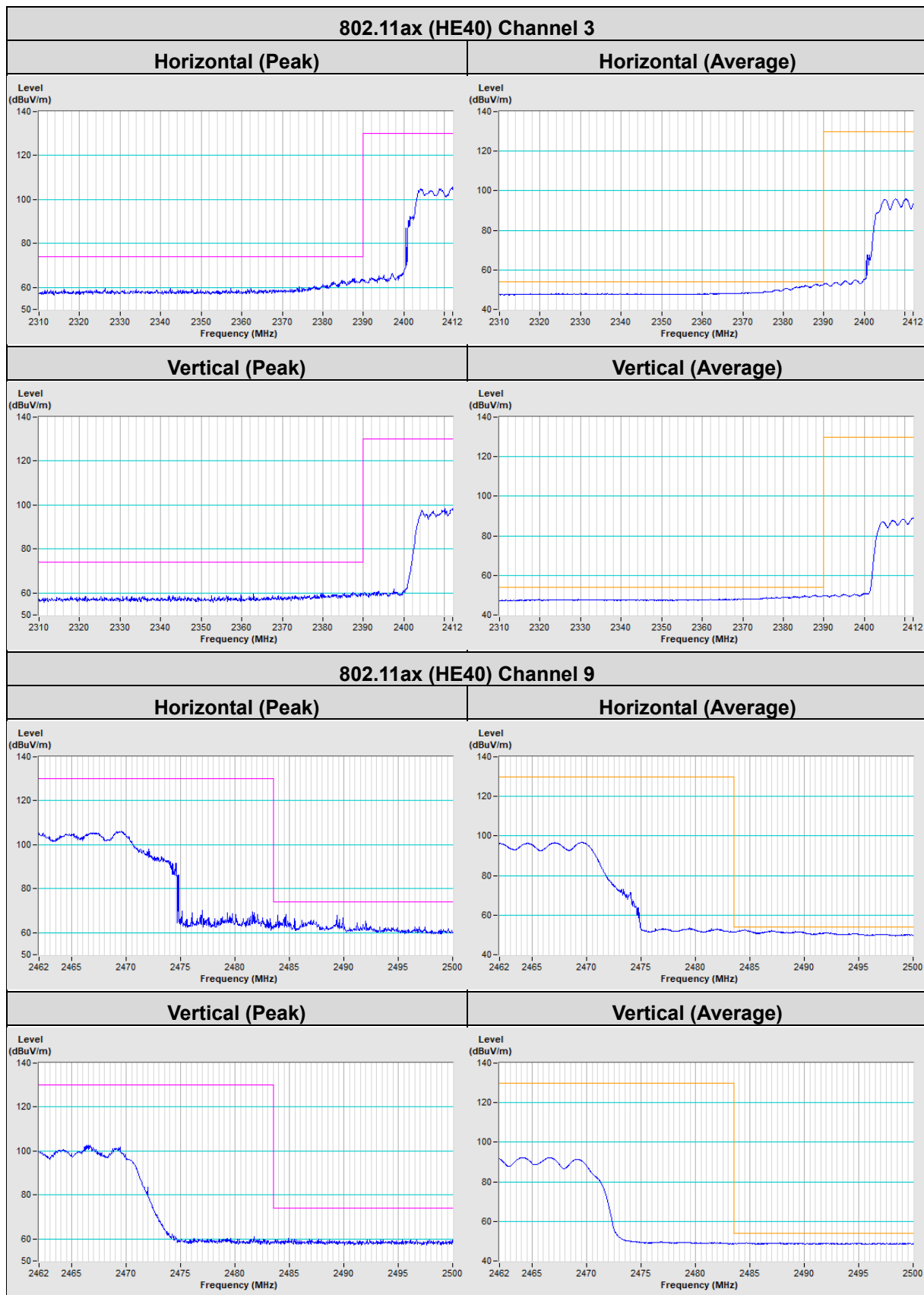
Remarks:

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









8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

9 Information of the Testing Laboratories

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

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

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

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